File No. 260079 **Committee Item No.** 1
Board Item No. _____

COMMITTEE/BOARD OF SUPERVISORS

AGENDA PACKET CONTENTS LIST

Committee: Land Use and Transportation **Date:** March 2, 2026
Board of Supervisors Meeting: **Date:** _____

Cmte Board

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OTHER

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☒	☐	Minor Project Modification
☒	☐	FEIR, Addendum 1 and 2, Attachments A and B - EIR Appendices
☒	☐	SFPUC Cover Letter – January 16, 2026
☐	☐	
☐	☐	
☐	☐	
☐	☐	

Prepared by: John Carroll **Date:** February 26, 2026
Prepared by: _____ **Date:** _____
Prepared by: _____ **Date:** _____

[Grant of Easement - Pacific Gas and Electric Company - 1800 Jerrold Avenue - Southeast Water Pollution Control Plant - At No Cost]

Resolution approving and authorizing a grant of a permanent easement on San Francisco Public Utilities Commission's (SFPUC) property located at 1800 Jerrold Avenue (Assessor's Parcel Block No. 5262, Lot No. 009), consisting of an easement of approximately 2,944-square-feet of land within SFPUC's Southeast Water Pollution Control Plant, between the City and Pacific Gase & Electric (PG&E), for the purpose of replacing and relocating SFPUC's existing solids treatment facilities at its Southeast Water Pollution Control Plant with more reliable, efficient, and modern technologies and facilities, at no cost for a term effective upon approval of this Resolution and recordation of the agreement by the City's Office of the Assessor Recorder, pursuant to Charter, Section 9.118, and until PG&E surrenders or abandons the easement area or the agreement is terminated; determining that the grant of the easement at no cost will serve a public purpose by delivering an increased natural gas supply to SFPUC's existing Southeast Water Pollution Control Plant and its new biosolids digesters facilities, in accordance with Administrative Code, Section 23.30; adopting findings of consistency with the General Plan, and the eight priority policies of Planning Code, Section 101.1; and authorizing the Director of Property to execute documents, make certain modifications and take certain actions in furtherance of this Resolution, as defined herein.

WHEREAS, The San Francisco Public Utilities Commission (the SFPUC) has developed the Biosolids Digesters Facilities Project (Project) to replace and relocate the

SFPUC's existing solids treatment facilities at its Southeast Water Pollution Control Plant (the SEP) with more reliable, efficient, and modern technologies and facilities; and

WHEREAS, The Pacific Gas and Electric Company (PG&E) currently supplies natural gas to the SEP; and

WHEREAS, The Project requires a new PG&E connection to deliver an increased natural gas supply to serve the existing SEP and the new biosolids digesters facilities; and

WHEREAS, To accomplish this new connection and increased gas supply, PG&E requires a new natural gas meter station, consisting of aboveground piping and pipe supports enclosed by a perimeter fence; and

WHEREAS, PG&E, in coordination with the SFPUC, designed the new natural gas meter station (the PG&E Facilities) to be located on SFPUC property within the SEP, adjacent to Jerrold Avenue, northwest of the intersection of Jerrold Avenue and Quint Street; and

WHEREAS, The PG&E Facilities would be constructed, owned, and operated by PG&E, and would serve the SFPUC exclusively; and

WHEREAS, When PG&E infrastructure cannot be placed in a public right-of-way or public utility easement, PG&E requires that the requesting party grant an easement to PG&E for the right to excavate for, construct, reconstruct, replace, remove, maintain, inspect, and use facilities, along with associated equipment, for public utility purposes at no cost to PG&E; and

WHEREAS, To facilitate the Project, the SFPUC seeks to grant an approximately 2,944-square-foot easement to PG&E for the PG&E Facilities (the Easement); and

WHEREAS, SFPUC staff, through consultation with the Office of the City Attorney, negotiated a form of Easement Deed with PG&E to excavate for, construct, reconstruct,

replace, remove, maintain, inspect, and use facilities and associated equipment for public utility purposes (Easement Deed); and

WHEREAS, The Easement Deed must be fully executed and recorded prior to the commencement of any work to construct and install the PG&E Facilities; and

WHEREAS, The conveyance of the Easement will be at no cost to PG&E, and thus requires a Board of Supervisors finding that the Easement furthers a proper public purpose sufficient to meet the requirements of Administrative Code, Section 23.30, market value requirements; and

WHEREAS, On March 8, 2018, by Motion No. M-20129, the San Francisco Planning Commission (the Planning Commission) certified the Biosolids Digester Facilities Project Final Environmental Impact Report (Final EIR) (Case No. 2015-000644ENV), prepared pursuant to the California Environmental Quality Act (CEQA); and

WHEREAS, On March 13, 2018, by Resolution No. 18-0042, the Planning Commission adopted the CEQA Findings, including the Statement of Overriding Considerations and the Mitigation Monitoring and Reporting Program, as required by the CEQA, and approved the Project; and

WHEREAS, On July 12, 2024, the San Francisco Planning Department (the Planning Department) issued Addendum 1 to the Final EIR (Modified Case No. 2015-000644ENV-03) to include a biogas utilization system in the Project; and

WHEREAS, On October 22, 2024, by Resolution No. 24-0223, the SFPUC approved Contract No. DB-138, Southeast Treatment Plant Biogas Utilization Project to construct the biogas utilization system; and

WHEREAS, On December 20, 2024, the Planning Department issued Addendum 2 to the Final EIR (Modified Case No. 2015-000644ENV-02); and

WHEREAS, On August 7, 2025, through a General Plan Referral Note to File, the Planning Department found that the Easement is consistent with the eight priority policies of Planning Code, Section 101.1, and is in conformity with the San Francisco General Plan (General Plan Findings), as originally determined on March 12, 2018, through Case No. 2015-000644GPR; and

WHEREAS, On November 11, 2025, the Planning Department issued a Minor Project Modification to the Project for installation of a new PG&E meter station within the SEP and approximately 200 feet of new underground pipeline along Jerrold Avenue connecting the meter station to PG&E's existing natural gas transmission line near the corner of Jerrold and Quint Street, having determined that no additional supplemental environmental review was needed; and

WHEREAS, The facilities and activities in the Easement Deed are within the scope of the Project authorized under the Final EIR and the Addendums and Minor Project Modification to the Final EIR; and

WHEREAS, The proposed Easement Deed contained in File No. 260079, is substantially in its final form, with all material terms and conditions included, and only remains to be executed by the parties upon approval of this Resolution; and

WHEREAS, On January 13, 2026, by Resolution No. 260-006, the SFPUC Commission approved the terms and conditions of the Easement Deed and authorized the Director of Property to execute the Easement Deed with PG&E for the Easement, pursuant to Charter, Section 9.118; now, therefore, be it

RESOLVED, That the Board of Supervisors hereby adopts the General Plan Findings and CEQA Findings concerning the Easement; and, be it

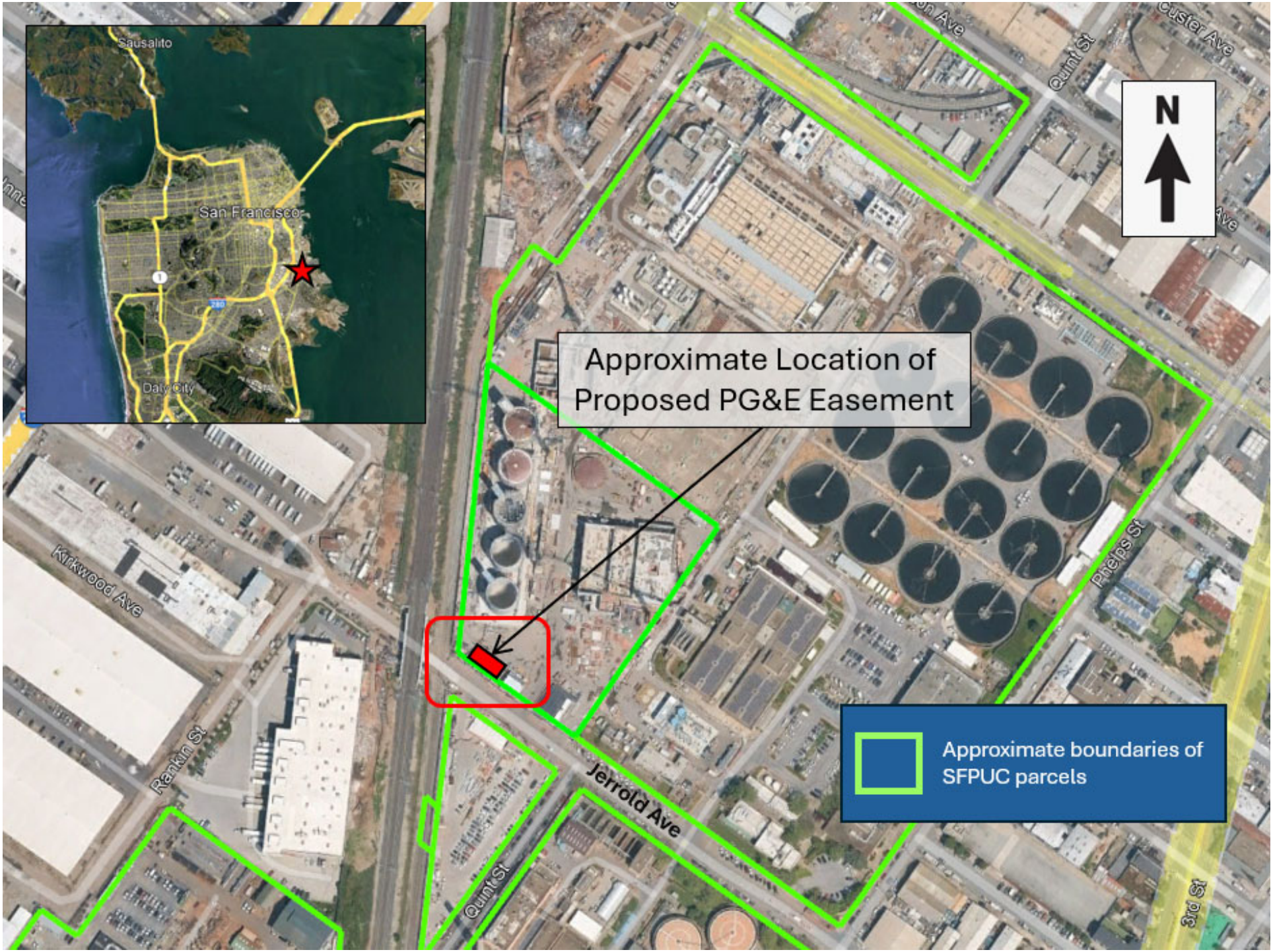
FURTHER RESOLVED, That the Board of Supervisors herby approves the terms and conditions of the Easement Deed and authorizes and directs the Director of Property to execute the Easement Deed pursuant to Charter, Section 9.118; and, be it

FURTHER RESOLVED, That the Board of Supervisors confirms that the Easement furthers a proper public purpose sufficient to meet the requirements of San Francisco Administrative Code, Section 23.30, market value requirements; and, be it

FURTHER RESOLVED, That the Board of Supervisors hereby authorizes the Director of Property to enter into any amendments or modifications to the Easement Deed (including, without limitation, the attached exhibits) that the Director of Property determines, in consultation with the City Attorney, are in the best interest of the City; do not otherwise materially diminish the benefits to the City or increase the obligations or liabilities of the City, are necessary or advisable to effectuate the purposes and intent of the Easement Deed or this Resolution and are in compliance with all applicable laws, including the City's Charter; and, be it

FURTHER RESOLVED, That the Director of Property is hereby authorized and urged, in the name and on behalf of the City and County of San Francisco, to take any and all steps (including, but not limited to, the execution and delivery of any and all certificates, agreements, notices, consents, escrow instructions, closing documents and other instruments or documents) as the Director of Property deems necessary or appropriate in order to consummate the conveyance of the Easement pursuant to the Easement Deed, or to otherwise effectuate the purpose and intent of this Resolution, such determination to be conclusively evidenced by the execution and delivery by the Director of Property of any such documents; and, be it

FURTHER RESOLVED, That within thirty (30) days of the Easement Deed being fully executed by all parties, the General Manager of the SFPUC shall provide the final Easement Deed to the Clerk of the Board for inclusion in the official file.


Sausalito
San Francisco
Daly City
N
Approximate Location of Proposed PG&E Easement
Approximate boundaries of SFPUC parcels
Kirkwood Ave
Rankin St
Jerrold Ave
Quint St
Phelps St
3rd St
Custer Ave

RECORDING REQUESTED BY AND RETURN TO:

PACIFIC GAS AND ELECTRIC COMPANY
300 Lakeside Drive, Suite 210
Oakland, CA 94612
Attn: Land Rights Library

WITH COPIES TO:

San Francisco Public Utilities Commission
Real Estate Services Division
525 Golden Gate Avenue, 10th Floor
San Francisco, California 94102
Attn: Real Estate Director

and

Real Estate Division
City and County of San Francisco
25 Van Ness Avenue, Suite 400
San Francisco, California 94102
Attn: Director of Property

Location: City/Uninc_____
Recording Fee $_____
Document Transfer Tax $ _____
[ ] This is a conveyance where the consideration and Value is less than $100.00 (R&T 11911).
[ ] Computed on Full Value of Property Conveyed, or
[ ] Computed on Full Value Less Liens & Encumbrances Remaining at Time of Sale
[ ] Exempt from the fee per GC 27388.1 (a) (2); This document is subject to Documentary Transfer Tax

_____
Signature of declarant or agent determining tax

(SPACE ABOVE FOR RECORDER'S USE ONLY)

2025093 (01-25-032) 7 25 1
S-1426 L-132 MP 49.58 SFPUC Biosolids Facilities Meter

Exclusive Utility Easement

CITY AND COUNTY OF SAN FRANCISCO ("**Grantor**" or "**City**"), through its Public Utilities Commission ("**SFPUC**"), a municipal corporation, in consideration of value paid by PACIFIC GAS AND ELECTRIC COMPANY, a California corporation ("**Grantee**" or "**PG&E**"), the receipt of which is hereby acknowledged, grants to Grantee an exclusive easement and the right to excavate for, construct, reconstruct, replace (of the initial or any other size), remove, maintain, inspect, and use facilities and associated equipment for public utility purposes, including, but not limited to electric, gas, and communication facilities, together with a right of way, on, over, and under the easement area described below, and the right, as Grantee shall from time to time deem necessary to discharge gas into the atmosphere, and to pave and enclose with a fence the easement area, lying within the Grantor's lands ("**Grantor's Lands**") situated in the City of San Francisco, County of San Francisco, State of California, and described as follows:

(APN 5262-009)

The parcel of land described and designated LANDS in EXHIBIT "A" attached hereto and made a part hereof.

The easement area is described as follows:

The parcel of land described and designated EASEMENT AREA in Exhibit "A" and shown upon Exhibit "B" attached hereto and made a part hereof. Grantee shall have the right to use such unimproved lands contiguous to the easement area as may be reasonably necessary in connection with the excavation, construction, reconstruction, replacement, removal, maintenance, and inspection of the facilities.

Grantor further grants to Grantee:

(a) the right of ingress to and egress from the easement area over and across Grantor's Lands by means of roads and lanes thereon, if such there be, otherwise by such route or routes as shall occasion the least practicable damage and inconvenience to Grantor, provided, that such right of ingress and egress shall not extend to any portion of the lands which is isolated from the easement area by any public road or highway, now crossing or hereafter crossing the lands.

(b) the right, from time to time, to trim or to cut down, without Grantee paying compensation, any and all trees, roots, brush, vines, and to remove any associated supporting structures now or hereafter within the easement area, and shall have the further right, from time to time, to trim and cut down trees, roots, brush, and vines outside of the easement area which now or hereafter in the opinion of Grantee may interfere with or be a hazard to the facilities installed

hereunder, or as Grantee deems necessary to comply with applicable state or federal regulations.

Grantee covenants and agrees:

(a) to promptly backfill any excavations made by it on the easement area.

(b) to repair any damage to the lands caused by Grantee as a result of exercising its right of ingress and egress granted herein.

(c) to indemnify Grantor against any loss and damage which shall be caused by any wrongful or negligent act or omission of Grantee or of its agents or employees in the course of their employment, provided, however, that this indemnity shall not extend to that portion of such loss or damage that shall have been caused by Grantor's comparative negligence or willful misconduct.

(d) not to bring Hazardous Material upon, keep, use, store, generate or dispose of in, on or about the easement area, or transported to or from the easement area, except as reasonably necessary to perform the activities authorized by this Easement. Grantee shall immediately notify the Grantor when Grantee learns of, or has reason to believe that, a release of Hazardous Material has occurred in, on or about the easement area. Grantee shall further comply with all laws requiring notice of such releases or threatened releases to governmental agencies, and shall take all action necessary to mitigate the release or minimize the spread of contamination. In the event that Grantee or its agents or invitees cause a release of Hazardous Material, Grantee shall, without cost to Grantor and in accordance with all laws and regulations, return the easement area to the condition immediately prior to the release. For purposes hereof, "**Hazardous Material**" means material that "hazardous substance" pursuant to Section 25316 of the California Health & Safety Code; a "hazardous waste" listed pursuant to Section 25140 of the California Health & Safety Code. The term "release" or "threatened release" when used with respect to Hazardous Material shall include any actual or imminent spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing in, on, under or about the easement area.

(e) to maintain, at its sole cost, the easement area in a good, clean, safe, secure, sanitary and orderly condition, so far as the easement area may be affected by Grantee's activities hereunder.

(f) to bear all costs or expenses of any kind or nature in connection with its use of the easement area, and shall keep the easement area free and clear of any liens or claims of lien arising out of or in any way connected with its use of the easement area.

(g) Grantee's non-use of the easement area for a continuous period of five years shall be conclusive evidence of abandonment, provided, i) Grantor shall first give Grantee written notice of its intent to terminate based on abandonment and Grantee shall have no less than ninety (90) days' to object, and ii) all deactivated facilities within said easement area have been abandoned to Grantee's current standards. If Grantee fails to demonstrate non-abandonment of the easement area during the ninety (90) day period, this easement will terminate and Grantee shall, upon Grantor's written request and expense, execute and deliver a quitclaim deed or other instrument removing this easement from title. In the event that Grantor elects to relocate or remove the facilities, Grantor shall be responsible for all costs of relocation or removal in accordance with

PG&E's current Tariffs, up to and including the transmission service and main tap. Grantee's use of less than all of the easement area or its intended use, regardless of duration, shall not be considered abandoned. Natural disasters, acts of war, or other circumstances beyond Grantee's reasonable control shall not be deemed abandoned or considered in calculating any period of abandonment.

Grantor hereby covenants and agrees not to place or construct, nor allow a third party to place or construct, any building or other structure, or store flammable substance, or drill or operate any well, or construct any reservoir or other obstruction within the easement area, or diminish or substantially add to the ground level within the easement area, or grant any easement or other use on, over, or under the easement area.

Grantee's primary access to the easement area shall be from the adjacent public right of way known currently as Jerrold Avenue. Grantee's secondary access, if needed, shall be through Grantor's Lands. When utilizing its secondary access, Grantee shall only access the easement area by such streets as now or hereafter exist or, in the absence of any paved streets, by such route or routes as shall occasion the least injury to the adjoining property, as will be mutually agreed to by the parties.

This document may be executed in multiple counterparts, each of which shall be deemed an original, but all of which, together, shall constitute one and the same instrument.

Exhibit "C" containing City's General Real Property Contract Conditions is incorporated into and made a part of this easement agreement between PG&E and City.

Notices:.

Except as otherwise expressly provided herein, any notice given under this easement agreement shall be effective only if in writing and given by delivering the notice in person, by sending it first class mail or certified mail, with a return receipt requested, or overnight courier, return receipt requested, with postage prepaid, addressed as follows:

If to **City**:

Real Estate Division
25 Van Ness Avenue, Suite 400
San Francisco, CA 94102
Attn: Director of Property
Re: R-2026 SFPUC Biosolids Facilities Meter, Jerrold Ave

and:

Real Estate Services Division
San Francisco Public Utilities Commission
525 Golden Gate Avenue, 10th Floor
San Francisco, CA 94102
Attn: Real Estate Director
Re: R-2026 SFPUC Biosolids Facilities Meter, Jerrold Ave

If to **PG&E**:

Pacific Gas and Electric Company
Land Management
300 Lakeside Drive, Suite 210
Oakland, CA 94612
Attn: Land Rights Library
Re: R-2026 SFPUC Biosolids Facilities Meter, Jerrold Ave

With a copy to:

Pacific Gas and Electric Company
Law Department
P.O. Box 1018
Oakland, CA 94612-9991
Attn: Managing Counsel, Law Regulatory
Re: R-2026 SFPUC Biosolids Facilities Meter, Jerrold Ave

Notices herein shall be deemed given two (2) business days after the date when it was mailed if sent by first class, certified or overnight courier, or upon the date personal delivery is made.

PG&E **s**hall immediately notify the SFPUC's Wastewater Enterprise Southeast Treatment Plant Chief's Office by telephone at 415-920-4700 of any emergency or incident requiring emergency response.

The provisions hereof shall inure to the benefit of and bind the successors and assigns of the respective parties hereto, and all covenants shall apply to and run with the land.

General Provisions:

(a) This easement agreement may be amended or modified only in writing signed by City and PG&E and recorded in the Official Records of San Francisco County. (b) No waiver by any party of any of the provisions of this easement agreement shall be effective unless in writing and signed by an officer or other authorized representative, and only to the extent expressly provided in such written waiver. (c) All approvals and determinations of City requested, required or permitted hereunder may be made in the sole and absolute discretion of the SFPUC's General Manager or other authorized City official. (d) This instrument (including any exhibit hereto) contains the entire agreement between the parties and all prior written or oral negotiations, discussions, understandings and agreements are merged herein. (e) The section and other headings of this easement agreement are for convenience of reference only and shall be disregarded in the interpretation of this easement agreement. (f) Time is of the essence. (g) This easement agreement shall be governed by California law and the City's Charter. (h) Subject to the prohibition against assignments or other transfers by PG&E hereunder, this easement agreement shall be binding upon and inure to the benefit of the parties and their respective heirs,

representatives, successors and assigns.

NOTWITHSTANDING ANYTHING TO THE CONTRARY CONTAINED IN THIS EASEMENT AGREEMENT, PG&E ACKNOWLEDGES AND AGREES THAT NO OFFICER OR EMPLOYEE OF CITY HAS AUTHORITY TO COMMIT CITY TO THIS AGREEMENT UNLESS AND UNTIL A RESOLUTION OF CITY'S BOARD OF SUPERVISORS SHALL HAVE BEEN DULY ENACTED APPROVING THIS AGREEMENT AND AUTHORIZING THE TRANSACTIONS CONTEMPLATED HEREBY. THEREFORE, ANY OBLIGATIONS OR LIABILITIES OF CITY HEREUNDER ARE CONTINGENT UPON THE DUE ENACTMENT OF SUCH A RESOLUTION, AND THIS AGREEMENT SHALL BE NULL AND VOID IF CITY'S BOARD OF SUPERVISORS AND MAYOR DO NOT APPROVE THIS EASEMENT AGREEMENT IN THEIR RESPECTIVE SOLE DISCRETION. APPROVAL OF THE TRANSACTIONS CONTEMPLATED HEREBY BY ANY DEPARTMENT, COMMISSION OR AGENCY OF CITY SHALL NOT BE DEEMED TO IMPLY THAT SUCH RESOLUTION WILL BE ENACTED NOR WILL ANY SUCH APPROVAL CREATE ANY BINDING OBLIGATIONS ON CITY.

[Signatures on following page.]

Dated _____, 20_____.

PG&E: PACIFIC GAS AND ELECTRIC COMPANY,
a California corporation

By: _____
Stephen Hughes
Supervisor, Land Rights

CITY: CITY AND COUNTY OF SAN FRANCISCO,
a municipal corporation

By: _____
Sarah R. Oerth
Director of Property

RECOMMENDED:

By: _____
Dennis J. Herrera, General Manager
San Francisco Public Utilities Commission

APPROVED AS TO FORM:

DAVID CHIU,
City Attorney

By: _____
Nancy Taylor
Deputy City Attorney

DESCRIPTION CHECKED/APPROVED:

By: _____
R. Edward Peterson
Chief Surveyor

Exhibit “A”

Description of Grantor’s Lands and Easement Area

[attached]

LD 2302-05-10144
2025093 (01-25-032) 12 25 1
S-1426 L-132 MP 49.58 SFPUC Biosolids Facilities Meter

EXHIBIT "A"

LANDS

Lots 33, 34, 35, and 36 in Block 181 as shown upon the map entitled "Plan of the O'Neill and Haley Tracts" filed for record January 31, 1867 and recorded in Map Book "2, A & B" at page 27, San Francisco County Records.

EASEMENT AREA

Commencing at the most southerly corner of PARCEL B as described in the joint deed from Southern Pacific Company, a Delaware corporation, to the City and County of San Francisco, a municipal corporation, dated May 14, 1948 and recorded in Liber 4990 of Official Records at page 257, San Francisco county records and running thence:

(a) south 54°28'21" east, along the northeasterly line of Jerrold Ave, 21.35 feet to the **TRUE POINT OF BEGINNING**; thence leaving said northeasterly line of Jerrold Ave at a right angle
(1) north 35°31'39" east, 32.00 feet; thence
(2) south 54°28'21" east, 92.00 feet; thence
(3) south 35°31'39" west, 32.00 feet to a point on the northeasterly line of Jerrold Ave; thence
(4) north 54°28'21" west along said northeasterly line of Jerrold Ave 92.00 feet to the true point of beginning.

Containing an area of 2,944 square feet, more or less.

The foregoing description is based on a survey performed by Mark Thomas and Company in June 2025. The basis of bearings used is based on the monument line on Jerrold Avenue between Rankin Street and Phelps Street held as S 54°28'21" E as shown on Record of Survey No. 8848 filed for record August 28, 2020 in Book JJ of Survey Maps at pages 4-8, San Francisco County Records. The monument line was established by holding SF MID 35532 on Rankin Street shown on said Record of Survey No. 8848 and a cut cross on the southeasterly curb line of Phelps Street shown on the Parcel Map filed for record July 8, 1980 in Book 16 of Parcel Maps at page 29.

Exhibit A Prepared By:
Pacific Gas & Electric Company

12/10/2025
Andrew E. Lam, PLS 9397 Date

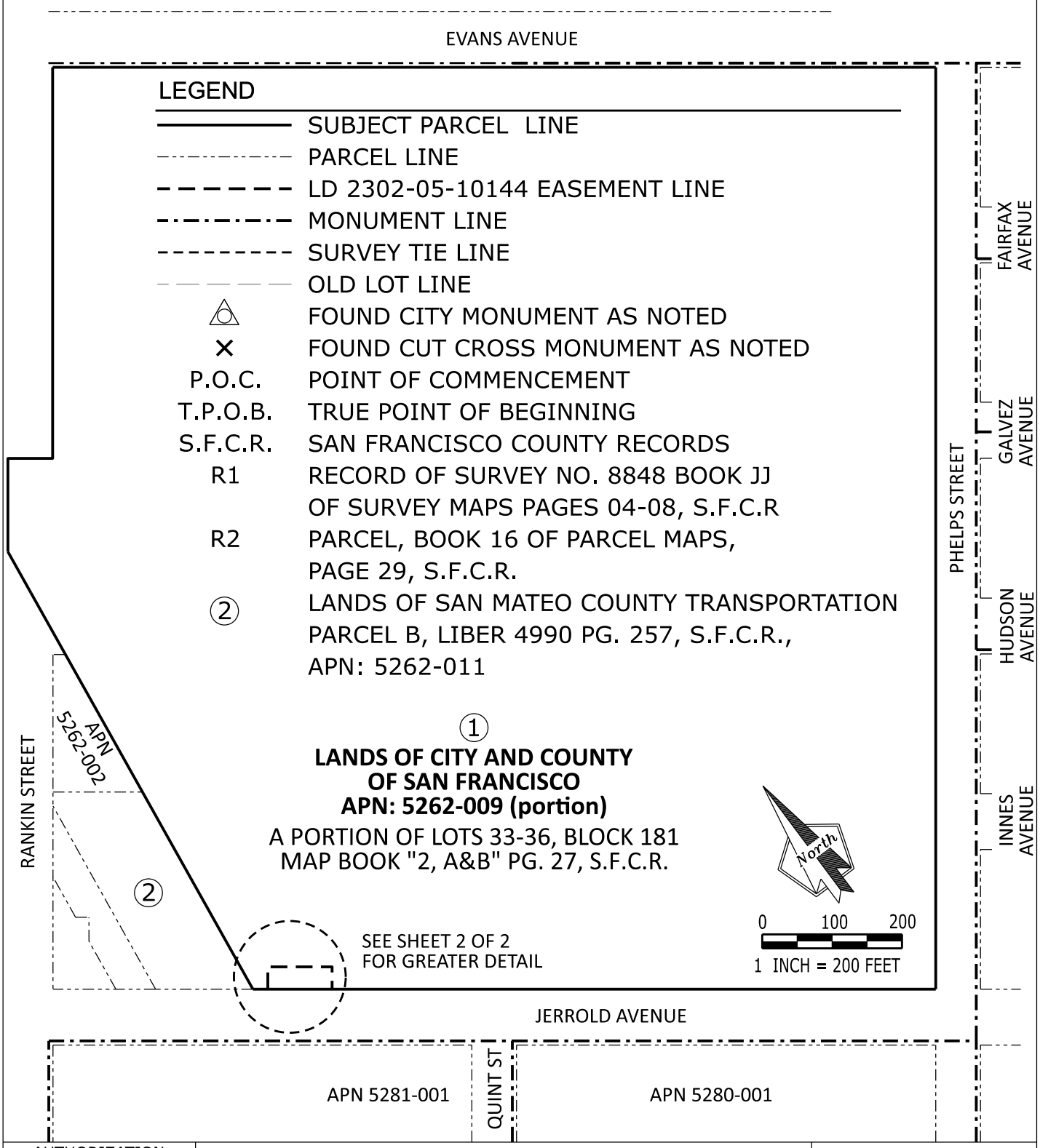
Exhibit “B”

Depiction of Easement Area

[attached]

RANCHO RINCON DE LAS SALINAS Y POTRERO VIEJO
(T. 2 S., R.5 W., SE 1/4 OF SEC. 22 M.D.B.&M.)

2302-05-10144



AUTHORIZATION 74062822	
BY	MARK THOMAS
DR	SGHD
CH	CLGW
O.K.	A9L2
DATE	12/10/2025

EXHIBIT B

S-1426 L-132 MP 49.58 SFPUC
BIOSOLIDS FACILITIES METER

SAN FRANCISCO, CALIFORNIA

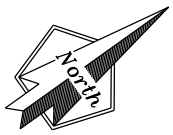
PACIFIC GAS AND ELECTRIC COMPANY
Oakland California

PG&E LAND ENGINEERING

JCN	01-25-032
AREA	AREA 1, SAN FRANCISCO
COUNTY	SAN FRANCISCO
SCALE	1" = 200'
SHEET NO.	1 OF 2
DRAWING NUMBER	L-10784
CHANGE	0

RANCHO RINCON DE LAS SALINAS Y POTRERO VIEJO
(T. 2 S., R.5 W., SE 1/4 OF SEC. 22 M.D.B.&M.)

2302-05-10144



0 20 40
1 INCH = 40 FEET

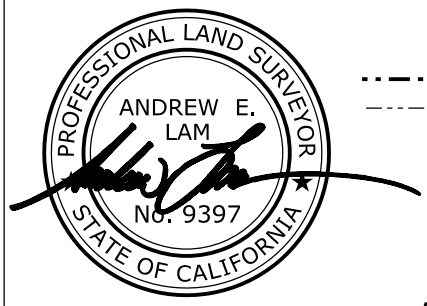
N35°31'18"E
15.48'(R1)

CUT TOP CONC. BASE
TO ELECTROLIER (R2)
SF MID #35532

BASIS OF BEARINGS
S54°28'21"E (R1)
1378.37' (Total)(R1)

343.05'

RANKIN ST
(64' WIDE)



PARCEL B
LIBER 4990
PG.257
S.F.C.R.

②

①

74.00'
N35°31'39"E

P.O.C.
T.P.O.B.

L1

L2

LOT 37

LOT 36

LOT 35

LOT 34

LOT 33

LOT 32

LOT 25

6.00'

372.54' S23°46'37"W

JERROLD AVE
(80' WIDE)

EASEMENT AREA
AREA = 2944 SQ. FT. ±

L3

L4

L5

PHELPS ST
(64' WIDE)

CUT CROSS IN CURB
ON PHELPS ST (R2)

S35°31'18"W 106.00'

LINE TABLE		
LINE	BEARING	DISTANCE
L1	S54°28'21"E	21.35'
L2	N35°31'39"E	32.00'
L3	S54°28'21"E	92.00'
L4	S35°31'39"W	32.00'
L5	N54°28'21"W	92.00'

AUTHORIZATION 74062822	
BY	MARK THOMAS
DR	SGHD
CH	CLGW
O.K.	A9L2
DATE	12/10/2025

EXHIBIT B

S-1426 L-132 MP 49.58 SFPUC
BIOSOLIDS FACILITIES METER

SAN FRANCISCO, CALIFORNIA

PACIFIC GAS AND ELECTRIC COMPANY
Oakland California

PG&E LAND ENGINEERING

JCN	01-25-032
AREA	AREA 1, SAN FRANCISCO
COUNTY	SAN FRANCISCO
SCALE	1" = 40'
SHEET NO.	2 OF 2
DRAWING NUMBER	L-10784
CHANGE	0

Attach to LD: 2302-05-10144

Area, Region or Location: 1

Land Service Office: Concord

Line of Business: Gas Transmission (52)

Business Doc Type: Easements

MTRSQ: 23.02.05.22.24, 23.02.05.22.21, 23.02.05.22.23, 23.02.05.22.22,

FERC License Number: N/A

PG&E Drawing Number: L-10784

Plat No.: Gas 4-E05A, Electric C0506

LD of Affected Documents: N/A

LD of Cross Referenced Documents: N/A

Type of interest: Utility Lot Easement (108)

SBE Parcel: N/A

% Being Quitclaimed: N/A

Order or PM: 74062823, 47062822

JCN: 01-25-032

County: San Francisco

Utility Notice Number: N/A

851 Approval Application No: N/A ;Decision: N/A

Prepared By: SGHD

Checked By: A9L2

Approved By: E1AJ (12/05/2025)

Revised by:

Exhibit "C"

The following City General Real Property Contract Conditions is hereby incorporated into and made a part of the Exclusive Utility Easement between PG&E and the SFPUC (the Parties) dated _____. The Parties expressly agree that this Exhibit applies only to the work that occurs on the easement area that is the subject of the Exclusive Utility Easement, and not to PG&E generally.

1. Compliance with Laws. Grantee shall, at its expense, conduct and cause to be conducted all activities on the easement area allowed hereunder in a safe and prudent manner and in compliance with all applicable laws, regulations, codes, ordinances and orders of any governmental or other regulatory entity (including, without limitation, the Americans with Disabilities Act), whether presently in effect or subsequently adopted and whether or not in the contemplation of the parties. Grantee shall, at its sole expense, procure and maintain in force at all times during its use of the easement area any and all business and other licenses or approvals necessary to conduct the activities allowed hereunder. Grantee understands and agrees that Grantor is entering into this easement agreement in its capacity as a property owner with a proprietary interest in the easement area and not as a regulatory agency with police powers. Nothing herein shall limit in any way Grantee's obligation to obtain any required regulatory approvals from City departments, boards or commissions or other governmental regulatory authorities or limit in any way City's exercise of its police powers.

2. Assignment. This easement shall not be assigned, conveyed or otherwise transferred by PG&E without the prior written consent of City. Such consent shall not be unreasonably withheld, conditioned or delayed.

3. Joint Venture of Partnership; No Authorization. This easement agreement does not create a partnership or joint venture between City and PG&E as to any activity conducted by PG&E on, in or relating to the easement area. The giving of this easement agreement by City does not constitute authorization or approval by City of any activity not expressly agreed to herein conducted by PG&E on, in or relating to the easement area.

4. Sunshine Ordinance. PG&E understands and agrees that under the City's Sunshine Ordinance (San Francisco Administrative Code, Chapter 67) and the California Public Records Act (Gov. Code Section 7920.000 et seq.), affect this easement agreement and any and all records, information, and materials submitted to the City hereunder public records subject to public disclosure. PG&E hereby acknowledges that the City may disclose any records, information and materials submitted to the City in connection with this easement agreement except for trade secrets or confidential competitive information which may be withheld from disclosure under applicable law.

5. MacBride Principles - Northern Ireland. The provisions of San Francisco Administrative Code Section 12F are incorporated by this reference and made part of this easement agreement. By signing this easement agreement, PG&E confirms that PG&E has read and understood that City urges companies doing business in Northern Ireland to resolve employment inequities and to abide by the MacBride Principles, and urges San Francisco companies to do business with corporations that abide by the MacBride Principles.

6. Covenant Not to Discriminate. In the performance of this easement agreement and use of the

easement area, PG&E agrees not to discriminate against any employee of, any City employee working with, or applicant for employment with PG&E, or against any person seeking accommodations, advantages, facilities, privileges, services, or membership in all business, social, or other establishments or organizations, on the basis of the fact or perception of a person's race, color, creed, religion, national origin, ancestry, age, height, weight, sex, sexual orientation, gender identity, domestic partner status, marital status, disability or Acquired Immune Deficiency Syndrome or HIV status (AIDS/HIV status), or association with members of those protected classes, or in retaliation for opposition to discrimination against those classes.

7. Subcontracts. PG&E shall include in all subcontracts relating to the easement area a non-discrimination clause applicable to such subcontractor in substantially the form of the Covenant Not to Discriminate section 6 above. In addition, PG&E shall incorporate by reference in all subcontracts the provisions of Sections 131.2(a), 131.2(c) – (k), and 132.3 of the San Francisco Labor and Employment Code and shall require all subcontractors to comply with such provisions. PG&E's failure to comply with the obligations in this Subsection shall constitute a material breach of this easement agreement.

8. Non-Discrimination in Benefits. PG&E does not as of the date of this easement agreement and will not during the term of this easement agreement, in any of its operations in San Francisco, on real property owned by City, or where the work is being performed for the City or elsewhere within the United States, discriminate in the provision of bereavement leave, family medical leave, health benefits, membership or membership discounts, moving expenses, pension and retirement benefits or travel benefits, as well as any benefits other than the benefits specified above, between employees with domestic partners and employees with spouses, and/or between the domestic partners and spouses of such employees, where the domestic partnership has been registered with a governmental entity pursuant to state or local law authorizing such registration, subject to the conditions set forth in Section 131.2(b) of the San Francisco Labor and Employment Code.

9. Condition to Permit. As a condition to this easement agreement, PG&E will execute the City's Declaration: Nondiscrimination in Contracts and Benefits form with supporting documentation and secure the approval of the form by the San Francisco Contract Monitoring Division ("**CMD**").. PG&E hereby represents that prior to execution of this easement agreement, (a) PG&E executed and submitted to the CMD the required form with supporting documentation, and **(ii)** the CMD approved the form.

10. Incorporation of Labor and Employment Code Provisions by Reference. The provisions of Articles 131 and 132 of the San Francisco Labor and Employment relating to non-discrimination by parties contracting for the use of City property are incorporated in this Section by reference and made a part of this easement agreement as though fully set forth herein. PG&E shall comply fully with and be bound by all of the provisions that apply to this easement agreement under such Articles of the Labor and Employment Code, including but not limited to the remedies provided in such Articles. Without limiting the foregoing, PG&E understands that pursuant to Sections 131.2(h) and 132.3(g) of the San Francisco Labor and Employment Code, a penalty of Fifty Dollars ($50) for each person for each calendar day during which such person was discriminated against in violation of the provisions of this easement agreement may be assessed against PG&E and/or deducted from any payments due PG&E.

11. Tropical Hardwood and Virgin Redwood Ban. The City and County of San Francisco urges companies not to import, purchase, obtain or use for any purpose, any tropical hardwood, tropical hardwood wood product, virgin redwood or virgin redwood wood product, except as expressly permitted by the application of Sections 802(b) and 803(b) of the San Francisco Environment Code. PG&E agrees that, except as permitted by the application of Sections 802(b) and 803(b), PG&E shall not use or incorporate any tropical hardwood, tropical hardwood wood product, virgin redwood or virgin redwood wood product in the performance of this easement agreement.

12. Notification of Limitations on Contributions. Through its execution of this easement agreement, PG&E acknowledges that it is familiar with Section 1.126 of the San Francisco Campaign and Governmental Conduct Code, which prohibits any person who contracts with the City for the selling or leasing of any land or building to or from the City whenever such transaction would require approval by a City elective officer or the board on which that City elective officer serves, from making any campaign contribution to (a) an individual holding a City elective office if the contract must be approved by the individual, a board on which that individual serves, or a board on which an appointee of that individual serves, (b) a candidate for the office held by such individual, or (c) a committee controlled by such individual, at any time from the commencement of negotiations for the contract until the later of either the termination of negotiations for such contract or six months after the date the contract is approved. PG&E acknowledges that the foregoing restriction applies only if the contract or a combination or series of contracts approved by the same individual or board in a fiscal year have a total anticipated or actual value of $50,000 or more. PG&E further acknowledges that the prohibition on contributions applies to each prospective party to the contract; each member of PG&E's board of directors, chairperson, chief executive officer, chief financial officer and chief operating officer; any person with an ownership interest of more than twenty percent (20%) in PG&E; any subcontractor listed in the contract; and any committee that is sponsored or controlled by PG&E. Additionally, PG&E acknowledges that PG&E must inform each of the persons described in the preceding sentence of the prohibitions contained in Section 1.126. PG&E further agrees to provide to City the names of each person, entity or committee described above.

13. Possessory Interest Taxes. PG&E recognizes and understands that this easement agreement may create a possessory interest subject to property taxation and that PG&E may be subject to the payment of property taxes levied on such interest under applicable law. PG&E agrees to pay taxes of any kind, including possessory interest taxes, if any, that may be lawfully assessed on PG&E's interest under this easement agreement or use of the easement Area pursuant hereto and to pay any other taxes, excises, licenses, permit charges or assessments based on PG&E's usage of the easement area that may be imposed upon PG&E by applicable law. PG&E shall pay all of such charges when they become due and payable and before delinquency.

14. Pesticide Prohibition. PG&E shall comply with the provisions of Section 308 of Chapter 3 of the San Francisco Environment Code (the "**Pesticide Ordinance**") which (a) prohibit the use of certain pesticides on City property, (b) require the posting of certain notices and the maintenance of certain records regarding pesticide usage and (c) require PG&E to submit to the City's Office of the City Administrator, Real Estate Division, an integrated pest management ("**IPM**") plan that (i) lists, to the extent reasonably possible, the types and estimated quantities of pesticides that PG&E may need to apply to the easement area during the term of

this easement agreement, (ii) describes the steps PG&E will take to meet the City's IPM Policy described in Section 300 of the Pesticide Ordinance and (iii) identifies, by name, title, address and telephone number, an individual to act as the PG&E's primary IPM contact person with the City. In addition, PG&E shall comply with the requirements of Sections 303(a) and 303(b) of the Pesticide Ordinance.

15. Prohibition of Tobacco Sales and Advertising. PG&E acknowledges and agrees that no advertising of cigarettes or tobacco products is allowed on the easement area. This advertising prohibition includes the placement of the name of a company producing, selling or distributing cigarettes or tobacco products or the name of any cigarette or tobacco product in any promotion of any event or product. This advertising prohibition does not apply to any advertisement sponsored by a state, local, nonprofit or other entity designed to (a) communicate the health hazards of cigarettes and tobacco products, or (b) encourage people not to smoke or to stop smoking.

16. Prohibition of Alcoholic Beverage Advertising. PG&E acknowledges and agrees that no advertising of alcoholic beverages is allowed on the easement area. For purposes of this section, "alcoholic beverage" shall be defined as set forth in California Business and Professions Code Section 23004, and shall not include cleaning solutions, medical supplies and other products and substances not intended for drinking. This advertising prohibition includes the placement of the name of a company producing, selling or distributing alcoholic beverages or the name of any alcoholic beverage in any promotion of any event or product. This advertising prohibition does not apply to any advertisement sponsored by a state, local, nonprofit or other entity designed to (a) communicate the health hazards of alcoholic beverages, (b) encourage people not to drink alcohol or to stop drinking alcohol, or (c) provide or publicize drug or alcohol treatment or rehabilitation services.

17. Conflicts of Interest. Through its execution of this easement agreement, PG&E acknowledges that it is familiar with the provisions of Section 15.103 of the San Francisco Charter, Article III, Chapter 2 of City's Campaign and Governmental Conduct Code, and Sections 87100 *et seq.* and Sections 1090 *et seq.* of the Government Code of the State of California, and certifies that it does not know of any facts which would constitute a violation of said provision, and agrees that if PG&E becomes aware of any such fact during the term of this easement agreement, PG&E shall immediately notify the City.

PUBLIC UTILITIES COMMISSION

City and County of San Francisco

RESOLUTION NO. **18-0042**

WHEREAS, San Francisco Public Utilities Commission (SFPUC) staff have developed a project description under the Sewer System Improvement Program (SSIP) for the solids handling improvements at the Southeast Water Pollution Control Plant, otherwise known as Project No. CWWSIPDP01, Biosolids Digester Facilities Project (BDFP or Project); and

WHEREAS, The objectives of the Project are to replace the existing solids treatment facilities at the Southeast Water Pollution Control Plant (SEP) with new infrastructure with modern and more efficient treatment technologies to protect public health and safety and provide continued regulatory compliance, maximize the efficiency of the current treatment process operations and maintenance, staffing resources, and the use of existing SFPUC infrastructure, reliably meet treatment capacity for projected 2045 flows and loads associated with projected population growth; beneficially use 100 percent of biosolids generated, beneficially use 100% of digester gas generated, build critical processes with redundant infrastructure to provide reliability and operational flexibility, improve seismic reliability, limit noticeable odors from BDFP facilities to the SEP property boundary, provide visual improvements that promote a cohesive architectural design and identity at the BDFP site, enhance the overall aesthetics, and improve the public edges in a manner consistent with the surrounding neighborhood and the rest of the SEP, design and site new facilities to accommodate or adapt to expected sea level rise over their expected life, allow for timely construction of the proposed BDFP; and maintain rate payer affordability; and

WHEREAS, On May 9, 2017, by Resolution No. 17-0110, this Commission awarded Agreement No. WW-647R to MWH Constructors/ Webcor Builders, Joint Venture (JV) as a Construction Manager/General Contractor (CM/GC) to provide pre-construction services for the proposed Project and, subject to the completion of environmental review and the Commission's approval of the Project, to provide construction services to deliver the Project; and

WHEREAS, The Notice-to-Proceed date for MWH Constructors/ Webcor Builders JV for Pre-Construction was set on October 30, 2017; and

WHEREAS, On March 8, 2018, the Planning Commission reviewed and considered the Final Environmental Impact Report (FEIR) in Planning Department File No. 2015-000644ENV, consisting of the Draft EIR and the Responses to Comments document, and found that the contents of said report and the procedures through which the FEIR was prepared, publicized and reviewed complied with the provisions of the California Environmental Quality Act (CEQA), the CEQA Guidelines and Chapter 31 of the San Francisco Administrative Code, and found further that the FEIR reflects the independent judgment and analysis of the City and County of San Francisco, is adequate, accurate and objective, and that the Comments and Responses document contains no significant revisions to the Draft EIR, and certified the completed said FEIR in compliance with CEQA and the CEQA Guidelines in its Motion No. M-20129 and

WHEREAS, This Commission has reviewed and considered the information contained in the FEIR, all written and oral information provided by the Planning Department, the public, relevant public agencies, SFPUC and other experts and the administrative files for the Project and the EIR; and

WHEREAS, The Planning Department is the custodian of records, located in File No. 2015-000644ENV, at 1650 Mission Street, Fourth Floor, San Francisco, California; and

WHEREAS, The FEIR, the CEQA Findings and the Mitigation, Monitoring and Reporting Program (MMRP), were made available to the public and this Commission for the Commission's review, consideration and action; now, therefore, be it

RESOLVED, This Commission has reviewed and considered the FEIR and hereby adopts the CEQA Findings, including the Statement of Overriding Considerations, attached hereto as Attachment A and incorporated herein as part of this Resolution by this reference thereto, and adopts the MMRP attached to this Resolution as Attachment B and incorporated herein as part of this Resolution by this reference thereto; and be it

FURTHER RESOLVED, That this Commission hereby approves Project No. CWWSIPDP01, Biosolids Digester Facilities Project, and authorizes staff to proceed with actions necessary to implement the Project; and be it

FURTHER RESOLVED, That this Commission hereby authorizes the General Manager to proceed to the Construction Phase for MWH Constructors/ Webcor Builders, JV to deliver the new Biosolids Digester Facilities at SEP, in accordance with the terms and conditions of Agreement No. WW-647R, subject to Board of Supervisors release of appropriated project funds and the Controller's certification of funds.

I hereby certify that the foregoing resolution was adopted by the Public Utilities Commission at its meeting of March 13, 2018.

Donna Hood

Secretary, Public Utilities Commission

PUBLIC UTILITIES COMMISSION

City and County of San Francisco

RESOLUTION NO. **24-0223**

WHEREAS, The San Francisco Public Utilities Commission (SFPUC) is planning for the construction of a new facility to convert biogas generated from the Biosolids Digester Facilities Project at the Southeast Treatment Plant into renewable natural gas (Biogas Utilization Project); and

WHEREAS, The proposed Biogas Utilization Project (Project) promotes current California state goals for in-state production and distribution of renewable natural gas as documented in Assembly Bill 1900 and Senate Bill 840, and this aligns with the City's sustainability policies as it displaces the use of fossil fuels while offering value as renewable fuel for compressed natural gas vehicles, and also providing an opportunity as a "bridge fuel" for in city-natural gas uses that cannot shift to electric; and

WHEREAS, Due to the unique complexities of the design and construction required for this Project, the SFPUC has selected a best value design-build project delivery method in accordance with San Francisco Administrative Code section 6.61(c), which delivery method the General Manager approved on June 28, 2024; and

WHEREAS, On July 12, 2024, the SFPUC advertised a Request for Qualifications and Proposals for Design-Build Services for Contract No. DB-138, Southeast Treatment Plant Biogas Utilization Project; and

WHEREAS, The contract duration is 1,020 consecutive calendar days; and

WHEREAS, On September 11, 2024, the SFPUC received one proposal; and

WHEREAS, SFPUC staff and Contract Monitoring Division reviewed the proposal for responsibility, responsiveness, and application of bid preferences, and determined that PCL Construction, Inc., is the sole, qualified proposer and that it submitted a responsive proposal; and

WHEREAS, The Contract Monitoring Division established a 7% Local Business Enterprise (LBE) subcontracting participation for the design (pre-construction) and construction phases of this contract, and PCL Construction, Inc., committed to a LBE subcontractor participation of 7.0% and 7.14% for the respective design and construction phases for this contract with its bid submittal; and

WHEREAS, On March 8, 2018, by Motion No. M-20129, the San Francisco Planning Commission certified the Final Environmental Impact Report (Final EIR) for the Biosolids Digester Facilities Project (Case No. 2015-000644ENV), as required by the California Environmental Quality Act (CEQA); and

WHEREAS, On March 13, 2018, by Resolution No. 18-0042, this Commission approved the Biosolids Digester Facilities Project and adopted the CEQA Findings, including the Statement of Overriding Considerations and the Mitigation Monitoring and Reporting Program, as required by the CEQA; and

WHEREAS, On July 12, 2024, the San Francisco Planning Department issued an Addendum to the Final EIR (Modified Case No. 2015-000644ENV-03) evaluating the biogas utilization system facilities; and the work under Contract No. DB-138, Southeast Treatment Plant Biogas Utilization Project is within the scope of the project authorized under the Final EIR and the Addendum to the Final EIR; and

WHEREAS, The San Francisco Planning Department is the custodian of records, located in File No. 2015-000644ENV and Modified Case No. 2015-000644ENV-03, at 49 South Van Ness Avenue, Suite 1400, San Francisco, California 94103, which have been made available for review by this Commission and the public, and those files are part of the record before this Commission; and

WHEREAS, Staff has made the Project files, including the Final EIR, Resolution No. 18-0042, the CEQA Findings, including the Statement of Overriding Considerations and the Mitigation Monitoring and Reporting Program, and the Addendum to the Final EIR available for review by this Commission and the public, and those files are part of the record before this Commission; and

WHEREAS, This Commission has reviewed and considered the information contained in the Final EIR, Resolution No. 18-0042, the CEQA Findings, including the Statement of Overriding Considerations and the Mitigation Monitoring and Reporting Program, and the Addendum to the Final EIR, and all written and oral information provided by the San Francisco Planning Department, the public, relevant public agencies, SFPUC and other experts and the administrative files for the Project; and

WHEREAS, Funds are available from Project No. CWWSIPDP01, Biosolids Digester Facilities Project; now, therefore, be it

RESOLVED, This Commission has reviewed and considered the Final EIR and the Addendum to the Final EIR and the record as a whole, and finds that the Final EIR and Addendum are adequate for its use as the decision–making body for the Project and incorporates the CEQA Findings, including the Statement of Overriding Considerations and Mitigation Monitoring and Reporting Program, Resolution No. 18-0042 by this reference thereto as though set forth in this Resolution; and, be it

FURTHER RESOLVED, This Commission finds that since the Final EIR and the Addendum to the Final EIR were finalized, there have been no substantial Project changes and no substantial changes in Project circumstances that would require major revisions to them due to the involvement of new significant environmental effects or an increase in the severity of previously identified significant impacts, and there is no new information of substantial importance that would change the conclusions set forth in them; and, be it

FURTHER RESOLVED, This Commission hereby awards Contract No. DB-138, Southeast Treatment Plant Biogas Utilization Project, in the amount of $121,541,812 and with a duration of 1,020 consecutive calendar days, to the sole, qualified proposer, PCL Construction, Inc.

I hereby certify that the foregoing resolution was adopted by the Public Utilities Commission at its meeting of October 22, 2024.

Director of Commission Affairs
San Francisco Public Utilities Commission

San Francisco Planning

49 South Van Ness Avenue, Suite 1400
San Francisco, CA 94103
628.652.7600
www.sfplanning.org

GENERAL PLAN REFERRAL NOTE TO FILE

August 7, 2025

CASE NO. 2015-000644GPR
Southeast Plant and Central Shops

On March 12, 2018, the Planning Department issued a General Plan Referral (GPR) determination letter for the Southeast Plant and Central Shops project, finding the Project on balance in-conformity with the General Plan (case number 2015-000644GPR). The Project would replace the existing solids treatment facilities at the Southeast Plant (SEP) with more reliable, efficient, and modern technologies and facilities.

The new facilities require natural gas service from PG&E in order to operate. Since the GPR determination letter was issued, PG&E has notified the City that it requires that the SFPUC grant it an easement for the PG&E facilities that will be constructed on City/SFPUC property. This Note to the File clarifies that the easement, which is required in order to implement the Project, is an integral component of the Project and is consistent with the General Plan and Planning Code Section 101.1 for the reasons set forth in 2015-000644GPR.

Sincerely,

Amnon Ben-Pazi

Amnon Ben-Pazi, Senior Planner

SAN FRANCISCO
PLANNING DEPARTMENT

General Plan Referral

1650 Mission St.
Suite 400
San Francisco,
CA 94103-2479

Reception:
415.558.6378

Fax:
415.558.6409

Planning
Information:
415.558.6377

Date:	March 12, 2018
Case No.	**Case No. 2015-000644GPR - Southeast Plant and Central Shops site**
Block/Lot No.:	5262/009 and 5281/001
Project Sponsor:	Karen Frye, Environmental Project Manager San Francisco Public Utilities Commission 525 Golden Gate Avenue, 6th Floor San Francisco, CA 94102
Applicant:	Carolyn Chiu, Senior Project Manager San Francisco Public Utilities Commission 525 Golden Gate Avenue, 9th Floor San Francisco, CA 94102
Staff Contact:	Svetha Ambati – (415) 575-9183 *svetha.ambati@sfgov.org*
Recommendation:	Finding the project, on balance, is **in conformity** with the General Plan
Recommended By:	John Rahaim, Director of Planning

PROJECT DESCRIPTION

The Project is the San Francisco Public Utilities Commision's (SFPUC) proposed replacement of the outdated existing solids treatment facilities with more reliable, efficient, and modern technologies and facilities in the Bayview-Hunters Point district of San Francisco. The proposal is a new Biosolids Digester Facilities Project (the "Project"), which is part of the Sewer System Improvement Program (SSIP), a 20-year, multi-billion dollar citywide program to upgrade the City's aging sewer infrastructure and to ensure a reliable and seismically safe system. Many of the existing Southeast Water Pollution Control Plant ("Southeast Plant" or "SEP") solids treatment facilities are over 60 years old, are operating well beyond their useful life, and require significant maintenance. If the Project is approved, the San Francisco Public Utilities Commission would continue operations of the Southeast Treatment Plant (SEP) and construct new solids treatment, odor control, energy recovery, and associated facilities adjacent to the SEP, located at the existing Southeast Plant and Central Shops site and the decommissioned Asphalt Plant site. The overall goal of the Project is to replace the existing aged and unreliable solids processing facilities at the SEP with new, modern, and efficient facilities to ensure long-

term sustainability of the SEP wastewater treatment system. The submittal is for a General Plan Referral to recommend whether the Project is in conformity with the General Plan, pursuant to Section 4.105 of the Charter, and Section 2A.52 and 2A.53 of the Administrative Code.

ENVIRONMENTAL REVIEW

The CEQA environmental review for the "Project" has been completed, and was certified on March 8, 2018. The CEQA review is found in the EIR Case 2015-000644ENV.

GENERAL PLAN COMPLIANCE AND BASIS FOR RECOMMENDATION

The Project is the San Francisco Public Utilities Commission's (SFPUC) proposed construction of a new solids treatment, odor control, energy recovery, and associated facilities adjacent to the SEP, located at the existing Southeast Plant and Central Shops site and the decommissioned Asphalt Plant site. The Project is consistent with Seven of the Eight Priority Policies of Planning Code Section 101.1 as described in the body of this letter and is **in-conformity** with the following Objectives and Policies of the General Plan:

COMMERCE AND INDUSTRY ELEMENT

OBJECTIVE 4
IMPROVE THE VIABILITY OF EXISTING INDUSTRY IN THE CITY AND THE ATTRACTIVENESS OF THE CITY AS A LOCATION FOR NEW INDUSTRY.

Policy 4.10
Enhance the working environment within industrial areas.
The Project will provide long-term improvements to Jerrold Avenue which would occur in accordance with San Francisco Better Streets Plan guidelines and could include traffic calming measures, curb extensions (road narrowing), sidewalk improvements, lighting, street trees, and safe pedestrian and worker crossings.

COMMUNITY SAFETY ELEMENT

OBJECTIVE 1
REDUCE STRUCTURAL AND NON-STRUCTURAL HAZARDS TO LIFE SAFETY AND MINIMIZE PROPERTY DAMAGE RESULTING FROM FUTURE DISASTERS

Policy 1.3
Assure that new construction meets current structural and life safety standards.
The Project will include facilities constructed according to current engineering standards, such as the San Francisco Building Code and the SFPUC's Seismic Design Guidelines, which would serve to limit damage as a result of seismic ground shaking.

Policy 1.11
Continue to promote green stormwater management techniques.
The Project includes low-impact development features proposed for the project, including street tree plantings, a green roof for the Solids Pretreatment Facility, and flow-through planters.

Policy 1.18
Identify and replace vulnerable infrastructure and critical service lifelines in high-risk areas.
The Project will upgrade aging sewer infrastructure so as to ensure a reliable and seismically safe system. The upgraded facilities will provide substantial improvement related to seismic safety because it would replace the anaerobic digesters and other facilities that are over sixty years old and not built to withstand a major earthquake.

ENVIRONMENTAL PROTECTION ELEMENT

OBJECTIVE 3
MAINTAIN AND IMPROVE THE QUALITY OF THE BAY, OCEAN, AND SHORELINE AREAS

Policy 3.3
Implement plans to improve sewage treatment and halt pollution of the Bay and Ocean.
The Project would use a new technology to pretreat solids upstream of the digesters, which would reduce the volume and increase the quality of biosolids produced at the end of the treatment process, compared to the volume and quality produced in existing facilities. The proposed facilities would produce Class A biosolids, thus expanding the options for beneficial reuse of these materials.

TRANSPORTATION ELEMENT

OBJECTIVE 1
MEET THE NEEDS OF ALL RESIDENTS AND VISITORS FOR SAFE, CONVENIENT AND INEXPENSIVE TRAVEL WITHIN SAN FRANCISCO AND BETWEEN THE CITY AND OTHER PARTS OF THE REGION WHILE MAINTAINING THE HIGH QUALITY LIVING ENVIRONMENT OF THE BAY AREA.

Policy 1.2
Ensure the safety and comfort of pedestrians throughout the city.
The Project will provide long-term improvements to Jerrold Avenue which would occur in accordance with San Francisco Better Streets Plan guidelines and could include traffic calming measures, curb extensions (road narrowing), sidewalk improvements, lighting, street trees, and safe pedestrian and worker crossings. These improvements on Jerrold Avenue would generally enhance the safety and

connectivity of the street for various modes of transportation, in turn also enhancing access to existing retail uses in the vicinity.

OBJECTIVE 24
DESIGN EVERY STREET IN SAN FRANCISCO FOR SAFE AND CONVENIENT WALKING

Policy 24.1
Every surface street in San Francisco should be designed consistent with the Better Streets Plan for safe and convenient walking, including sufficient and continuous sidewalks and safe pedestrian crossings at reasonable distances to encourage access and mobility for seniors, people with disabilities and children.
The Project will provide long-term improvements to Jerrold Avenue which would occur in accordance with San Francisco Better Streets Plan guidelines and could include traffic calming measures, curb extensions (road narrowing), sidewalk improvements, lighting, street trees, and safe pedestrian and worker crossings. These improvements on Jerrold Avenue would generally enhance the safety and connectivity of the street for various modes of transportation, in turn also enhancing access to existing retail uses in the vicinity.

OBJECTIVE 25
IMPROVE THE AMBIENCE OF THE PEDESTRIAN ENVIRONMENT

Policy 25.2
Maintain and expand the planting of street trees and the infrastructure to support them.
The Project proposes street improvements including the planting of new street trees along Jerrold Avenue.

URBAN DESIGN ELEMENT

OBJECTIVE 3
MODERATION OF MAJOR NEW DEVELOPMENT TO COMPLEMENT THE CITY PATTERN, THE RESOURCES TO BE CONSERVED, AND THE NEIGHBORHOOD ENVIRONMENT

Policy 3.1
Promote harmony in visual relationships and transitions between new and older buildings.
The Project's tallest facilities would be 65 feet above grade, similar to existing SEP facilities, and the SFPUC is designing project architectural and landscaping features to enhance overall aesthetics. These features help to meet the project objective to "provide visual improvements that promote a cohesive architectural design and identity at the BDFP site, enhance the overall aesthetics, and improve the public edges in a manner consistent with the surrounding neighborhood and the rest of the SEP."

OBJECTIVE 4
IMPROVEMENT OF THE NEIGHBORHOOD ENVIRONMENT TO INCREASE PERSONAL SAFETY, COMFORT, PRIDE AND OPPORTUNITY

Policy 4.12
Install, promote and maintain landscaping in public and private areas.
The Project will include landscaping and architectural improvements to the site, and planting of new street trees along Jerrold Avenue.

BAYVIEW HUNTERS POINT AREA PLAN

OBJECTIVE 1
STIMULATE BUSINESS, EMPLOYMENT, AND HOUSING GROWTH WITHIN THE EXISTING GENERAL LAND USE PATTERN BY RESOLVING CONFLICTS BETWEEN ADJACENT INDUSTRIAL AND RESIDENTIAL AREAS

Policy 1.2
Restrict toxic chemical industries and other industrial activities with significant environmental hazards from locating adjacent to or nearby existing residential areas.
The Project would locate the digesters farther away from existing residences, and would also improve odor control over existing conditions such that any odors from the proposed solids treatment process would be contained within the SEP site boundaries.

OBJECTIVE 10
ENHANCE THE DISTINCTIVE AND POSITIVE FEATURES OF BAYVIEW HUNTERS POINT

Policy 10.3
Recognize, protect, and enhance cultural resources of native populations as an integral imprint on the land use pattern of Bayview Hunters Point.
The Project would not adversely change the land uses or character of the surrounding housing and neighborhoods. The Project would enhance the overall aesthetics of the SEP site, and improve the public edges in a manner consistent with the surrounding neighborhood and the rest of the SEP.

OBJECTIVE 17
SUPPORT COMMUNITY ECONOMIC DEVELOPMENT AND REVITALIZATION THROUGH ENERGY MANAGEMENT AND ALTERNATIVE ENERGY TECHNOLOGIES

Policy 17.1

Promote the Bayview as an area for implementing energy conservation and alternative energy supply initiatives.
The Project will construct energy recovery facilities to reuse 100 percent of the digester gas generated by the proposed solids processing facilities to produce energy for heating and power uses at the SEP. In addition, the project would more than double the current energy recovery capability at the SEP, thus generating more than enough to power the proposed facilities.

The Project is consistent with Seven of the Eight Priority Policies of Planning Code Section 101.1 as described in the body of this letter and is **not in-conformity** with the following Objectives and Policies of the General Plan:

ENVIRONMENTAL PROTECTION ELEMENT

OBJECTIVE 4
ASSURE THAT THE AMBIENT AIR OF SAN FRANCISCO AND THE BAY REGION IS CLEAN, PROVIDES MAXIMUM VISIBILITY, AND MEETS AIR QUALITY STANDARDS

Policy 4.1
Support and comply with objectives, policies, and air quality standards of the Bay Area Air Quality Management District.
According to the Draft Environmental Impact Report, the Project would include construction activities and equipment that generates NOx, an ozone precursor and criteria air pollutant, above the City's significance threshold for NOx during two of the five construction years. As a result, the Project would violate an air quality standard, and significantly impact air quality. While direct SFPUC offset opportunities have not been fully verified, the SFPUC has identified offsets that could sufficiently offset the estimated NOx exceedances during construction years 1 and 3.

URBAN DESIGN ELEMENT

RICHNESS OF PAST DEVELOPMENT

Policy 2.4
Preserve notable landmarks and areas of historic, architectural or aesthetic value, and promote the preservation of other buildings and features that provide continuity with past development.
The Project would result in the demolition of buildings at the Central Shops site that are eligible for listing in the California Register of Historical Resources and the National Register of Historic Places. As a result, the demolition of these historic resources would be significant and unavoidable, even with the implementation of the proposed mitigation measure to incorporate a historic resources and interpretive display.

PROPOSITION M FINDINGS – PLANNING CODE SECTION 101.1

Planning Code Section 101.1 establishes Eight Priority Policies and requires review of discretionary approvals and permits for consistency with said policies. Although there are some impacts regarding the Priority Policies, the Project is overall consistent. The Project is found to be consistent with the Seven of the Eight Priority Policies as set forth in Planning Code Section 101.1 for the following reasons:

Eight Priority Policies Findings

The subject project is found to be consistent with the Seven of the Eight Priority Policies of Planning Code Section 101.1 in that:

1. That existing neighborhood-serving retail uses be preserved and enhanced and future opportunities for resident employment in and ownership of such businesses enhanced.

   The Project would have no adverse effect on neighborhood serving retail uses or opportunities for employment in or ownership of such businesses.

2. That existing housing and neighborhood character be conserved and protected in order to preserve the cultural and economic diversity of our neighborhood.

   The Project would have no adverse effect on the City's housing stock or on neighborhood character.

3. That the City's supply of affordable housing be preserved and enhanced.
   The Project would have no adverse effect on the City's supply of affordable housing.

4. That commuter traffic not impede MUNI transit service or overburden our streets or neighborhood parking.

   The Project would not result in commuter traffic impeding MUNI's transit service, overburdening the streets, or altering current neighborhood parking.

5. That a diverse economic base be maintained by protecting our industrial and service sectors from displacement due to commercial office development, and that future opportunities for residential employment and ownership in these sectors be enhanced.

   The Project would not affect the existing economic base in this area.

6. That the City achieve the greatest possible preparedness to protect against injury and loss of life in an earthquake.

The Project would not adversely affect achieving the greatest possible preparedness against injury and loss of life in an earthquake. Project implementation would result in a substantial improvement related to seismic safety.

7. That landmarks and historic buildings be preserved.

The Project would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco Planning Code. The removal of the Central Shops (including Buildings A and B), which comprise a complex that is eligible for listing in the California and National Registers, would cause a substantial adverse change in the significance of the historical resource because the project would demolish the physical characteristics that convey the resource's historical significance and that justify its individual eligibility for inclusion in the California and National Registers. The project sponsor proposes to mitigate the removal of a historic resource by installing a permanent display of interpretative materials concerning the history and architectural features of the Central Shops. Implementing the proposed mitigation measure would reduce the severity of the impact. The removal of Building 870, a contributor the Southeast Treatment Plant Streamline Modern Industrial Historic District, would have a less-than-significant impact on the overall significance and historic integrity of the district.

8. That our parks and open space and their access to sunlight and vistas be protected from development.

The Project would have no adverse effect on parks and open space or their access to sunlight and vista.

RECOMMENDATION:	**Finding the Project, on balance, in-conformity with the General Plan**

Attachments:
Drawing 1: Overall Site and Paving Plan (65% Design)
Figure 1: Project Location, Construction Staging, and Vicinity Map

I:\Citywide\General Plan\General Plan Referrals\2015\2015-000644GPR - Southeast Plant and Central Shops

Drawing 1: Overall Site and Paving Plan (65% Design)

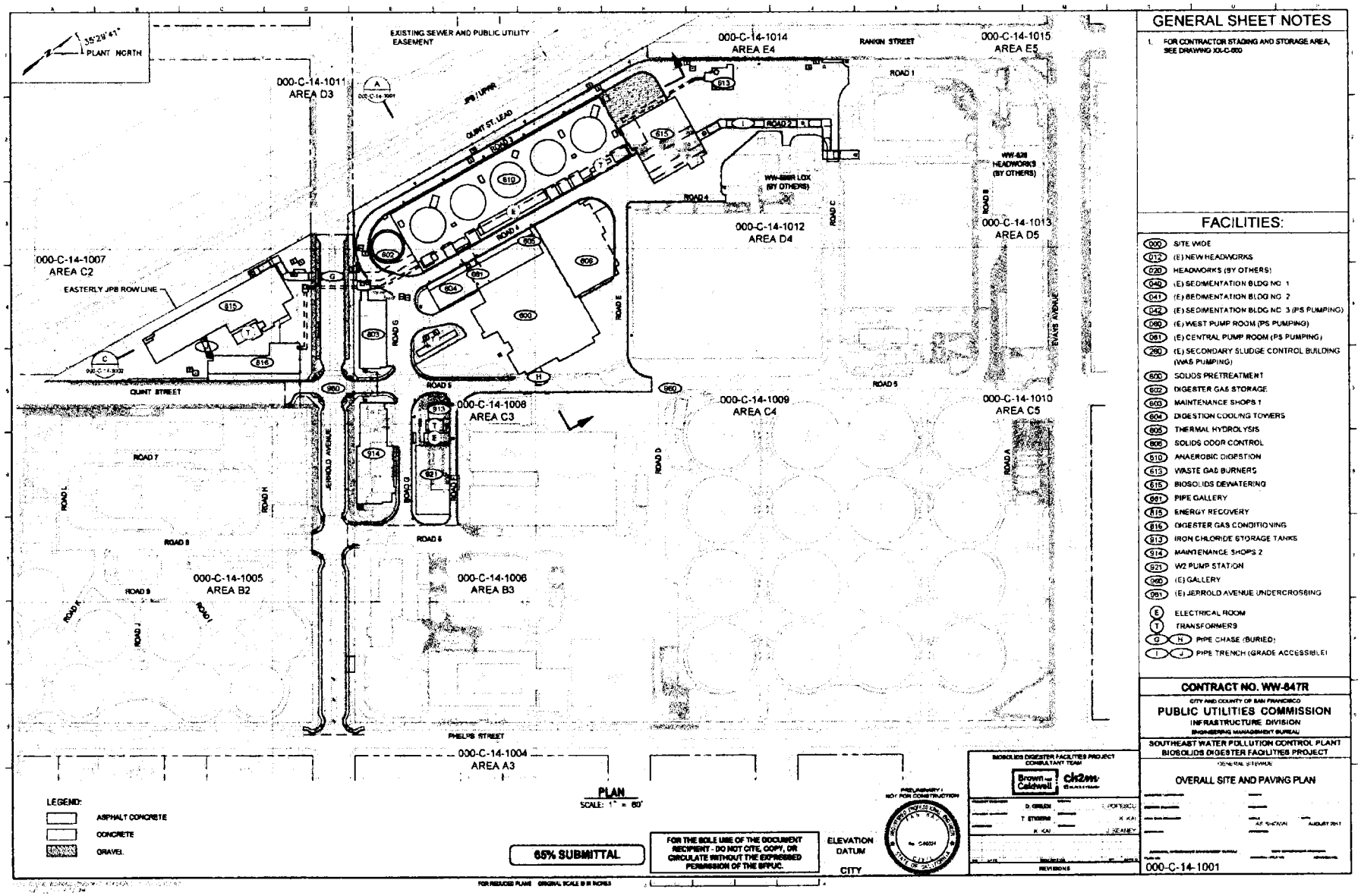
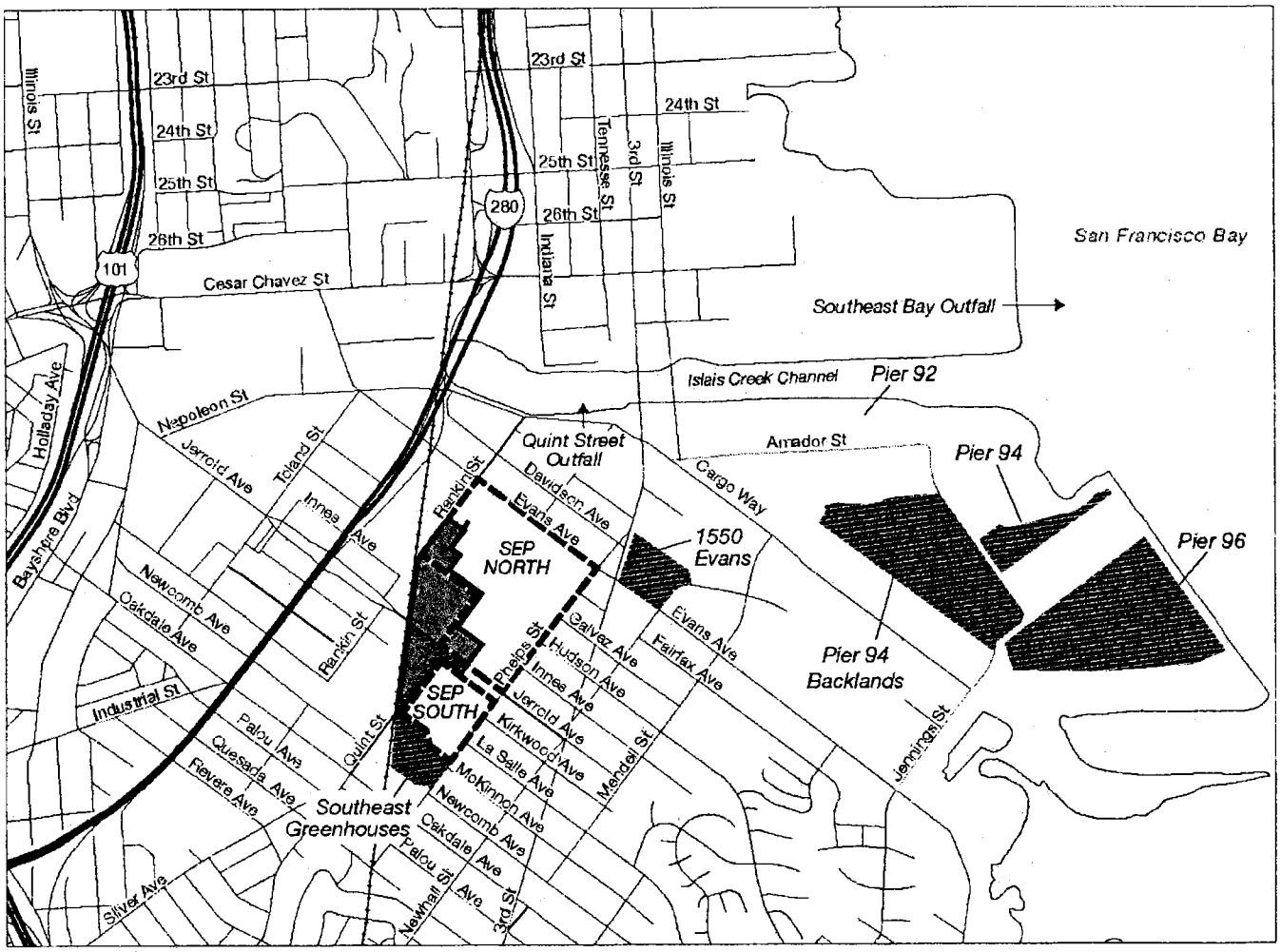
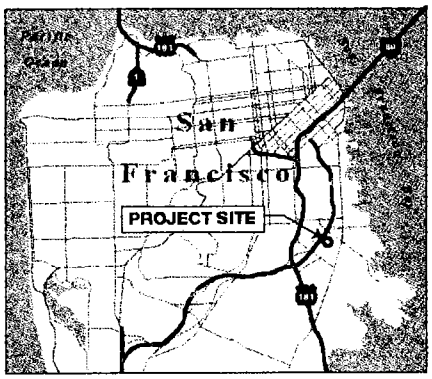


Figure 1: Project Location, Construction Staging, and Vicinity Map (BDFP Draft EIR Figure S-1)





SFPUC Southeast Plant (SEP) Boundary

0 2000
Feet

Project Site (Limited work at SEP North is also proposed to integrate liquid treatment facilities with BDFP facilities. In addition, street improvements would occur along Jerrold Avenue west of Phelps Street)

Potential Construction Staging Areas
(Staging would require up to 12 acres of the potential areas shown, and may also occur within the existing SEP boundary)

PUBLIC UTILITIES COMMISSION

City and County of San Francisco

RESOLUTION NO. **26-0006**

WHEREAS, The San Francisco Public Utilities Commission (SFPUC) has developed the Biosolids Digesters Facilities Project (BDFP or Project) to replace and relocate the SFPUC's existing solids treatment facilities at its Southeast Water Pollution Control Plant with more reliable, efficient, and modern technologies and facilities; and

WHEREAS, The BDFP requires a new Pacific Gas and Electric Company (PG&E) connection to deliver an increased natural gas supply to serve the new biosolids digesters facilities To accomplish this new connection and increased gas supply, PG&E requires a new natural gas meter station to be constructed, owned, and operated by PG&E (PG&E Facilities); and

WHEREAS, The PG&E Facilities would serve the SFPUC exclusively, and would be located on SFPUC property within the Southeast Water Pollution Control Plant designated as a portion of San Francisco Assessor's Parcel No. 5262-009 (Property); and

WHEREAS, PG&E requires an approximately 2,944-square-foot permanent easement for the PG&E Facilities (the Easement) on the Property at no cost to PG&E; and

WHEREAS, SFPUC staff, through consultation with the Office of the City Attorney, negotiated a form of Easement Deed with PG&E to excavate, construct, reconstruct, replace, remove, maintain, inspect, and use facilities and associated equipment for public utility purposes (Easement Deed); and

WHEREAS, On March 8, 2018, by Motion No. M-20129, the San Francisco Planning Commission certified the Biosolids Digester Facilities Project Final Environmental Impact Report (Final EIR) (Case No. 2015-000644ENV), prepared pursuant to the California Environmental Quality Act (CEQA); and

WHEREAS, On March 13, 2018, by Resolution No. 18-0042, this Commission adopted the CEQA Findings, including the Statement of Overriding Considerations and the Mitigation Monitoring and Reporting Program, as required by the CEQA, and approved the Project; and

WHEREAS, On July 12, 2024, the San Francisco Planning Department issued Addendum 1 to the Final EIR (Modified Case No. 2015-000644ENV-03) to include a biogas utilization system in the Project; and

WHEREAS, On October 22, 2024, by Resolution No. 24-0223, this Commission approved Contract No. DB-138, Southeast Treatment Plant Biogas Utilization Project to construct the biogas utilization system; and

WHEREAS, On December 20, 2024, the San Francisco Planning Department issued Addendum 2 to the Final EIR (Modified Case No. 2015-000644ENV-02); and

WHEREAS, On November 11, 2025, the San Francisco Planning Department issued a Minor Project Modification to the Project for installation of a new PG&E meter station within the SEP and approximately 200 feet of new underground pipeline along Jerrold Avenue connecting the meter station to PG&E's existing natural gas transmission line near the corner of Jerrold and Quint Street, having determined that no additional supplemental environmental review was needed; and

WHEREAS, The facilities and activities in the Easement Deed are within the scope of the Project authorized under the Final EIR and the Addendums and Minor Project Modification to the Final EIR; and

WHEREAS, The San Francisco Planning Department is the custodian of records, located in File No. 2015-000644ENV, Modified Case No. 2015-000644ENV-02, and Modified Case No. 2015-000644ENV-03 at 49 South Van Ness Avenue, Suite 1400, San Francisco, California 94103, which have been made available for review by this Commission and the public, and those files are part of the record before this Commission; and

WHEREAS, Staff has made the Project files, including the Final EIR, Resolution No. 18-0042, the CEQA Findings, including the Statement of Overriding Considerations and the Mitigation Monitoring and Reporting Program, the Addendums to the Final EIR, Resolution No. 24-0223, and the Minor Modification to the Final EIR available for review by this Commission and the public, and those files are part of the record before this Commission; and

WHEREAS, This Commission has reviewed and considered the information contained in the Final EIR, Resolution No. 18-0042, the CEQA Findings, including the Statement of Overriding Considerations and the Mitigation Monitoring and Reporting Program, the Addendums to the Final EIR, Resolution No. 24-0223, the Minor Modification to the Final EIR, and all written and oral information provided by the San Francisco Planning Department, the public, relevant public agencies, SFPUC and other experts and the administrative files for the Project; and now, therefore, be it

RESOLVED, This Commission has reviewed and considered the Final EIR and the Addendums and Minor Project Modification to the Final EIR and the record as a whole, and finds that the Final EIR and Addendums are adequate for its use as the decision–making body for the Project and incorporates the CEQA Findings, including the Statement of Overriding Considerations and Mitigation Monitoring and Reporting Program, Resolution No. 18-0042 and Resolution No. 24-0223 by this reference thereto as though set forth in this Resolution; and, be it

FURTHER RESOLVED, This Commission finds that because the Final EIR and the Addendums and Minor Project Modification to the Final EIR were finalized, there have been no substantial Project changes and no substantial changes in Project circumstances that would require major revisions to them due to the involvement of new significant environmental effects or an increase in the severity of previously identified significant impacts, and there is no new

information of substantial importance that would change the conclusions set forth in them; and, be it

FURTHER RESOLVED, That this Commission hereby approves the terms and conditions of the Easement Deed and authorizes the City and County of San Francisco's Director of Real Estate to execute the Easement Deed, subject to the approval of the Board of Supervisors and Mayor; and, be it

FURTHER RESOLVED, That this Commission hereby authorizes the Director of Real Estate to enter into and approve any amendments or modifications to the Easement Deed, including without limitation, the exhibits, that the Director of Real Estate determines, in consultation with the City Attorney, are in the best interest of the City; do not materially increase the obligations or liabilities of the City; are necessary or advisable to effectuate the purposes and intent of the Easement Deed or this resolution; and are in compliance with all applicable laws, including the City Charter.

I hereby certify that the foregoing resolution was adopted by the San Francisco Public Utilities Commission at its meeting of January 13, 2026.

Director of Commission Affairs
San Francisco Public Utilities Commission

SAN FRANCISCO
PLANNING DEPARTMENT

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San Francisco,
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Planning Commission Motion No. 20129

HEARING DATE: MARCH 8, 2018

Case No.:	**2015-000644ENV**
Project:	**Biosolids Digester Facilities Project**
Project Location:	750 Phelps Street, 1700 Jerrold Avenue, 1800 Jerrold Avenue, and 1801 Jerrold Avenue
Project Sponsor:	San Francisco Public Utilities Commission 525 Golden Gate Avenue San Francisco, CA 94102
Staff Contact:	Timothy Johnston – (415) 575-9035 Timothy.Johnston@sfgov.org

ADOPTING FINDINGS RELATED TO THE CERTIFICATION OF A FINAL ENVIRONMENTAL IMPACT REPORT FOR THE PROPOSED BIOSOLIDS DIGESTER FACILITIES PROJECT.

MOVED, that the San Francisco Planning Commission (hereinafter "Commission") hereby CERTIFIES the Final Environmental Impact Report identified as Case No. 2015-00644ENV, Biosolids Digester Facilities Project (hereinafter, "Project"), located in San Francisco, based upon the following findings:

1. The City and County of San Francisco, acting through the Planning Department ("Department") fulfilled all procedural requirements of the California Environmental Quality Act (Cal. Pub. Res. Code Section 21000 *et seq.*, hereinafter "CEQA"), the State CEQA Guidelines (Cal. Code of Regulations Title 14, Section 15000 *et seq.*, hereinafter "CEQA Guidelines") and Chapter 31 of the San Francisco Administrative Code (hereinafter "Chapter 31").

   A. The Department determined that an Environmental Impact Report ("EIR") was required for the Project and provided public notice of that determination by publication in a newspaper of general circulation, and in accordance with CEQA Guidelines Section 15082, prepared and circulated a first and then a revised Notice of Preparation ("NOP") to interested entities and individuals to begin the formal CEQA scoping process for the Project on June 24, 2015. In accordance with CEQA Guidelines Section 15083, the Department conducted a scoping meeting on July 16, 2015, at the Southeast Community Facility, 1800 Oakdale Avenue, San Francisco. The purpose of the meeting was to present the proposed Project to the public and receive public input regarding the proposed scope of the EIR analysis. The Department accepted public comments between June 24 through July 27, 2015. A scoping report was prepared to summarize

the public scoping process and the comments received in response to the NOP, and the report is included in Appendix NOP of the Draft EIR.

The San Francisco Planning Department received thirteen comments on the scope of the EIR either at the scoping meeting or in writing following the scoping meeting. The comment inventory for the NOP is included in Appendix NOP of the Draft EIR.

B. On May 3, 2017, the Department published the Draft Environmental Impact Report ("DEIR") and provided public notice in a newspaper of general circulation of the availability of the DEIR for public review and comment for a 45-day period, and of the date and time of the Planning Commission public hearing on the DEIR; this notice was mailed to the Department's list of persons requesting such notice and other interested parties.

C. Notices of availability of the DEIR and of the date and time of the public hearing were posted near the Project site by Department staff on May 3, 2017. The Notice of Availability was also made available at the main public library in San Francisco.

D. On May 4, 2017, copies of the DEIR were mailed or otherwise delivered to a list of persons requesting it, to those noted on the distribution list in the DEIR, to adjacent property owners, and to government agencies, the latter both directly and through the State Clearinghouse. The DEIR was posted on the Department's website.

E. A Notice of Completion was filed with the State Secretary of Resources via the State Clearinghouse on May 4, 2017.

2. The Planning Commission held a duly-advertised public hearing on the DEIR to accept written or oral comments on June 1, 2017. The public hearing transcripts are in the Project record. The period for acceptance of written comments ended on June 19, 2017.

3. The Department prepared responses to comments on environmental issues received at the public hearing and in writing during the 45-day public review period for the DEIR, and prepared revisions to the text of the DEIR in response to comments received or based on additional information that became available during the public review period. The Department provided additional, updated information and clarification on issues raised by commenters, as well as SFPUC and the Planning Department, to address Project updates since publication of the DEIR. This material was presented in a Responses to Comments document ("RTC"), published on February 23, 2018, and distributed to the Commission, and all parties who commented on the DEIR, and made available to others upon request at the Department and on the Department's website.

4. A Final Environmental Impact Report ("FEIR") has been prepared by the Department, consisting of the DEIR, any consultations and comments received during the review process, any additional information that became available, and the RTC document, all as required by law.

5. Project files on the FEIR have been made available for review by the Commission and the public. These files are available for public review at the Department at 1650 Mission Street and are part of the record before the Commission. Jonas Ionin is the custodian of the records. Copies of the DEIR and associated reference materials, as well as the RTC document, are also available for review at public libraries in San Francisco, as well as on the Department's website.

6. The Commission, in certifying the completion of said FEIR, hereby does find that that none of the factors that would necessitate recirculation of the Final EIR under CEQA Guidelines Section 15088.5 are present. The Final EIR contains no information revealing (1) any new significant environmental impact that would result from the Project or from a new mitigation measure proposed to be implemented, (2) any substantial increase in the severity of a previously identified environmental impact, (3) any feasible Project alternative or mitigation measure considerably different from others previously analyzed that would clearly lessen the environmental impacts of the Project, but that was rejected by the Project's proponents, or (4) that the Draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded.

   The Commission finds that the Project proposed for approval is within the scope of the Project analyzed in the Final EIR and the Final EIR fully analyzed the Project proposed for approval. No new impacts have been identified that were not analyzed in the Final EIR.

7. The Commission further finds, in certifying the completion of the Final EIR, that the Project described in the FEIR would have a significant and unavoidable impact with respect to air quality and cultural resources, and would contribute to significant and unavoidable cumulative impacts relating to air quality and cultural resources, even with implementation of mitigation measures.

8. On March 8, 2018, the Commission reviewed and considered the FEIR and hereby does find that the contents of said report and the procedures through which the FEIR was prepared, publicized, and reviewed comply with the provisions of CEQA, the CEQA Guidelines, and Chapter 31 of the San Francisco Administrative Code.

9. The Planning Commission hereby does find that the Final Environmental Impact Report concerning File No. 2015-000644ENV, Biosolids Digester Facilities Project, reflects the independent judgment and analysis of the City and County of San Francisco, is adequate, accurate and objective, and that the Responses to Comments document contains no significant revisions to the DEIR or information that would necessitate recirculation of the FEIR under CEQA Guidelines Section 15088.5, and hereby does CERTIFY THE COMPLETION of said Final Environmental Impact Report in compliance with CEQA and the CEQA Guidelines.

I hereby certify that the foregoing Motion was ADOPTED by the Planning Commission at its regular meeting of March 8, 2018.

Jonas P. Ionin
Commission Secretary

AYES:	Fong, Johnson, Koppel, Hillis, Melgar, and Moore
NOES:	None
ABSENT:	Richards
ADOPTED:	March 8, 2018

PROPOSED MINOR PROJECT MODIFICATION

San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

SAN FRANCISCO PUBLIC UTILITIES COMMISSION

Minor Project Modification Number:	020	**Date:**	11/25/2025
Project Title and Number:	Biosolids Digester Facilities Project		
Etime code:	CWWSIPDP01: R24 - CM Environmental Construction Compliance - Biosolids Digester Facility - [10015796: 0001 || 20720 || 232146]		
EP Case No. and Date	2015-00644ENV		
SFPUC Original Approval Action and Date:[1]	Public Hearing, 3/13/18	**SFPUC New Approval Action for Modified Project:**	Administrative
Prepared By:	Dorinda Himes, BDFP Environmental Compliance Manager		
Triggered By:	☐ Value Engineering Change Proposal ☐ Project Change Order ☒ Other: SFPUC		
Landowner:	☒ SFPUC ☐ Other:		
Vegetative Cover/Land Use:	Paved	**Net Acreage Affected: Approx. 3,100 SF**	
Modification From:	☒ Project Description ☐ Permit:	☐ Mitigation Measure	

Detailed Description of Minor Project Modification:

As discussed in the Biosolids Digester Facility Project (BDFP) Environmental Impact Report (FEIR), PG&E currently supplies natural gas to the Southeast Water Treatment Plant (SEP) and BDFP includes connecting to and increasing the supply to serve new BDFP facilities. PG&E has informed the SFPUC that they require a new natural gas meter station.

The SFPUC is requesting this modification to install the new 30 ft x 90 ft meter station within the SEP and within the BDFP project boundary (Figures 1 and 2). There would only aboveground piping (no buildings) and the piping would rest on concrete pipe supports countersunk a few feet into the ground. The entire area would be paved. All piping would be a maximum of 4 feet tall. Piping would occupy about 20 percent of the meter station footprint while the remaining area would be open for parking and PG&E personnel use as needed. The meter station would be enclosed by a perimeter fence with two locked gates for access off Jerrold. Approximately 200 feet of new underground 4-inch diameter natural gas pipeline would be constructed from the meter station down Jerrold to connect the meter station to PG&E's existing 24-inch natural gas transmission main located at the corner of Jerrold Avenue and Quint Street. The trench would be approximately 2 feet wide and a maximum of 5 feet deep. Jerrold Avenue would be repaved and restored to preconstruction conditions. The new meter station and associated NG pipeline would be constructed and operated by PG&E.

The work is planned to start in December and take approximately 6 weeks to complete.

[1] Approval action (i.e., SFPUC public hearing or administrative approval) and date

Attachments:			
Biological ☐Yes ☒ No	**Cultural** ☐ Yes ☒ No	**Photos** ☐ Yes ☒ No	**Other** ☒ Yes ☐ No

Resources:	
Biological	☒ No Resources Present ☐ Resources Present ☐ NA
Biological Survey Report References: • Biosolids Digester Facilities Project FEIR, ESA, certified March 8, 2018	
Cultural	☐ No Resources Present ☒ Resources Present ☒ Within Project APE ☐ NA (no ground disturbance)
Cultural Survey Report References: • CA-SFR-171 Archaeological Data Recovery Program and Archaeological Monitoring Plan (ADRP/AMP) for the Biosolids Digester Facilities Project, Southeast Water Pollution Control Plant, San Francisco, California, November 2020 by Far Western.	
Conditions of Approval or Reasons for Denial	
SFPUC Required Signatures for Environmental Approval:	
ECCM: ***Kimberly Stern Liddell*** Date: 11/25/25 ☒ Approved ☐ Approved with Conditions (see conditions above) ☐ Denied	
SFPUC agrees that Contractor will abide by the project description detailed in the CEQA document, project permit requirements, and applicable Standard Construction Measures, including having appropriate Specialty Environmental Monitors where required.	

Environmental Planning (EP) Required Signatures for Issuance:
Signee: *Timothy Johnston* Date: 11/25/2025

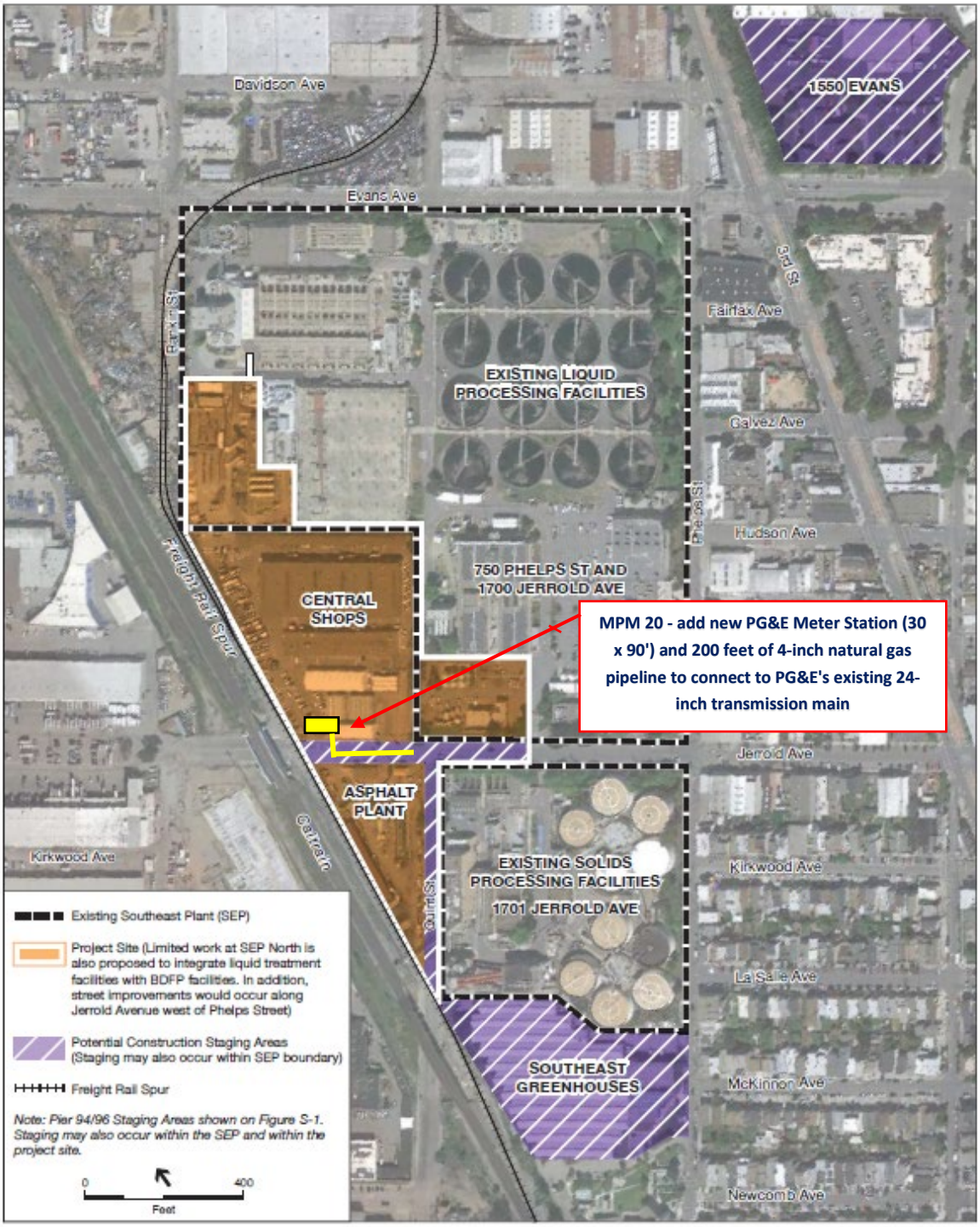
CEQA SECTION[2]	Discussion
4.2 Land Use	The proposed meter station would within the SEP and the pipeline would be underground within Jerrold Avenue such that this modification would not expand the overall footprint of the SEP. Like the approved project, the modification would thus not physically divide a community. The meter station is consistent with the other facilities and utilities already existing at the SEP and being constructed for the BDFP. Therefore, there would not be any new impacts or substantial change in the severity of effects on land use beyond those analyzed in the FEIR and Addendums.
4.3 Aesthetics	The modification construction and new facilities would be within the SEP and underground within Jerrold Avenue. At a maximum of four feet tall, the piping would be shorter than other new BDFP facilities to be installed along Jerrold (i.e., the biogas facility) and would also be lower than the future 10-foot-tall perimeter wall. Therefore, there would not be any new impacts or substantial change in the severity of effects on aesthetics beyond those analyzed in the FEIR and Addendums.
4.4 Population and Housing	N/A – the modification would involve a temporary (6 weeks) increase of approximately 5 to 10 construction workers that are anticipated to come from the existing Bay Area work force.
4.5 Cultural Resources	The meter station would be outside the mapped boundary of CA-SFR-171 (Far Western Archeological Data Recovery Plan/Archeological Monitoring Plan [ADRP/AMP], November 2020) and the SEP Historic District. Part of the 200-foot natural gas pipeline in Jerrold would be within CA-SFR-171; however, no midden was encountered in prior testing and data recovery cores in this area (see Figure 15 in Far Western report), the excavation would be outside the monitoring required by the ADRP/AMP, and at a maximum of five feet deep the shallow excavation would be limited to the fill layer underlying the SEP. If cultural resources are exposed during excavation, the discovery protocols in Mitigation Measure M-CR-2b and the ADRP/AMP would be implemented. Therefore, there would not be any new impacts or substantial change in the severity of effects on cultural resources beyond those analyzed in the FEIR and Addendums.
4.6 Transportation and Circulation	The same access off Jerrold Avenue would be used to enter/exit the modification area as approved in the FEIR for accessing the rest of BDFP work area where there are already existing traffic control measures to minimize potential traffic hazards to public vehicles, pedestrians, and bicyclists. Spoils from the limited excavations to be hauled off would be nominal such that the associated truck trips would not increase the total daily maximum truck trips as analyzed in the FEIR. Therefore, there would not be any new impacts or a substantial change in the severity of effects on transportation and circulation beyond those analyzed in the FEIR and Addendums.
4.7 Noise and Vibration	Construction of the meter station and pipeline would be over 1,000 feet from the nearest residential sensitive receptor (at 1700 Kirkwood Ave) where noise and vibration would thus be negligible. Moreover, work would be short term (6 weeks) and in accordance with the San Francisco Construction Noise Ordinance, consistent with the approved project. There would not be any sources of operational noise, only the sound of natural gas running through pipes that, if even audible, would not be noticeable beyond the future 10-foot-tall perimeter wall or at far off nearest residence. Therefore, there would not be any new impacts or a substantial change in the severity of effects on noise and vibration beyond those analyzed in the FEIR and Addendums.
4.8 Air Quality	Construction of the meter station and pipeline would occur within the project boundary such that no new receptors would be affected by emissions. Construction would involve limited equipment for a short duration and the equipment would comply with the City's Clean Construction requirements and Mitigation Measure M-AQ-1b (Emissions Offsets). During operation, the meter would be powered using a solar-powered battery and the fence gate would use a small amount of electricity to open/close and thus would not emit diesel particulate emissions and otherwise have minor emissions.

[2] The sections listed follow the order and topics as discussed in the original environmental review document.

CEQA SECTION[2]	Discussion
	Air continued… Like the approved project, dust control measures would be implemented in accordance with the Dust Control Ordinance to prevent visible dust from being generated during soil ground disturbance during grading/excavation. After construction, the area would be paved such that there would be no source of dust during operation. Therefore, there would not be any new impacts or substantial change in the severity of effects on air quality beyond those analyzed in the FEIR and Addendums.
4.9 Greenhouse Gas Emissions	For the reasons discussed above under air quality, the proposed modification would not result in any new impacts or substantial change in the severity of effects on Greenhouse gases beyond those analyzed in the FEIR and the Addendums.
4.10 Wind and Shadow	N/A – the meter station would be in the SEP with the piping being lower than the height of the perimeter wall and the natural gas pipeline in Jerrold would be underground.
4.11 Recreation	N/A - the modification would be in the SEP where there are no recreational facilities nor are there any nearby.
4.12 Utilities and Service Systems	As with the approved project, existing utilities would be identified prior to the start of digging to avoid disruption. Therefore, there would be no new impacts or substantial change in effects on utilities from what was evaluated in the FEIR and Addendums.
4.13 Public Services	N/A - the proposed modification would be in the SEP and would not cause the need to expand public services to operate.
4.14 Biological Resources	N/A - the proposed modification areas are paved with no trees or vegetation.
4.15 Geology, Soils, and Paleontological Resources	The modification area would involve limited shallow excavation disturbance (estimated maximum 5 feet deep) that would not affect geology and soils or the deeper potential fossil bearing unit that is at 25 feet or greater below ground surface. Therefore, there would not be any new impacts or a substantial change in the severity of effects on geology, soils, and paleontological resources beyond those analyzed in the FEIR and Addendums.
4.16 Hydrology and Water Quality	The modification would involve shallow excavations that would not encounter or require groundwater removal. Spoils temporarily stockpiled onsite would be managed with appropriate best management practices to prevent sediment laden water from being discharged into storm drains as per the FEIR. The area would be repaved to preconstruction grade and thus would not affect hydrology or affect drainage within the Southeast Plant. Therefore, there would not be any new impacts or substantial change in the severity of effects on hydrology beyond those analyzed in the FEIR and Addendums.
4.17 Hazards and Hazardous Materials	The only hazardous materials involved would be fuel in construction equipment to build the meter station and pipeline. Equipment to be used would routinely be checked for having no leaks. No hazardous materials would be stored onsite during operation. Therefore, there would not be any new impacts or substantial change in the severity of effects on hazards and hazardous materials beyond those analyzed in the FEIR.
4.18 Minerals Resources, Energy Resources, and Water Use	As identified in the FEIR, the project site, within which the modification would be implemented, does not contain mineral resources or locally important mineral resource recovery sites. The modification would only involve a minor increase in equipment use for construction for approximately six weeks, which would not result in a substantial increase in fuel use or the project's overall energy use. Given the limited ground disturbance for the modification, water use for dust control would be limited and would thus not substantially increase in the project's overall water use. Moreover, energy and water use for this

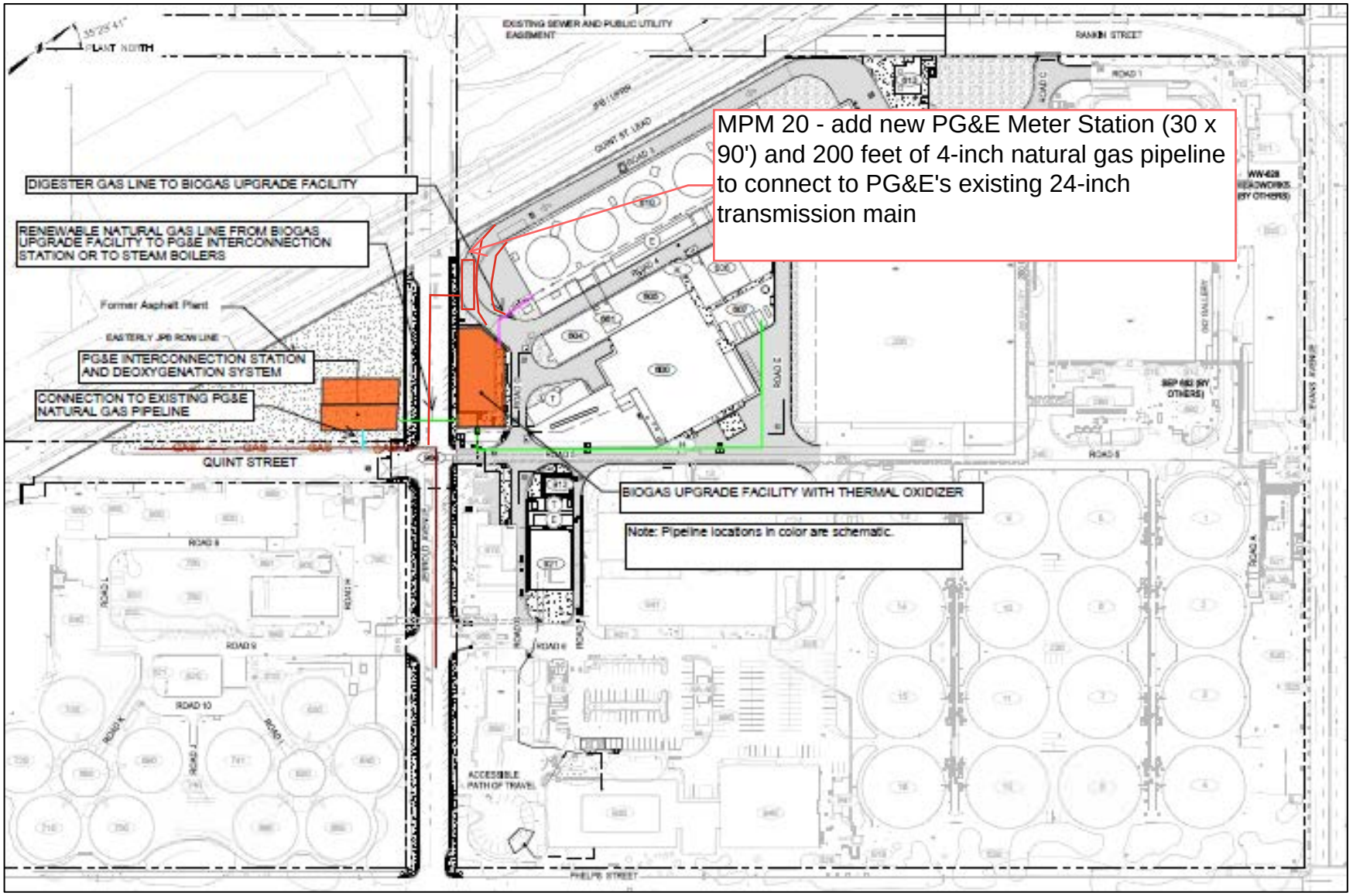
CEQA SECTION[2]	Discussion
	modification would not be wasteful since the meter station and pipeline would support operation of the new BDFP facilities, which provide a public good (wastewater treatment). Therefore, there would not be any new impacts or substantial change in the severity of effects on minerals, energy and water use as analyzed in the FEIR and Addendums.
4.19 Agriculture and Forest Resources	N/A - the proposed modification would be within the SEP and Jerrold Avenue where there are no agriculture or forest resources.
Cumulative Impacts	As discussed above, installing the new meter station and 4-inch natural gas pipeline would not result in any new significant project impacts and thus would not contribute considerably to any cumulatively impacts.

FIGURE 1
MPM-20 PG&E Natural Gas Meter Station & Underground Pipeline Vicinity Map



(Note, basemap for illustration of new MPM 20 components only as overall Biosolids project boundary has been revised through prior modifications)

Figure 2 - PG&E Natural Gas Meter Station Detail
(Schematic for Illustrative Purposes Only)



Source: SFPUC

FINAL ENVIRONMENTAL IMPACT REPORT – Volume 1

Biosolids Digester Facilities Project

PLANNING DEPARTMENT
CASE NO. **2015-000644ENV**

STATE CLEARINGHOUSE NO. 2015062073

	Draft EIR Publication Date:	**May 3, 2017**
	Draft EIR Public Hearing Date:	**June 1, 2017**
	Draft EIR Public Comment Period:	**May 4, 2017 to June 19, 2017**
	Final EIR Certification Hearing Date:	**March 8, 2018**

SAN FRANCISCO PLANNING DEPARTMENT

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Planning Commission Motion No. 20129

HEARING DATE: MARCH 8, 2018

Case No.:	**2015-000644ENV**
Project:	**Biosolids Digester Facilities Project**
Project Location:	750 Phelps Street, 1700 Jerrold Avenue, 1800 Jerrold Avenue, and 1801 Jerrold Avenue
Project Sponsor:	San Francisco Public Utilities Commission 525 Golden Gate Avenue San Francisco, CA 94102
Staff Contact:	Timothy Johnston – (415) 575-9035 Timothy.Johnston@sfgov.org

ADOPTING FINDINGS RELATED TO THE CERTIFICATION OF A FINAL ENVIRONMENTAL IMPACT REPORT FOR THE PROPOSED BIOSOLIDS DIGESTER FACILITIES PROJECT.

MOVED, that the San Francisco Planning Commission (hereinafter "Commission") hereby CERTIFIES the Final Environmental Impact Report identified as Case No. 2015-00644ENV, Biosolids Digester Facilities Project (hereinafter, "Project"), located in San Francisco, based upon the following findings:

1. The City and County of San Francisco, acting through the Planning Department ("Department") fulfilled all procedural requirements of the California Environmental Quality Act (Cal. Pub. Res. Code Section 21000 *et seq.*, hereinafter "CEQA"), the State CEQA Guidelines (Cal. Code of Regulations Title 14, Section 15000 *et seq.*, hereinafter "CEQA Guidelines") and Chapter 31 of the San Francisco Administrative Code (hereinafter "Chapter 31").

   A. The Department determined that an Environmental Impact Report ("EIR") was required for the Project and provided public notice of that determination by publication in a newspaper of general circulation, and in accordance with CEQA Guidelines Section 15082, prepared and circulated a first and then a revised Notice of Preparation ("NOP") to interested entities and individuals to begin the formal CEQA scoping process for the Project on June 24, 2015. In accordance with CEQA Guidelines Section 15083, the Department conducted a scoping meeting on July 16, 2015, at the Southeast Community Facility, 1800 Oakdale Avenue, San Francisco. The purpose of the meeting was to present the proposed Project to the public and receive public input regarding the proposed scope of the EIR analysis. The Department accepted public comments between June 24 through July 27, 2015. A scoping report was prepared to summarize

the public scoping process and the comments received in response to the NOP, and the report is included in Appendix NOP of the Draft EIR.

The San Francisco Planning Department received thirteen comments on the scope of the EIR either at the scoping meeting or in writing following the scoping meeting. The comment inventory for the NOP is included in Appendix NOP of the Draft EIR.

B. On May 3, 2017, the Department published the Draft Environmental Impact Report ("DEIR") and provided public notice in a newspaper of general circulation of the availability of the DEIR for public review and comment for a 45-day period, and of the date and time of the Planning Commission public hearing on the DEIR; this notice was mailed to the Department's list of persons requesting such notice and other interested parties.

C. Notices of availability of the DEIR and of the date and time of the public hearing were posted near the Project site by Department staff on May 3, 2017. The Notice of Availability was also made available at the main public library in San Francisco.

D. On May 4, 2017, copies of the DEIR were mailed or otherwise delivered to a list of persons requesting it, to those noted on the distribution list in the DEIR, to adjacent property owners, and to government agencies, the latter both directly and through the State Clearinghouse. The DEIR was posted on the Department's website.

E. A Notice of Completion was filed with the State Secretary of Resources via the State Clearinghouse on May 4, 2017.

2. The Planning Commission held a duly-advertised public hearing on the DEIR to accept written or oral comments on June 1, 2017. The public hearing transcripts are in the Project record. The period for acceptance of written comments ended on June 19, 2017.

3. The Department prepared responses to comments on environmental issues received at the public hearing and in writing during the 45-day public review period for the DEIR, and prepared revisions to the text of the DEIR in response to comments received or based on additional information that became available during the public review period. The Department provided additional, updated information and clarification on issues raised by commenters, as well as SFPUC and the Planning Department, to address Project updates since publication of the DEIR. This material was presented in a Responses to Comments document ("RTC"), published on February 23, 2018, and distributed to the Commission, and all parties who commented on the DEIR, and made available to others upon request at the Department and on the Department's website.

4. A Final Environmental Impact Report ("FEIR") has been prepared by the Department, consisting of the DEIR, any consultations and comments received during the review process, any additional information that became available, and the RTC document, all as required by law.

5. Project files on the FEIR have been made available for review by the Commission and the public. These files are available for public review at the Department at 1650 Mission Street and are part of the record before the Commission. Jonas Ionin is the custodian of the records. Copies of the DEIR and associated reference materials, as well as the RTC document, are also available for review at public libraries in San Francisco, as well as on the Department's website.

6. The Commission, in certifying the completion of said FEIR, hereby does find that that none of the factors that would necessitate recirculation of the Final EIR under CEQA Guidelines Section 15088.5 are present. The Final EIR contains no information revealing (1) any new significant environmental impact that would result from the Project or from a new mitigation measure proposed to be implemented, (2) any substantial increase in the severity of a previously identified environmental impact, (3) any feasible Project alternative or mitigation measure considerably different from others previously analyzed that would clearly lessen the environmental impacts of the Project, but that was rejected by the Project's proponents, or (4) that the Draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded.

   The Commission finds that the Project proposed for approval is within the scope of the Project analyzed in the Final EIR and the Final EIR fully analyzed the Project proposed for approval. No new impacts have been identified that were not analyzed in the Final EIR.

7. The Commission further finds, in certifying the completion of the Final EIR, that the Project described in the FEIR would have a significant and unavoidable impact with respect to air quality and cultural resources, and would contribute to significant and unavoidable cumulative impacts relating to air quality and cultural resources, even with implementation of mitigation measures.

8. On March 8, 2018, the Commission reviewed and considered the FEIR and hereby does find that the contents of said report and the procedures through which the FEIR was prepared, publicized, and reviewed comply with the provisions of CEQA, the CEQA Guidelines, and Chapter 31 of the San Francisco Administrative Code.

9. The Planning Commission hereby does find that the Final Environmental Impact Report concerning File No. 2015-000644ENV, Biosolids Digester Facilities Project, reflects the independent judgment and analysis of the City and County of San Francisco, is adequate, accurate and objective, and that the Responses to Comments document contains no significant revisions to the DEIR or information that would necessitate recirculation of the FEIR under CEQA Guidelines Section 15088.5, and hereby does CERTIFY THE COMPLETION of said Final Environmental Impact Report in compliance with CEQA and the CEQA Guidelines.

I hereby certify that the foregoing Motion was ADOPTED by the Planning Commission at its regular meeting of March 8, 2018.

Jonas P. Ionin
Commission Secretary

AYES:	Fong, Johnson, Koppel, Hillis, Melgar, and Moore
NOES:	None
ABSENT:	Richards
ADOPTED:	March 8, 2018

BIOSOLIDS DIGESTER FACILITIES PROJECT FINAL ENVIRONMENTAL IMPACT REPORT
Volume 1

Planning Department Case No. 2015-000644ENV
State Clearinghouse No. 2015062073

City and County of San Francisco
San Francisco Planning Department

A dot (●) indicates material that has been revised since publication of the Draft EIR. A dot with an asterisk (●*) is used in the Table of Contents to identify which sections of the document contain changes. Long changes are indicated with opening dots (❶) and closing dots (❶).

Important Dates:

DEIR Publication Date:	May 3, 2017
DEIR Public Comment Period:	May 4, 2017 to June 19, 2017
DEIR Public Hearing Date:	June 1, 2017
FEIR Certification Hearing Date:	March 8, 2018

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ACRONYMS, ABBREVIATIONS, AND GLOSSARY

Acronyms and Abbreviations

°F	degrees Fahrenheit
μg/m^3	micrograms per cubic meter
AASHTO	American Association of State Highway Transportation Officials
AAU	Academy of Art University
AB	Assembly Bill
AB 32	Assembly Bill No. 32
ABAG	Association of Bay Area Governments
ACI	American Concrete Institute
ACM	asbestos-containing material
ACW	asbestos-containing waste
ADRP	archeological data recovery plan
AISC	American Institute of Steel Construction
APE	Area of Potential Effects
APEZ	Air Pollutant Exposure Zone
AMEL	average monthly effluent limit
AMP	Archeological Monitoring Program
ANSI	American National Standards Institute
APEZ	Air Pollutant Exposure Zone
AQI	Air Quality Index
AQTR	Air Quality Technical Report
ASC	Anthropological Studies Center
ASCE	American Society of Civil Engineers
ASF	Age Sensitivity Factors
AT&SF	Atchison, Topeka and Santa Fe
ATCM	Asbestos Toxic Control Measure
ATP	archeological testing plan
AWWA	American Water Works Association

BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
BACWA	Bay Area Clean Water Agencies
BART	Bay Area Rapid Transit
Basin Plan	Water Quality Control Plan for the San Francisco Bay Basin
Bay Plan	*San Francisco Bay Plan*
Bay Trail	San Francisco Bay Trail
BCDC	San Francisco Bay Conservation and Development Commission
BDFP (or project)	Biosolids Digester Facilities Project
Better Streets Plan	*San Francisco Better Streets Plan*
BFS	Bruce Flynn Pump Station
bgs	below ground surface
Bicycle Plan	*San Francisco Bicycle Plan*
Blue Book	SFMTA's *Regulation for Working in San Francisco Streets*
BMPs	best management practices
BMS	Biosolids Management System
BNSF	Burlington Northern Santa Fe
B.P.	before present
BSSC	Building Seismic Safety Council
Btu	British thermal unit
CAA	Clean Air Act
CAC	Citizens' Advisory Committee
CA FID UST	Facility Inventory Database
CalEPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
California Register	California Register of Historical Resources
Cal/OSHA	California Division of Occupational Safety and Health
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAP	Clean Air Plan
CAPCOA	California Air Pollution Control Officers Association
C-APE	CEQA Area of Potential Effects
CARB	California Air Resources Board
CARE	Community Air Risk Evaluation
CBC	California Building Code

CCAA	California Clean Air Act
CCR	California Code of Regulations
CCSF (or City)	City and County of San Francisco
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CER	Conceptual Engineering Report
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH_4	methane
CHMIRS	California Hazardous Material Incident Reporting System
City (or CCSF)	City and County of San Francisco
CIWMA	California Integrated Waste Management Act
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2E	carbon dioxide-equivalent
CO-CAT	Coastal and Ocean Working Group of the California Climate Action Team
CPF	Cancer Potency Factors
CRRP	Community Risk Reduction Plan
CSD	combined sewer discharge
CSO Control Policy	Combined Sewer Overflow Control Policy
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
cy	cubic yards
D/T	dilution to threshold ratio
dB	decibel
dBA	A-weighted decibel

DBI	Department of Building Inspection
DEHP	di (2-ethylhexyl) phthalate
DEM	San Francisco Department of Emergency Management
DGS NGS	Department of General Services Natural Gas Services
district	*Southeast Treatment Plan Streamline Moderne Industrial Historic District*
DOE	Department of Environment
DOGGR	Division of Oil, Gas, and Geothermal Resources
DOSH	Division of Occupational Safety and Health (also known as "Cal/OSHA")
DPF	diesel particulate filter
DPM	diesel particulate matter
DPR	California Department of Parks and Recreation
D/T	dilution to threshold ratio
DTSC	Department of Toxic Substances Control
EDD	State of California Employment Development Department
EFH	Essential Fish Habitat
EIR	environmental impact report
EMI	Emissions Inventory Data
EMU	electric multiple unit
ENSO	El Niño–Southern Oscillation
EO	Executive Order
EOC	Emergency Operations Center
EP	Environmental Planning Division of the San Francisco Planning Department
EQ	(Class A Biosolids) Exceptional Quality
ERO	Environmental Review Officer
ERP	Electricity Resource Plan
ESA	Environmental Site Assessment
ESL	Environmental Screening Level
FAA	Federal Aviation Administration
FARR	Final Archeological Resources Report
Far Western	Far Western Anthropological Research Group
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration

FIRM	Flood Insurance Rate Map
First Update	*First Update to the Climate Change Scoping Plan*
FRA	Federal Railroad Administration
FSD	Forensic Service Division
FTA	Federal Transit Administration
FWHA	Federal Highway Administration
g	gravity
GBT	gravity belt thickener
General Plan	*San Francisco General Plan*
GHG	greenhouse gas
GHGRP	Greenhouse Gas Reporting Program
GIS	geographic information system
gpd	gallons per day
gpm	gallons per minute
GSA	General Services Agency (City and County of San Francisco)
gsf	gross square feet
GSRs	General Seismic Requirements
H_2S	hydrogen sulfide
HABS	Historic American Building Survey (HABS)
HAER	Historic American Engineering Record
HAZNET	Facility and Manifest Data
HEPA	High Efficiency Particulate Air Filter
HERO	Human and Ecological Risk Office
HHRA	Human Health Risk Assessment
Highway 101	U.S. Highway 101
HIST UST	Hazardous Substance Storage Container Database
HMBP	Hazardous Materials Business Plan
hp	horsepower
HRA	health risk assessment
HRSG	Heat Recovery Steam Generator
HUD	U.S. Department of Housing and Urban Development
HVAC	heating, ventilation, and air conditioning
I-280	Interstate 280
I-80	Interstate 80
IADG	Industrial Area Design Guidelines

IBC	International Building Code
ICS	influent control structure
ICTF	Intermodal Container Transfer Facility
in/sec	inches per second
IPCC	Intergovernmental Panel on Climate Change
ISCOTT	Interdepartmental Staff Committee on Traffic and Transportation
JPB	Joint Powers Board
km	kilometer
kV	kilovolt
kW	kilowatt
kWh	kilowatt-hours
LASH	Lighter Aboard Ships
LCC	Less than Cumulatively Considerable
L_{dn}	day-night noise level
LED	light emitting diode
LEED®	Leadership in Energy and Environmental Design
LID	low-impact development
LiDAR	Light Detection and Ranging
LOS	Level of Service
LS	Less than Significant impact
LSM	Less than Significant impact with Mitigation required
LUST	leaking underground storage tank
MD	Metropolitan Division
MDEL	maximum daily effluent limit
MEI	maximally exposed individual
MEISR	maximally exposed individual sensitive receptor
MG	million gallon
mgd	million gallons per day
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mg/L as N	milligrams per liter as nitrogen
mg/m^3	micrograms per cubic meter
MHHW	Mean Higher High Water
MHW	mean high water
million $MTCO_2E$	million gross metric tons of carbon dioxide-equivalent

MLD	Most Likely Descendant
MLP	maximum load point
mm/s	millimeters per second
MMBtu/hr	million British thermal units per hour
MMRP	Mitigation Monitoring and Reporting Program
$MMTCO_2E$	million metric tons of carbon dioxide-equivalent
MnO_4	manganate (VII) ion
mph	miles per hour
MPO	metropolitan planning organization
MRR	Mandatory Reporting of Greenhouse Gas Emissions
MRZ	Mineral Resource Zone
MS4	Small Municipal Separate Storm Sewer System
MSM	mobile source measure
MTBE	methyl tert-butyl ether
MTC	Metropolitan Transportation Commission
$MTCO_2E$	metric tons of carbon dioxide-equivalent
MTS	Metropolitan Transportation System
Muni	San Francisco Municipal Railway
MW	megawatt
Mw	moment magnitude
MWh	megawatt-hours
N_2O	nitrous oxide
n/a	not applicable
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
National Register	National Register of Historic Places
NAVD88	North American Vertical Datum of 1988
NED	National Elevation Dataset
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NFPA	National Fire Protection Association
ng/m^3	nanograms per cubic meter
NHPA	National Historic Preservation Act
NI	No Impact
NIOSH	National Institute for Occupational Safety and Health
NMFS	National Marine Fisheries Service

NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOP	Notice of Preparation
NOx	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPF	North Point Wet Weather Facility
NPS	National Park Service
NRC	National Research Council
NRCS	Natural Resources Conservation Service
NR-NHL	National Register-National Historic Landmark
NSMCSD	North San Mateo County Sanitation District
NSR	New Source Review
NWIC	Northwest Information Center
O&M	operations and maintenance
OCII	Office of Community Investment and Infrastructure
OCS	overhead contact system
OEHHA	California Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
OEWD	Office of Economic and Workforce Development
OHP	Office of Historic Preservation
OPR	Office of Planning and Research
OSHA	Occupational Safety and Health Administration
OSP	Oceanside Water Pollution Control Plant
PCBs	polychlorinated biphenyls
PG&E	Pacific Gas and Electric Company
Planning Department	San Francisco Planning Department
PM	particulate matter
$PM_{2.5}$	particulate matter of 2.5 microns in diameter or less
PM_{10}	particulate matter of 10 microns in diameter or less
Port	Port of San Francisco
POTWs	publicly owned treatment works
ppb	part per billion
pphm	parts per hundred million
ppm	parts per million
ppi	pixels per inch

PPV	peak particle velocity
PRC	California Public Resources Code
PRMMP	Paleontological Resources Monitoring and Mitigation Program
project	Biosolids Digester Facilities Project
QACL	Qualified Archeological Consultants List
R&R	Repair and Replacement
RCRA	Resource Conservation and Recovery Act
RCRA-LQG	Resource Conservation and Recovery Act-Large Quantity Generator
RCRA-SQG	Resource Conservation and Recovery Act-Small Quantity Generator
RFP	Request for Proposals
RGA LUST	Recovered Government Archive Leaking Under Ground Storage Tank
RMC	RMC Water and Environment
ROG	reactive organic gases
RPS	Renewables Portfolio Standard
RWQCB	Regional Water Quality Control Board
SAAQS	state ambient air quality standards
SamTrans	San Mateo County Transit District
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SCADA	supervisory control and data acquisition
Scoping Plan	*Climate Change Scoping Plan*
SCT	South Container Terminal
SD3	Superdistrict 3
SDC	Seismic Design Category
SECF	Southeast Community Facility
SEI	Structural Engineering Institute
SEP	Southeast Water Pollution Control Plant (Southeast Plant)
SEP North	SEP facilities north of Jerrold Avenue
SEP South	SEP facilities south of Jerrold Avenue
SEWG	Southeast Working Group
SFBAAB	San Francisco Bay Area Air Basin
SF-CHAMP	San Francisco Chained Activity Modeling Process
SFCTA	San Francisco County Transportation Authority
SFD	San Francisco City Datum
SFDE	San Francisco Department of the Environment

SFDPH	San Francisco Department of Public Health
SFPW	San Francisco Public Works
SFFD	San Francisco Fire Department
SF Guidelines	San Francisco Transportation Impact Analysis Guidelines
SFMTA	San Francisco Municipal Transportation Agency
SFO	San Francisco International Airport
SFPD	San Francisco Police Department
SFPUC	San Francisco Public Utilities Commission
SFRPD	San Francisco Recreation and Parks Department
SFSD	San Francisco Sheriff's Department
SFSU	San Francisco State University
SHPO	State Historic Preservation Officer
SID	Strategic Incentives Division
SLR	sea level rise
SM	Significant and Unavoidable with Mitigation
SMARA	Surface Mining and Reclamation Act
SPC	Seismic Performance Class
SO_2	sulfur dioxide
SRF	State Revolving Fund
SSIP	Sewer System Improvement Program
STLC	soluble threshold limit concentration
STC	Sound Transmission Class
SU	Significant and Unavoidable
SUM	Significant and Unavoidable with Mitigation
SVOC	semi-volatile organic compound
SVP	Society of Vertebrate Paleontology
SWEEPS UST	Statewide Environmental Evaluation and Planning System Underground Storage Tank
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAAS	total annual available sunlight
TAC	toxic air contaminant
TASC	Transportation Advisory Staff Committee
TAZ	Traffic Analysis Zone
TC	Traffic Company

TCLP	toxic characteristic leaching procedure
TDM	Transportation Demand Management
THP	thermal hydrolysis process
THS	thermally hydrolyzed sludge
TIFF	Tagged Image File Format
TIM	Transportation Information Map
TMDLs	total maximum daily loads
TOG	total organic gases
tpd	tons per day
TPH	total petroleum hydrocarbons
TPZ	Tree Protection Zone
TTLC	total threshold limit concentration
UCMP	University of California Museum of Paleontology
UPRR	Union Pacific Railroad
USA North	Underground Service Alert of Northern California
USC	United States Code
USC&GS	U.S. Coast and Geodetic Survey
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
UWMP	Urban Water Management Plan
VDECS	verified diesel emission control strategy (or strategies)
VFA	volatile fatty acids
VMT	vehicle miles traveled
VOC	volatile organic compound
WDRs	Waste Discharge Requirements
WEAP	Worker Environmental Awareness Program
WETA	Water Emergency Transportation Authority
WHO	World Health Organization
WSA	water supply assessment

Glossary

100-year flood A flood event that has a 1 percent chance of occurring in any given year.

Activated carbon Carbon that has been treated to increase the surface area available for adsorption, typically through pyrolysis (burning) or other types of oxidation.

Activated sludge The combination of microorganisms that are maintained in suspension in wastewater undergoing secondary treatment via the activated sludge treatment process.

Activated sludge treatment process The conventional activated sludge treatment process is a commonly used method to remove the soluble/non-settleable organic solids from primary effluent with the assistance of microorganisms. The microorganisms consume the organics and grow additional microorganisms, and then are settled out of the water after a certain amount of time. This is achieved through a two-stage process. First, primary effluent is mixed with an inventory of microorganisms ("activated sludge") in an aeration tank. Air or oxygen is supplied to the aeration tank to encourage microbial growth. Then the liquids in the aeration tank are transferred to secondary clarifiers, where the microbial solids settle by gravity and are separated from the treated water. The majority of the microbial solids collected from the secondary clarifier back to the aeration tank to seed additional microbial activity; these microbial solids are called "return activated sludge." In order to maintain the correct balance of microorganisms in the aeration tank, the remaining microbial solids from the clarifier, collectively called "waste activated sludge," are sent to the digesters.

Active fault An earthquake fault that shows geologic evidence of movement within Holocene time (approximately the last 11,000 years).

Adsorption Occurs when a molecule is held physically on the surface of an adsorbent material, as opposed to absorption, in which a molecule chemically reacts with the absorbing material. Adsorbed molecules can also be desorbed (i.e., removed) from the material.

AERMOD The United States Environmental Protection Agency's preferred or recommended steady state air dispersion plume model. It is used for dispersion modeling in order to assess emissions from primary sources.

Ammonia Ammonia is a nutrient that contains nitrogen and hydrogen. Its chemical formula is NH_3 in the un-ionized state and NH_4^+ in the ionized form. Total ammonia is the sum of both un-ionized and ionized ammonia.

Ammonia scrubbers Ammonia scrubbers are a technology used for the control of ammonia emissions. Sulfuric acid or acidic leachate is used as a scrubbing solution to absorb the ammonia, which is collected and removed in a form of salt (e.g., ammonium sulfate).

Anaerobic digestion Anaerobic digestion is a method of treating wastewater solids using oxygen-starved biological processes to inactivate bacteria and pathogens (disease-causing organisms), break down organic matter and produce stabilized biosolids and biogas.

A-weighted decibel (dBA) A scale of noise measurement that approximates the range of sensitivity of the human ear to sounds of different frequencies.

B20 biodiesel A blend of biodiesel (defined below) and petroleum diesel in which between 6 and 20 percent of the blended fuel is biodiesel.

Belt filter press A machine that applies mechanical pressure to a chemically (polymer) conditioned solid stream to remove water from the solids. The mechanical pressure is applied by sandwiching the solids between tensioned belts that pass through a series of rollers. This process separates the solid stream into a filtrate (reject water stream) and a concentrated solid (cake).

Beneficial reuse Treated biosolids can be beneficially reused for a variety of uses such as landfill cover, agricultural land application, soil blending, and compost. Class A biosolids have fewer restrictions on end uses.

Biodiesel A fuel produced using a transesterification process from biological feedstock sources including fats, oils and greases. Biodiesel is chemically different from petroleum diesel and renewable diesel (defined below) because it contains oxygen atoms. Biodiesel can be used in its pure form or blended with petroleum diesel.

Biofiltration Biofiltration is a proposed odor control technology. In biofiltration, odorous air is passed through a biologically active collection of peat, soil, or other engineered media, where microbes in the media degrade odorous chemical compounds.

Bioregion An area defined by a combination of ecological, geographic, and social criteria and consists of a system of related, interconnected ecosystems.

Biosolids Biosolids are the recyclable solid materials removed from the wastewater during the treatment process When treated and processed, these nutrient-rich residuals can be recycled and applied as fertilizer to improve and maintain productive soils and stimulate plant growth.

Blind-thrust faults Low-angled subterranean faults that have no surface expression.

Cake Industry term used to denote dewatered biosolids. Typically consistency is 16 percent to 26 percent solids and the cake has the appearance of damp soil. The term is applied equally to Class A or Class B biosolids.

CALPUFF An advanced, non-steady-state meteorological and air quality monitoring system adopted by the United States Environmental Protection Agency as the preferred model for assessing long-range transport of pollutants in certain circumstances and on a case-by-case basis for certain near-field applications involving complex metrological conditions.

Carbon dioxide-equivalents Greenhouse gas emissions are frequently measured in carbon dioxide-equivalents due to the differential heat absorption potential of various greenhouse gases. Carbon dioxide-equivalents present a weighted average based on each gas's heat absorption (or "global warming") potential.

Chemisorption A process during which potassium permanganate media converts odorous gases into harmless microscopic particles, which remain trapped in the media.

Class A biosolids As defined by 40 CFR 503.32(a), these are biosolids in which the pathogens (including enteric viruses, pathogenic bacteria, and viable helminth ova) are reduced below detectable limits. Class A biosolids that meet the United States Environmental Protection Agency's metals pollutant limits are labeled "Exceptional Quality (EQ)" biosolids and have the fewest restrictions for land applications such as soil conditioning and fertilizer.

Class B biosolids As defined by 40 CFR 503.32(b), these are biosolids in which the pathogens are reduced to levels that are unlikely to pose a threat to public health and the environment under specific use conditions, including site and cropping restrictions.

Cogeneration Cogeneration, or combined heat and power, is the use of a heat engine to generate electricity and useful heat at the same time. At wastewater treatment facilities that have anaerobic digesters, the methane gas produced can be used to produce thermal energy (heat) and electricity (power) and reduce operational energy costs.

Combined sewer system A sewer system that collects both wastewater and stormwater in a single pipeline and conveys them to facilities for treatment and discharge.

Dechlorination The process of removing chlorine from treated wastewater that has been chlorinated for disinfection. Dechlorination is intended to protect aquatic resources.

Dewatering The process of removing excess water by mechanical means (centrifuge or belt press) from biosolids to minimize moisture content and volume.

Digester gas Gas produced by the biological breakdown of organic matter in the absence of oxygen. Digester gas is biogas produced from the anaerobic digestion or fermentation typically of wastewater solids (sludge). This type of biogas is comprised mostly of methane and carbon dioxide.

Ferric chloride Ferric chloride ($FeCl_3$) is an iron salt in an oxidized state. In wastewater treatment ferric chloride is used to control the buildup of struvite (defined below) in digesters, pipes, and other equipment. It is considered hazardous due to its corrosivity.

Filtrate The liquid separated from the gravity belt thickeners or belt filter presses during solids treatment.

Gravity belt thickeners	Thickening is the process by which solids are condensed. Thickening wastewater solids reduces the volume and improves operation. Gravity belt thickeners condense wastewater solids using gravity drainage of liquid through a filter belt.
Headworks	Collective term that refers to both screenings and grit removal (or pre-treatment) facilities that occur upstream of primary and secondary treatment.
Hibernaculum	The winter quarters of a hibernating animal.
Holocene fault	An earthquake fault that has shown geologic evidence of movement within Holocene time (approximately the last 11,000 years). Historic faults are Holocene faults that have also demonstrated fault movement within the last 200 years.
Hydric soil	Soil that is permanently or seasonally saturated by water.
Hydrogen sulfide	Hydrogen sulfide is a gas with a rotten egg odor. The gas is produced by bacteria under anaerobic conditions, such as in digesters. At high concentrations, hydrogen sulfide gas is particularly dangerous because it is only noticeable for a short time before it dulls the sense of smell. The gas is poisonous to the respiratory system, explosive, flammable, and colorless. Hydrogen sulfide contained in biogas (defined above) can cause odors, corrosiveness, and sulfur emissions when the gas is burned.
Jurisdictional features	Waters or wetlands subject to the jurisdiction of the U.S. Army Corps of Engineers, Regional Water Quality Control Board, or California Department of Fish and Wildlife pursuant to the federal Clean Water Act, Porter Cologne Water Quality Act, or California Fish and Game Code.
Leq	Time variations in noise exposure over time are typically expressed in terms of a steady-state energy level (L_{eq}) that represents the acoustical energy of a given measurement.
Light Detection and Ranging (LiDAR)	A remote sensing technology that measures distance by illuminating a target with a laser and analyzing the reflected light. LiDAR is commonly used to create high-resolution terrain models, topography data sets, and topographic maps.
Liquefaction	A phenomenon in which saturated granular sediments temporarily lose their shear strength during periods of earthquake-induced, strong ground shaking. The susceptibility of a site to liquefaction is a function of the depth, density, and water content of the granular sediments, as well as the magnitude of an earthquake. Saturated, unconsolidated silts, sands, silty sands, and gravels within 50 feet of the ground surface are most susceptible to liquefaction.
Lmax	The maximum, instantaneous noise level registered during a measurement period.

Mean Higher High Water (MHHW)	The average elevation of the higher of the day's two high tides. MHHW is calculated as the average elevation of the daily high water levels observed over a 19-year period known as the "tidal epoch."
Media	As used in this EIR, a term used to describe the material within a filter system, such as activated charcoal, sand, sponge, or cloth.
Mesophilic anaerobic digestion	A method of treating wastewater solids using biological processes to inactivate bacteria and pathogens (disease-causing organisms) and produce stabilized organic biosolids, biogas, and water. Mesophilic anaerobic digesters operate at temperatures of 95 degrees Fahrenheit (°F) to 105 °F.
Moment magnitude (Mw)	A measurement of the amount of energy produced by an earthquake. Moment magnitude is directly related to the average slip rate and fault rupture area. Because of the logarithmic basis of the scale, each whole number increase in magnitude represents a tenfold increase in the measured amplitude of an earthquake wave. As an estimate of energy, each whole number step in the magnitude scale corresponds to the release of about 31 times more energy than the amount associated with the preceding whole number value.
Outfall	A pipe structure that carries treated effluent into deep offshore locations for final disposal. Effluent from the Southeast Water Pollution Control Plant (SEP) is discharged in central San Francisco Bay via the Southeast Bay Outfall.
Pathogen	A biological agent that causes disease or illness (e.g., viruses, bacteria, and protozoa such as cryptosporidium and giardia).
Piezometer	A type of well installed to monitor groundwater levels below the ground surface.
Polymer	Generally a type of chemical made up of large molecules; in wastewater treatment, a chemical used to promote thickening in the treatment process.
Potassium permanganate	A chemical compound containing potassium and the manganite (VII) ion (MnO_4^-), a strong oxidizing agent.
Potentially active fault	An earthquake fault that shows geologic evidence of movement during the Quaternary (approximately the last 1.8 million years).
Pre-treatment	Pre-treatment of wastewater generally describes the process of removing large solids from wastewater. This is achieved by using screens to capture large debris and grit and then holding the wastewater in basins to settle the heavier non-organic solids (such as sand and gravel) from the water.
Primary sedimentation tank	Large tanks used in the primary treatment process for the settling or sedimentation of suspended solids from pre-treated wastewater.

Primary sludge The organic solids that settle out of wastewater during the primary treatment process.

Primary treatment Typically the first major treatment step in a wastewater treatment plant after pre-treatment. It is a physical (settling) process used to remove settleable solids. The primary clarification stage is to produce both a generally homogeneous liquid capable of being treated biologically and a sludge that can be separately treated or processed.

Quaternary fault An earthquake fault that has demonstrated displacement within last 1.8 million years.

Renewable diesel Renewable diesel is produced from biological feedstock sources including fats, oils and greases. Chemically, renewable diesel is indistinguishable from petroleum diesel.

Reverse fault An earthquake fault with predominantly vertical movement in which the upper block moves upward in relation to the lower block; a thrust fault is a low-angle reverse fault.

Secondary treatment The treatment of wastewater after primary sedimentation. Secondary treatment, also known as biological treatment, is designed to substantially remove the organic content of the sewage that is typically derived from human waste, food waste, soaps, and detergent.

Serpentine A naturally occurring group of minerals that can be formed when ultramafic rocks are metamorphosed during uplift to the earth's surface. Serpentinite is a rock consisting of one or more serpentine minerals.

Shadow fan A diagram that shows the maximum extent of the shadows cast by a building throughout the year, between one hour after sunrise and one hour before sunset. The preliminary shadow fan is typically based on full buildout of the zoning envelope, including complete lot coverage and maximum building height.

Siloxanes Man-made organic compounds containing silicon, oxygen, and methyl groups that are commonly used in personal hygiene, health care, and industrial products and consequently are found in wastewater. After liquid and solids treatment, siloxanes are present in biogas. When biogas is combusted in energy recovery equipment, siloxanes are oxidized to silica (sand) that causes equipment wear. Removal of siloxanes from biogas prior to combustion extends the life of the power-generating equipment and reduces maintenance requirements.

Solids Suspended material removed from wastewater; also used to describe the residue after each treatment stage.

Storm surge	Storm surge occurs when persistent high winds and changes in air pressure push water toward the shore. This can raise the water level near the shoreline by several feet and may persist for several days. The degree of storm surge depends on the severity of the storm as well as tidal levels at the time of the storm.
Struvite	Struvite is chemically equivalent to magnesium ammonium phosphate hexahydrate. It forms when concentrations of soluble magnesium, ammonium, and orthophosphate exceed levels that promote the formation of crystals. Ferric chloride is used upstream and downstream of digesters in order to prevent struvite from building up and clogging wastewater treatment equipment.
Switchgear	A combination of electrical disconnect switches, fuses, or circuit breakers in an electric power system.
Thermal hydrolysis process (THP)	A pre-treatment of solids used in combination with anaerobic digestion to produce Class A biosolids. The process pre-heats, hydrolyzes, and sterilizes solids. The solids are heated with steam under pressure and held for a specified time in order to destroy pathogens, and then pressure is rapidly reduced to rupture microbial cells, making the solids more biodegradable and allowing for better methane production during the subsequent anaerobic digestion process.
Ultramafic rock	A type of igneous rock (formed at high temperatures well below the surface of the earth) that is rich in iron and magnesium.
Volatile organic compounds (VOCs)	Precursor pollutants (e.g., benzene, formaldehyde, and methylene chloride) that form ground-level ozone.
Waste activated sludge	The solids generated during the conventional activated sludge treatment process. The biomass is generated after microbial activity and settlement in the secondary treatment process.
Wind rose	A figure used to display how wind speed and direction are typically distributed at a particular location. The length of each spoke is related to the frequency of time that the wind blows from each direction, while the colored segments within the spoke correspond to different wind speed ranges.

SUMMARY

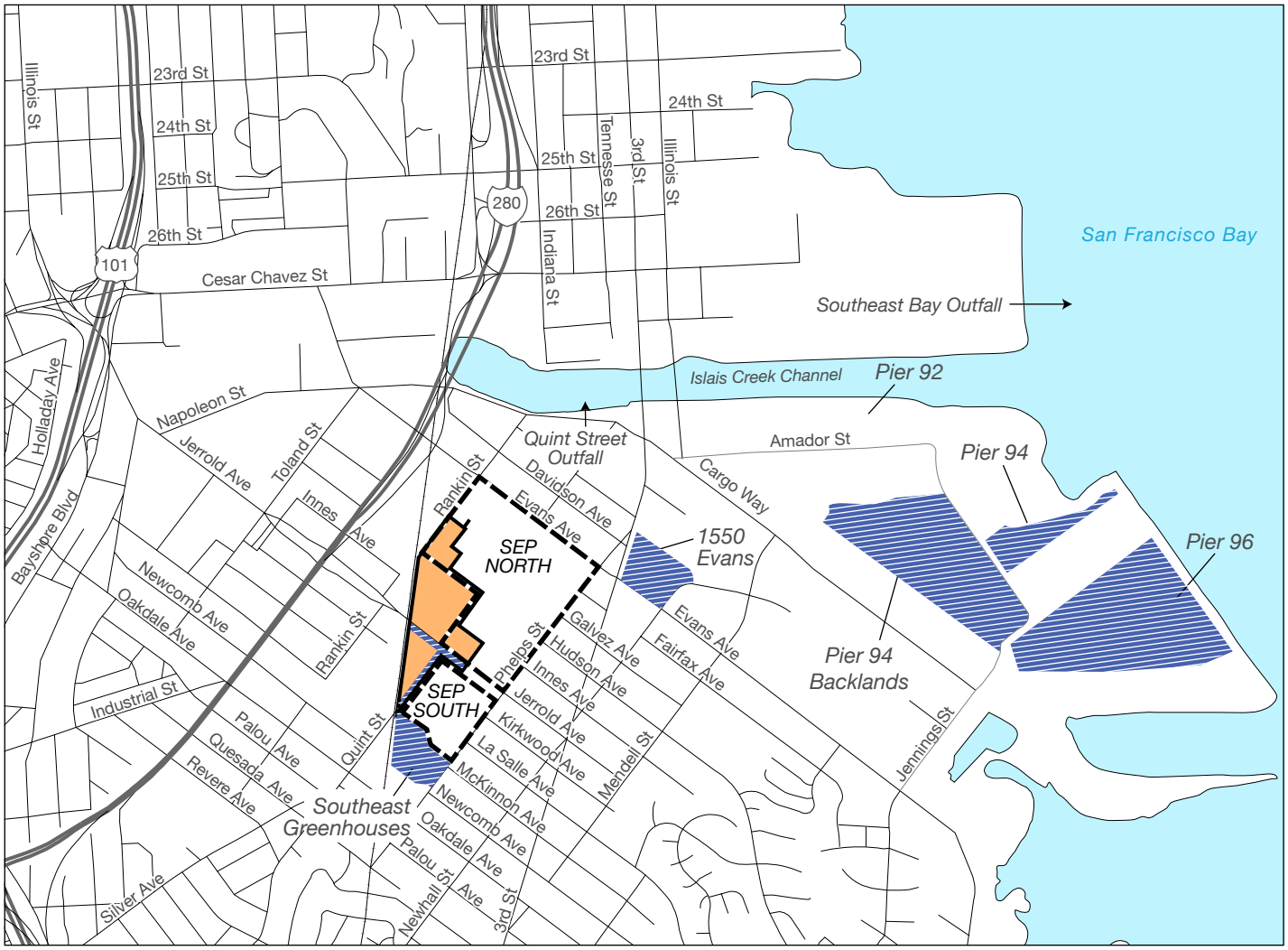
S.1 Introduction and Purpose of the Project

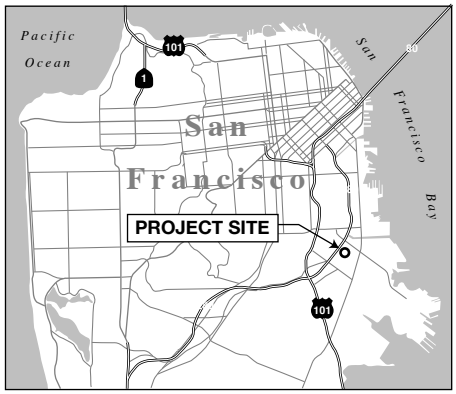
The San Francisco Public Utilities Commission (SFPUC) proposes to construct new solids treatment, odor control, energy recovery, and associated facilities as part of improvements to the wastewater treatment facilities at the existing Southeast Water Pollution Control Plant (Southeast Plant or SEP), located in the southeast part of San Francisco (refer to **Figure S-1**). The Biosolids Digester Facilities Project (BDFP or project) would replace the outdated existing solids treatment facilities with more reliable, efficient, and modern technologies and facilities. Biosolids are the recyclable solid materials removed from the wastewater during the wastewater treatment process and digesters are the major facility used in the solids treatment process. Many of the existing SEP solids treatment facilities are over 60 years old, require significant maintenance, and are operating well beyond their useful life. The project would replace the existing digesters with new digesters and other new facilities that produce higher-quality biosolids, capture and treat odors more effectively, and maximize digester gas[1] utilization and energy recovery for the production of heat, steam, and electrical power. In addition, the project would locate the digesters farther away from existing residences, limit project-generated odors to the SEP fence line, and make visual improvements in and around the SEP.

This environmental impact report (EIR) has been prepared by the San Francisco Planning Department (Planning Department) of the City and County of San Francisco (City or CCSF) in conformance with the California Environmental Quality Act (CEQA), the CEQA Guidelines (California Public Resources Code Section 15000 et seq., "CEQA Guidelines"), and Chapter 31 of the San Francisco Administrative Code. The Planning Department is the lead agency responsible for implementing CEQA for this project.

The Planning Department determined that the BDFP is subject to CEQA and that implementation of the BDFP could result in significant environmental impacts, and therefore, preparation of an EIR is required. The purpose of the EIR is to provide the public, responsible agencies, and decision makers with information about the project's potential physical effects on the environment, to identify mitigation measures to avoid or reduce significant impacts, and to evaluate alternatives to the project. The Planning Department published a Notice of Preparation on June 24, 2015 notifying responsible public agencies and the public about this decision to prepare an EIR on the BDFP and to initiate a scoping period to solicit input on the contents of this EIR. The Planning Department has considered all comments made by the public and agencies in preparing the EIR for this project.[2]

[1] Digester gas is a byproduct of the anaerobic digestion process and comprised mostly of methane and carbon dioxide.
[2] Refer to Chapter 1, Table 1-1, for a summary of scoping comments and where in the EIR those comments are addressed.





SFPUC Southeast Plant (SEP) Boundary

Project Site (Limited work at SEP North is also proposed to integrate liquid treatment facilities with BDFP facilities. In addition, street improvements would occur along Jerrold Avenue west of Phelps Street)

Potential Construction Staging Areas
(Staging would require up to 12 acres of the potential areas shown, and may also occur within the existing SEP boundary)

0 2000
Feet

SOURCE: San Francisco Public Works 2005 GIS data; ESA+Orion, data developed in 2016 for BDFP

SFPUC Biosolids Digester Facilities

Figure S-1
Project Location

S.2 Background

The SFPUC is responsible for operating and maintaining the City's wastewater collection, treatment, and disposal system, including the solid materials removed from the wastewater during the treatment process that is the subject of the BDFP. The SFPUC is currently implementing the Sewer System Improvement Program (SSIP), a 20-year, multi-billion-dollar citywide program to upgrade the City's aging sewer infrastructure and to ensure a reliable and seismically safe system. The SSIP sets forth overarching goals, levels of service, and strategies for upgrading the sewer infrastructure. The goals of the SSIP are to: (1) provide a compliant, reliable, and flexible system that can respond to catastrophic events; (2) integrate green and grey infrastructure to manage stormwater and minimize flooding; (3) provide benefits to impacted communities; (4) modify the system to adapt to climate change; (5) achieve economic and environmental sustainability; and (5) maintain rate payer affordability. The BDFP is the largest and most critical project in Phase 1 of the SSIP.

S.3 Project Objectives

The overall goal of the BDFP is to replace the existing aged and unreliable solids processing facilities at the SEP with new, modern, and efficient facilities to ensure the long-term sustainability of the SEP wastewater treatment system. The specific objectives of the BDFP are consistent with the SSIP goals, levels of service, and strategies. The specific BDFP objectives are as follows:

- Replace the existing solids treatment facilities at the SEP with new infrastructure with modern and more efficient treatment technologies to protect public health and safety and provide continued regulatory compliance;
- Maximize the efficiency of the current treatment process operations and maintenance, staffing resources, and the use of existing SFPUC infrastructure;
- Reliably meet treatment capacity for projected 2045 flows and loads associated with projected population growth;
- Beneficially use 100 percent of biosolids generated;
- Beneficially use 100 percent of digester gas generated;
- Build critical processes with redundant infrastructure to provide reliability and operational flexibility;
- Improve seismic reliability;
- Limit noticeable odors from BDFP facilities to the SEP property boundary;
- Provide visual improvements that promote a cohesive architectural design and identity at the BDFP site, enhance the overall aesthetics, and improve the public edges in a manner consistent with the surrounding neighborhood and the rest of the SEP;
- Design and site new facilities to accommodate or adapt to expected sea level rise over their expected life;
- Allow for timely construction of the proposed BDFP; and
- Maintain rate payer affordability.

S.4 Project Description

S.4.1 Project Location and Proposed Facilities

The BDFP would construct new solids treatment, odor control, energy recovery, and associated facilities at and adjacent to the SEP, located in the Bayview-Hunters Point district of San Francisco. The project facilities would be situated on portions of the SEP located at 750 Phelps Street and 1700 Jerrold Avenue, and two adjacent properties at 1800 Jerrold Avenue (Central Shops site) and 1801 Jerrold Avenue (Asphalt Plant site), as shown on **Figure S-2**. The project site encompasses approximately 562,000 square feet (12.9 acres).

Table S-1 summarizes key features of the BDFP and provides a comparison with the existing conditions at the SEP.

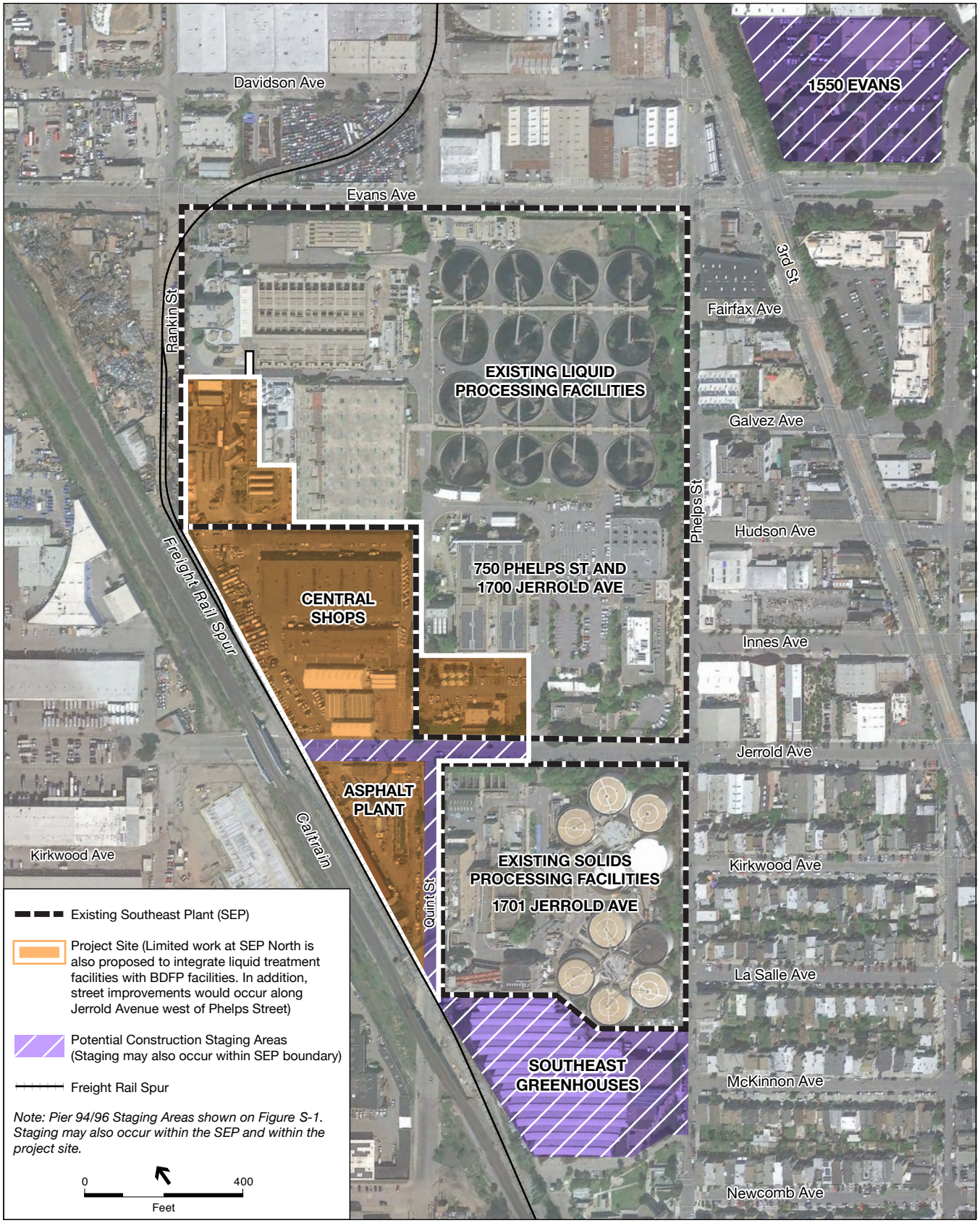
TABLE S-1
KEY FEATURES OF BIOSOLIDS DIGESTER FACILITIES PROJECT

Feature		Existing Conditions (Year 2015 unless otherwise noted)	Future Conditions with Project (Year 2045 unless otherwise noted)
SEP Property Size		2015: approximately 40 acres 2018: approximately 47 acres with anticipated expansion—1800 Jerrold Avenue (Central Shops) and 1801 Jerrold Avenue (Asphalt Plant) (acquired as separate actions)	No change from 2018
SEP Design Wastewater Flow Capacity		250 mgd (wet weather)[a] 85 mgd (dry weather design average)[a]	No change
Digester Tanks		10 digesters – 1.8 million gallons each[b] Distance to Closest Residence: <100 feet	5 digesters – 1.66 million gallons each Distance to Closest Residence: approximately 1,000 feet
Solids Treatment Process		- Thickening - Anaerobic Digestion[c] - Dewatering	- Thickening - Screening - Pre-Thermal Hydrolysis Process[d] Dewatering - Thermal Hydrolysis Process[d] - Anaerobic Digestion[c] - Biosolids Dewatering
Biosolids	Classification[e]	Class B	Class A Exceptional Quality (EQ)
	Annual Production[f]	13,000 dry tons	24,000 dry tons[g]
	Haul Trips[h]	7-10 trips/day	10-14 trips/day [g,h]
Odor Control		Does not completely contain odors from biosolids facilities to within existing SEP site boundaries	Designed to limit odors from biosolids facilities to within revised SEP site boundaries
Digester Gas[i]		Production: approximately 1.3 million cubic feet/day Flaring: routine	Production: approximately 2 million cubic feet/day Flaring: infrequent
Energy Recovery	Technology	- Internal Combustion Engine - Hot Water Boilers	- Gas Turbines - Heat Recovery Steam Generation System - Steam Boilers: Backup Only
	Electricity Generation (annual average)	Up to 2 MW	4.2-5.2 MW (2023-2045)
SEP Staffing Levels		280 staff (entire SEP including biosolids staff)	No change

NOTES: See Chapter 2, Table 2-1 for an explanation of the terms used in this table.

SEP = Southeast Water Pollution Control Plant; mgd = million gallons per day; MW = megawatts

SOURCE: SFPUC, *BDFP Conceptual Engineering Report*, March 2016; SFPUC, City and County of San Francisco Biosolids Annual Summary Report. February 19, 2016.



SOURCE: Google Maps Imagery from 2015; ESA+Orion, data developed in 2016 for BDFP

SFPUC Biosolids Digester Facilities

Figure S-2

Biosolids Digester Facilities Project Site

The key components of the BDFP include the following:

- Replacement and relocation of the solids processing treatment processes with new processes and new facilities;
- Energy recovery facilities to reuse 100 percent of the digester gas generated by the proposed solids processing facilities to produce energy for heating and power uses at the SEP;
- Odor control facilities to collect and treat odors from solids handling and energy recovery facilities;
- Water systems and pump stations;
- *S*upport facilities such as buildings for operations and maintenance staff, and ancillary piping and electrical facilities; and
- Changes to vehicular circulation and access, landscaping, and architectural improvements.

The proposed new facilities would use a new technology to pretreat the solids upstream of the digesters; this new technology would reduce the volume of biosolids produced at the end of the treatment process, compared to the current technology used in the existing facilities. The new facilities would also upgrade the quality of the biosolids produced during the solids treatment process. The existing facilities produce Class B biosolids, which are treated but still contain detectable levels of pathogens, while the proposed facilities would produce Class A biosolids, which would have no detectable levels of pathogens, thereby expanding the options for beneficial reuse of these materials. The project would also improve odor control over existing conditions such that any odors from the proposed solids treatment process would be contained within the SEP site boundaries. In addition, the project would more than double the current energy recovery capability at the SEP, generating an estimated annual average power output ranging from 4.2 to 5.2 megawatts (MW); more than enough to power the proposed BDFP.

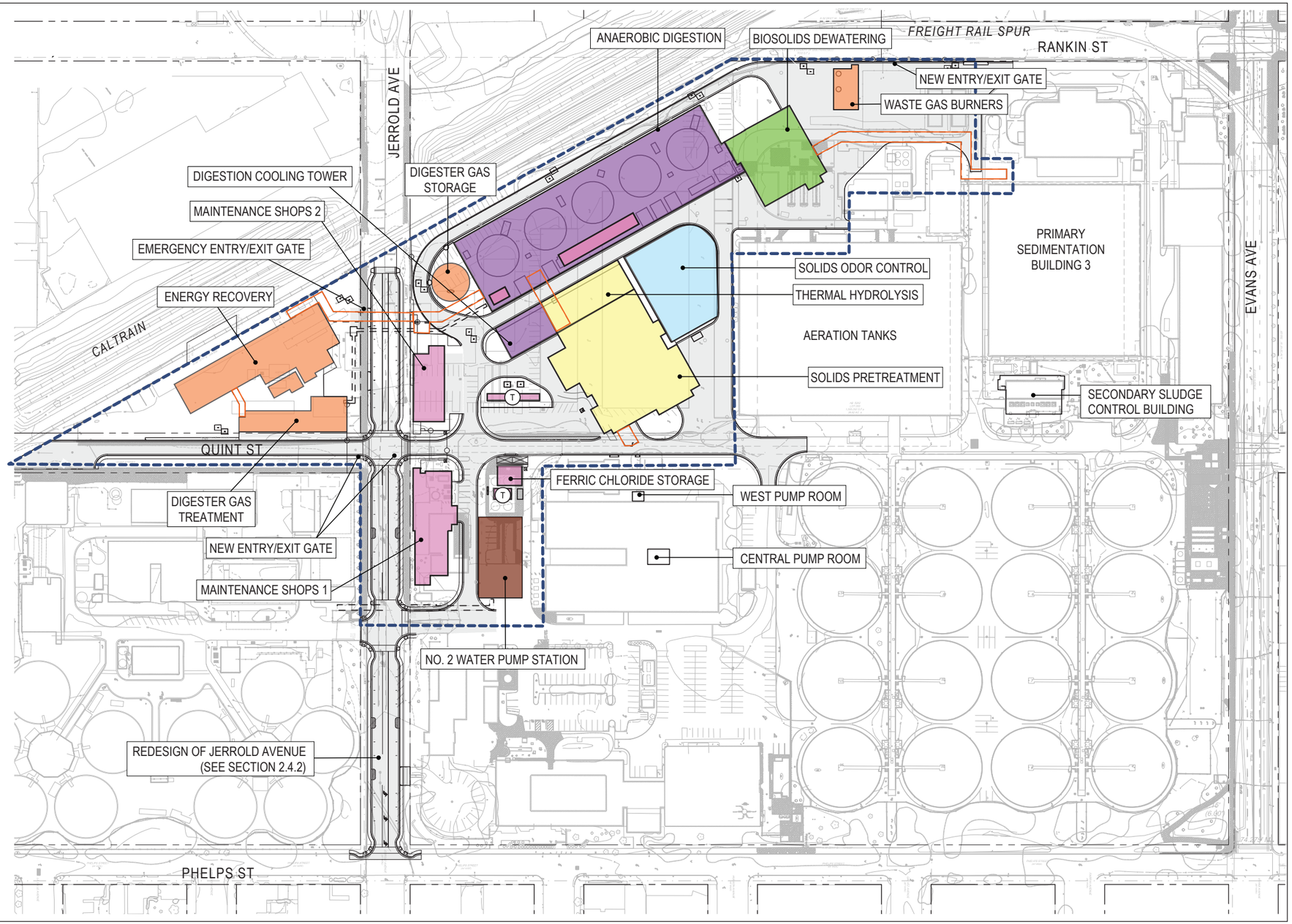
The BDFP would require construction of new structures on approximately 206,000 square feet of the project site and excavation in certain areas to a maximum depth of about 41 feet below grade. The height of new structures would be up to 65 feet above grade.[3] To accommodate the proposed facilities, a number of existing structures within the project site would be demolished. This includes the Central Shops buildings and existing SEP facilities within the SEP boundaries of the project site totaling about 136,000 square feet.

Figure S-3 presents the preliminary site plan showing the location and layout of the proposed facilities. **Figure S-4** presents a conceptual representation of the general massing of the proposed buildings and other structures and provides an indication of the general physical characteristics and scale of the BDFP facilities from an aerial perspective.

[3] Heights listed exclude mechanical penthouses, catwalks, and similar accessory structures that qualify for exemption from the 65-foot height limit for the project site pursuant to Section 260(b) of the San Francisco Planning Code.

PROJECT SITE
T TRANSFORMER
PIPE GALLERY, CHASE OR TRENCH
ODOR CONTROL
PRE-DIGESTION SOLIDS PROCESSING
ANAEROBIC DIGESTION, DIGESTED SOLIDS STORAGE, AND THERMALLY HYDROLYZED (THS) SLUDGE COOLING
CLASS A BIOSOLIDS DEWATERING, STORAGE & LOADOUT
ENERGY RECOVERY AND STEAM GENERATION
OPERATIONS, MAINTENANCE & SUPPORT
PUMP STATION
PAVEMENT

NOTE: THIS DEPICTION REPRESENTS 35 PERCENT DESIGN. PROPOSED CHANGES TO PIPES AND PUMPS WITHIN THE PRIMARY SEDIMENTATION BUILDING 3 AND THE SECONDARY SLUDGE CONTROL BUILDING ARE NOT SHOWN.



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Feet

SOURCE: SFPUC, SEP Biosolids Digester Facilities Project Overall Site Plan CADD files provided to ESA+Orion November 8, 2016, adapted by ESA+Orion

SFPUC Biosolids Digester Facilities
Figure S-3
Preliminary BDFP Site Plan

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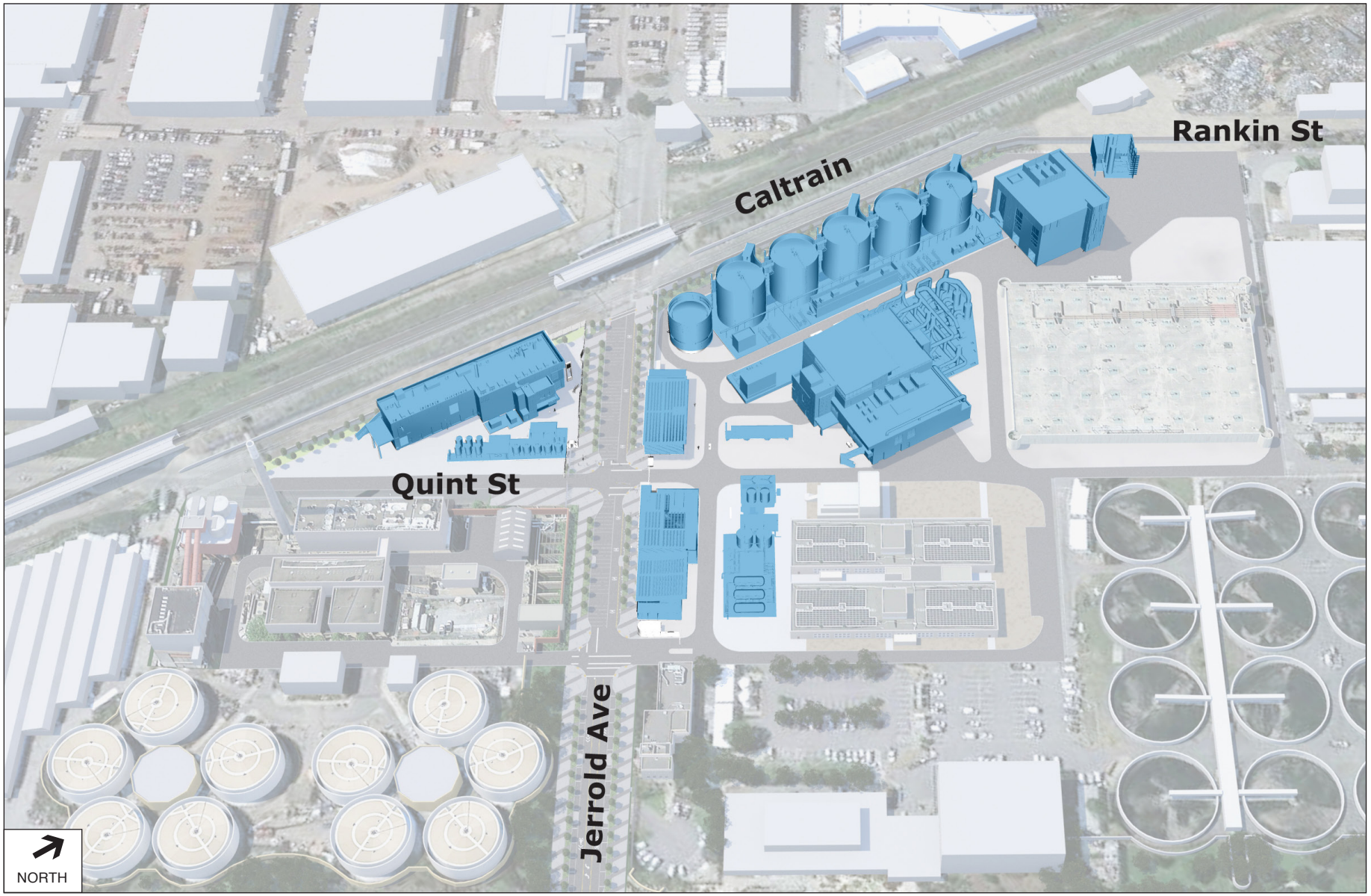

SOURCE: Brown and Caldwell, CH2M, Black & Veatch, Michael Willis Architects, SFPUC, Preliminary massing diagram provided to ESA+Orion November 8, 2016

SFPUC Biosolids Digester Facilities

Figure S-4
Preliminary Massing Diagram

S.4.2 Operations

Long-term operation of the new solids treatment and associated facilities would be integrated with the overall SEP operations. Upon completion of construction, the SFPUC would perform initial performance testing of the new biosolids digester facilities for approximately six months followed by 24 months of full facility commissioning. Testing would occur as part of this transition period, during which both old and new biosolids treatment systems would operate concurrently. As the new systems are tested, stabilized, and optimized, the BDFP would gradually increase its share of the solids treatment while the old systems are phased out. Full facility commissioning is expected to be complete in 2025.

Similar to current conditions, proposed solids treatment facilities constructed as part of the BDFP would operate as needed, 24 hours per day, seven days per week. No increase in the existing operations staff levels of about 280 people for the entire SEP is anticipated from the project.

Proposed energy recovery facilities would supply an estimated 4.2 MW energy from 1.6 million cubic feet of digester gas generated per day in 2023. As the total volume of solids to be treated by the BDFP increases over time due to anticipated population growth within the service area, the amount of digester gas generated would increase commensurately to 2 million cubic feet per day, which in turn would increase the amount of energy supplied by the turbines to approximately 5.2 MW. In the long term, the BDFP would generate more energy than needed for BDFP operations, and the excess energy would be used by other SEP facilities, decreasing the SEP's reliance on Hetch Hetchy hydropower.

S.4.3 Construction

Project construction would require five years to complete, from 2018 through 2023. During the construction period, the SFPUC would operate and maintain the existing solids treatment facilities to ensure no interruption of service and ongoing compliance with applicable regulatory permits.

Construction would require temporary use of other off-site locations for staging including construction employee parking during the five-year construction period. The BDFP would require up to 12 acres for off-site construction staging at one or more sites, in addition to areas within the project site itself. Figure S-1 shows the location of potential construction staging sites. Potential staging areas include the segments of Quint Street and Jerrold Avenue that would be closed during construction, the Southeast Greenhouses site and the 1550 Evans Avenue site if they are available for use (both owned by SFPUC), and portions of Piers 94 and 96 and the Pier 94 Backlands (administered by the Port of San Francisco and available for lease).

For most of the project construction period, construction activities at the project site would occur Monday through Friday from 7:00 a.m. to 3:30 p.m., with some activities extending to 8:00 p.m. as needed. Construction could also occur on Saturdays and Sundays when needed. Work would occur on holidays and 24 hours per day only if needed for critical facility connections. Pile driving would generally occur between 7:00 a.m. and 3:30 p.m., Monday to Friday, and at times until 8:00 p.m. consistent with the City's Noise Ordinance. During the peak of construction, a period of approximately one year, and other times during critical functions, construction would occur in two

shifts per day if needed: Monday through Saturday from 7:00 a.m. to 3:30 p.m. and from 2:30 p.m. to 11:00 p.m. Nighttime work (after 8:00 p.m.) would be limited to interior facility work and outside work with minimal noise. The size of the construction work force would vary over the five-year construction period, averaging about 333 workers per day and ranging from about 133 to 550 workers per day.

The SFPUC would prepare and implement a Traffic Control Plan to minimize impacts on local street circulation during the construction period; the plan would address roadway and lane closures, signage, safety protocols, truck routes and truck controls, maintenance of pedestrian and bicycle access, and coordination with transit, hospitals, schools and emergency service providers. Due to the proposed temporary closure of Jerrold Avenue during the construction period, the Muni 23 Monterey bus route would need to be relocated.

During construction, the SFPUC would also implement a noise control plan requiring contractors to use non-impact equipment that meets the San Francisco Noise Ordinance limit of 80 dBA at 100 feet and including monitoring to confirm the noise limit is not exceeded. The SFPUC would also implement its standard construction measures, which were adopted to reduce potential environmental effects during construction and apply to all SFPUC projects.

S.5 Summary of Project Impacts and Mitigation Measures

Chapter 3 of this EIR describes the plans and policies that apply to the BDFP and identifies the potential for the BDFP to be inconsistent with those plans or policies adopted for the purpose of avoiding or mitigating environmental effects. Chapter 4 of this EIR presents the environmental impacts analyses for 18 resource areas consistent with the Planning Department Guidelines and Appendix G of the CEQA Guidelines. For each resource area, the impact analysis describes the environmental setting, identifies significance criteria used in the analysis, evaluates potential physical effects of the BDFP on both a project and cumulative basis, and provides feasible mitigation measures that would reduce the severity of significant impacts.

Table S-2 (located at the end of this chapter) summarizes all impacts identified for the proposed project in this EIR, lists the significance determination for each impact, and presents the full text of the mitigation measures identified to avoid, reduce, or otherwise lessen significant impacts.

In summary, the impact analysis determined that in 13 of the 18 resource areas, impacts would be either less than significant or no impact, generally due to the project's required compliance with applicable regulations protecting these resources, incorporation of project-specific control measures (such as traffic and noise control plans) and SFPUC standard construction measures as part of the project, and/or the limited extent that the existing resource would be affected by the project. However, in five resource areas, the EIR identified 15 significant impacts, four of which would be significant and unavoidable even with mitigation; the remaining eleven impacts would be mitigated to a less-than-significant level with implementation of identified mitigation measures.

This EIR determined that the BDFP would result in significant and unavoidable impacts in the areas of cultural resources and air quality that would remain significant and unavoidable even with implementation of feasible mitigation measures, as follows:

- Cultural Resources (impact on an identified individual historic architectural resource due to demolition of Central Shops Buildings A and B; and cumulative impact on an identified, eligible historic district, the *Southeast Plant Streamline Moderne Industrial Historic District* because implementation of the BDFP would replace the function of the existing digesters and would allow for future demolition of the digesters and other contributors to the historic district) and
- Air Quality (project construction would generate levels of nitrogen oxide emissions that would exceed significance thresholds during two of the five years of construction that would also be a cumulatively considerable contribution to regional air quality conditions).

The EIR identified significant impacts that could be mitigated to a less-than-significant level with implementation of identified mitigation measures in the following areas:

- Cultural Resources (construction effects on archeological resources and human remains),
- Noise (increase in noise levels from use of certain types of construction equipment),
- Biological resources (construction effects on roosting bats), and
- Paleontological resources (construction disturbance).

Chapter 5 evaluates the growth-inducing impacts of the BDFP and determined that the project would not have a substantial growth-inducing impact. The existing sewer system is already sized to serve the City's projected population of over 1 million residents by 2045. Together, the City's two existing wastewater treatment plants (the Southeast Plant and Oceanside Water Pollution Control Plant) currently have capacity for the projected wastewater flows expected through 2045, and the BDFP would be designed to treat the solids from these flows up to the existing capacity.[4] Project implementation would thus maintain the existing overall capacity of the SEP. The project is designed to provide solids treatment for projected wastewater flows and solids loads for the year 2045, the project's planning horizon. Over the planning period for the BDFP, the projected population growth to be served by the SEP is anticipated to increase annual average solids loads from about 187,000 pounds per day (2014) to about 280,000 pounds per day (2045).

S.6 Alternatives to the Proposed Project

Chapter 6 presents the CEQA alternatives analysis to identify potentially feasible alternatives that could avoid or substantially lessen the significant impacts identified for the project while still meeting most of the project objectives. This chapter describes the methodology used to screen and select alternatives to the project for detailed CEQA analysis, and it analyzes four alternatives in detail. For each of these four alternatives, the chapter evaluates the alternatives' impacts relative to

[4] SFPUC, 2014. *Wastewater Flow and Load Projections Technical Memorandum*. Prepared for San Francisco Public Utilities Commission Sewer System Improvement Program. Updated February 2014.

existing environmental conditions and compares the potential impacts of the alternatives with those of the proposed project. Based on this analysis, this chapter then identifies the environmentally superior alternative. The chapter also describes 19 alternative concepts that were considered but eliminated from detailed consideration in this EIR, together with the reasons why they were eliminated.

The four alternatives analyzed in this EIR and the reason they were selected are as follows:

- *Alternative A: No Project* — Would avoid all significant impacts of the project and is required by CEQA
- *Alternative B: Pier 94 Backlands* — Would avoid the project's significant impacts on the Central Shops historic architectural resource, biological resources (roosting bats), and paleontological resources
- *Alternative C: Historical Resources Relocation* — Would avoid the project's significant impact on the Central Shops historic architectural resource
- *Alternative D: SEP South/Quint Street* — Would avoid the project's significant impact on the Central Shops historic architectural resource

S.6.1 Alternative A: No Project

The No Project Alternative represents what would reasonably be expected to occur in the foreseeable future if the project were not to be approved. Under the No Project Alternative, the BDFP would not be constructed and the SFPUC would continue to operate and maintain the existing SEP solids treatment and energy recovery facilities indefinitely. The SFPUC would not demolish Central Shops Buildings A and B, an identified individual historical resource. However, because of the age and condition of the existing facilities, the SFPUC would need a more rigorous program to repair and replace facilities, requiring up to five additional permanent staff over the existing conditions. In addition, in order to maintain reliable operations, increased levels of repair and replacement of equipment and facilities would ultimately be required. This alternative would fail to meet most of the BDFP objectives.

The No Project Alternative would have the same risk of upset compared to existing conditions, but the risk of upset in the future would increase the longer the existing solids treatment facilities are in use. The risk of upset would be substantially higher than what would occur under the proposed project. The existing facilities are not built to current seismic standards, nor are they designed for future sea level rise considerations. Thus, long-term continued use of the existing solids treatment facilities under the No Project Alternative would result in an increasing risk of failure and shutdown the longer this equipment is used. A seismic event in the SEP vicinity could have severe consequences. In addition to the increased likelihood of physical damage and release during an earthquake, failure of portions of the SEP could reduce the efficacy of wastewater and solids treatment and limit the facilities available for wastewater processing. The SFPUC's ability to treat wastewater could be compromised, with implications for public health and safety as well as regulatory permit violations.

The No Project Alternative would avoid the significant and unavoidable impacts related to historical resources and construction-phase nitrogen oxide emissions identified for the proposed project. Under

"normal" conditions (without breakdowns and equipment failure), the No Project Alternative would also avoid all construction and operational impacts that were identified for the project, but under possible future scenarios with breakdowns and equipment failures, there would be potential for a wide range of impacts, depending on the nature and extent of those breakdowns.

However, unlike the proposed project, the No Project Alternative would have a significant impact related to greenhouse gas emissions because it would not recapture energy from increased digester gas production (and would not improve biosolids reuse opportunities). Thus, the No Project Alternative would not be consistent with adopted policies intended to reduce statewide greenhouse gas emissions. This would also be considered a wasteful use of a local energy resource, and would be a significant impact that would not occur under the proposed project. However, there are feasible mitigation measures that could reduce these impacts to less than significant.

S.6.2 Alternative B: Pier 94 Backlands

The Pier 94 Backlands Alternative would construct the BDFP facilities on approximately 15-acres within the 27-acre Pier 94 Backlands, one of the same sites as the potential staging areas under the proposed project. Under this alternative, no construction or demolition activities would occur at the project site, and Central Shops Buildings A and B would not be demolished. This alternative was selected for evaluation because it would avoid a significant impact on a historical resource, and thus is a full preservation alternative. This alternative was also one of two sites recommended by an advisory group representing the local Bayview-Hunters Point community (the advisory group, the Southeast Digester Task Force, recommended the Central Shops site and the Pier 94 Backlands site).[5]

This alternative would also require construction and operation of multiple pipelines to convey sludge and other materials about 4,000 feet between the SEP and the Pier 94 Backlands. Under this alternative, the SFPUC would have to secure permission to use the Pier 94 Backlands site from the Port of San Francisco, and the State Lands Commission would have to make a public trust determination. The proposed facilities under this alternative would occupy a larger area than the proposed project (15 acres compared to 10 acres), and the maximum height of structures would be lower (40 feet compared to 65 feet). The distance of the digesters to the nearest residences would be greater than under the proposed project (more than 1,800 feet compared to 1,000 feet). Construction requirements at the Pier 94 Backlands site would generally be the same as those of the proposed project, but there would be additional construction required for new utilities at the site and for the pipelines construction between the Pier 94 Backlands and the SEP. Construction duration would be the same as the proposed project, but the start date for construction would be delayed by at least several years due to site acquisition and use requirements.

This alternative would meet most of the project's basic objectives, but would fail to meet those objectives related to visual improvements at the SEP, construction schedule, efficiency of existing infrastructure and resources, and rate payer affordability.

[5] Southeast Digester Task Force for the San Francisco Public Utilities Commission, *Review of the Biosolids Digester Facility Project*, June 2, 2010.

The Pier 94 Backlands Alternative would avoid one significant and unavoidable impact on historical resources by retaining Central Shops Buildings A and B in place, but the other significant and unavoidable impacts of this alternative on historical resources and construction-phase nitrogen oxide emissions would be the same or more severe than those of the proposed project. This alternative would have additional construction noise impacts associated with pipeline construction that would not occur under the proposed project as well as increased potential for vibration impacts along the pipeline route, although these impacts could be mitigated to less than significant with similar mitigation measures to those identified for the proposed project. The Pier 94 Backlands Alternative would result in minor differences in construction-related toxic air contaminant emissions, but like the proposed project, impacts would be less than significant. Unlike the proposed project which would have significant but mitigable impacts, impacts on biological resources (roosting bats) and on paleontological resources would be less than significant at this site. All other impacts would be less than significant, assuming compliance with and implementation of all federal, state, and local regulations designed to protect the environment and implementation of SFPUC standard construction measures.

S.6.3 Alternative C: Historical Resources Relocation

The Historical Resources Relocation Alternative is a full preservation alternative that would consist of full construction and operation of the BDFP as proposed, plus the relocation and rehabilitation of Central Shops Buildings A and B to a similar industrial setting in San Francisco. The relocation, rehabilitation, and reuse of Buildings A and B would be consistent with the Secretary of the Interior's Standards and would reduce the significant and unavoidable impact on historical resources under the proposed project to a less-than-significant level. The SFPUC has identified an approximately three-acre site at Pier 90 on Amador Street east of Illinois Street and Cargo Way as a potential new location for Buildings A and B. The Pier 90 site is within a port-priority use area, and it is assumed that future uses of Buildings A and B at this site would be consistent with the existing use of the Central Shops, as well as with allowable uses within a port-priority area. Construction requirements for this alternative would be the same as those of the proposed project, with the addition of about one year at the beginning of the construction period to dismantle and transport Buildings A and B to Pier 90 plus the site preparation and construction activities required to reconstruct and rehabilitate these buildings at the new site.

This alternative would meet all the project objectives, with the exception of maintaining rate payer affordability due to the unknown costs associated with site preparations and precautions needed to dismantle, transport, and reconstruct Central Shops Buildings A and B consistent with Secretary of Interior's Standards.

Because the Historical Resources Relocation Alternative would involve full implementation of the BDFP as proposed, this alternative would have all of the same environmental impacts as those identified for the proposed project, with the exception of avoiding the significant and unavoidable impact associated with demolition of Central Shops Buildings A and B. However, the significant and unavoidable impact of this alternative on historic districts would be the same as those of the project, and the significant and unavoidable impacts associated with construction-phase nitrogen oxide emissions would be more severe than those of the proposed project because of the additional

emissions resulting from relocation and rehabilitation of the Central Shops buildings. In addition, there would be impacts associated with relocation and rehabilitation of the Central Shops Buildings A and B at an off-site location, although any significant impacts could generally be mitigated to less than significant with similar mitigation measures identified for the proposed project.

S.6.4 Alternative D: SEP South/Quint Street

The SEP South/Quint Street Alternative is a full preservation alternative that would consist of construction and operation of the same processes and facilities as the proposed project, except that the project facilities would be reconfigured and located within different portions of the SEP boundaries, the Asphalt Plant site, portions of the Central Shops site, and within the right-of-way of Quint Street between Jerrold Avenue and the Caltrain right-of way. Central Shops Buildings A and B and the immediate surrounding area would be preserved, thereby avoiding the significant impact on this historical resource that would occur with its demolition under the proposed project. Under this alternative, the digesters would be located at the Asphalt Plant site, placing the digesters closer to the nearest residences (600 feet to Phelps Street and 700 feet to Oakdale Avenue) compared to the proposed project (1,000 feet). The location of the waste gas burners would also be closer to residences.

Construction of facilities within SEP South would require demolition of existing solids treatment facilities that need to operate during construction of the new facilities. Therefore, this alternative would require construction of interim facilities (e.g., gravity belt thickeners, centrifuge systems, sludge pipelines, biosolids dewatering, cake storage and loadout, etc.) at another location prior to construction, and these interim facilities would be required to operate for at least seven years, until construction is completed and the new facilities are fully commissioned. One possible site for the interim facilities is the Southeast Greenhouses site. In addition, this alternative would require permanently vacating the segment of Quint Street between Jerrold Avenue and the Caltrain right-of way for construction of both aboveground and below ground structures. This is unlike the proposed project, under which this same portion of Quint Street would be closed to the public and incorporated into the project site, but no permanent facilities would be constructed here, and relocation of underground utilities would not be required. The SEP South/Quint Street Alternative would require relocation of existing utilities under Quint Street, including a 24-inch diameter high pressure gas line. The location and extent of relocating the existing utilities has not been identified, but could require construction in locations outside of the SEP boundaries. The construction schedule for this alternative would be at least seven years, substantially longer than the five years estimated for the proposed project, and the start date of construction would be delayed by several years.

This alternative would meet most the project objectives, but would not meet the objectives related to timely construction and rate payer affordability due to the extended construction duration and delay in start date, as well as the costs associated with the substantial increase in construction requirements (building interim facilities and relocating a major gas pipeline).

The SEP South/Quint Street Alternative would result in most of the same impacts as the proposed project, plus several significant impacts that would not occur under the proposed project. Even though the Central Shops Buildings A and B would be retained in place, at least seven structures that

are contributors to the eligible historic district would be demolished, a significant and unavoidable impact that would not occur under the proposed project. In addition, due to the closer proximity of sensitive receptors, health risk impacts associated with exposure to toxic air contaminants would be greater than those under the proposed project, a potentially significant impact. Increased exposure to toxic air contaminants due to closer proximity to sensitive receptors would occur during construction (due to construction equipment and trucks) as well as during operations (due to waste gas burners). The extended construction period for this alternative would extend the duration of all construction-related impacts, and specifically air pollutant emissions and noise impacts, which as stated above would occur in closer proximity to sensitive receptors, further exacerbating these impacts.

S.6.5 Environmentally Superior Alternative

Alternative C, the Historical Resources Relocation Alternative is considered to be the environmentally superior alternative among the proposed project and alternatives analyzed. With the exception of the No Project Alternative, the other alternatives would result in more severe impacts of varying degrees. Alternative C would avoid one significant and unavoidable impact of the proposed project, but would otherwise generally result in similar impacts to the project and require the same mitigation measures. However, this alternative would not meet the project objectives to the same extent as the proposed project. Due to the unknown costs to acquire a suitable relocation site for Buildings A and B and to conduct site preparations and precautions needed to dismantle, relocate, and rehabilitate Buildings A and B consistent with Secretary of Interior's Standards, it is unknown if this alternative would allow for rate payer affordability.

S.7 Areas of Known Controversy and Issues to be Resolved

On June 24, 2015, the San Francisco Planning Department issued a Notice of Preparation (NOP) to interested members of the public, organizations, and agencies to inform them of the intent to prepare an EIR on the BDFP and to provide them an opportunity to comment on the issues and provide input on the scope of the EIR. Consistent with CEQA, the Planning Department conducted a public scoping process, including a 33-day scoping period from June 24 to July 27, 2015 and a scoping meeting on July 16, 2015. No areas of scientific or technical controversy have been identified for this project. Comments received during the scoping period from community members and agencies include the following:

- Pedestrian, bicyclist and motorist safety during construction
- Transit impacts related to construction
- Overall health impacts related to truck traffic, exposure to diesel particulates and dust, and respective mitigation measures
- Construction and operations job opportunities for the community; benefits of project to the community
- Community involvement and outreach

- Use of the facility for educational and training purposes
- Conflicts with other concurrent construction projects in vicinity; potential for cumulative impacts with other projects
- Odors
- Environmental justice[6]

[6] The U.S. Environmental Protection Agency's (USEPA) Office of Environmental Justice defines environmental justice as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Consistent with CEQA, economic or social effects of a project are not to be treated as significant effects on the environment (CEQA Guidelines Section 15131). The EIR focuses on physical environmental effects rather than socioeconomic effects. The SFPUC is conducting a separate environmental justice analysis concurrent with the project. For more information please see the SFPUC's Land Use and Environmental Justice web page: http://sfwater.org/index.aspx?page=654

TABLE S-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Land Use, EIR Section 4.2		
Impact LU-1: The project would not physically divide an established community.	LS	No mitigation required.
Impact LU-2: The project would not conflict with land use plans and policies adopted for the purpose of avoiding or mitigating an environmental effect.	LS	No mitigation required.
Impact C-LU: The project, in combination with past, present, and probable future projects, would not physically divide an established community, nor would it conflict with applicable land use plans and policies adopted for the purpose of avoiding or mitigating an environmental effect.	LS	No mitigation required.
Aesthetics, EIR Section 4.3		
Impact AE-1: Project construction would not substantially degrade the existing visual character of the site or its surroundings or damage scenic resources.	LS	No mitigation required.
Impact AE-2: Project construction would not create a substantial new source of light or glare that could adversely affect nighttime views in the area, or could substantially impact other people or properties.	LS	No mitigation required.
Impact AE-3: Project operation would not substantially degrade the existing visual character of the site or its surroundings or damage scenic resources.	LS	No mitigation required.
Impact AE-4: Project operation would not create a substantial new source of light or glare that could adversely affect day or nighttime views in the area, or substantially impact other people or properties.	LS	No mitigation required.

NI: No Impact LS: Less than Significant LSM: Less than Significant with Mitigation SUM: Significant and Unavoidable with Mitigation C: Cumulative

TABLE S-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Aesthetics, EIR Section 4.3 (cont.)		
Impact C-AE-1: Implementation of the BDFP, in combination with past, present, and probable future projects in the vicinity, would not substantially degrade the existing visual character of the site or its surroundings or damage scenic resources.	LS	No mitigation required.
Impact C-AE-2: Implementation of the BDFP, in combination with past, present, and probable future projects in the vicinity, would not contribute considerably to substantial new sources of light or glare that could adversely affect nighttime views in the area, or could substantially impact other people or properties.	LS	No mitigation required.
Population and Housing, EIR Section 4.4		
Impact PH-1: Construction of the BDFP would not directly or indirectly induce substantial population growth in the area or create demand for additional housing.	LS	No mitigation required.
Impact PH-2: Operation of the BDFP would not directly or indirectly induce substantial population growth in the area or create demand for additional housing.	LS	No mitigation required.
Impact C-PH-1: The project, in combination with past, present, and probable future projects, would not directly or indirectly induce substantial population growth or create demand for additional housing.	LS	No mitigation required.

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TABLE S-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Cultural Resources, EIR Section 4.5		
Impact CR-1: The project would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco Planning Code.	SUM	**Mitigation Measure M-CR-1. Documentation of Historic Resources and Interpretive Display** Prior to demolition, the SFPUC shall retain a professional who meets the Secretary of the Interior's Professional Qualifications Standards for Architectural History to prepare written and photographic documentation of the Central Shops. The documentation effort shall be based on the National Park Service (NPS) Historic American Building Survey (HABS)/Historic American Engineering Record (HAER) Historical Report Level II Guidelines, and NPS's policy for photographic documentation as outlined in the National Register of Historic Places and National Historic Landmarks Survey Photo Policy Expansion. The written historical data for this documentation shall follow HABS/HAER standards. Efforts shall be made to locate original construction drawings or plans of the Central Shops. If located, these drawings shall be reproduced and included in the dataset. Historical information, as well as copies of building plans gathered from the prior evaluations of the SEP and Central Shops, can be reused and reformatted for this effort. Digital photography shall be used. The ink and paper combinations for printing photographs shall be in compliance with National Register-National Historic Landmark (NR-NHL) Photo Policy Expansion[1] and have a permanency rating of approximately 115 years. Digital photographs shall be taken as uncompressed, Tagged Image File Format (TIFF) files. Each image shall be 1,600 by 1,200 pixels at 330 pixels per inch (ppi) or larger in size, color format, and printed in black and white. The file name for each electronic image shall correspond with the index of photographs and photograph label. Photograph views for the dataset shall include (a) contextual views; (b) views of each side of each building and interior views, where possible; (c) oblique views of buildings; and (d) detail views of character-defining features. All views shall be referenced on a photographic key. This photographic key shall be on a map of the property and shall show the photograph number with an arrow to indicate the direction of the view. Historic photographs shall also be collected, reproduced, and included in the dataset. The SFPUC shall transmit the datasets as hardcopies on archival paper and in electronic PDF format to the History Room of the San Francisco Public Library, the San Francisco Planning Department, the archives of the San Francisco Public Utilities Commission, and to the Northwest Information Center of the California Historical Information Resource System. The SFPUC shall scope the documentation measures with San Francisco Planning Department Preservation staff. Preservation staff shall also review and approve the submitted documentation for adequacy. In addition, the SFPUC shall provide a permanent display of interpretive materials (which may include, but are not limited to, a display of photographs, a brochure, educational website or an exhibitive display) concerning the history and architectural features of the Central Shops. Development of the interpretive materials shall be supervised by an architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards. The interpretative materials shall be placed in a prominent, public setting. A proposal describing the general parameters of the interpretive materials shall be approved by Planning Department Preservation staff prior to construction completion. The substance, media and other elements of such interpretive display shall be approved by Planning Department Preservation staff prior to completion of the project. _____ [1] National Park Service, *National Register Photo Policy Factsheet*, Updated May 15, 2013.

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TABLE S-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Cultural Resources, EIR Section 4.5 (cont.)		
Impact CR-2: The project could cause a substantial adverse change in the significance of an archeological resource.	LSM	**Mitigation Measure M-CR-2a. Archeological Testing, Monitoring, and/or Data Recovery** Based on the results of the project Archeological Research Design and Treatment Plan[2] (ARDTP), legally-significant prehistoric archeological resources are present within the archeological C-APE. The following measures shall be undertaken to avoid any potentially significant adverse effects from the project on an historical resource under CEQA. The SFPUC shall retain the services of a qualified archeological consultant(s), based on standards developed by the City and County of San Francisco Environmental Review Officer (ERO). The archeological consultant(s) shall have demonstrated experience in geoarcheology and historical archeology. The archeological consultant shall implement archeological testing and other treatment as specified in the project ARDTP, as detailed below, which shall include archeological monitoring and data recovery as required pursuant to findings of ongoing testing and this measure. The archeological consultant's work shall be conducted in accordance with this measure and with the requirements of the project ARDTP at the direction of ERO or its designated representative and in coordination with the SFPUC. In instances of inconsistency between the requirement of the project ARDTP and of this archeological mitigation measure, the requirements of this archeological mitigation measure shall prevail. Project design changes after finalizing the ARDTP eliminated the portion of the C-APE that was identified in the ARDTP as sensitive for historical archeological resources. Testing as discussed below for historical archeological resources shall only be required if future design changes call for excavation in that location. If future project design changes further revise other parts of the C-APE, then testing shall only be required in archeologically sensitive areas that potentially would be adversely affected by project implementation. All plans and reports prepared by the consultant as specified herein shall be submitted directly to the ERO for review and comment and concurrently to the SFPUC for review and comment, and shall be considered draft reports, subject to revision until final approval by the ERO. Archeological monitoring and/or data recovery programs required by this measure could suspend construction of the affected area of the project for up to a maximum of four weeks. At the direction of the ERO, the suspension of construction can be extended beyond four weeks only if such a suspension is the only feasible means to reduce to a less-than-significant level potential effects on a significant archeological resource as defined in CEQA Guidelines Section 15064.5 (a) and (c). **Consultation with Descendant Communities**. On discovery of an archeological site[3] associated with descendant Native Americans, the Overseas Chinese, or other potentially interested descendant group, an appropriate representative[4] of the descendant group, the ERO, and the SFPUC shall be contacted. The representative of the descendant group shall be given the opportunity to monitor archeological field investigations of the site and to offer recommendations to the ERO and SFPUC regarding appropriate archeological treatment of the site, of recovered data from the site, and, if applicable, any interpretative treatment of the associated archeological site. A copy of the Final Archeological Resources Report shall be provided to the representative of the descendant group. [2] Byrd, Brian F., Philip Kaijankoski, Rebecca Allen, and Matthew Russell, Archaeological Research Design and Treatment Plan for the Biosolids Digester Facility Project, Southeast Water Pollution Control Plant, San Francisco, California. Prepared for San Francisco Public Utilities Commission, October, 2016. [3] The term "archeological site" is intended here to minimally include any archeological deposit, feature, burial, or evidence of burial. [4] An "appropriate representative" of the descendant group is here defined to mean, in the case of Native Americans, any individual listed in the current Native American Contact List for the City and County of San Francisco maintained by the California Native American Heritage Commission and in the case of the Overseas Chinese, the Chinese Historical Society of America. An appropriate representative of other descendant groups should be determined in consultation with the Department archeologist.

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TABLE S-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Cultural Resources, EIR Section 4.5 (cont.)		
Impact CR-2 (cont.)		**Archeological Testing Program–Prehistoric Archeology.** Depending on the results of on-going prehistoric archeological testing outlined in the project ARDTP, additional testing may be required to define site boundaries of CA-SFR-171 or other prehistoric deposits at the SEP, and to assess whether redeposited and/or reworked prehistoric archeological material identified in the project ARDTP within the C-APE has sufficient integrity to contribute to the significance of known resources at SEP. At the direction of the ERO and in coordination with SFPUC, additional testing may be rolled into a subsequent data recovery program (see below). **Archeological Testing Program–Historical Archeology.** If future design changes would affect the area identified as sensitive for historical archeological resources, the archeological consultant shall implement the historical archeological testing plan outlined in the project ARDTP for potential historical archeological resources that could be adversely affected by the project. The archeological testing program shall be conducted in accordance with the approved ARDTP. The project ARDTP identifies the property types of the expected archeological resource(s) that could be adversely affected by the project, the testing method to be used, and the locations recommended for testing. The purpose of the archeological testing program will be to determine to the extent possible the presence or absence of historical archeological resources and to identify and to evaluate whether any archeological resource encountered on the site constitutes an historical resource under CEQA. If future project design changes further alter the C-APE from what is identified in the ARDTP, then the archeological consultant shall prepare and submit to the ERO for review and approval an archeological testing plan (ATP) for both prehistoric and historical archeological resources to address any area added to the C-APE to accommodate the project design changes. The archeological testing program shall be conducted in accordance with the approved ATP. The ATP shall identify the property types of the expected archeological resource(s) that potentially could be adversely affected by the project, the testing method to be used, and the locations recommended for testing. The purpose of the archeological testing program will be to determine to the extent possible the presence or absence of archeological resources and to identify and to evaluate whether any archeological resource encountered on the site constitutes an historical resource under CEQA. At the completion of the archeological testing program, as required, the archeological consultant shall submit a written report of the findings to the ERO and the SFPUC. If based on the archeological testing program the archeological consultant finds that significant archeological resources may be present, the ERO in consultation with the archeological consultant and coordination with the SFPUC shall determine if additional measures are warranted. Additional measures that may be undertaken include additional archeological testing, archeological monitoring, and/or an archeological data recovery program. No archeological data recovery shall be undertaken without the prior approval of the ERO or the Planning Department archeologist. If the ERO determines that a significant archeological resource is present and that the resource could be adversely affected by the project, at the discretion of the SFPUC either: A) The project shall be re-designed so as to avoid any adverse effect on the significant archeological resource; or B) An archeological data recovery program shall be implemented, unless the ERO determines that the archeological resource is of greater interpretive than research significance and that interpretive use of the resource is feasible.

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TABLE S-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Cultural Resources, EIR Section 4.5 (cont.)		
Impact CR-2 (cont.)		**Archeological Monitoring Program.** Preparation of an archeological monitoring program (AMP) may be required prior to project construction depending on the results of the prehistoric and historical archeological testing programs outlined above. If the ERO in consultation with the archeological consultant determines that an archeological monitoring program shall be implemented, the archeological monitoring program shall minimally include the following provisions: • The archeological consultant, SFPUC, and ERO shall meet and consult on the scope of the AMP reasonably prior to commencement of any project-related soils disturbing activities. The ERO in consultation with the archeological consultant shall determine what project activities shall be archeologically monitored based on the results of pre-construction archeological testing currently approved and underway or planned, and archeological sensitivity assessment based on the results of that testing; • The archeological consultant shall advise all project contractors to be on the alert for evidence of the presence of the expected resource(s), of how to identify the evidence of the expected resource(s), and of the appropriate protocol in the event of discovery of a potential archeological resource; • The archeological monitor(s) shall be present on the project site according to a schedule agreed upon by the archeological consultant and the ERO or until the ERO has, in consultation with project archeological consultant, otherwise determined that project construction activities could have no effects on significant archeological deposits and monitoring can conclude; • The archeological monitor shall record and be authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis; • If an intact archeological deposit is encountered, all soils-disturbing activities in the vicinity of the deposit shall cease. The archeological monitor shall be empowered to temporarily redirect demolition/excavation/construction activities and equipment until the deposit is evaluated. The archeological consultant shall immediately notify the ERO and the SFPUC of the encountered archeological deposit. The archeological consultant shall make a reasonable effort to assess the identity, integrity, and significance of the encountered archeological deposit, and present the findings of this assessment to the ERO and the SFPUC. Whether or not significant archeological resources are encountered, the archeological consultant shall submit a written report of the findings of the monitoring program to the ERO and the SFPUC. **Archeological Data Recovery Program.** An archeological data recovery program shall be implemented in accord with an archeological data recovery plan (ADRP). The ADRP shall incorporate (1) programmatic-level procedures for deeply buried prehistoric archeological deposits; (2) site-specific procedures for identified prehistoric archeological deposits; (2) and site-specific procedures for historical archeological deposits (as warranted). The archeological consultant, SFPUC, and ERO shall meet and consult on the scope of the ADRP prior to preparation of a draft ADRP. The archeological consultant shall submit a draft ADRP to the ERO and SFPUC. The ADRP shall identify how the proposed data recovery program will preserve the significant information the archeological resource is expected to contain. That is, the ADRP shall identify what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, should be limited to the portions of the historical resource that could be adversely affected by the project. Destructive data recovery methods shall not be applied to portions of the archeological resources if non-destructive methods are practical.

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TABLE S-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Cultural Resources, EIR Section 4.5 (cont.)		
Impact CR-2 (cont.)		The scope of the ADRP shall include the following elements: • *Field Methods and Procedures*. Descriptions of proposed field strategies, procedures, and operations for the following elements: 1) Programmatic-level procedures for deeply buried prehistoric archeological deposits potentially uncovered during excavation for deep foundations (e.g., driven, drilled, or augured piles). 2) Site-specific procedures for known/identified prehistoric archeological deposits potentially affected by project excavation activities (e.g. CA-SFR-171). 3) Site-specific procedures for historical archeological deposits (as warranted) potentially affected by project excavation activities. • *Cataloguing and Laboratory Analysis*. Description of selected cataloguing system and artifact analysis procedures. • *Discard and Deaccession Policy*. Description of and rationale for field and post-field discard and deaccession policies. • *Interpretive Program*. Consideration of an on-site/off-site public interpretive program during the course of the archeological data recovery program. • *Security Measures*. Recommended security measures to protect the archeological resource from vandalism, looting, and non-intentionally damaging activities. • *Final Report*. Description of proposed report format and distribution of results. • *Curation*. Description of the procedures and recommendations for the curation of any recovered data having potential research value, identification of appropriate curation facilities, and a summary of the accession policies of the curation facilities. **Human Remains and Associated or Unassociated Funerary Objects.** The treatment of human remains and of associated or unassociated funerary objects discovered during any soils disturbing activity, in the context of an archeological deposit or in isolation, shall comply with applicable state and federal laws. This shall include immediate notification of the Coroner of the City and County of San Francisco and in the event of the Coroner's determination that the human remains are Native American remains, notification of the California State Native American Heritage Commission (NAHC) who shall appoint a Most Likely Descendant (MLD) (PRC Section 5097.98). PRC 5097.98 indicates that " The descendants shall complete their inspection and make their recommendation within 48 hours of their notification by the Native American Heritage Commission." The archeological consultant, SFPUC, ERO, and MLD shall have up to but not beyond six days of discovery to make all reasonable efforts to develop an agreement for the treatment of human remains and associated or unassociated funerary objects with appropriate dignity (CEQA Guidelines Section 15064.5[d]). The agreement should take into consideration the appropriate excavation, removal, recordation, analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects. Nothing in existing State regulations or in this mitigation measure compels the SFPUC and the ERO to accept recommendations of an MLD. The archeological consultant shall retain possession of any Native American human remains and associated or unassociated burial objects until completion of any scientific analyses of the human remains or objects as specified in the treatment agreement if such as agreement has been made or, otherwise, as determined by the archeological consultant and the ERO.

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TABLE S-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Cultural Resources, EIR Section 4.5 (cont.)		
Impact CR-2 (cont.)		**Final Archeological Resources Report.** The archeological consultant shall submit a Draft Final Archeological Resources Report (FARR) to the ERO and SFPUC that evaluates the historical significance of any discovered archeological resource and describes the archeological and historical research methods employed in the archeological testing/monitoring/data recovery program(s) undertaken. The FARR shall include new updated DPR forms, as applicable. Information that may put at risk any archeological resource shall be provided in a separate removable insert within the final report. Once approved by the ERO, copies of the FARR shall be distributed as follows: Northwest Information Center (NWIC) of the California Historical Resources Information System shall receive one (1) copy and the ERO shall receive a copy of the transmittal of the FARR to the NWIC. The Environmental Planning division of the Planning Department shall receive one bound, one unbound and one unlocked, searchable PDF copy on CD of the FARR along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of high public interest in or the high interpretive value of the resource, the ERO may require a different final report content, format, and distribution than that presented above. **Mitigation Measure M-CR-2b. Accidental Discovery of Archeological Resources** The following mitigation measure is required to avoid any potential adverse effect from the project on accidentally discovered buried or submerged historical resources as defined in CEQA Guidelines Section 15064.5(a) and (c). The project sponsor shall distribute the Planning Department archeological resource "ALERT" sheet to the project prime contractor; to any project subcontractor (including demolition, excavation, grading, foundation, pile installation, etc. firms); or utilities firm involved in soils disturbing activities within the project site. Prior to any soils disturbing activities being undertaken each contractor is responsible for ensuring that the "ALERT" sheet is circulated to all field personnel including, machine operators, field crew, pile drivers, supervisory personnel, etc. A preconstruction training shall be provided to all construction personnel by a qualified archeologist prior to their starting work on the project. The training may be provided in person or using a video and include a handout prepared by the qualified archeologist. The video and materials shall be reviewed and approved by the ERO and the SFPUC. The purpose of the training is to enable personnel to identify archeological resources that may be encountered and to instruct them on what to do if a potential discovery occurs. Images or video of expected archeological resource types and archeological testing and data recovery methods should be included in the training. As possible, video or images should utilize archeological investigations that have occurred at the project site. The training should also include general information about the known archeological resources identified within the project site. The project sponsor shall provide the Environmental Review Officer (ERO) with a signed affidavit from the responsible parties (prime contractor, subcontractor[s], and utilities firm) to the ERO confirming that all field personnel have received copies of the Alert Sheet and have taken the preconstruction training. Should any indication of an archeological resource be encountered during any soils disturbing activity of the project, the project Head Foreman and/or project sponsor shall immediately notify the ERO and the SFPUC and shall immediately suspend any soils disturbing activities in the vicinity of the discovery until the ERO, in coordination with the SFPUC, has determined what additional measures should be undertaken.

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TABLE S-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Cultural Resources, EIR Section 4.5 (cont.)		
Impact CR-2 (cont.)		If the ERO determines that the find may represent an archeological resource, the project sponsor shall retain the services of an archeological consultant. The archeological consultant shall advise the ERO and the SFPUC as to whether the discovery is an archeological resource, retains sufficient integrity, and is of potential scientific/historical/cultural significance. If an archeological resource is present, the archeological consultant shall identify and evaluate the archeological resource. The archeological consultant shall make a recommendation as to what action, if any, is warranted. Based on this information, the ERO may require, if warranted, specific additional measures to be implemented by the project sponsor. Measures might include: preservation in situ of the archeological resource; an archeological monitoring program; or an archeological testing program. If an archeological monitoring program or archeological testing program is required, it shall be consistent with the Environmental Planning (EP) division guidelines for such programs. The ERO may also require that the project sponsor immediately implement a site security program if the archeological resource is at risk from vandalism, looting, or other damaging actions. The project archeological consultant shall submit a Final Archeological Resources Report (FARR) to the ERO and the SFPUC that evaluates the historical significance of any discovered archeological resource and describing the archeological and historical research methods employed in the archeological monitoring/data recovery program(s) undertaken. Information that may put at risk any archeological resource shall be provided in a separate removable insert within the final report. Copies of the Draft FARR shall be sent to the ERO for review and approval and concurrently to the SFPUC for review and comment. Once approved by the ERO, copies of the FARR shall be distributed as follows: California Archaeological Site Survey Northwest Information Center (NWIC) shall receive one (1) copy and the ERO shall receive a copy of the transmittal of the FARR to the NWIC. The Environmental Planning division of the Planning Department shall receive one bound copy, one unbound copy and one unlocked, searchable PDF copy on CD three copies of the FARR along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of high public interest or interpretive value, the ERO may require a different final report content, format, and distribution than that presented above.
Impact CR-3: The project could disturb human remains, including those interred outside of formal cemeteries.	LSM	**Mitigation Measure M-CR-2a. Archeological Testing, Monitoring, and/or Data Recovery** (see Impact CR-2)
Impact C-CR-1: The project, in combination with past, present, and probable future projects, would substantially contribute to cumulative adverse historic architectural resources impacts.	SUM	**Mitigation Measure M-CR-1. Documentation of Historic Resources and Interpretive Display** (see Impact CR-1)
Impact C-CR-2: The project, in combination with past, present, and probable future projects, could result in cumulative adverse impacts on archeological resources and human remains.	LSM	**Mitigation Measure M-CR-2a. Archeological Testing, Monitoring, and/or Data Recovery** (see Impact CR-2) **Mitigation Measure M-CR-2b. Accidental Discovery of Archeological Resources** (see Impact CR-2)

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TABLE S-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Transportation and Traffic, EIR Section 4.6		
Impact TR-1: Project construction would not result in substantial interference with pedestrian, bicycle, or vehicle circulation and accessibility to adjoining areas, and would not result in potentially hazardous conditions.	LS	No mitigation required.
Impact TR-2: Project construction would not result in inadequate emergency vehicle access.	LS	No mitigation required.
Impact TR-3: Project operations and maintenance activities would not cause substantial additional vehicle miles traveled (VMT), substantially induce automobile travel, or cause or worsen traffic safety hazards.	LS	No mitigation required.
Impact C-TR-1: Construction of the project, in combination with past, present, and probable future projects, would not result in significant transportation impacts.	LS	No mitigation required.
Impact C-TR-2: Project operations and maintenance activities, in combination with past, present, and probable future projects, would not result in significant transportation impacts.	LS	No mitigation required.
Noise and Vibration, EIR Section 4.7		
Impact NO-1: Construction of the project could cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project and could expose people to or generate noise levels in excess of standards in the Noise Ordinance.	LSM	**Mitigation Measure M-NO-1a. Shielding of Concrete Saw Operations** Project contractors shall erect temporary shielding when concrete saw operations are conducted within 100 feet of a sensitive receptor. Shielding shall be sufficient to reduce noise levels to 80 dBA at a distance of 100 feet (an approximate 5 dBA reduction), consistent with the noise limit specified in Section 2907 of the Noise Ordinance. **Mitigation Measure M-NO-1b. Construction Noise Control Measures at Southeast Greenhouses Staging Area** Project contractors shall implement noise control measures at the Southeast Greenhouses staging area, such as one of the following strategies, to ensure that construction-related noise does not exceed 77 dBA at the closest residences located across Phelps Street or 70 dBA at the daycare center (including its outdoor play area) at the Southeast Community Facility (this performance standard is based on the City's ambient +10 dBA noise limit):

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TABLE S-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Noise and Vibration, EIR Section 4.7 (cont.)		
Impact NO-1 (cont.)		• ***Restrict Use of Heavy Equipment***. Restrict operation of heavy equipment and trucks in the southern portion of the Southeast Greenhouses staging area within approximately 200 feet of the daycare center (including the outdoor play area) and residences across Phelps Street such that noise levels are maintained below this performance standard. • ***Temporary Noise Barrier***. Erect temporary noise barrier(s) along the southern and eastern boundaries of the Southeast Greenhouses staging area to shield the daycare facility and residences from noise generated by staging area activities necessary to achieve this performance standard. The SFPUC shall also post a sign on-site describing permitted construction days and hours, noise complaint procedures, and a complaint hotline number (available during construction hours).
Impact NO-2: Construction of the project would not expose structures or persons to excessive groundborne vibration levels.	LS	No mitigation required.
Impact NO-3: Operation of the project would not result in a substantial permanent increase in ambient noise levels in the project vicinity and permanently expose persons to noise levels in excess of standards in the Noise Ordinance (Article 29 of the Police Code).	LS	No mitigation required.
Impact NO-4: The project would not result in substantial permanent increases in traffic-related ambient noise levels in the project vicinity.	LS	No mitigation required.
Impact NO-5: Operation of the project would not expose any people or off-site structures to excessive groundborne vibration levels.	LS	No mitigation required.
Impact C-NO-1: Construction activities of the project combined with cumulative construction noise in the project vicinity could cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity or result in excessive groundborne vibration levels during construction.	LSM	**Mitigation Measure M-NO-1b: Construction Noise Control Measures at Southeast Greenhouses Staging Area** (see Impact NO-1)

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TABLE S-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Noise and Vibration, EIR Section 4.7 (cont.)		
Impact C-NO-2: Operation of the project when considered with other cumulative development would not cause a substantial permanent increase in ambient noise levels or result in excessive groundborne vibration levels in the project vicinity.	LS	No mitigation required.
Air Quality, EIR Section 4.8		
Impact AQ-1: The project's construction activities would not generate fugitive dust that could violate an air quality standard or contribute substantially to an existing or projected air quality violation, but project construction would generate criteria air pollutants that would violate an air quality standard and contribute substantially to an existing or projected air quality violation, and result in a cumulatively considerable net increase in criteria air pollutants.	SUM	**Mitigation Measure M-AQ-1a. Construction Emissions Minimization** The SFPUC's contractors shall comply with the following: ***A. Engine Requirements.*** 1. All off-road equipment with larger engines (greater than or equal to 140 horsepower) shall meet United States Environmental Protection Agency (USEPA) or California Air Resources Board (CARB) Tier 4 Final off-road emission standards, while equipment with smaller engines (less than 140 horsepower) shall meet or exceed Tier 2 off-road emission standards and be equipped with diesel particulate filters (DPFs), which is equivalent to a Level 3 verified diesel emission control strategy (VDECS). 2. At least 80 percent of haul trucks (i.e., trucks used to remove or deliver backfill soil, excavated soil, and demolition debris) used must have 2010 or newer engines. The SFPUC should strive to exceed this requirement when possible; if trucks with 2010 or newer engines are available in the Contractor's, or subcontractor's fleet, then those should be used for the project. The SFPUC, through its Contractors Assistance Center, will work with the BAAQMD's Strategic Incentives Division and interested, eligible truckers to pursue funding to replace vehicles or retrofit engines to comply with the lower emissions requirement, including but not limited to conducting informational presentations at the Contractors Assistance Center to notify truckers about the grants and incentives and assisting with the completion of applications to the grant programs. 3. All diesel-powered haul trucks and off-road equipment must use renewable diesel. ***B. Waivers.*** 4. Pursuant to the Clean Construction Ordinance, the SFPUC General Manager (GM) or designee may waive the alternative source of power requirement if an alternative source of power is limited or infeasible at the project site. If the SFPUC GM grants the waiver, the contractor shall submit documentation that the equipment used for on-site power generation meets the requirements of Subsection (A)(1). 5. The SFPUC GM or designee may waive the equipment requirements of Subsection (A)(1) but only under any of the following unusual circumstances: if a particular piece of off-road equipment with Tier 4 Final standards or CARB Level 3 VDECS is technically not feasible; the equipment would not produce desired emissions reduction due to expected operating modes; installation of the equipment would create a safety hazard or impaired visibility for the operator; or there is a compelling emergency need to use off-road equipment that is not retrofitted with a CARB Level 3 VDECS. If the SFPUC GM or designee grants the waiver, the contractor shall use the next cleanest piece of off-road equipment, according to the following table:

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TABLE S-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Air Quality, EIR Section 4.8 (cont.)		
Impact AQ-1 (cont.)		

Compliance Alternative	Engine Emission Standard
1	Tier 4 Interim
2	Tier 3
3	Tier 2

NOTES: How to use the table: If the SFPUC GM or designee determines that the equipment requirements cannot be met, then the contractor shall meet Compliance Alternative 1. If the SFPUC GM or designee determines that the contractor cannot supply off-road equipment meeting Compliance Alternative 1, then the contractor shall meet Compliance Alternative 2. If the SFPUC GM or designee determines that the contractor cannot supply off-road equipment meeting Compliance Alternative 2, then the contractor shall meet Compliance Alternative 3.

Mitigation Measure M-AQ-1b. Emission Offsets

During the five-year construction period and prior to project completion, the SFPUC, with the oversight of the Planning Department, shall implement either of the following two options or a combination of both:

1. Directly implement a specific offset program (such as replace equipment) to achieve reductions of 2.3 tons per year of ozone precursors, subject to Environmental Review Officer (ERO) approval. To qualify under this mitigation measure, the specific emissions retrofit project must result in emissions reductions within the San Francisco Bay Area Air Basin (SFBAAB) that are real, surplus, quantifiable, enforceable, and would not otherwise be achieved through compliance with existing regulatory requirements or any other legal requirement. Prior to implementation of the offset project, the SFPUC must obtain Planning Department's approval of the proposed offset project by providing documentation of the estimated amount of emissions of 2.3 tons per year of ozone precursors within the SFBAAB from the emissions reduction project(s). The project sponsor shall notify the Planning Department within six months of completion of the offset project for verification.

2. Pay a mitigation offset fee to the Bay Area Air Quality Management District's (BAAQMD) Bay Area Clean Air Foundation (Foundation) in an amount to be determined at the time of the impact. The mitigation offset fee will be no less than $30,000 per weighted ton of ozone precursors per year requiring emissions offsets plus an administrative fee of no less than 5 percent, to fund one or more emissions reduction projects within the SFBAAB. The $30,000 will be adjusted to reflect annual California Consumer Price Index adjustments between 2017 and the estimated first year of exceedance. This fee will be determined by the Planning Department in consultation with the SFPUC and BAAQMD and based on the type of projects available at the time of impact. This fee is intended to fund emissions reduction projects to achieve reductions of 2.3 tons per year of ozone precursors.

For this option, the SFPUC is required to enter into a Memorandum of Understanding (MOU) with the BAAQMD's Foundation. The MOU will include details regarding the funds to be paid, administrative fee and the timing of the emissions reductions project. Acceptance of this fee by the BAAQMD shall serve as an acknowledgment and commitment by the BAAQMD to: (1) implement an emissions reduction project(s) within a time frame to be determined based on the type of project(s) selected, after receipt of the mitigation fee to achieve the emission reduction objectives specified above; and (2) provide documentation to the ERO and the SFPUC

NI: No Impact LS: Less than Significant LSM: Less than Significant with Mitigation SUM: Significant and Unavoidable with Mitigation C: Cumulative

TABLE S-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Air Quality, EIR Section 4.8 (cont.)		
Impact AQ-1 (cont.)		describing the amount of and the project(s) funded by the mitigation fee, including the amount of emissions of NOx reduced (tons per year) within the SFBAAB from the emissions reduction project(s). If there is any remaining unspent portion of the mitigation offset fee following implementation of the emission reduction project(s), the SFPUC shall be entitled to a refund in that amount from the BAAQMD. To qualify under this mitigation measure, the specific emissions reduction project must result in emission reductions within the SFBAAB that are real, surplus, quantifiable, enforceable, and would not otherwise be achieved through compliance with existing regulatory requirements or any other legal requirement.
Impact AQ-2: During project operations, net changes in criteria air pollutant emissions would not result in any new violations of air quality standards, contribute to an existing or projected air quality violation, or result in a cumulatively considerable net increase in criteria air pollutants.	LS	No mitigation required.
Impact AQ-3: Construction and operation of the project would generate toxic air contaminants, including diesel particulate matter, but would not expose sensitive receptors to substantial air pollutant concentrations or result in a cumulatively considerable net increase in health risks or hazards.	LS	No mitigation required.
Impact AQ-4: The project's construction-related air pollutant emissions could conflict with, or obstruct implementation of, the *2010 Clean Air Plan*.	LSM	**Mitigation Measures M-AQ-1a. Construction Emissions Minimization and M-AQ-1b. Emission Offsets** (see Impact AQ-1).
Impact AQ-5: Construction and operation of the BDFP facilities would not create objectionable odors that would affect a substantial number of people.	LS	No mitigation required.
Impact C-AQ-1a: Construction of the project, in combination with other past, present, and probable future projects, would result in a cumulatively considerable net increase in criteria air pollutants and contribute to cumulative regional air quality impacts.	SUM	**Mitigation Measures M-AQ-1a. Construction Emissions Minimization and M-AQ-1b. Emission Offsets** (see Impact AQ-1)

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TABLE S-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Air Quality, EIR Section 4.8 (cont.)		
Impact C-AQ-1b: Operation of the project, in combination with other past, present, and probable future projects, would not result in a cumulatively considerable net increase in criteria air pollutants nor contribute to cumulative regional air quality impacts.	LS	No mitigation required.
Impact C-AQ-2: Construction and operation of the project, in combination with other past, present, and probable future projects, would generate toxic air contaminants, including diesel particulate matter, but would not expose sensitive receptors to substantial air pollutant concentrations or result in a cumulatively considerable net increase in health risks and hazards.	LS	No mitigation required.
Impact C-AQ-3: The project, in combination with past, present, and probable future projects, would not create objectionable odors that would affect a substantial number of people.	LS	No mitigation required.
Greenhouse Gas Emissions, EIR Section 4.9		
Impact C-GG-1: The project would generate greenhouse gas emissions, but not at levels that would result in a significant impact on the environment or conflict with any policy, plan, or regulation adopted for the purpose of reducing greenhouse gas emissions.	LS	No mitigation required.
Wind and Shadow, EIR Section 4.10		
Impact WS-1: The project structures would not alter wind in a manner that would substantially affect public areas.	LS	No mitigation required.
Impact WS-2: Project structures would not create new shadow in a manner that would substantially affect outdoor recreation facilities or other public areas.	LS	No mitigation required.

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TABLE S-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Wind and Shadow, EIR Section 4.10 (cont.)		
Impact C-WS-1: The project, in combination with past, present, and probable future projects, would not substantially contribute to cumulative impacts on wind.	LS	No mitigation required.
Impact C-WS-2: The project, in combination with past, present, and probable future projects, would not substantially contribute to cumulative impacts on shadow.	LS	No mitigation required.
Recreation, EIR Section 4.11		
Impact RE-1: The project's construction and operation would not (a) increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated, (b) include recreational facilities or require the construction or expansion of recreational facilities, or (c) otherwise result in substantial degradation of existing recreational resources.	NI	No mitigation required.
Impact C-RE-1: The project, in combination with past, present, and probable future projects, would not substantially affect recreational resources.	NI	No mitigation required.
Utilities and Service Systems, EIR Section 4.12		
Impact UT-1: Project construction would not result in a determination by the wastewater treatment provider that would serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.	LS	No mitigation required.
Impact UT-2: Project construction would not result in a substantial adverse effect related to landfill capacity.	LS	No mitigation required.

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TABLE S-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Utilities and Service Systems, EIR Section 4.12 (cont.)		
Impact UT-3: Project construction would not result in a substantial adverse effect related to compliance with federal, state, or local statutes and regulations related to solid waste.	LS	No mitigation required.
Impact UT-4: The City's water supply provider would have sufficient water supply available to serve project operations from existing entitlements and resources, and the project would not require new or expanded water distribution or treatment facilities.	LS	No mitigation required.
Impact UT-5: Project operations would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs.	LS	No mitigation required.
Impact UT-6: Project operations would not result in a substantial adverse effect related to compliance with federal, state, or local statutes and regulations related to solid waste.	LS	No mitigation required.
Impact C-UT-1: The project, in combination with past, present, and probable future projects, would not result in significant cumulative impacts on utilities and service systems.	LS	No mitigation required.
Public Services, EIR Section 4.13		
Impact PS-1: Construction and operation of the BDFP would not increase demand for public services to an extent that would require new or physically altered governmental facilities in order to maintain acceptable service ratios, response times, or other performance objectives for public services.	LS	No mitigation required.
Impact C-PS-1: The project, in combination with past, present, and probable future projects, would not substantially contribute to cumulative impacts related to public services.	LS	No mitigation required.

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TABLE S-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Biological Resources, EIR Section 4.14		
Impact BI-1: Project construction could have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service.	LSM	**Mitigation Measure M-BI-1: Protective Measures for Special Status Bats and Maternity Roosts** The San Francisco Public Utilities Commission (SFPUC) shall engage a qualified biologist to conduct a pre-construction survey of buildings and other structures to be demolished, vacant buildings within 100 feet of construction activities, trees to be removed, and trees located within 100 feet of construction activities to locate potential roosting habitat for special-status bats and active maternal colonies. The pre-construction surveys shall occur no more than two weeks in advance of initiation of building demolition or renovation activities on-site or initiation of construction. No activities that could disturb active roosts of special-status bats or maternal roosts shall proceed prior to the completed surveys. The pre-construction survey shall include at a minimum: • Identification of potential direct and indirect project-related bat- disturbing activities; and • Locations of active roosting habitat and maternal colonies. If the pre-construction survey does not identify signs of potentially active bat roosts (e.g., guano, urine staining, dead bats, etc.) then no further action is required. If the pre-construction survey identifies signs of potentially active bat roosts, the following measures shall be implemented: • Removal of structures and trees shall occur when bats are active, approximately between the periods of March 1 to April 15 and August 15 to October 15; outside of bat maternity roosting season (approximately April 15 to August 31); and outside of months of winter torpor (approximately October 15 to February 28). On structures where bats were observed during the pre-construction survey, exclusion devices (i.e., one-way doors) shall be installed prior to removal of the structures. Exclusion devices shall be left in place for a minimum of four nights prior to demolition of the structures. • If removal of structures and trees during the periods when bats are active is not feasible and active bat roosts being used for maternity or hibernation purposes are found on or in the immediate vicinity of the project site where structure demolition or renovation is planned, a no-disturbance buffer of 100 feet or less if determined adequate by a qualified biologist in coordination with the California Department of Fish and Wildlife (CDFW) based on site-specific conditions shall be established around the roost sites until they are determined to be no longer active or volant by a qualified biologist. • The qualified biologist shall be present during structure and tree disturbance if active bat roosts are present. Structures and trees with active roosts shall be removed only when no rain is occurring or is forecast to occur for three days and when daytime temperatures are at least 50 degrees Fahrenheit (°F). • Structures or trees containing or suspected to contain active bat roosts shall be dismantled or removed under the supervision of the qualified biologist in the evening and after bats have emerged from the roost to forage. Structures shall be partially dismantled to significantly change the roost conditions, causing bats to abandon and not return to the roost. • If significant bat roosting habitat (e.g., maternity roosts or special-status non-maternity roost sites) is destroyed during structure or tree removal, artificial bat roosts shall be constructed in an undisturbed area in the project site vicinity away from human activity and at least 200 feet from project demolition/construction activities. The design and location of the artificial bat roost(s) shall be determined by a qualified bat biologist. • Bat roosts that begin during construction are presumed to be unaffected, and no buffer would be necessary.

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TABLE S-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Biological Resources, EIR Section 4.14 (cont.)		
Impact BI-2: Project construction would not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means.	LS	No mitigation required.
Impact BI-3: Construction activities would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	LS	No mitigation required.
Impact C-BI-1: The project, in combination with past, present, and probable future projects, could substantially contribute to cumulative impacts on biological resources.	LSM	**Mitigation Measure M-BI-1: Protective Measures for Special Status Bats and Maternity Roosts** (see Impact BI-1)
Geology, Soils, and Paleontological Resources, EIR Section 4.15		
Impact GE-1: The project would not expose people or structures to the risk of loss, injury, or death involving seismic ground shaking or seismically induced ground failure.	LS	No mitigation required.
Impact GE-2: The project would not result in substantial erosion.	LS	No mitigation required.
Impact GE-3: The project site is not located on a geologic unit or soil that is unstable, and the site would not become unstable as a result of the project.	LS	No mitigation required.
Impact GE-4: The project could directly or indirectly destroy a unique paleontological resource.	LSM	**Mitigation Measure M-GE-4: Paleontological Resources Monitoring and Mitigation Program** The SFPUC shall retain the services of a qualified paleontological consultant having expertise in California paleontology to design and implement a Paleontological Resources Monitoring and Mitigation Program (PRMMP) for construction activities that would disturb the upper layered sediments that are sensitive for paleontological resources. The PRMMP shall not require monitoring in shallower excavations that do not encounter the upper layered sediments. The PRMMP shall include a description of when and where construction monitoring would be required; emergency discovery procedures; sampling and data recovery procedures; procedure for the preparation, identification, analysis, and curation of fossil specimens and data recovered; pre-construction coordination procedures; and procedures for reporting the results of the monitoring program.

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TABLE S-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Geology, Soils, and Paleontological Resources, EIR Section 4.15		
Impact GE-4 (cont.)		The PRMMP shall be consistent with the Society for Vertebrate Paleontology (SVP) Standard Guidelines for the mitigation of construction–related adverse impacts on paleontological resources and the requirements of the designated repository for any fossils collected. During construction, earth-moving activities shall be monitored by a qualified paleontological consultant having expertise in California paleontology in the areas where these activities have the potential to disturb the upper layered sediments. Monitoring need not be conducted for construction activities that would disturb only artificial fill material and/or young bay mud. The consultant's work shall be conducted in accordance with this measure and at the direction of the City's Environmental Review Officer (ERO) in coordination with the SFPUC. Plans and reports prepared by the consultant shall be submitted first and directly to the ERO for review and comment and concurrently to the SFPUC for review and comment, and shall be considered draft reports subject to revision until final approval by the ERO. Paleontological monitoring and/or data recovery programs required by this measure could suspend construction of the project in an appropriate buffer zone around a discovered paleontological resource or area determined in the PRMMP to be sensitive for paleontological resources for up to a maximum of four weeks. At the direction of the ERO and in coordination with the SFPUC, the suspension of construction may be extended beyond four weeks for a reasonable time required to implement appropriate measures in accordance with the PRMMP only if such a suspension is the only feasible means to reduce potential effects on a significant paleontological resource as previously defined to a less-than-significant level.
Impact C-GE-1: The project, in combination with past, present, and probable future projects, would not substantially contribute to cumulative impacts on geology or soils.	LS	No mitigation required.
Impact C-GE-2: The project, in combination with past, present, and probable future projects, could substantially contribute to cumulative impacts on paleontological resources.	LSM	**Mitigation Measure M-GE-4: Paleontological Resources Monitoring and Mitigation Program** (see Impact GE-4)
Hydrology and Water Quality, EIR Section 4.16		
Impact HY-1: Construction of the project would not violate water quality standards or waste discharge requirements or otherwise substantially degrade water quality.	LS	No mitigation required.
Impact HY-2: Construction of the project would not substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table.	LS	No mitigation required.

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TABLE S-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Hydrology and Water Quality, EIR Section 4.16 (cont.)		
Impact HY-3: Construction of the project would not place structures within a 100-year flood zone or expose people or structures to a significant risk of loss, injury, or death involving flooding under current conditions or future conditions resulting from sea level rise.	LS	No mitigation required.
Impact HY-4: Construction of the project would not expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche or tsunami.	LS	No mitigation required.
Impact HY-5: Operation of the project would not violate water quality standards or waste discharge requirements or otherwise substantially degrade water quality.	LS	No mitigation required.
Impact HY-6: Operation of the project would not substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table**.**	LS	No mitigation required.
Impact HY-7: Operation of the project would not exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.	LS	No mitigation required.
Impact HY-8: Operation of the project would not include the construction of structures that would impede flood flows within an existing 100-year flood zone or 100-year flood zones resulting from sea level rise.	LS	No mitigation required.
Impact C-HY-1: The project, in combination with past, present, and probable future projects in the site vicinity, would not result in significant adverse cumulative hydrology impacts.	LS	No mitigation required.

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TABLE S-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Hydrology and Water Quality, EIR Section 4.16 (cont.)		
Impact C-HY-2: The project, in combination with past, present, and probable future projects in the site vicinity, would not result in significant adverse cumulative water quality impacts.	LS	No mitigation required.
Hazards and Hazardous Materials, EIR Section 4.17		
Impact HZ-1: Project construction and operation would not result in a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	LS	No mitigation required.
Impact HZ-2: Project construction and operation would not result in reasonably foreseeable conditions involving the release of hazardous building materials to the environment.	LS	No mitigation required.
Impact HZ-3: Project construction and operation would not release hazardous emissions or handle acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	LS	No mitigation required.
Impact HZ-4: The project would be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5; however, project construction and operation would not result in a significant hazard to the public or the environment under reasonably foreseeable conditions.	LS	No mitigation required.
Impact HZ-5: Project construction and operation would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	LS	No mitigation required.

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TABLE S-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Significance Determination	Mitigation Measure
Hazards and Hazardous Materials, EIR Section 4.17 (cont.)		
Impact HZ-6: Project construction and operation would not result in a significant risk of loss, injury, or death involving fire.	LS	No mitigation required.
Impact C-HZ-1: The project, in combination with past, present, and probable future projects, would not substantially contribute to cumulative hazards or hazardous materials impacts.	LS	No mitigation required.
Mineral Resources, Energy Resources and Water Use, EIR Section 4.18		
Impact ME-1: Construction of the project would not result in the use of large amounts of fuel, water, or energy, or use these resources in a wasteful manner.	LS	No mitigation required.
Impact ME-2: Operation of the project would not result in the use of large amounts of fuel, water, or energy, or use these resources in a wasteful manner.	LS	No mitigation required.
Impact C-ME-1: The project, in combination with past, present, and probable future projects, would not encourage activities that result in the use of large amounts of fuel, water, or energy, or use such resources in a wasteful manner.	LS	No mitigation required.
Agriculture and Forest Resources, EIR Section 4.19		
Impact AG-1: The project would not involve changes in the existing environment which could result in the conversion of farmland to non-agricultural use or forest land to non-forest use.	NI	No mitigation required.
Impact C-AG-1: The project, in combination with past, present, and probable future projects, would not substantially contribute to cumulative impacts on farmland or forest land.	NI	No mitigation required.

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CHAPTER 1
Introduction

1.1 Purpose of this Environmental Impact Report

This environmental impact report (EIR) has been prepared by the San Francisco Planning Department (Planning Department) of the City and County of San Francisco (City or CCSF) in conformance with the provisions of the California Environmental Quality Act (CEQA), the CEQA Guidelines (California Public Resources Code Section 15000 et seq., "CEQA Guidelines"), and Chapter 31 of the San Francisco Administrative Code. The Planning Department, through its Environmental Planning section (EP), is the lead agency responsible for implementing CEQA for all projects sponsored by CCSF or located within San Francisco, including those sponsored by the San Francisco Public Utilities Commission (SFPUC). The lead agency is the public agency that has principal responsibility for carrying out or approving a project. CEQA requires the preparation of an EIR when a project could have significant unavoidable impacts on the physical environment. EP determined that the Biosolids Digester Facilities Project (BDFP or project), for which the SFPUC is the project sponsor, could cause significant environmental impacts that cannot be mitigated to a less than significant level, and that preparation of an EIR was therefore required.

The BDFP would construct new solids treatment, odor control, energy recovery, and associated facilities at the SFPUC's Southeast Water Pollution Control Plant (Southeast Plant or SEP) located in the Bayview-Hunters Point district of San Francisco. The project facilities would be located on portions of the SEP located at 750 Phelps Street and 1700 Jerrold Avenue, and two adjacent properties at 1800 Jerrold Avenue (Central Shops) and 1801 Jerrold Avenue (Asphalt Plant).

Pursuant to CEQA Guidelines Section 15161, this is a project-level EIR, defined as an EIR that examines the physical environmental impacts of a specific development project. The Planning Department has prepared this EIR to provide the public and the responsible and trustee agencies reviewing the project with information about the project's potential effects on the environment. This EIR describes the potential environmental impacts that could result from implementation of the BDFP, identifies mitigation measures for reducing impacts to a less-than-significant level where feasible, and evaluates alternatives to the project.

1.2 Environmental Review Process

The environmental review process for the BDFP includes multiple steps: publication of a Notice of Preparation (NOP), public scoping period, publication of a Draft EIR, public and agency review of the Draft EIR, publication of responses to public and agency comments on the Draft EIR, and certification of the Final EIR. Each of these steps involves public outreach. Additional public outreach was also conducted by the SFPUC for the BDFP, as described in Section 1.3.

1.2.1 Notice of Preparation

The SFPUC submitted an Environmental Evaluation application for the BDFP to the Planning Department on January 29, 2015, initiating the environmental review process. In accordance with Sections 15063 and 15082 of the CEQA Guidelines, on June 24, 2015, EP sent over 1,540 Notices of Preparation (NOP) of an EIR to responsible public agencies and interested parties to begin the formal CEQA scoping process for the project. The NOP informed agencies and the public about the project and the Planning Department's decision to prepare an EIR, and included a request for comments on environmental issues that should be addressed in the EIR. The Planning Department also distributed a Public Notice of the Availability of the NOP and Notice of Public Scoping Meeting to additional public agencies, interested parties, and landowners/occupants located near the project, which was posted on the Planning Department website and placed in the legal classified section of the *San Francisco Examiner* on June 24, 2015.

The Planning Department held a public scoping meeting on Thursday, July 16, 2015, at the Southeast Community Facility, 1800 Oakdale Avenue, San Francisco to receive oral comments on the scope of the EIR. The 30-day scoping period ended on July 27, 2015. **Table 1-1** presents summaries of the written and oral comments received during the public scoping period and indicates the EIR sections that address comments pertaining to the project description or the scope and content of the environmental analysis. **Appendix NOP** presents the NOP, transcripts from the scoping meeting, and written comments received during the scoping period. The Planning Department has considered all comments made by the public and agencies in preparing the EIR for the project.

1.2.2 Draft EIR

This Draft EIR has been prepared in accordance with CEQA and the CEQA Guidelines. It provides an analysis of the project-specific physical environmental impacts of construction and operation of the project, and the project's contribution to the environmental impacts of foreseeable cumulative development.

TABLE 1-1
SUMMARY OF SCOPING COMMENTS

Commenter	Summary of Comment	Coverage in the EIR
Susan Stewart, State Water Resources Control Board (SWRCB) (July 23, 2015) Letter	Identifies the SWRCB, Division of Financial Assistance, as a funding agency and state agency with jurisdiction regarding California's water resources. Discusses requirements of the Clean Water State Revolving Fund (SRF) Program. Explains that with SRF funding, the project will be subject to federal laws and requirements such as the Federal Endangered Species Act and National Historic Preservation Act.	• As indicated in Section 2.7.2 in Chapter 2, *Project Description*, the SFPUC will pursue SRF funding for the BDFP. The SFPUC will comply with SWRCB reporting requirements regarding compliance with applicable federal laws and requirements.
	Requests clarification as to the depths of excavations and an estimate of the cubic yards of soil to be removed.	• Chapter 2, *Project Description*
	Requests an estimated percent design on project design figure references.	• Figure 2-5 in Chapter 2 indicates the percent design complete
	Requests a discussion of the removal and replacement of street trees, including the types of trees that would be used for revegetation, planting schedule, and measures to protect migratory birds. In addition, requests description of protection measures for trees adjacent to the construction area.	• Chapter 2, *Project Description* • Section 4.14, Biological Resources
Patricia Maurice, California Department of Transportation (Caltrans), District 4 (July 23, 2015) Letter	Identifies guidelines and elements of a Transportation Impact Study. Encourages early collaboration with Caltrans and review of the Transportation Impact Study.	• Chapter 2, *Project Description* • Section 4.6, Transportation and Circulation • Appendix – TR
	Indicates that a Transportation Management Plan (approved by Caltrans) may be required if traffic restrictions and detours affect state highways, and references requirements for such plans.	
	Identifies permits required for movement of oversized or excessive load vehicles on state roadways.	• Section 4.6, Transportation and Circulation • Appendix – TR
	Discusses regulations for transportation of hazardous materials.	• Section 4.6, Transportation and Circulation • Section 4.17, Hazards and Hazardous Materials
	Requests that the EIR identify project mitigations, including the project's fair share contribution associated with planned improvements on Caltrans roadways.	• Section 4.6, Transportation and Circulation
Mark Klaiman, Pet Camp, 525 Phelps Street (July 22, 2015) Email	Expresses concern about the safety of pedestrians, bicyclists, and motorists on Phelps Street due to truck and other traffic associated with project construction. Identifies Phelps Street as a narrow road designated as a bike route. Requests a truck route that avoids Phelps Street.	• Chapter 2, *Project Description* • Section 4.6, Transportation and Circulation • Chapter 6, *Alternatives*
Siri Datta Khalsa, San Francisco Foliage, 1150 Phelps Street (July 16, 2015) Scoping Meeting Speaker	Expresses concern about the potential loss of the community greenhouses, including effects on jobs, internship opportunities for youth, and educational classes.	• Section 4.1, Impact Overview, and cumulative impact discussions in each topic area • The EIR focuses on physical environmental effects rather than socioeconomic effects.[a]

TABLE 1-1 (Continued)
SUMMARY OF SCOPING COMMENTS

Commenter	Summary of Comment	Coverage in the EIR
Ace Washington (July 16, 2015) Scoping Meeting Speaker	Expresses concern about community involvement.	• Refer to discussion of public outreach presented in this chapter.
Karen Pierce, Newcomb Street (July 16, 2015) Scoping Meeting Speaker	Expresses dissatisfaction with the community benefits provided by earlier SEP development and requests additional benefits from this project. Expresses concern about transit (19 Polk) during construction; complete abatement of odor, dust mitigation during construction; coordination with other construction projects in the vicinity; and height of digesters and aesthetics of the SEP.	• Chapter 2, *Project Description* • Section 4.1, Impact Overview, and cumulative impact discussions in each topic area • Section 4.3, Aesthetics • Section 4.6, Transportation and Circulation • Section 4.8, Air Quality • Community benefits are not subject to analysis under CEQA. The SFPUC is conducting a separate environmental justice analysis concurrent with the project.
Steven Tell (July 16, 2015) Scoping Meeting Speaker	Expresses concern regarding odors and environmental justice issues.	• Chapter 2, *Project Description* • Section 4.8, Air Quality • The EIR focuses on physical environmental effects rather than socioeconomic effects.[a] The SFPUC is conducting a separate environmental justice analysis concurrent with the project.[b]
Terry Anders, Anders & Anders Foundation (July 16, 2015) Scoping Meeting Speaker	Requests construction jobs for the community as an economic benefit.	• The EIR focuses on physical environmental effects rather than socioeconomic effects.[a]
David Pilpel, former SFPUC Wastewater Citizens' Advisory Committee member (WWCAC) (July 16, 2015) Scoping Meeting Speaker	Recommends the project include using compostable material from black carts or high strength waste. Requests that the EIR identify other concurrent SFPUC projects, particularly at the SEP; clearly define the area for cumulative impacts; and discuss impacts of the Central Shops relocation. Suggests consideration of the following: acquisition of Palou Phelps open space as mitigation; free compost for residents; the Cayuga diversion to shift wastewater flow from the SEP to the Oceanside Plant as mitigation; use of rail haul options for sludge load-out and other materials (inbound and outbound); and alternative locations for the project such as 1550 Evans Avenue and the Pier 94 Backlands.	• Chapter 2, *Project Description* • Section 4.1, Impact Overview, and cumulative impact discussions in each topic • Chapter 6, *Alternatives*
Tracy Zhu, SFPUC Citizens' Advisory Committee (CAC member (July 16, 2015) Scoping Meeting Speaker	Calls for the project to be a destination for positive uses, such as City College, other training programs, and businesses (Southeast Greenhouses). Expresses concerns regarding transit impacts (19 Polk) of project construction; health and public safety impacts along truck routes in the neighborhood; and culturally appropriate aesthetics.	• Chapter 2, *Project Description* • Section 4.3, Aesthetics • Section 4.6, Transportation and Circulation • Section 4.8, Air Quality

TABLE 1-1 (Continued)
SUMMARY OF SCOPING COMMENTS

Commenter	Summary of Comment	Coverage in the EIR
Andrea Tacdol (July 16, 2015) Scoping Meeting Speaker	Expresses concerns about environmental health impacts of the project; truck routes that minimize health impacts; proximity of Southeast Greenhouses staging area to community center and childcare facility; and cumulative impacts of multiple construction projects.	• Chapter 2, *Project Description* • Section 4.1, Impact Overview, and cumulative impact discussions in each topic area • Section 4.6, Transportation and Circulation • Section 4.8, Air Quality
Diego Sanchez (July 16, 2015) Scoping Meeting Speaker	Notes interest in existing digesters decommissioning and future use and additional public outreach (flyers) to nearby neighbors. Expresses concern regarding truck traffic, diesel particulates, dust, and odors.	• Refer to discussion of public outreach presented in this chapter. • Chapter 2, *Project Description* • Section 4.1, Impact Overview, and cumulative impact discussions in each topic area • Section 4.6, Transportation and Circulation • Section 4.8, Air Quality
Mindy Kenner, Anders & Anders Foundation (July 16, 2015) Scoping Meeting Speaker	Requests that the local community have priority for construction and operations jobs.	• The EIR focuses on physical environmental effects rather than socioeconomic effects.[a]

NOTES:

[a] Consistent with CEQA, economic or social effects of a project are not to be treated as significant effects on the environment (CEQA Guidelines Section 15131).

[b] For more information on the SFPUC's environmental justice analysis, please see the SFPUC's Land Use and Environmental Justice web page: http://sfwater.org/index.aspx?page=654.

The Draft EIR was published on May 3, 2017. The CEQA Guidelines and Chapter 31 of the San Francisco Administrative Code encourage public participation in the planning and environmental review processes. CCSF is providing opportunities for the public to present comments and concerns regarding the CEQA process for this project. The public has the opportunity to review the Draft EIR during a 45-day public review and comment period beginning May 4, 2017 and ending June 19, 2017, and at a public hearing before the San Francisco Planning Commission on June 1, 2017. The Draft EIR is available for public review on the Planning Department's SFPUC Negative Declarations and EIRs web page (http://sf-planning.org/sfpuc-negative-declarations-eirs). CDs and paper copies are also available at the Planning Information Center counter on the first floor of 1660 Mission Street, San Francisco.[1] Referenced materials are available for review at the Planning Department's office at 1650 Mission Street, Suite 400 (call 415-575-9035 or e-mail timothy.johnston.@sfgov.org).

[1] Paper copies are also available for review at the San Francisco Main Library and the Bayview Library branch.

Written comments may be submitted during the specified review period to:

Timothy P. Johnston, MP, Environmental Planner
Re: Biosolids Digester Facilities Project
San Francisco Planning Department
1650 Mission Street, Suite 400
San Francisco, CA 94103

Written and oral comments on the Draft EIR may be presented at a public hearing concerning the project as indicated on the cover of this EIR, sent by facsimile to 415-558-6409, or sent by electronic mail to: timothy.johnston@sfgov.org within the 45-day comment period noted above.

1.2.3 Final EIR

Following the close of the Draft EIR public review and comment period, the Planning Department will prepare and publish a document entitled "Responses to Comments," which will contain a copy of all comments received on this Draft EIR and written responses to all substantive comments. The document may also contain specific changes and revisions to the Draft EIR. This Draft EIR, together with the Responses to Comments document, will constitute the Final EIR. In an advertised public meeting, the San Francisco Planning Commission will consider whether to certify the Final EIR as adequate and in compliance with CEQA.

1.2.4 Mitigation Monitoring and Reporting Program

The SFPUC will use the information in the certified Final EIR in its deliberations on whether to approve, modify, or deny the project or aspects of the project. If the SFPUC approves the project, it will adopt CEQA findings that identify the project-related impacts and the mitigation measures or alternatives that have been adopted to reduce significant impacts. A Mitigation Monitoring and Reporting Program (MMRP) must be adopted by the SFPUC as part of the adoption of the CEQA findings. The MMRP lists the mitigation measures included in the project as identified in the Final EIR, entities responsible for carrying out the measures, timing of implementation of the measures, and associated reporting requirements. If significant and unavoidable impacts would occur even with implementation of all identified mitigation measures, the SFPUC must adopt as a condition of project approval a Statement of Overriding Considerations documenting how the benefits of project implementation outweigh its significant and unavoidable impacts on the environment.

1.3 Other Public Outreach

The SFPUC has undertaken numerous public outreach steps in addition to those taken by the Planning Department as part of the CEQA process. The SFPUC has informed multiple groups and individuals about the project in the past decade through presentations, print media, webinars, and one-on-one discussions. The ongoing community outreach process provides project updates and an opportunity for the public to provide input to the SFPUC. Presentations on the project were made to various groups at their public meetings; a description of these groups is provided below. The SFPUC has conducted

approximately 50 separate public outreach efforts related to the project, beginning in 2009 and continuing through 2016.

1.3.1 San Francisco Public Utilities Commission Meetings

The San Francisco Public Utilities Commission consists of five members, nominated by the Mayor and approved by the Board of Supervisors. Its responsibility is to provide operational oversight in areas such as rates and charges for services, approval of contracts, and organizational policy. Updates on the BDFP are provided to the Commission at its public meetings.

1.3.2 SFPUC Southeast Digester Task Force

The Southeast Digester Task Force was a nine-member advisory group that was convened to review and discuss information regarding the replacement of the aging existing biosolids digester facilities at the SEP, identify areas of concern, and make recommendations to SFPUC staff. The task force members were selected to provide a fair and open review process for the community regarding the development of the BDFP and consisted of active members of the Bayview-Hunters Point community. The task force members were affiliated with local business, job training, environmental, and homeowners interests; some of whom were also members of the SFPUC Citizens' Advisory Committee (CAC), the Southeast Community Facility (SECF) Commission; and the representative of the District 10 Supervisor.

The task force met on a regular basis from February 2009 through June 2010. They reviewed and evaluated preliminary facility sites, layouts, construction costs and schedules, operation and maintenance costs, architectural themes, and potential community benefits. A final report from the Southeast Digester Task Force was delivered in June 2010 to the SFPUC and included input on site selection of the digesters, cost and facility design themes, architectural improvements, methods to minimize odor and noise in the community, and overall community integration of the project. In December 2010, the San Francisco Board of Supervisors passed a resolution supporting the recommendations in the 2010 Southeast Digester Task Force report.

1.3.3 SFPUC Southeast Working Group

With co-chairs from the SFPUC Wastewater CAC and the SECF Commission, the Southeast Working Group (SEWG) met on a regular basis from 2014 through the end of 2016 and provided a complementary public forum to inform and discuss activities stemming from the SFPUC's extensive investments in the vicinity of the SEP Similar to the 2009 Southeast Digester Task Force, the SEWG was made up of a cross-section of residents, business owners, and community group leaders based near the SEP (some of whom were members of the Digester Task Force). The SEWG met routinely to gain updates on SFPUC projects, and provide input on SFPUC projects and other activities in the vicinity of the SEP.

1.3.4 SFPUC Citizens' Advisory Committee

The CAC consists of 17 members appointed by the Board of Supervisors. The CAC provides recommendations to the SFPUC General Manager and the Board of Supervisors regarding the agency's long-term strategic, financial, and capital improvement plans. The full CAC public meeting is held monthly. The CAC is comprised of three subcommittees: water, wastewater, and power. The Wastewater CAC reviews wastewater and stormwater collection, treatment, and disposal system replacement, recycling, and other relevant plans, programs, and policies. The Wastewater CAC public meeting is held a minimum of four times a year. The SFPUC has provided regular updates on the Sewer System Improvement Program (SSIP) and BDFP to the full CAC and Wastewater CAC since 2012.

1.3.5 Southeast Community Facility Commission

The SECF Commission was established in 1987 by ordinance of the San Francisco Board of Supervisors. The members of the SECF Commission are appointed by and serve under the leadership of the Mayor. The SECF Commission public meetings are held twice monthly and the Commission reviews and provides guidance regarding the operations of the SECF and other facilities under its jurisdiction. The Commission's goal is to promote and advocate special services for the improvement of the general economic, health, safety, and welfare of residents in the southeastern sector of the city.

1.3.6 Bayview Hunters Point Citizens' Advisory Committee

The Bayview Hunters Point CAC, established by the Board of Supervisors in June 2013, provides policy advice on the appropriateness of projects and land use matters regarding the Bayview Hunters Point Redevelopment Project Area Zone 2 (inclusive of the SEP). The District 10 Supervisor, the Mayor, and the City Administrator each appoint four members. The 12-member Bayview Hunters Point CAC provides community guidance to the Board of Supervisors, City boards, commissions, and departments regarding planning and development issues in Zone 2.

1.4 Organization of the EIR

This EIR is organized as follows:

- **Chapter S, *Summary*.** This chapter summarizes the project, identifies significant environmental impacts and mitigation measures, and describes the alternatives considered in this EIR, including the environmentally superior alternative. It also identifies areas of controversy and issues to be resolved.

- **Chapter 1, *Introduction*.** This chapter describes the purpose and organization of the EIR, as well as the environmental review process and additional public outreach efforts.

- **Chapter 2, *Project Description*.** This chapter describes the project (including project background and project objectives), summarizes project components, and provides information about project construction and operation. The chapter also lists permits and approvals relevant to the construction and operation of the BDFP.

- **Chapter 3, *Plans and Policies*.** This chapter describes applicable land use plans and policies and their relevance to the project and identifies any inconsistencies with those plans.

- **Chapter 4, *Environmental Setting and Impacts*.** This chapter is subdivided into sections for each environmental resource topic. Each section describes the environmental and regulatory setting, the criteria used to determine impact significance, and the approach to the analysis for that resource topic. It then presents analyses of potential environmental impacts as well as the project-specific mitigation measures that have been developed to address significant and potentially significant impacts. Each section also includes an evaluation of cumulative impacts with respect to that resource topic. The environmental resource topics are:

  - Land Use
  - Aesthetics
  - Population and Housing
  - Cultural Resources
  - Transportation and Circulation
  - Noise and Vibration
  - Air Quality
  - Greenhouse Gas Emissions
  - Wind and Shadow
  - Recreation
  - Utilities and Service Systems
  - Public Services
  - Biological Resources
  - Geology, Soils, and Paleontological Resources
  - Hydrology and Water Quality
  - Hazards and Hazardous Materials
  - Mineral Resources, Energy Resources, and Water Use
  - Agriculture and Forest Resources

- **Chapter 5, *Other CEQA Issues*.** This chapter discusses growth-inducing effects, identifies the significant environmental effects that cannot be avoided if the project is implemented, and describes significant irreversible impacts.

- **Chapter 6, *Alternatives*.** This chapter describes the alternatives to the project and compares their impacts to those of the project. This chapter also summarizes the alternatives that were considered but eliminated from further analysis.

- **Chapter 7, *Report Preparers*.** This chapter lists the authors of this EIR.

Technical and supporting information for the EIR are included as appendices to the EIR.

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CHAPTER 2
Project Description

Sections

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2.3 Project Objectives
2.4 Project Components
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2.1 Project Overview

The San Francisco Public Utilities Commission (SFPUC) proposes to construct new solids treatment, odor control, energy recovery, and associated facilities as part of improvements to the wastewater treatment facilities at the existing Southeast Water Pollution Control Plant (Southeast Plant or SEP) in San Francisco. The proposed project, the Biosolids Digester Facilities Project (BDFP or project), would replace the outdated existing solids treatment facilities with more reliable, efficient, and modern technologies and facilities. Biosolids are the recyclable solid materials removed from wastewater

during the treatment process, and digesters are the major facility used in the solid treatment process. Many of the existing SEP solids treatment facilities are over 60 years old, require significant maintenance, and are operating well beyond their useful life. The project would replace the existing digesters with new digesters and other new facilities that produce higher-quality biosolids, capture and treat odors more effectively, and maximize digester gas[1] utilization and energy recovery for the production of heat, steam, and electrical power. In addition, the project intends to locate the digesters farther from existing residences, limit project-generated odors to the SEP fence line, and make visual improvements in and around the SEP. The SFPUC anticipates that project construction would require five years to complete, from 2018 through 2023, followed by a transition period to conduct performance testing and facility commissioning, with full operation commencing in 2025.

2.1.1 Project Location and Site Description

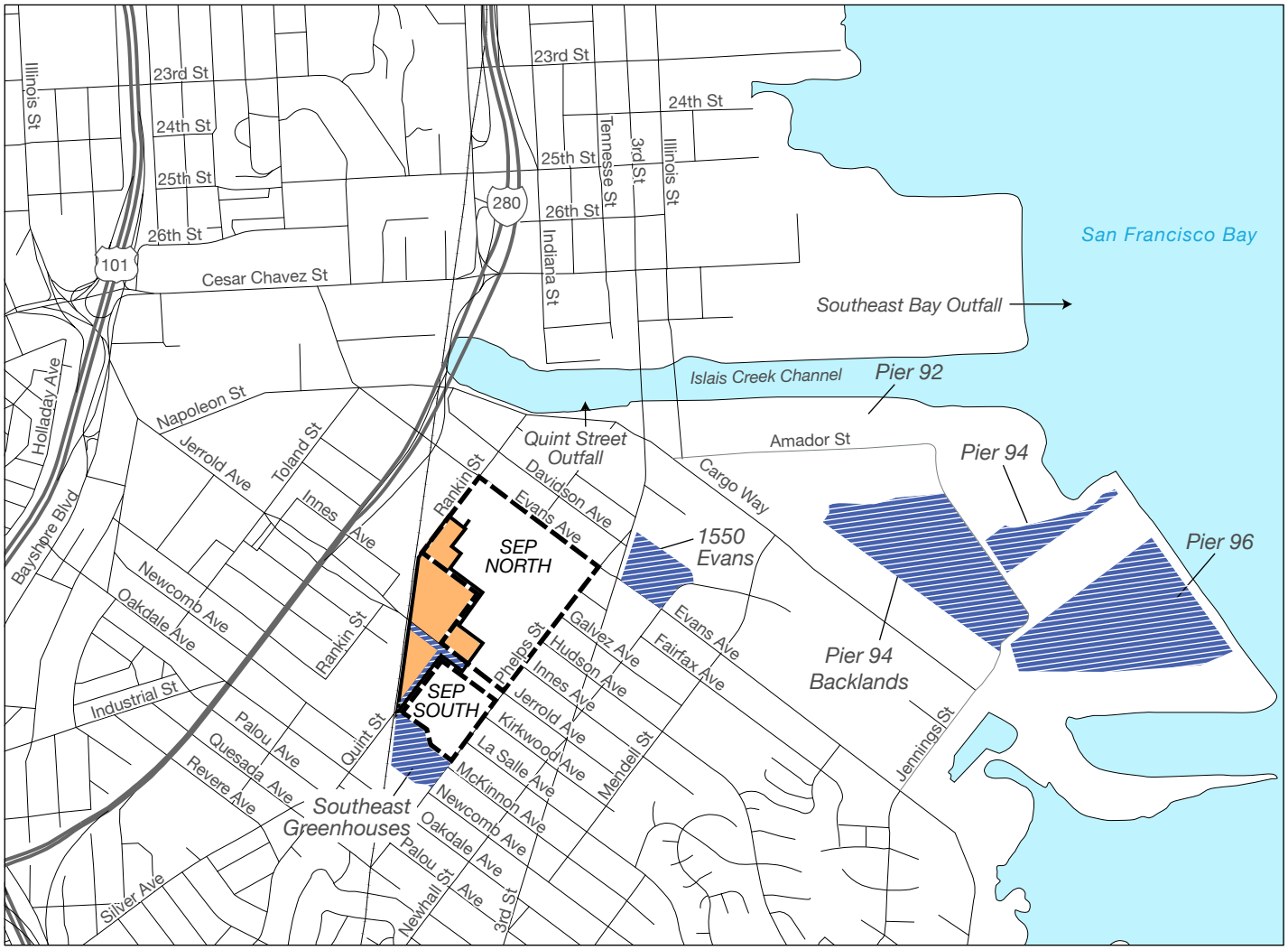
2.1.1.1 Project Site

As shown on **Figure 2-1** and **Figure 2-2**, the project site is located in the southeast part of San Francisco, bordered by a freight rail spur[2] and the Caltrain right-of-way on the west, Rankin Street on the northwest, and the existing SEP on the northeast, east, and southeast. The project site is bisected by Jerrold Avenue and includes the segment of Quint Street between Jerrold Avenue and the Caltrain right-of-way. The project site includes areas located within the west side of the existing SEP property boundaries at 750 Phelps Street and 1700 Jerrold Avenue (Block and Lot 5262/009). The project site also includes two properties (shown on Figure 2-2) adjacent to the SEP: (1) a site located at 1800 Jerrold Avenue and known as the Central Shops site (Block and Lot 5262/009), and (2) the decommissioned Asphalt Plant site (Block and Lot 5281/001) located at 1801 Jerrold Avenue. The project site, including the construction staging areas along Jerrold Avenue and Quint Street, encompasses approximately 562,000 square feet (about 12.9 acres). The project also includes improvements to Jerrold Avenue between the rail spur and Phelps Street.

The project would require demolition or relocation of several currently utilized facilities at the project site within the SEP boundaries, including office trailers, a service building, pump stations, and an electrical substation (see Section 2.6.4, below, for more details). These structures range in size from 800 to 3,800 square feet.

[1] Digester gas is a byproduct of the anaerobic digestion process and comprised mostly of methane and carbon dioxide.

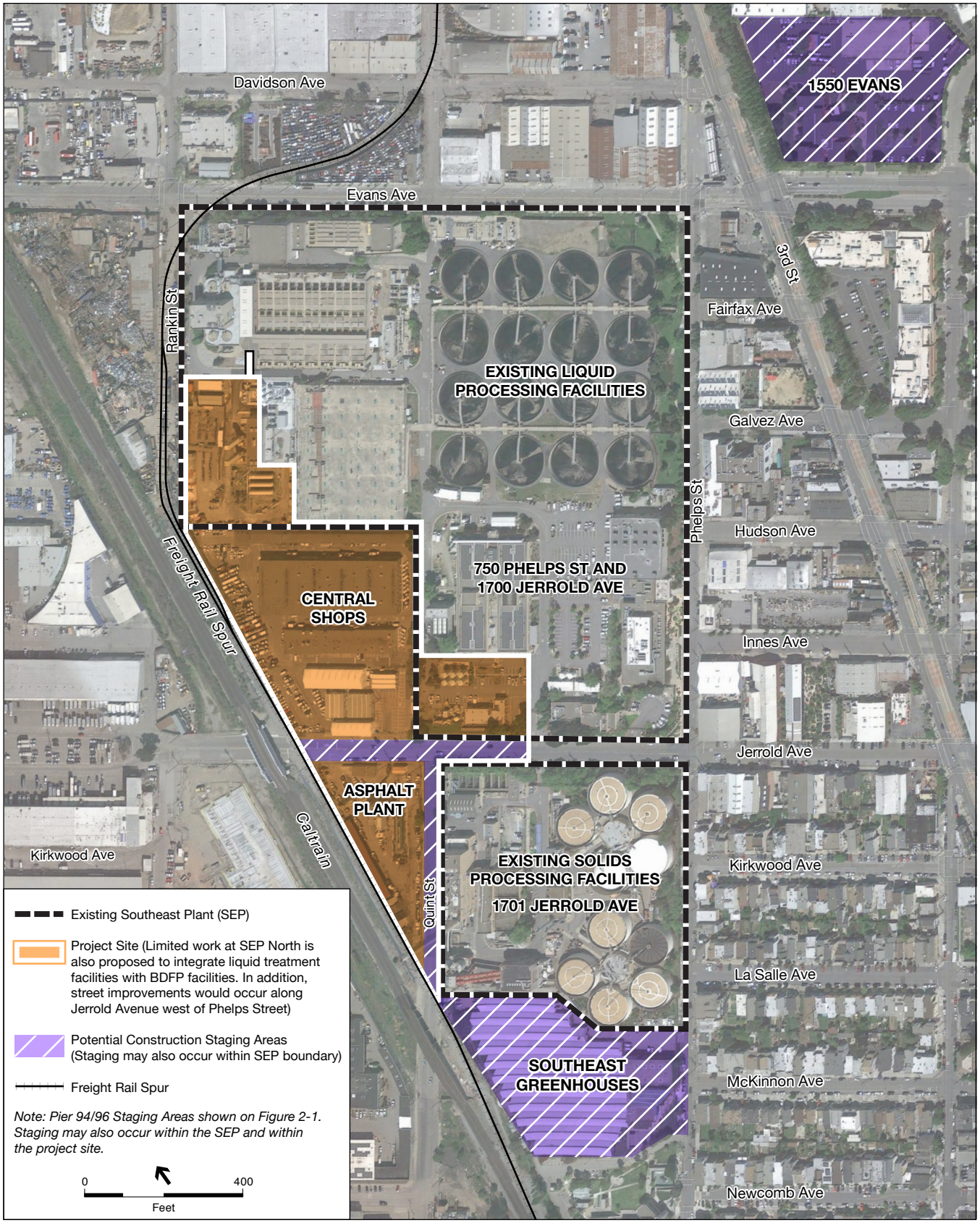
[2] The rail spur is part of what is referred to as the Quint Street Lead. The Quint Street Lead is jointly owned by the Union Pacific Railroad Company and Burlington Northern Railway Company. The rail spur connects the Port of San Francisco cargo terminals and rail yard to the main rail line.



SOURCE: San Francisco Public Works 2005 GIS data; ESA+Orion, data developed in 2016 for BDFP

SFPUC Biosolids Digester Facilities

Figure 2-1
Project Location



SOURCE: Google Maps Imagery from 2015; ESA+Orion, data developed in 2016 for BDFP

SFPUC Biosolids Digester Facilities

Figure 2-2

Biosolids Digester Facilities Project Site

The Central Shops site is located adjacent to the SEP and is operated by the CCSF General Services Agency providing vehicle and equipment maintenance services for multiple City agencies through the Fleet Management Department. There are three main buildings on the Central Shops site ranging in size from about 13,000 to 50,000 square feet, numerous smaller structures, and parking and storage areas. As part of an action separate from the project, the General Services Agency is currently in the process of relocating the Central Shops operations, and the Central Shops site is expected to be transferred to the SFPUC in 2018 to support the wastewater treatment plant.[3] The BDFP proposes to use this site, and would demolish the existing structures, construct BDFP facilities, and change the use of the Central Shops site to wastewater facilities.

The Asphalt Plant is also part of the project site and is located adjacent to the SEP. The Asphalt Plant, which was historically operated by San Francisco Public Works (SFPW), was built in 1954 and was decommissioned in December 2009.[4] Decommissioned facilities that currently occupy the site include a three-story steel asphalt mixing, heating, and sorting facility and related ancillary facilities. The site is currently used as a vehicle dispatch center and parking area for City vehicles. The Asphalt Plant site was transferred to the SFPUC as a separate action in December 2016,[5] and as part of that separate action the SFPUC will demolish the aboveground structures and close the adjacent dead-end block of Quint Street between the Caltrain tracks and Jerrold Avenue (discussed in Section 2.4.2, below).[6] This site is proposed for use under the BDFP; the project would demolish below-grade features, construct BDFP facilities, and change the use of the Asphalt Plant site to wastewater facilities.

2.1.1.2 Construction Staging Sites

In addition to the project site described above, the project would require temporary use of other off-site locations for staging and construction employee parking during the five-year construction period. The BDFP would require up to 12 acres for construction staging at one or more sites in addition to the project site itself. Potential construction staging sites are shown on Figure 2-1 and include portions of Piers 94, 96, and the Pier 94 Backlands (administered by the Port of San Francisco and available for lease; collectively called the Piers 94 and 96 staging areas), and segments of Quint Street (to be permanently closed as part of another project) and Jerrold Avenue (to be closed during construction). Two additional sites under the jurisdiction of the SFPUC, the Southeast Greenhouses site (currently used as greenhouses) and the 1550 Evans Avenue site (currently used for parking and storage), could also be used for construction staging if they become available; the SFPUC would decide whether to use these properties prior to the start of BDFP construction (in 2018).

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3 The City is in the process of transferring jurisdiction of the Central Shops property to the SFPUC. In October, 2015, the Planning Department found the property transfer exempt from CEQA (San Francisco Planning Department, CEQA Categorical Exemption for Central Shops Relocation and Land Transfer Project. Case Number 2015-004781ENV, October 28, 2015). The Board of Supervisors adopted a resolution establishing the initial terms and conditions of the jurisdictional transfer in February 2016 (City and County of San Francisco, Ordinance No 8-16).

4 Santana, Benjamin, San Francisco Public Works, personal communication with Karen Frye, SFPUC, December 1, 2015.

5 City and County of San Francisco, Resolution No. 516-16, Jurisdictional Transfer and Exchange of City Property – San Francisco Public Utilities Commission – Public Works – 160 Napoleon Street – 1801 Jerrold Avenue and a Portion of 160 Napoleon Street, approved December 16, 2016.

6 Closure of the Quint Street block would be accommodated through a Street Vacation, where the street is permanently closed and transferred to the SFPUC. Utility easements would be provided, but no public access would be allowed.

Locations within and closest to the SEP are preferred staging locations, but since availability of some of these potential staging areas is uncertain, the full area needed could be accommodated at the Piers 94 and 96 staging area. For the purposes of California Environmental Quality Act (CEQA) environmental review, this environmental impact report (EIR) analyzes all potential construction staging areas.

Refer to Section 2.6.2, below, for more information regarding the current land uses and proposed temporary uses of the construction staging areas.

2.1.2 Project Characteristics

The project would include construction of new digesters, an odor control facility, and an energy recovery facility. **Table 2-1** summarizes and compares the proposed facilities with the existing conditions at the SEP. The proposed new facilities would use a new technology to pre-treat the solids upstream of the digesters, which would reduce the volume of biosolids produced at the end of the treatment process compared to the existing processes. The new facilities would also upgrade the quality of the biosolids produced from Class B to Class A biosolids.[7] Although Class B biosolids are treated, they may still contain detectable levels of pathogens. Under the project, the Class A biosolids would have no detectable levels of pathogens, thereby expanding the options for beneficial reuse of these materials. The project also intends to improve odor control such that odors from the proposed solids treatment process would be contained within the SEP site boundaries. In addition, the project would more than double the current energy recovery capability at the SEP, generating an estimated annual average power output ranging from 4.2 to 5.2 megawatts (MW).

The project is designed to provide solids treatment for projected wastewater flows and solids loads for the year 2045 (the project's planning horizon). Over the planning period for the BDFP, the projected population growth is anticipated to increase annual average solids loads from about 187,000 pounds per day (2014) to about 280,000 pounds per day (2045).

The BDFP would include:

- Construction of new structures on approximately 206,000 square feet of the project site. The height of new structures would be up to 65 feet above grade; some structures would extend 35 feet below grade.
- Demolition of about 136,000 square feet of building area to accommodate proposed facilities. Buildings to be demolished would include structures at the project site (the Central Shops buildings and currently used SEP facilities within the SEP boundaries of the project site) and at a potential staging site. In addition, underground structures would be removed at the Asphalt Plant site.

[7] The Standards for the Use or Disposal of Sewage Sludge (Title 40 of the Code of Federal Regulations, Part 503) and related guidance documents establish rules for biosolids application to land and categorize treated sewage sludge with respect to pathogens as either Class A or Class B.

TABLE 2-1
KEY FEATURES OF BIOSOLIDS DIGESTER FACILITIES PROJECT

Feature		Existing Conditions (Year 2015 unless otherwise noted)	Future Conditions with Project (Year 2045 unless otherwise noted)
SEP Property Size		2015: approximately 40 acres 2018: approximately 47 acres with anticipated expansion—1800 Jerrold Avenue (Central Shops) and 1801 Jerrold Avenue (Asphalt Plant) (acquired as separate actions)	No change from 2018
SEP Design Wastewater Flow Capacity		250 mgd (wet weather)[a] 85 mgd (dry weather design average)[a]	No change
Digester Tanks		10 digesters – 1.8 million gallons each[b] Distance to Closest Residence: <100 feet	5 digesters – 1.66 million gallons each Distance to Closest Residence: approximately 1,000 feet
Solids Treatment Process		- Thickening - Anaerobic Digestion[c] - Dewatering	- Thickening - Screening - Pre-Thermal Hydrolysis Process[d] Dewatering - Thermal Hydrolysis Process[d] - Anaerobic Digestion[c] - Biosolids Dewatering
Biosolids	Classification[e]	Class B	Class A Exceptional Quality (EQ)
	Annual Production[f]	13,000 dry tons	24,000 dry tons[g]
	Haul Trips[h]	7-10 trips/day	10-14 trips/day [g, h]
Odor Control		Does not completely contain odors from biosolids facilities to within existing SEP site boundaries	Designed to limit odors from biosolids facilities to within revised SEP site boundaries
Digester Gas[i]		Production: approximately 1.3 million cubic feet/day Flaring: routine	Production: approximately 2 million cubic feet/day Flaring: infrequent
Energy Recovery	Technology	- Internal Combustion Engine - Hot Water Boilers	- Gas Turbines - Heat Recovery Steam Generation System - Steam Boilers: Backup Only
	Electricity Generation (annual average)	Up to 2 MW	4.2-5.2 MW (2023-2045)
SEP Staffing Levels		280 staff (entire SEP including biosolids staff)	No change

NOTES:

SEP = Southeast Water Pollution Control Plant; mgd = million gallons per day; MW = megawatts

[a] Flows are often expressed as dry weather and wet weather since the SEP treats both wastewater and stormwater (rainfall).

[b] The SEP has 10 digester tanks; seven are primary digesters, two are secondary/storage digesters, and one has been converted to a digester gas storage facility.

[c] Anaerobic digestion is a method of treating wastewater solids using oxygen-starved biological processes to inactivate pathogens (disease-causing organisms) and produce stabilized organic biosolids and digester gas.

[d] The *thermal hydrolysis process* (THP) is a pre-treatment of solids used in combination with anaerobic digestion to produce Class A biosolids. THP pre-heats, hydrolyzes, and sterilizes solids. The solids are heated with steam under pressure and held for a specified time in order to destroy pathogens, and then pressure is rapidly reduced to rupture microbial cells, making the solids more biodegradable and allowing for better methane production during the subsequent anaerobic digestion process.

[e] The Standards for the Use or Disposal of Sewage Sludge (Title 40 of the Code of Federal Regulations, Part 503) and related guidance documents establish rules for biosolids application to land and categorize treated sewage sludge with respect to pathogens as either Class A or Class B. Class A biosolids contain no detectable levels of pathogens and do not attract vectors such as flies, mosquitoes, and other potential disease-carrying organisms. According to the United States Environmental Protection Agency (USEPA) Guide to Part 503 Rule, Class A biosolids that meet the USEPA's metals pollutant limits are labeled "Exceptional Quality (EQ)" biosolids and have the fewest restrictions for land applications such as soil conditioning and fertilizer. Class B biosolids are treated but still contain detectible levels of pathogens.

[f] The annual production of biosolids is based on the amount of solids removed from the wastewater liquid treatment processes. The projected increase is due to population growth (with or without the project).

[g] Note that in 2045 *without implementation of the BDFP*, the amount of biosolids generated and the number of haul trips would be greater (27,700 dry tons and 14 to 18 trips per day, respectively) because the proposed BDFP solids treatment processes would reduce the quantity of biosolids generated (and associated truck trips required for off-hauling) compared to existing solids treatment processes.

[h] A range of biosolids hauling truck trips is provided to reflect the potential for truck trips to occur five to seven days per week. Assumes a truck capacity of 23 tons.

[i] Digester gas is a byproduct of the anaerobic digestion process and comprised mostly of methane and carbon dioxide.

SOURCE: SFPUC, *BDFP Conceptual Engineering Report*, March 2016; SFPUC, City and County of San Francisco Biosolids Annual Summary Report. February 19, 2016.

Section 2.4, below, describes project components in detail. Refer to Section 2.6.4, below, for more information regarding the uses, sizes, and locations of existing structures proposed to be demolished.

Construction of the BDFP is proposed to start in 2018 and would require about five years to complete. Project construction would require temporary use of one or more off-site staging areas as well as temporary closure of portions of local roadways and temporary relocation of the Muni 23 Monterey bus route. Section 2.6, below, describes project construction activities in detail.

Following construction of the proposed facilities, there would be transition period during which performance testing and full facility commissioning would occur. Initially, both old and new biosolids treatment systems would operate concurrently. Following this period, the existing digesters and many of the other solids handling facilities located south of Jerrold Avenue (shown on Figure 2-2) would be decommissioned. Demolition of these facilities and future uses of the area south of Jerrold Avenue would be determined during the planning of a future phase of the Sewer System Improvement Program (SSIP) and are not part of the project. However, since demolition of these facilities is reasonably foreseeable, the environmental consequences of demolition of the existing digesters and solids handling facilities are considered as a cumulative project in the analyses of cumulative impacts provided in Chapter 4, *Environmental Setting and Impacts*. Section 2.5, below, describes project operations in detail.

2.2 Project Background

2.2.1 City Sewer System Overview

The SFPUC operates and maintains the City's combined sewer system, which collects and treats the majority[8] of San Francisco's wastewater and stormwater at three SFPUC treatment facilities: the SEP, the Oceanside Water Pollution Control Plant (OSP), and the North Point Wet Weather Facility (NPF). Flows from the west side of the city in the Westside drainage basin are conveyed to and treated year-round at the OSP. Flow on the east side of the city in the Bayside drainage basin are conveyed to and treated at the SEP[9] and NPF, although the NPF only operates during wet weather. The system is called a "combined system" because it collects and conveys both wastewater and stormwater in the same network of pipes. Combined system flows are often expressed in terms of dry weather and wet weather flows, since rainfall during wet weather can substantially increase flows over dry weather periods.

The City's major treatment facilities were constructed over several decades as part of major capital improvement programs. The NPF was built in 1951, the SEP in 1952, and the OSP in 1993. The SEP was enlarged and upgraded to secondary treatment in 1982, and again expanded to treat peak wet weather flows in 1996.

8 Flows from the Presidio and Treasure Island, both within San Francisco, have their own treatment systems and are not treated at one of the three treatment plants described above.

9 The SEP also treats flows from limited areas of Daly City and Brisbane.

Wastewater treatment processes at the SEP and OSP include the following two general categories:

- Liquid treatment processes and discharge of treated water through outfalls; and
- Solids treatment processes and hauling of treated biosolids to off-site locations for reuse.

2.2.2 Southeast Water Pollution Control Plant

2.2.2.1 Location

The SEP is located at 750 Phelps Street and currently occupies approximately 40 acres bounded by Evans Avenue to the northeast, Quint and Rankin Streets to the northwest, Phelps Street to the southeast, and the Caltrain railroad tracks, a freight rail spur, and City-owned properties to the west (refer to Figures 2-1 and 2-2). Jerrold Avenue bisects the SEP, dividing it into SEP North (i.e., facilities north of Jerrold Avenue) and SEP South (facilities south of Jerrold Avenue). Facilities on SEP North are currently associated with processing the liquids portion of the wastewater. Facilities on SEP South are currently associated with processing the solids portion of the wastewater and include the existing digesters, solids loadout, and energy recovery facilities. **Figure 2-3** shows the layout of existing facilities at the SEP.

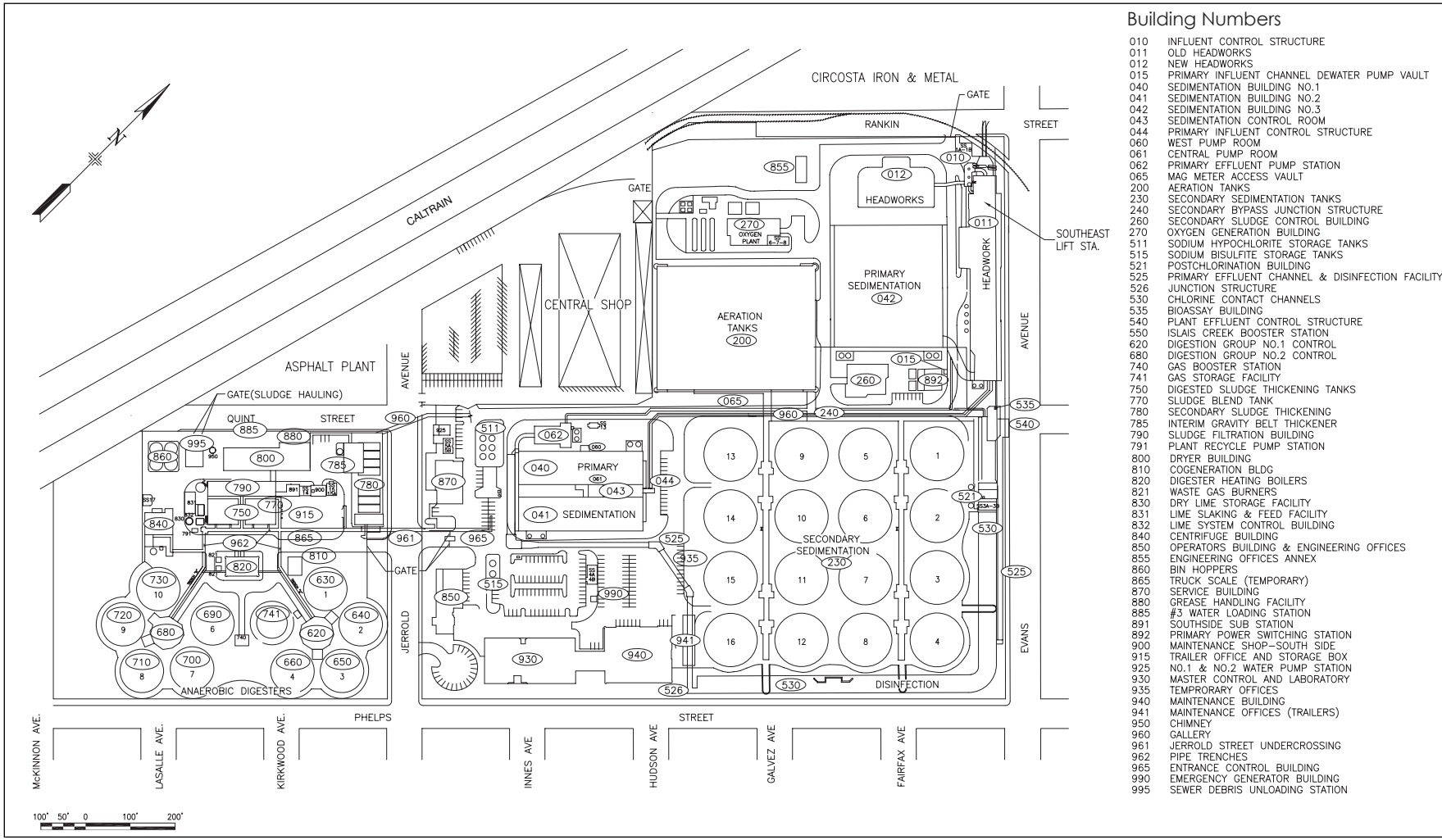
The SEP is located within San Francisco's Bayview-Hunters Point community (Supervisor District 10) and is surrounded by a mix of residential, commercial, and light- and heavy-industrial uses. Residential and commercial uses are located across Phelps Street from the SEP; the nearest residence is located less than 100 feet from the existing SEP digesters (the circular tanks shown in the lower left-hand portion of Figure 2-3 adjacent to the Southeast Greenhouses and south of Jerrold Avenue). As shown on Figure 2-2, the Central Shops and Asphalt Plant sites are between the SEP and Caltrain railroad tracks on either side of Jerrold Avenue, and the Southeast Greenhouses are adjacent to the southwestern boundary of the SEP.

2.2.2.2 Operating Characteristics

Originally built in 1952 with major upgrades in 1982 and 1996, the SEP is the City's largest wastewater treatment facility, treating approximately 80 percent of San Francisco's sewage and stormwater flows. The SEP operates seven days a week, 24 hours a day and treats wastewater from the Bayside drainage area (generally the east side of the city) as well as flows from a limited area of Daly City and Brisbane (representing about 2.5 percent of the total flow currently treated at the SEP). The existing wastewater treatment operation at the SEP consists of a number of processes, depicted on **Figure 2-4,** that separate and treat liquid and solids in the wastewater in compliance with regulatory requirements.

The liquid treatment processes consist of:

- *Pre-treatment:* screening and grit removal;
- *Primary treatment:* settling of large solids and skimming of oil and grease;
- *Secondary treatment:* biological treatment and settling; and
- *Disinfection:* adding chemicals for pathogen removal.



Building Numbers

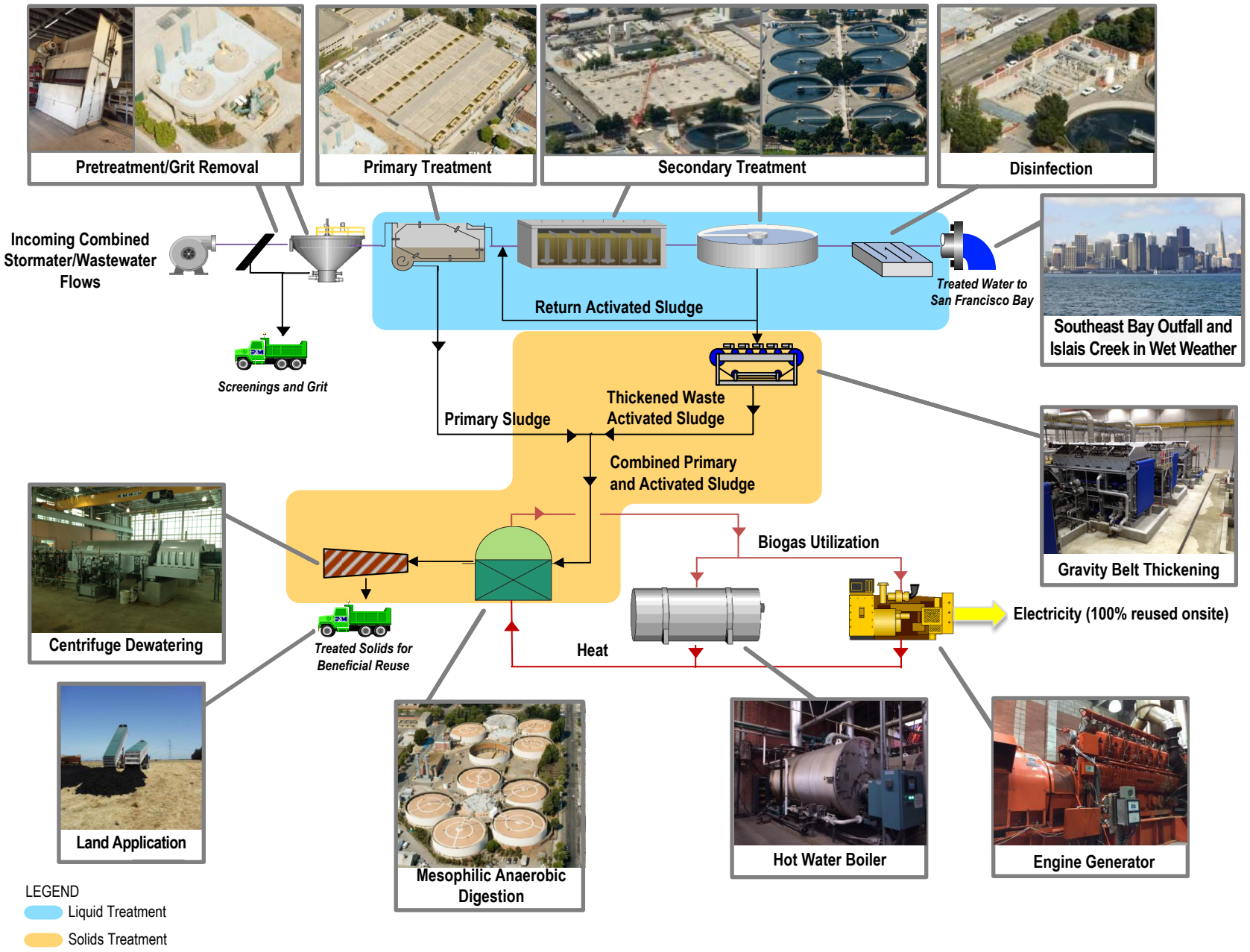
010	INFLUENT CONTROL STRUCTURE
011	OLD HEADWORKS
012	NEW HEADWORKS
015	PRIMARY INFLUENT CHANNEL DEWATER PUMP VAULT
040	SEDIMENTATION BUILDING NO.1
041	SEDIMENTATION BUILDING NO.2
042	SEDIMENTATION BUILDING NO.3
043	SEDIMENTATION CONTROL ROOM
044	PRIMARY INFLUENT CONTROL STRUCTURE
060	WEST PUMP ROOM
061	CENTRAL PUMP ROOM
062	PRIMARY EFFLUENT PUMP STATION
065	MAG METER ACCESS VAULT
200	AERATION TANKS
230	SECONDARY SEDIMENTATION TANKS
240	SECONDARY BYPASS JUNCTION STRUCTURE
260	SECONDARY SLUDGE CONTROL BUILDING
270	OXYGEN GENERATION BUILDING
511	SODIUM HYPOCHLORITE STORAGE TANKS
515	SODIUM BISULFITE STORAGE TANKS
521	POSTCHLORINATION BUILDING
525	PRIMARY EFFLUENT CHANNEL & DISINFECTION FACILITY
526	JUNCTION STRUCTURE
530	CHLORINE CONTACT CHANNELS
535	BIOASSAY BUILDING
540	PLANT EFFLUENT CONTROL STRUCTURE
550	ISLAIS CREEK BOOSTER STATION
620	DIGESTION GROUP NO.1 CONTROL
680	DIGESTION GROUP NO.2 CONTROL
740	GAS BOOSTER STATION
741	GAS STORAGE FACILITY
750	DIGESTED SLUDGE THICKENING TANKS
770	SLUDGE BLEND TANK
780	SECONDARY SLUDGE THICKENING
785	INTERIM GRAVITY BELT THICKENER
790	SLUDGE FILTRATION BUILDING
791	PLANT RECYCLE PUMP STATION
800	DRYER BUILDING
810	COGENERATION BLDG
820	DIGESTER HEATING BOILERS
821	WASTE GAS BURNERS
830	DRY LIME STORAGE FACILITY
831	LIME SLAKING & FEED FACILITY
832	LIME SYSTEM CONTROL BUILDING
840	CENTRIFUGE BUILDING
850	OPERATORS BUILDING & ENGINEERING OFFICES
855	ENGINEERING OFFICES ANNEX
860	BIN HOPPERS
865	TRUCK SCALE (TEMPORARY)
870	SERVICE BUILDING
880	GREASE HANDLING FACILITY
885	#3 WATER LOADING STATION
891	SOUTHSIDE SUB STATION
892	PRIMARY POWER SWITCHING STATION
900	MAINTENANCE SHOP–SOUTH SIDE
915	TRAILER OFFICE AND STORAGE BOX
925	NO.1 & NO.2 WATER PUMP STATION
930	MASTER CONTROL AND LABORATORY
935	TEMPRORARY OFFICES
940	MAINTENANCE BUILDING
941	MAINTENANCE OFFICES (TRAILERS)
950	CHIMNEY
960	GALLERY
961	JERROLD STREET UNDERCROSSING
962	PIPE TRENCHES
965	ENTRANCE CONTROL BUILDING
990	EMERGENCY GENERATOR BUILDING
995	SEWER DEBRIS UNLOADING STATION

SOURCE: SFPUC, Wastewater Enterprise Bayside System Operations Plan Summary, October 2013, adapted by ESA+Orion

SFPUC Biosolids Digester Facilities

Figure 2-3

Existing SEP Facilities



SOURCE: SFPUC, Wastewater Enterprise Bayside System Operations Plan Summary, October 2013, adapted by ESA+Orion

SFPUC Biosolids Digester Facilities

Figure 2-4

Process Flow Diagram for Existing SEP

The solids treatment process consists of:

- *Gravity belt thickening:* condensing solids using gravity drainage to remove water;
- *Mesophilic anaerobic digestion*[10]*:* stabilizing biosolids to reduce solids and pathogens; and
- *Centrifuge dewatering:* removing excess water by mechanical means.

As part of the solids treatment process, digester gas is generated by the anaerobic digestion process and is used on-site to produce heat and power through the energy recovery process. Odor control units are operated for both liquids and solids treatment processes.

A summary of existing SEP operations follows. While the project would not alter existing SEP liquid treatment and discharge, a general description of these processes is provided below for informational purposes.[11]

Liquid Treatment and Disposal

The SEP is designed to treat up to 85 million gallons per day (mgd) of average dry weather wastewater flows and up to 250 mgd of wet weather combined wastewater and stormwater flows. During wet weather, the existing SEP facilities provide full secondary treatment (a higher level of treatment than primary treatment) for up to 150 mgd and primary treatment for an additional 100 mgd of combined wastewater and stormwater flow. The pre-treatment process consists of mechanical removal of trash, debris, and grit (sand and gravel) using screens and settling tanks. Trucks haul the material removed during this process off-site for landfill disposal. The pre-treated wastewater continues to the primary sedimentation tanks where solids sink to the bottom and grease and oils that float to the top are removed by rotating skimmers. Then, in secondary treatment, primary treated wastewater is mixed with bacterial biomass (activated sludge) and high-purity oxygen in the aeration tanks to break down organic matter. The biomass is then separated from treated wastewater in the secondary sedimentation tanks using gravity settling. Next, the treated wastewater is disinfected with sodium hypochlorite and then dechlorinated[12] with sodium bisulfite. The treated wastewater is subsequently discharged into the Bay during all weather conditions and into Islais Creek during wet weather.

[10] Mesophilic anaerobic digestion is a method of treating wastewater solids using biological processes to inactivate pathogens (disease-causing organisms) and produce stabilized organic biosolids, digester gas, and water. Mesophilic anaerobic digesters operate at temperatures of 95 degrees Fahrenheit (°F) to 105 °F.

[11] Chapter 4, Section 4.1.3, Approach to Cumulative Analysis and Cumulative Projects, presents descriptions of other projects that would modify liquid treatment systems at the SEP.

[12] Dechlorination, the process of removing chlorine from treated wastewater that has been chlorinated for disinfection, is intended to protect aquatic resources.

Under National Pollutant Discharge Elimination System (NPDES) Permit[13] No. CA0037664, the SFPUC is authorized to discharge up to 110 mgd of mixed primary and secondary treated effluent into San Francisco Bay through the Southeast Bay Outfall (also called the Pier 80 deepwater outfall), and during wet weather up to 140 mgd of secondary effluent through the Quint Street Outfall to Islais Creek (see **Table 2-2**). Peak daily wet weather flows to the SEP for years 2012 to 2014 were 250 mgd and are projected to remain at 250 mgd in 2045. Average dry weather flows to the SEP for years 2012 to 2014 ranged from 58 to 61 mgd and are projected to increase to 69 mgd by 2045 due to population growth.[14,15]

TABLE 2-2
SOUTHEAST WATER POLLUTION CONTROL PLANT DISCHARGE AMOUNTS AND LOCATIONS

Scenario	Discharge Description	Design Capacity (million gallons per day)	Discharge Location
Dry Weather	Secondary treated and disinfected wastewater	Average: 85 Peak: 110	Pier 80 Deepwater Outfall to San Francisco Bay
Wet Weather	Mix of primary and secondary treated combined wastewater and stormwater, all disinfected	Peak: 110	Pier 80 Deepwater Outfall to San Francisco Bay
	Secondary treated and disinfected combined wastewater and stormwater	Peak: 140	Quint Street Outfall to Islais Creek
	Total Wet Weather Discharge	*Peak: 250*	

SOURCE: San Francisco Bay Regional Water Quality Control Board Order No. R2-2013-0029, NPDES No. CA0037664, adopted August 2013.

Solids Treatment and Disposal

The existing solids treatment process consists of solids thickening to reduce the liquids content, anaerobic digestion of the thickened solids, and biosolids dewatering to produce a drier material; the treated biosolids are then hauled off-site. Waste activated sludge (biomass generated after microbial activity and settlement in the secondary treatment process) is thickened using gravity belt thickeners, combined with primary sludge (solids from the primary treatment process), and sent to

[13] The NPDES program is a federal program that has been delegated to the State of California for implementation through the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs). NPDES permits regulate point sources (e.g., wastewater treatment plants) that discharge to waters of the United States. Waste discharge requirements for the SEP are covered under Order No. R2-2013-0029 (NPDES No. CA0037664). NPDES permits are updated approximately every five years, and the upcoming renewal of the SEP's NPDES permit is anticipated in late 2018. The BDFP would not require an update of the NPDES permit at this time; rather, SEP changes associated with the BDFP would be addressed in the subsequent NPDES permit renewal cycle.

[14] SFPUC, *Wastewater Flow and Load Projections Technical Memorandum*, prepared for San Francisco Public Utilities Commission Sewer System Improvement Program, updated February 2014.

[15] SFPUC, personal communication from Sue Chau to Karen Lancelle et al. regarding RFI and Action Item responses, September 9, 2015.

the anaerobic digesters. The anaerobic digestion process produces stabilized biosolids and digester gas (also referred to as biogas). The SEP currently has ten digester tanks: seven primary digesters, two secondary (storage) digesters, and one that has been converted to a digester gas storage facility.

The existing solids treatment process produces Class B biosolids, which contain detectable levels of pathogens. To protect public health, regulations for the land application of Class B biosolids include buffer requirements and restrictions on public access and crop harvesting. Class B biosolids produced at the SEP are suitable for beneficial reuse; they are trucked out for land application (i.e., added to soil to fertilize crops and other vegetation, or to condition soil with organic matter), used as alternative daily cover at landfills, or composted. In 2015, for example, biosolids were trucked to the following locations:

- Sonoma County and Solano County during the dry season (May to October) for land application;
- Sacramento County during the wet season for land application;
- Potrero Hills Landfill (Suisun City) and Altamont Landfill (Livermore) during the wet season for use as alternative daily cover; and
- A composting facility near Dos Palos in Merced County.

In 2015, the SEP produced about 13,000 dry tons (the weight of solids excluding the weight of the water) of Class B biosolids. With anticipated population growth, by 2045 the SFPUC estimates this number would increase to approximately 27,700 dry tons of Class B biosolids if operation of the existing SEP biosolids treatment process or similar technologies were to continue. With implementation of the proposed technology under the BDFP, the quantity of biosolids produced in 2045 would be reduced to about 24,000 dry tons, and the quality would be upgraded to Class A biosolids (refer to description of proposed solids handling under the BDFP in Section 2.4.1, below).

Odor Control

The SEP currently implements odor control measures for both liquid and solids treatment processes at locations with high potential for odors. These measures generally involve treating odorous air through adsorption units that chemically and physically remove and disperse odors. These include units at the Influent Control Structure, existing Headworks facilities, and Secondary Sludge Control Building in the liquid treatment processes; and at the gravity belt thickeners, Centrifuge Building, and cake loadout in the solids treatment processes. In addition, the SFPUC regularly implements best operating practices and good housekeeping, which also serve to reduce odor generation throughout the SEP.

The existing odor control units do not cover all of the process facilities with odor emission potential and are not capable of completely containing odors within the SEP fence line. For more information on existing odor control, refer to Chapter 4, Section 4.8, Air Quality.

Energy Recovery

The SEP currently operates energy recovery facilities that use the digester gas generated by the existing digesters. These facilities produce about 1.3 million cubic feet of digester gas per day and generate about 2 MW of energy, providing about one third of the SEP's energy needs through electricity and heating. The digester gas provides fuel for boilers and a cogeneration facility on-site. An internal combustion engine at the cogeneration facility converts the digester gas to electricity and heat. Existing SEP operations include routine flaring of excess digester gas that cannot be converted to energy, either because the existing equipment cannot process all of the digester gas produced or due to periodic maintenance outages of the energy recovery facilities.

2.2.3 Sewer System Improvement Program

The SFPUC is currently implementing the SSIP, a 20-year, multi-billion-dollar citywide program to upgrade the City's aging sewer infrastructure and to ensure a reliable and seismically safe system. The SSIP provides a phased approach for future sewer system improvements. In 2012, the SFPUC authorized staff to proceed with the planning and development of Phase 1 projects, with final project approvals subject to completion of environmental review.[16] In 2016, the SFPUC endorsed the updated SSIP 2016 Goals, Levels of Service (LOS), and Program and Phase 1 Strategies, including the revised overall SSIP cost of $6.976 billion for proposed capital improvements (see **Table 2-3**). The Commission further endorsed the revised baseline scope, schedule, and budget for Phase 1 SSIP projects totaling $2.91 billion. The BDFP is the largest and most critical project in Phase 1 of the SSIP. Other Phase 1 SSIP projects include replacing the SEP Headworks and providing associated improved odor control, adding redundancy to wastewater conveyance capacity via the Central Bayside System Improvement Project (funded in Phase 1 through the design phase only), upgrading the OSP and NPF, and installing green infrastructure (such as stormwater infiltration areas along streets and creek daylighting) in eight locations around San Francisco. Additional projects include improved odor control associated with the liquid treatment processes at the SEP (i.e., SEP Primary/Secondary Clarifier Upgrades Project).[17] The SFPUC has not yet authorized planning and development of projects included in Phase 2 or Phase 3 of the SSIP; examples of SSIP Phase 2 and Phase 3 projects that may be authorized for funding in the future include construction of the Central Bayside System Improvement Project, SEP Southside Renovation (demolition of the existing anaerobic digesters and subsequent redevelopment of SEP South), and additional citywide green infrastructure.

[16] SFPUC Resolution No. 12-0156 applicable to the SSIP "directs staff to return to the Commission after key project milestones have been met, and ultimately for project review and approval, following environmental review of proposed projects…."

[17] SFPUC, SSIP Phase 1 Program Executive Summary, April-June 2015.

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Table 2-3
Sewer System Improvement Program (SSIP)
Goals, Levels of Service (LOS), Program and Phase 1 Strategies (Endorsed March 22, 2016)

Wastewater Enterprise Goals	Wastewater Enterprise Levels of Service	Sewer System Improvement Program Strategies ($6.9B)	Phase 1 Strategies ($2.9B)
1. Provide a Compliant, Reliable, Resilient, and Flexible System that can Respond to Catastrophic Events			
	1.1. Full compliance with State and Federal regulatory requirements applicable to the treatment and disposal of sewage and stormwater.	a. Reduce the annual long-term average of Combined Sewer Discharge (CSD) occurrences within the Central drainage basin (Channel and Islais Creek urban watersheds) by 2 (from 12 to 10), consistent with the NPDES permit.	Complete Planning and Environmental Review of the Central Bayside System Improvement Project, for Channel Force Main redundancy, to achieve a maximum long-term average of 10 CSD occurrences, consistent with the NPDES permit.
		b. Comply with Liquid and Biosolids wastewater treatment plant permit requirements.	Construct Liquid and Biosolids projects at SEP, OSP, and NPF for permit compliance (SEP: Headworks, Disinfection, Primary and Secondary Clarification, Oxygen Generation Plant, Biosolids, and Existing Digesters; OSP: Digester Gas Upgrades, Westside Pump Station; NPF: Outfall Rehabilitation, North Shore Pump Station). Rehabilitate, or replace, critical sewers based on condition assessment and prioritization within the budgeted amount.
		c. Improve combined sewer discharge (CSD) structures to increase floatables control, consistent with the NPDES permit.	Rehabilitate CSD structures (Beach St., Sansome St., Fifth St., Sixth St.-North, and Division St.) to increase floatables control, consistent with the NPDES permit.
	1.2. Critical functions are built with redundant infrastructure.	a. Construct redundancy of Channel, North Shore, and Westside Force Mains.	Complete Planning and Environmental Review of Central Bayside System Improvement Project, for Channel Force Main redundancy. Rehabilitate the remaining section of North Shore Force Main near The Embarcadero and Jackson Street.
		b. Ensure electrical redundancy to treatment facilities.	Provide redundant electrical feeds to SEP, OSP, and NPF.
		c. Rehabilitate and add redundant pumps, as necessary, at major pump stations.	Upgrade Westside, Bruce Flynn, and North Shore Pump Stations with the ability to pump peak flow with the largest pump out of service, and rehabilitate other pump stations (Griffith, Mariposa, and Hudson), as identified by condition assessment.
	1.3. Dry weather primary treatment, with disinfection, must be on-line within 72 hours of a major earthquake.	a. Design critical and new treatment facilities to withstand the following seismic events: Magnitude 7.8 earthquake on the San Andreas fault; and, Magnitude 7.1 earthquake on the Hayward fault.	Design new facilities at SEP (Headworks, Biosolids, Disinfection, Oxygen Generation Plant, Power Switchgear Building) to withstand 7.8 earthquake on the San Andreas fault and 7.1 earthquake on the Hayward fault.
			Provide seismic retrofits to SEP Building 042, to provide primary treatment of dry weather flows.
2. Integrate Green and Grey Infrastructure to Manage Stormwater and Minimize Flooding			
	2.1. Control and manage flows from a storm of a three hour duration that delivers 1.3 inches of rain (Level of Service storm).	a. Maximize protection of the City during the Level of Service storm.	Assess flood risk citywide and prioritize infrastructure needs. Implement projects in neighborhoods including: Kansas/Marin Streets, Cayuga Ave./ Rousseau St., Wawona St./15th Ave., Victoria St./Urbano Dr., Joost Ave./Foerster St., and 17th St. /Folsom St. (Planning and Design only). Implement additional measures to reduce flood risk beyond the capacity of the collection system.
		b. Develop projects using an urban watershed approach which employs the Triple Bottom Line.	Complete the Urban Watershed Assessment plan. Apply Triple Bottom Line to applicable projects during the Alternatives Analysis phase.
		c. Identify, evaluate, and develop projects to reduce combined sewer discharge (CSD) occurrences on public beaches.	Complete Urban Watershed Assessment plan.
		d. Develop Design Standards for Green Infrastructure that are informed by the performance of the Early Implementation Projects (EIPs).	Construct EIPs and monitor performance.
3. Provide Benefits to Impacted Communities			
	3.1. Limit plant odors to within the treatment facility's fence lines.	a. Construct effective odor control systems at SEP, OSP, and NPF.	Design and construct the new Headworks and Biosolids facilities at SEP to meet 5 dilutions/threshold (D/T) odor criteria at the fence line.
		b. Use operational controls and infrastructure modifications to minimize odors from the Collection System (sewers).	Develop a Collection System Odor Model to identify potential areas of significant odor. Implement Cargo Way Flushing Line and repair of Westside Flushing Line to minimize odors.
	3.2. All projects will adhere to the Environmental Justice and Community Benefits policies.	c. Incorporate visual improvements into projects at the treatment plants and pump stations, where feasible and appropriate.	Incorporate visual and architectural improvements in the design and construction of the new Headworks and Biosolids projects at SEP.
		d. Provide community benefits including job creation, workforce development, contracting opportunities, and greening.	Provide green infrastructure contractor training and coordinate all jobs through the Contractors Assistance Center.
		e. Work with other City and County agencies on capital projects they have initiated to protect the value and function of wastewater facilities, maximize economic development, and minimize construction impacts and costs.	Coordinate and implement interdepartmental sewer projects (Central Subway, Van Ness BRT, Better Market Street, Geary BRT Phase 1 & 2, Masonic Ave, and Mission Bay Loop).
		f. Engage residents in locating green infrastructure where multiple benefits can be optimized using the Triple Bottom Line.	Utilize Triple Bottom Line and public process in development of EIPs.
4. Modify the System to Adapt to Climate Change			
	4.1. New infrastructure must accommodate expected sea level rise within the service life of the asset (i.e., 6 inches by 2030, 11 inches by 2050, 36 inches by 2100) and be consistent with the City's Guidance for Incorporating Sea Level Rise into Capital Planning.	a. Site new facilities to accommodate, or adapt to, expected sea level rise over the life of the asset.	Build new infrastructure at SEP (Headworks, Biosolids, Disinfection, Oxygen Generation Plant, Power Switchgear Building) and Mariposa Pump Station to accommodate expected sea level rise in 2100.
	4.2. Existing infrastructure that is impacted by sea level rise, within the service life of the asset, will be modified based on sea level rise projections.	b. Develop and implement an adaptation plan for existing infrastructure to address expected sea level rise within the service life of the asset.	Modify existing Bayside CSD structures that experience seawater intrusion. The following CSD structures are considered: Jackson St., Pierce St., Mariposa St., Beach St., Fifth St., Sixth St.-North., Division St., Howard St., Islais Creek-North, Marin St., Selby St., and Yosemite Ave.
5. Achieve Economic and Environmental Sustainability			
	5.1. Beneficial use of 100% of Biosolids.	a. Upgrade biosolids to treatment Class "A".	Upgrade SEP biosolids to treatment Class "A" which, contain no detectible levels of pathogens, and can be applied without restriction on food crops. Size the new Biosolids Digester Facilities to meet solids loading projections for the year 2045.
	5.2. Beneficialuse of 100% of methane generated by treatment facilities, during normal operation.	b. Provide cogeneration, or other beneficial methane use options, at SEP and OSP.	Construct cogeneration facilities at SEP and OSP for a total output of 5MW.
	5.3. Use non-potable water sources to meet WWE facilities non-potable water demands.	c. Incorporate conservation measures, recycled water, and other non-potable reuse facilities into projects, where feasible and appropriate.	In order to maximize use of non-potable water, upgrade the treated effluent pump system at SEP and incorporate its use into designs, where applicable. Accommodate space for recycled water treatment facilities at SEP and OSP.
6. Maintain Ratepayer Affordability			
	6.1. Combined sewer and water bill will be less than 2.5% of average household income for a single family residence.	a. Plan and phase projects to ensure affordability and predictability for ratepayers.	Plan and phase projects to ensure affordability and predictability for ratepayers.
			Identify and apply for Federal and State loans and grants to reduce the financial burden on ratepayers.

SEP: Southeast Treatment Plant; OSP: Oceanside Treatment Plant; NPF: North Point Wet Weather Facility; NPDES: National Pollutant Discharge Elimination System (US EPA)

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2.3 Project Objectives

The overall goal of the BDFP is to replace the existing aged and unreliable solids processing facilities at the SEP with new, modern, and efficient facilities to ensure the long-term sustainability of the SEP wastewater treatment system. The specific objectives of the BDFP are consistent with the SSIP goals, levels of service, and strategies shown in Table 2-3. The specific BDFP objectives are as follows:

- Replace the existing solids treatment facilities at the SEP with new infrastructure with modern and more efficient treatment technologies to protect public health and safety and provide continued regulatory compliance;
- Maximize the efficiency of the current treatment process operations and maintenance, staffing resources, and the use of existing SFPUC infrastructure;
- Reliably meet treatment capacity for projected 2045 flows and loads associated with projected population growth;
- Beneficially use 100 percent of biosolids generated;
- Beneficially use 100 percent of digester gas generated;
- Build critical processes with redundant infrastructure to provide reliability and operational flexibility;
- Improve seismic reliability;
- Limit noticeable odors from BDFP facilities to the SEP property boundary;
- Provide visual improvements that promote a cohesive architectural design and identity at the BDFP site, enhance the overall aesthetics, and improve the public edges in a manner consistent with the surrounding neighborhood and the rest of the SEP;
- Design and site new facilities to accommodate or adapt to expected sea level rise over their expected life;
- Allow for timely construction of the proposed BDFP; and
- Maintain rate payer affordability.

2.4 Project Components

Table 2-4 lists the approximate size and height of proposed buildings and structures, and **Figure 2-5** is a preliminary site plan showing the location of the proposed facilities. **Figure 2-6** presents a conceptual representation of the general massing of the proposed buildings and other structures and provides an indication of the general physical characteristics and scale of the BDFP facilities. The BDFP is currently in the design phase; consequently, certain aspects of the project (e.g., architectural finishes, etc.) are subject to revision and refinement. **Figure 2-7** shows the sequence of the unit processes comprising the proposed BDFP solids treatment system and provides context for the functions of the project components. **Figure 2-8** shows a representative cross-section of select facilities, showing the depth of underground facilities as well as the height of proposed structures. The SFPUC would incorporate the relevant descriptions of project components and construction contained in this EIR into contract specifications for the BDFP.

TABLE 2-4
PROPOSED BIOSOLIDS DIGESTER FACILITIES

Purpose	Facility	Type of Structure	Equipment Type and Number in 2045[a]	Building/Pad Characteristics (size, dimensions approximate)[b]			
				Size (square feet)	Floors, Total Floor Area (square feet)	Length x Width (feet)	Maximum Height (feet)[c]
Sludge Pumping	Primary Sludge Pumping	Within existing Primary Sedimentation Building	3 primary sludge pumps; 2 grit pumps; piping upgrades	-	-	-	-
	Waste Activated Sludge Pumping	Within existing Secondary Sludge Control Building	Existing pumps with piping upgrades	-	-	-	-
Pre-Digestion Solids Processing	Solids Pretreatment, including polymer systems	Building (3 stories aboveground, basement)	4 (3+1) gravity belt thickeners; 5 (4+1) inline, enclosed screens; 6 (4+2) dewatering centrifuges; 3 (2+1) cake storage bins; 3 (2+1) dry polymer super sack systems	34,200	4 floors 96,900 (vegetated roof area not included)	190 x 180	65
	Thermal Hydrolysis Process (THP)	Aboveground tanks, equipment	3 (3+0)+1) THP treatment trains	9,300	n/a	165 x 56	25
Anaerobic Digestion, Digested Solids Storage, and Thermally Hydrolyzed Sludge (THS) Cooling	Anaerobic Digesters (includes Cooling Heat Exchangers)	Tanks extending above and below ground with upper and lower basements and machine and electrical rooms	5 (3 primary, 1 primary/ backup secondary, 1 secondary) 1.66-million-gallon digesters up to 70 feet in diameter each, 10 (8+2) carbon-steel concentric tube cooling heat exchangers, 1.64 million British thermal units per hour (MMBtu/hr) cooling heat exchangers[d]	57,600	3 floors 142,000	448 x 121	65
	Digestion Cooling Tower	Equipment on concrete pad	3 (2+1) cells within the cooling tower; 2 (1+1) cooling water recirculation pumps	3,500	n/a	63 x 56	25
Class A Biosolids Dewatering, Storage, and Loadout	Biosolids Dewatering	Building (3 stories aboveground, basement)	4 (3+1) belt filter presses; 2 (2+0) belt filter press cake crossover conveyors; 4 (3+1) cake transfer conveyors; 4 (3+1) cake storage bins; 2 (1+1) dry polymer super sack systems	13,300	4 floors 39,000[b]	120 x 111	65

TABLE 2-4 (Continued)
PROPOSED BIOSOLIDS DIGESTER FACILITIES

Purpose	Facility	Type of Structure	Equipment Type and Number (duty) in 2045 [a]	Building/Pad Characteristics (size, dimensions approximate)[b]			
				Size (square feet)	Floors, Total Floor Area (square feet)	Length x Width (feet)	Maximum Height (feet)[c]
Energy Recovery and Steam Generation	Energy Recovery (for more detail, see Table 2-5)	One building with heating, ventilation, and air conditioning (HVAC) on roof. Energy recovery equipment and a standby diesel generator are located indoors.	Turbines (1 turbine and 1 future standby turbine) for heat and electricity generation, compressors, duct burner, Heat Recovery Steam Generator (HRSG); boiler feedwater treatment, backup steam boilers, exhaust stack; microturbines; medium pressure compressors; and standby power generator.	21,000 (Building)	2 floors, 39,000	265 x 105	57 (building) 75 (stack)
	Digester Gas Treatment	Outdoor equipment on concrete pads	Various equipment for digester gas conditioning. See Table 2-5.	7,300	n/a	174 x 57	22
	Digester Gas Storage	Aboveground tank	1 tank 50 feet in diameter with 60-foot-diameter outer screen	2,900	n/a	Circular	60
	Transformers	Outdoor equipment on concrete pad	Electrical transformers (2 units)	1,200	n/a	2 @ 22 x 28	
	Waste Gas Burners (Flares)	Outdoor equipment on concrete pad	Low nitrogen oxide enclosed waste gas burners (2 units)	2,000	n/a	47 x 54	40-50
Odor Control	Solids Odor Control	Underground biofilter, aboveground adsorption vessels (tanks), mechanical room, fan room and restroom on concrete pad	4 biofilter cells; 4 adsorption vessels; 3 (2+1) ammonia scrubbers/humidifiers; 3 (2+1) odor control fans; 2 (1+1) truck bay exhaust fans; 10-feet-diameter dispersion cones (stacks).	17,500	n/a	158 x 111	25 (vessels) 40 (stack)

TABLE 2-4 (Continued)
PROPOSED BIOSOLIDS DIGESTER FACILITIES

Purpose	Facility	Type of Structure	Equipment Type and Number (duty) in 2045 [a]	Building/Pad Characteristics (size, dimensions approximate)[b]			
				Size (square feet)	Floors, Total Floor Area (square feet)	Length x Width (feet)	Maximum Height (feet)[c]
Water Systems and Pump Stations[e]	No. 1 Water (Potable Water)	Underground piping	Piping	n/a	n/a	n/a	n/a
	No. 2 Water Pump Station (Chlorinated and filtered effluent)	Filters, ultraviolet (UV) disinfection, pumps, tanks, electrical room and related equipment on concrete pad, underground piping		10,400	n/a	135 x 65	20
	Pumped Plant Recycled Pump Station	Within Solids Pretreatment Facility (see above)	Two (1+1) 45-horsepower pumps in each of two wet wells	see Solids Pretreatment Facility, above			
Operations, Maintenance, and Support	Maintenance Shops 1	Building (2 stories aboveground)		12,600	2 floors 19,600	180 x 70	30
	Maintenance Shops 2	Building (1 story aboveground)		5,500[d]	1 floor 5,500	110 x 50	15
	Digester Electrical Room	Building (1 story aboveground)		Included in Digesters pad total	1 floor 2,590	139 x 21	16
	Digester Machine Room	Building (1 story aboveground)		Included in Digesters pad total	1 floor 400	29 x 17	21
	Ferric Chloride Storage Tanks	Tanks with secondary containment	2 15,500-gallon storage tanks	1,300	n/a	40 x 31	24
	Transformers (8 units)	Equipment on concrete pads		6,200	n/a	varies	10

NOTES:

n/a = not applicable; THP = thermal hydrolysis process; THS = thermally hydrolyzed sludge

[a] Many of these unit processes would have standby units. Standby units are operated only when a duty unit is taken out of service. The first number in parentheses represents the number of duty units, which would operate regularly, and the second number represents the number of standby units. (Duty units + Standby units)

[b] Building square footage may not match building dimensions due to rounding. Total square footage for some buildings is less than building length multiplied by building width due to the shape of the building. In some cases, the basement may be smaller than aboveground stories.

[c] Heights listed exclude mechanical penthouses, catwalks, and similar accessory structures that qualify for exemption from the 65-foot height limit for the project site pursuant to Section 260(b) of the San Francisco Planning Code.

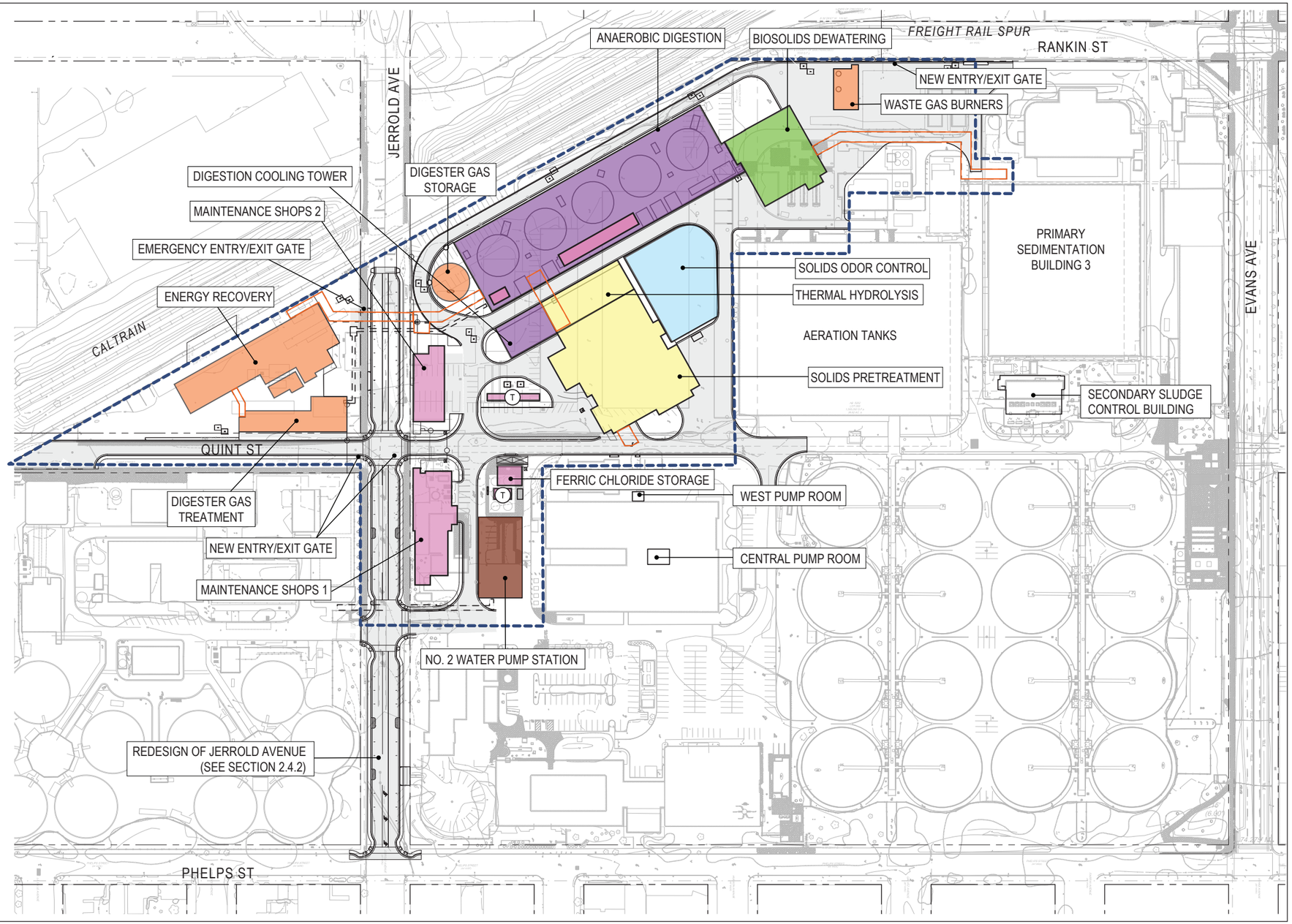
[d] MMBtu represents a standard unit of measurement of heat energy, the British thermal unit (Btu). MMBtu represents a million Btus.

[e] For more details on pump stations, see Table 2-7.

SOURCE: SFPUC, *BDFP Conceptual Engineering Report*, March 2016; SFPUC, SEP Biosolids Digester Facilities Project Overall Site Plan CADD files provided to ESA+Orion, November 8, 2016.

PROJECT SITE
T TRANSFORMER
PIPE GALLERY, CHASE OR TRENCH
ODOR CONTROL
PRE-DIGESTION SOLIDS PROCESSING
ANAEROBIC DIGESTION, DIGESTED SOLIDS STORAGE, AND THERMALLY HYDROLYZED (THS) SLUDGE COOLING
CLASS A BIOSOLIDS DEWATERING, STORAGE & LOADOUT
ENERGY RECOVERY AND STEAM GENERATION
OPERATIONS, MAINTENANCE & SUPPORT
PUMP STATION
PAVEMENT

NOTE: THIS DEPICTION REPRESENTS 35 PERCENT DESIGN. PROPOSED CHANGES TO PIPES AND PUMPS WITHIN THE PRIMARY SEDIMENTATION BUILDING 3 AND THE SECONDARY SLUDGE CONTROL BUILDING ARE NOT SHOWN.



0 200
Feet

SOURCE: SFPUC, SEP Biosolids Digester Facilities Project Overall Site Plan CADD files provided to ESA+Orion November 8, 2016, adapted by ESA+Orion

SFPUC Biosolids Digester Facilities
Figure 2-5
Preliminary BDFP Site Plan

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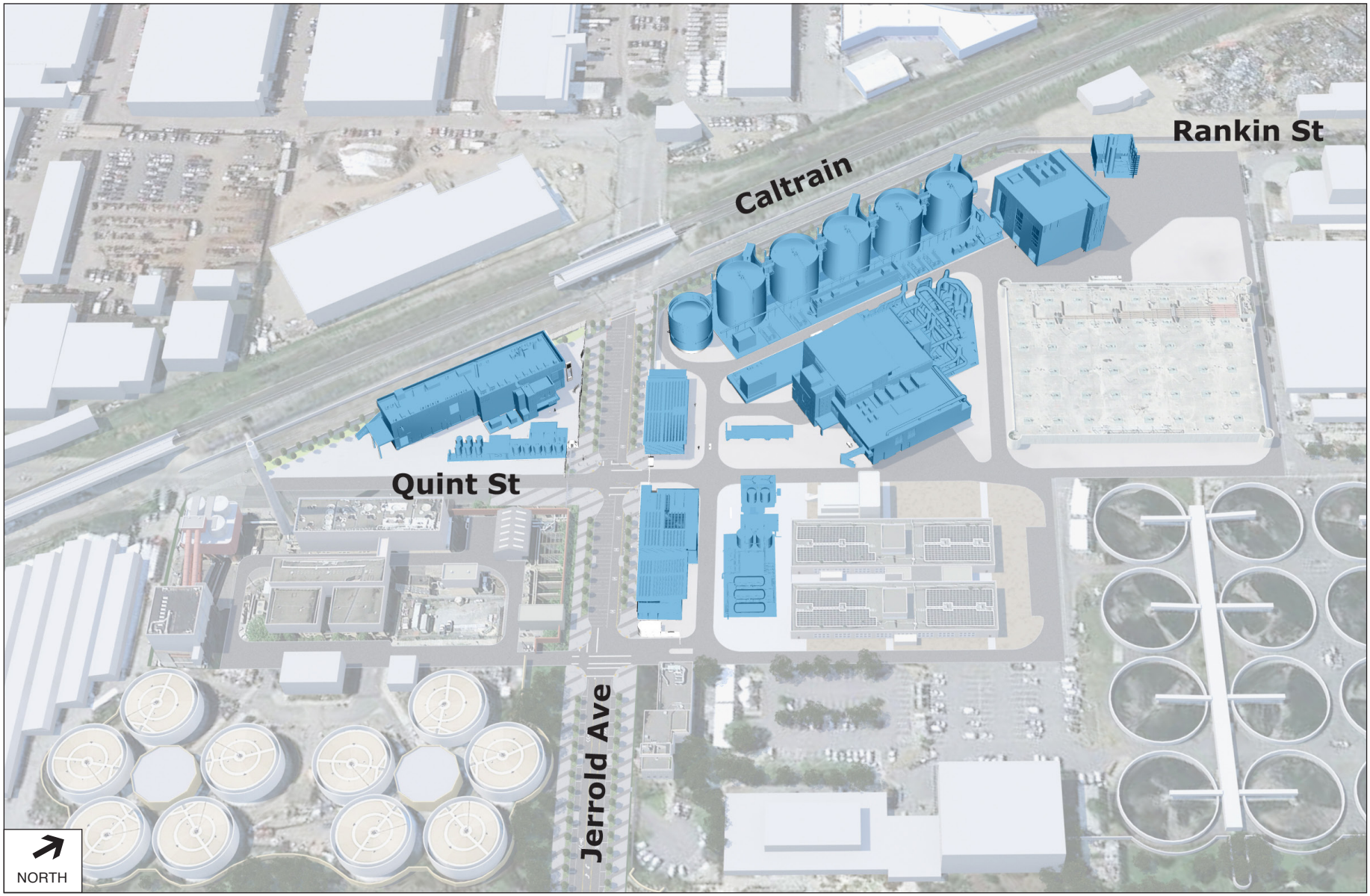

SOURCE: Michael Willis Architects, Data developed in 2016 for BDFP

SFPUC Biosolids Digester Facilities

Figure 2-6

Preliminary Massing Diagram

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BIOFILTERS AND TANKS

COOLING HEAT EXCHANGERS

DIGESTION COOLING TOWER

TURBINES

TO ATMOSPHERE
TREATED AIR
CARBON
BIOFILTER
AMMONIA SCRUBBER
SOLIDS ODOR CONTROL

TO ATMOSPHERE
TREATED AIR
BIOFILTER
CARBON
SOLIDS ODOR CONTROL

GREASE TRAP WASTE [1]

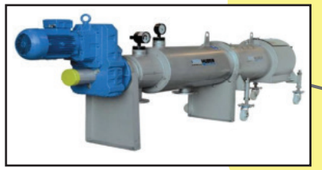
DIGESTION COOLING TOWER

STEAM
SURPLUS STEAM
EXHAUST
WASTE GAS BURNERS
HEAT RECOVERY STEAM GENERATOR SYSTEM
HEAT (HOT AIR)
DIGESTER GAS STORAGE
DIGESTER GAS TREATMENT
TURBINE/MICROTURBINES
POWER

ODOROUS AIR COLLECTION

WASTE ACTIVATED SLUDGE FROM SECONDARY TREATMENT
THICKENING (GBT) [2]
PRIMARY SLUDGE
SCREENING
COMBINED PRIMARY AND ACTIVATED SLUDGE WET WELL
CENTRIFUGE FEED WET WELL
PRE-THP DEWATERING (CENTRIFUGE)
PRE-THP EQUALIZATION (CAKE BINS)
THERMAL HYDROLYSIS PROCESS
COOLING HEAT EXCHANGER
BIOGAS
DIGESTERS
SCREENINGS LOADOUT
REJECT LIQUID FROM DEWATERING

ODOROUS AIR COLLECTION
DEWATERING (BFP)
CLASS A BIOSOLIDS STORAGE & LOADOUT
CLASS A BIOSOLIDS PRODUCT



SCREENS

REJECT LIQUID FROM THICKENING
RETURN TO LIQUID PROCESSING
REJECT LIQUID FROM DEWATERING

CENTRIFUGE

THP TANKS

BELT FILTER PRESSES

LEGEND

BFP BELT FILTER PRESS
GBT GRAVITY BELT THICKENER
BIOGAS
STEAM
ODOROUS AIR
LIQUID OR SOLIDS

PRE-DIGESTION SOLIDS PROCESSING
ANAEROBIC DIGESTION, DIGESTED SOLIDS STORAGE, AND THERMALLY HYDROLYZED SLUDGE (THS) SLUDGE COOLING
CLASS A BIOSOLIDS DEWATERING, STORAGE & LOADOUT
ENERGY RECOVERY AND STEAM GENERATION
ODOR CONTROL

[1] If grease and grease trap waste are available in the future, then it would be combined with the dewatered solids and fed into the THP process.

[2] Equipment appearance would be similar to that shown in Figure 2-4 .

SOURCE: SFPUC, BDFP Conceptual Engineering Report, March 2016., adapted by ESA+Orion

NOTE: This figure simplifies proposed processes for illustrative purposes. Aspects of proposed operations that are not shown in the process flow diagram include non-potable water and polymer (added at many points in the solids treatment process) and back-up systems associated with energy recovery facility operations (e.g., boilers, natural gas supply from Pacific Gas & Electric).

Figure 2-7
Proposed Solids Process Flow Diagram for BDFP

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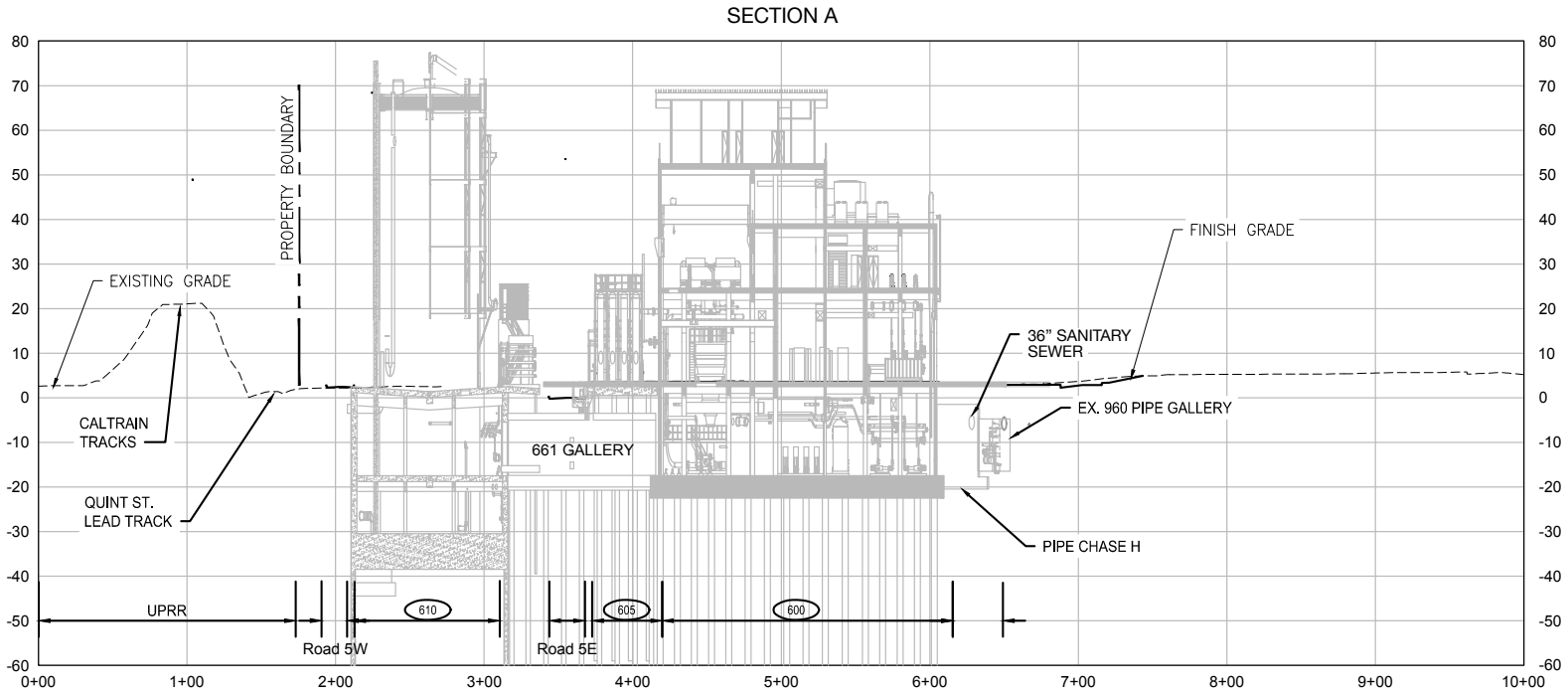
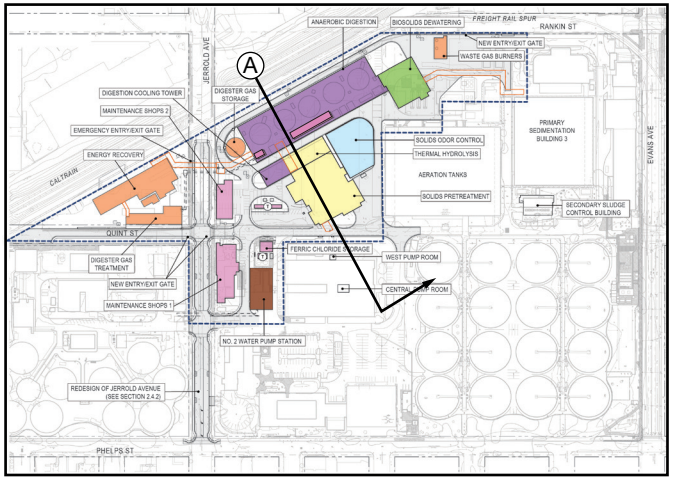


Anaerobic Digestion

Thermal Hydrolysis

Solids Pretreatment



Cross section is vertically exaggerated.

EX - Existing
UPRR - Union Pacific Railroad

SOURCE: SFPUC, Underground profile of anaerobic digesters, January 10, 2017; adapted by ESA+Orion

SFPUC Biosolids Digester Facilities

Figure 2-8
Cross-Section of Anaerobic Digesters, Thermal Hydrolysis Process, and Solids Pretreatment Facilities

2.4.1 Project Facilities and Processes

This section describes the proposed facilities, processes, and other project features by the following categories, as listed in Table 2-4:

- Primary Sludge and Waste Activated Sludge Pumping
- Pre-Digestion Solids Processing, including Solids Pretreatment and Thermal Hydrolysis Process (THP)
- Anaerobic Digestion, Digested Solids Storage, and Thermally Hydrolyzed Sludge (THS) Cooling
- Class A Biosolids Dewatering, Storage, and Loadout
- Energy Recovery and Steam Generation
- Odor Control
- Water Systems and Pump Stations
- Operations, Maintenance, and Support

2.4.1.1 Primary Sludge and Waste Activated Sludge Pumping

Similar to the existing solids pre-treatment process, under the BDFP, wastewater solids from the SEP liquid treatment processes—including primary sludge and waste activated sludge—would be pumped to the Solids Pretreatment Facility for processing. Primary sludge would be pumped from the existing primary sedimentation tanks to the proposed Solids Pretreatment Facility using the existing primary sludge pumps (in Primary Sedimentation Building 3 shown on Figure 2-5) to handle flows for 2033 conditions, and using new pumps for 2045 conditions. (These pumps would be added in the future when needed to meet loads or reliability criteria.) New underground piping (approximately 8-inch-diameter) would be installed in the existing piping galleries between the existing pump gallery and the proposed Solids Pretreatment Facility. Primary sludge would also pumped from the existing West Pump Room and Central Pump Room (shown on Figure 2-5) for 2045 conditions using existing piping. Waste activated sludge would also be conveyed to the proposed Solids Pretreatment Facility using the existing waste activated sludge pumps (located in the Secondary Sludge Control Building); some piping modifications would be required.

2.4.1.2 Pre-Digestion Solids Processing

As shown in the yellow rectangle on Figure 2-7, in the solids pre-treatment process solids would be thickened, screened, dewatered, and treated using a thermal hydrolysis process (THP).

Solids Pretreatment Facility

Many of the pre-digestion processes would occur within the Solids Pretreatment Facility (shown in yellow-shaded areas on Figure 2-5). The approximately 34,200-square-foot building would extend about 20 feet below grade and 65 feet (three stories) above grade. The building would house the gravity belt thickeners, screens, pre-THP dewatering centrifuges, Pumped Plant Recycled Pump

Station (returns process water for further treatment), and support systems, including a polymer[18] system and central control room. The polymer system would include dry polymer super sack systems (one dedicated polymer feed system for each process and one swing backup), batching/aging tanks, polymer tank, and polymer feed pumps.

Thermal Hydrolysis Process Facility

The proposed THP facility would consist of a series of rectangular THP "skids" on an approximately 9,300-square-foot concrete pad adjacent to the Solids Pretreatment Facility, as shown on Figure 2-5. Figure 2-7 includes a photograph of THP tanks. Each skid would contain four enclosed tanks (approximately 6 feet in diameter and 25 feet tall) on one side and two larger, enclosed tanks (approximately 8 feet in diameter and 25 feet tall) on the other side, with maintenance platforms, piping, and valves. The enclosed tanks would be made of welded steel and designed in accordance with the American Society of Mechanical Engineers Boiler and Pressure Vessel Code.[19] The proposed design includes pressure relief devices to prevent over-pressurization and tank rupture. THP is a solids pre-treatment process that combines high temperature and high pressure followed by rapid decompression, making the solids more biodegradable and allowing for higher methane production during the subsequent anaerobic digestion process.

2.4.1.3 Anaerobic Digestion, Digested Solids Storage, and Thermally Hydrolyzed Sludge (THS) Cooling

As shown in the purple-shaded area on Figure 2-7, following THP, thermally hydrolyzed sludge (THS) would be cooled and then pumped into the new digesters for biological treatment and digester gas recovery. Digested solids could also be stored in one of the digester tanks.

Anaerobic Digesters

The project would construct five 1.66-million-gallon anaerobic digesters in a linear arrangement on an approximately 57,600-square-foot concrete pad near the Port of San Francisco's freight rail spur and parallel to the Caltrain right-of-way (see purple-shaded area on Figure 2-5). Each digester would be up to 70 feet in external diameter and extend 65 feet above grade and 35 feet below grade (for a total height of 100 feet). Below-grade structures would include two basement floors of equipment and piping, as shown on Figure 2-8. The shape of the digesters would be cylindrical, tapering to a cone underground at the bottom (see Figure 2-8). Although a final decision on the surface finish for the digesters has not been made, cladding alternatives currently being considered include stainless steel mesh and translucent channel glass. The selected material, whether metallic, glass, or other, would be textured, brushed, frosted, or otherwise treated to diffuse light and reflectivity. The size and configuration of the proposed digesters would accommodate the projected year 2045 solids loads. Under normal conditions, of the five digesters, three would be used as primary digesters, one would be a primary/backup digester, and one would be used as a secondary digester or storage tank.

[18] A polymer is a type of chemical made up of large molecules, and the polymer used in this system promotes thickening in the treatment process.

[19] Section VIII, Division 1 of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code.

Anaerobic digestion is a method of treating wastewater solids using biological processes to inactivate pathogens and produce stabilized biosolids and digester gas. This treatment process would occur in new digester tanks by the same bacterial processes currently in use at the SEP (refer to Section 2.2.2), although use of the THP would make the anaerobic digestion process more efficient. Similar to existing conditions, the digester gas produced would be conveyed to on-site energy recovery facilities to produce steam and electricity (see Section 2.4.1.5, below).

Heat Exchangers and Digestion Cooling Tower

Each digester would be equipped with two cooling heat exchangers, small structures with concentric cooling pipe loops. Each pair of cooling heat exchangers would be located on a concrete pad adjacent to a digester. Figure 2-7 includes a photograph of a typical cooling heat exchanger. Water from the cooling tower would be used in the cooling loops of the heat exchangers.[20]

The digestion cooling tower would be installed on a concrete pad between the THP facilities and Maintenance Shops 2. This location provides sufficient surrounding space to ensure an adequate supply of fresh ambient air for cooling. As shown in Table 2-4, the digestion cooling tower would be about 60 feet by 60 feet and 25 feet high. Cold water would be pumped from the cooling tower to the heat exchangers, and warmed cooling water would be sent back to the cooling tower. The cooling tower would also provide cooling water for the digester gas treatment process. Depending on weather conditions (e.g., humidity), the cooling tower may generate a plume of (condensed) water mist.

2.4.1.4 Class A Biosolids Dewatering, Storage, and Loadout

As shown in the green-shaded area on Figure 2-7, the post-digestion process would involve dewatering, storage, and loadout of Class A biosolids, as described below.

The Biosolids Dewatering Facility would occupy an approximately 39,000-square-foot building adjacent to Rankin Street, shown in the green-shaded area on Figure 2-5. As indicated in Table 2-4, this three-story building with a basement would extend approximately 65 feet above grade and 21 feet below grade. The facility would contain belt filter presses and belt conveyors to remove water from the Class A biosolids; cake storage bins to store the biosolids; support facilities (e.g., storage room, mechanical room, polymer storage); and two truck bays on the ground floor to facilitate loadout of the Class A biosolids. Each truck bay would be sized to fully enclose the solids truck and trailer. The reject liquid stream from the dewatering process would be returned to the existing liquids treatment processes in the SEP; this return flow system could be reconfigured in the future if necessary to allow the filtrate to be conveyed to a potential future separate sidestream treatment facility.

[20] The Eastside Recycled Water Project (described in Table 4.1-1 in Chapter 4, Section 4.1, Overview) could provide an alternative (non-potable) water source for the heat exchangers if available in the future. Potable water would still be used as a backup water source.

2.4.1.5 Energy Recovery and Steam Generation

Similar to the existing process, digester gas generated by the digesters would be used to produce heat and power. The proposed energy recovery facilities include digester gas storage, digester gas treatment, gas turbines and microturbines, heat recovery and steam generating equipment, and waste gas burners. Turbine exhaust would flow through an exhaust stack. A standby power generator would be located in the Energy Recovery Building. **Table 2-5** presents summary descriptions of the energy recovery facilities. Figure 2-5 shows the location of proposed digester gas storage, treatment, and energy recovery facilities, primarily located south of Jerrold Avenue at the location of the former Asphalt Plant.

Digester Gas Production and Power Generation

Compared to the existing energy recovery facilities, the proposed energy recovery facilities would produce more heat and power (since they could process greater volumes of digester gas) and would not require routine flaring of digester gas. The BDFP would generate about 1.6 million cubic feet of digester gas per day (2023 annual average projection) and up to 2 million cubic feet per day in 2045, compared to the 1.3 million cubic feet per day currently generated (2014). The proposed energy recovery facilities would use this digester gas to generate 4.2 MW of electricity in 2023, with generation increasing to 5.2 MW in 2045. While energy production (4.2 MW) would not quite be sufficient to meet all project energy demands in 2023 (4.4 MW), it is anticipated that the project would meet all of the energy demand for the BDFP facilities starting in years 2026 to 2030. Until then, electricity needs for solids processing would be supplemented by SFPUC Hetch Hetchy hydropower conveyed via the Pacific Gas and Electric Company (PG&E) distribution system. Once energy production from the new energy recovery facilities exceeds energy demand of the BDFP facilities, excess energy would be used for other SEP facilities.

Digester Gas Storage

An aboveground 60-foot-tall, 50-foot-diameter (60-foot-diameter with outer screen) digester gas storage tank would be located on the north side of Jerrold Avenue, adjacent to the freight rail spur, in line with the proposed digester tanks (refer to orange-shaded circle on Figure 2-5). The tank would provide digester gas storage to accommodate process fluctuations (e.g., changes in digester gas production, steam and heating demand, and equipment failure) and serve as a buffer against pressure surges between the digesters and the digester gas treatment system. The storage can also reduce the need for operating waste gas burners to relieve excess pressure.

Digester Gas Treatment

The proposed digester gas treatment would be similar to that of the existing system. Digester gas treatment equipment (e.g., tanks, blowers[21]) would be installed on a set of concrete pads with an approximate total footprint of approximately 7,300 square feet, near the energy recovery facilities along Quint Street (refer to orange-shaded area on Figure 2-5). The digester gas would be conditioned

[21] Blowers are fans that deliver compressed air at a relatively constant pressure and are used in wastewater treatment for aeration and agitation of wastewater.

TABLE 2-5
PROPOSED ENERGY RECOVERY FACILITY COMPONENTS

Component[a]		Description	Operating Frequency
Digester Gas Storage Tank		Concrete tank, 50 feet in diameter with 60-foot-diameter outer screen, 60 feet high	Continuous
Digester Gas Treatment	Hydrogen sulfide (H_2S) removal	Five tanks, 10 feet in diameter, 12 feet tall, with iron sponge media and blowers	Continuous
	Pressure boosting and moisture removal	Three blowers, 2 glycol chillers, and 2 heat exchangers	
	Volatile organic compounds, siloxanes removal	Six vessels, 9 feet in diameter, 12 feet tall, with activated carbon or silica media	
Waste Gas Burners (flares) (2 units)		40-50 feet tall, 9 feet diameter	Infrequent (backup/standby use only, routine testing)
Compressor for gas turbines (2 units, including 1 future standby unit)		Located within 57-foot-tall Energy Recovery Building, up to 21,000 square feet	Continuous
Compressors for microturbines (Future: 2 units)			Units would come online beginning in 2031 and would operate continuously by 2045
4.6-megawatt (MW) turbine generator (2 units, including 1 future standby unit), with 19.3 million British thermal units per hour (MMBtu/hr)[b] duct burner			Continuous
0.2-MW microturbine generators (future: 4 units)			Units would come online beginning in 2031 and would operate continuously by 2045
Heat Recovery Steam Generators (HRSGs) (1 unit)			Continuous
Boiler feedwater treatment; hotwell/deaerator; boiler feedwater pumps; steam dump condenser			Continuous
Backup Steam Boilers (2 units), 21.0 MMBtu/hr[b]			Infrequent (backup, routine testing)
Standby Power Generator, 1.5 MW (1 unit) Diesel storage tank: 1,000-gallon aboveground, fire-guard protected rectangular tank.		Located within Energy Recovery Building	Infrequent (backup, routine testing)

NOTES:

[a] Many of these unit processes would have standby units. Standby units are operated only when a duty unit is taken out of service.
[b] MMBtu represents a standard unit of measurement of heat energy, the British thermal unit (Btu). MMBtu represents a million Btus.

SOURCE: SFPUC, *BDFP Conceptual Engineering Report*, March 2016.

(treated) to remove hydrogen sulfide,[22] moisture, and siloxanes[23] to protect the downstream energy recovery equipment from corrosion and scaling (buildup of hard mineral coating) and to reduce sulfur oxides emissions. Hydrogen sulfide removal would be accomplished via adsorption to an iron sponge media contained in multiple vessels. Siloxane removal would be accomplished via adsorption to granular activated carbon or alternative media. Spent media (used material) would be trucked to an appropriate landfill for disposal.

Heat and Power Generation Equipment and Processes

The heat and power generation equipment would be located south of Jerrold Avenue; all major equipment would be located within the approximately 21,000-square-foot, 60-foot-tall Energy Recovery Building (see orange-shaded area on Figure 2-5). The SFPUC would select and specify equipment that meets the Best Available Control Technology emission standards of the Bay Area Air Quality Management District. The proposed energy recovery facilities would replace the existing facilities and would include the following (refer also to Table 2-5):

- ***Turbines, Microturbines***. The project would include one turbine capable of generating heat and power and a future second turbine. Based on the projected solids loads, one 4.6-MW turbine could use all of the digester gas produced at the SEP until about 2031. (The second turbine, which would serve as a standby unit, would be installed in the future.) At that time, 0.2-MW microturbines would be brought online as warranted to use all of the digester gas generated. The turbine would be vented by a 48-inch-diameter exhaust stack that would extend 75 feet above ground surface.

- ***Heat Recovery Steam Generator System, Back-up Steam Boilers***. Steam for the THP system would be generated by recovering heat from the gas turbine's hot exhaust gases using a Heat Recovery Steam Generator (HRSG) system. The HRSG would include a supplementary duct burner where digester gas could be fired to supplement steam production if needed. Steam boilers, located within the same area, would be provided as a backup to the turbines. No. 1 water (potable water) used for the boilers would be pre-treated to remove hardness,[24] oxygen, and carbon dioxide, and chemically conditioned[25] for corrosion control and to increase the efficiency of the process. Recycled water with low total dissolved solids, if available, also could be used for this purpose.

- ***Standby Generator***. The 1.5-MW diesel standby power generator would be used to meet the standby power needs of the proposed facilities and critical power needs during startup conditions. The main point of power distribution for the new facilities would be provided via the combined heat and power switchgear[26] to control, protect, and isolate the electrical equipment.

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22 Hydrogen sulfide contained in digester gas can cause odors, corrosiveness, and sulfur emissions when the gas is burned.

23 Siloxanes are man-made organic compounds containing silicon, oxygen, and methyl groups that are commonly used in personal hygiene, health care, and industrial products, and consequently are found in wastewater. Removal of siloxanes from digester gas prior to combustion extends the life of the power-generating equipment and reduces maintenance requirements.

24 Hardness is defined as the mineral (e.g., calcium and magnesium) content of water. Hard water is water that has a high mineral content.

25 The boiler chemical feed system includes alkalinity addition, chemicals for oxygen removal and corrosion control, and polymer addition.

26 A switchgear is the combination of electrical disconnect switches, fuses, or circuit breakers in an electric power system.

Waste Gas Burners (Flares)

Two enclosed combustion waste gas burners would be located at the northern end of the project site near the Biosolids Dewatering Facility (refer to Figure 2-5). The waste gas burners would be approximately 9 feet in diameter and 40 to 50 feet tall. Following installation of the future standby turbine, the waste gas burners are anticipated to be operated infrequently, as a backup to the gas turbine and other gas utilization equipment. In case of a spike in digester gas production or an event that impedes normal operation of gas utilization equipment, the digester gas would be sent to the waste gas burners and combusted. The waste gas burners would be tested routinely (up to 50 hours per year) to ensure their reliable operation. Prior to the installation of the future standby turbine, the waste gas burners would be operated up to 300 hours per year when the duty turbine is not in operation due to maintenance.

2.4.1.6 Odor Control

The project would construct a centralized odor control system. As shown on Figure 2-7, odorous air would be collected and treated from the pre-digestion processes (i.e., thickening, screening, pre-THP dewatering, and cake bins) and post-digestion process (i.e., biosolids dewatering, storage, and loadout). The blue-shaded area on Figure 2-5 depicts the location of the proposed Solids Odor Control Facility. Consistent with the SSIP level of service goals adopted by the SFPUC, the BDFP odor control system would be designed with the goal of treating and containing odors from the BDFP to within the SEP property boundary.

The proposed Solids Odor Control Facility, containing four biofilters, four adsorption vessels (similar to tanks), and ancillary mechanical facilities, would be located on a concrete pad approximately 160 feet by 110 feet in size. The odor control structure would extend up to about 25 feet above grade, with a 12-inch-diameter stack extending to a height of 40 feet above grade. The biofilters would be located below ground, and the adsorption vessels[27] would be located above ground. Mechanical, odor control fan, and electrical equipment would be situated above ground. An inset photograph ("Biofilters and Tanks") on Figure 2-7 depicts a typical odor control unit similar to the unit proposed for the BDFP. Odorous air emanating from the pre-digestion unit processes (gravity belt thickening, screening, pre-THP dewatering, and pre-THP cake storage bin) and from unit processes following the digesters (biosolids dewatering and Class A biosolids storage and loadout) would be collected and treated in this facility. Proposed odor control technologies include biofiltration[28] followed by a polishing stage, if needed. In addition, ammonia removal is proposed for solids odor control and would include a 5-foot-diameter ammonia scrubber tank and related equipment. The biofilter would use an engineered media and the polishing stage would use a combination of virgin carbon and potassium permanganate[29] blend. No. 2 water or No. 3 water (defined below in the next section) would be added to the biofilter media to maintain moisture and achieve efficient odor removal. Ammonia

[27] The adsorption vessels contain a mixture of carbon and potassium permanganate.
[28] In biofiltration, odorous air is passed through a biologically active collection of peat, soil, or other engineered media, where microbes in the media degrade odorous chemical compounds.
[29] Permanganate is a chemical compound containing the manganate (VII) ion (MnO_4^-), a strong oxidizing agent.

removal would be accomplished by an ammonia scrubber[30] operating at low pH. Sulfuric acid dosing would be provided as a backup for pH control.

2.4.1.7 Water Systems and Pump Stations

The SEP currently uses three water systems: No. 1 water (potable water), No. 2 water (chlorinated and filtered secondary effluent [non-potable]), and No. 3 water (chlorinated secondary effluent [non-potable]). Many of the proposed BDFP unit processes would require use of process water and wash water. The BDFP includes the expansion of these water systems for use in the biosolids treatment processes; for example, No. 2 water or No. 3 water may be used during solids pre-treatment processes for washing and wetting/blending polymer. A description of these water systems follows. **Table 2-6** summarizes existing and future (2045) biosolids facilities potable and non-potable water usage, and **Table 2-7** lists characteristics of the proposed pump stations.

TABLE 2-6
EXISTING AND FUTURE (2045) POTABLE AND NON-POTABLE WATER DEMAND FOR SOLIDS PROCESSING

	Average Demand, Gallons per Day		
	Potable	Non-Potable	
	No. 1 Water	No. 2 Water	No. 3 Water
Existing Biosolids Facilities (2015)	43,200	172,800	1,108,800
Proposed Biosolids Digester Facilities Project (BDFP) Facilities (2045)	205,300	2,304,000	216,000
Net Increase	162,100	2,131,200	-892,800

SOURCE: SFPUC, Water Supply Assessment for the Biosolids Digester Facilities Project, 2017.

TABLE 2-7
CHARACTERISTICS OF PROPOSED PUMP STATIONS

Pumping Facility	Number of Pumps / Capacity (gallons per minute [gpm])	Horsepower (hp)
No. 2 Water Pump Station	Four (three duty) / 1,000 gpm each (3,000 gpm total)	75 hp
Pumped Plant Recycled Pump Station (within Solids Pretreatment Facility)	Two (one duty) / 2,400 gpm in each of two wet wells	45 hp

SOURCE: SFPUC, *BDFP Conceptual Engineering Report*, March 2016.

[30] Ammonia scrubbers are a technology used for the control of ammonia emissions. Sulfuric acid or acidic leachate is used as the scrubbing solution to absorb the ammonia, which is collected and removed in a form of salt (e.g., ammonium sulfate).

No. 1 Water

The cooling tower for digestion, energy recovery facilities, fire suppression, and heating, ventilation, and air conditioning (HVAC) systems in various buildings would use water from the SEP's existing No. 1 water (potable) system. Maintenance Shops 1 and 2 would also require potable water service connections for employee use. Subsurface piping (up to 10 inches in diameter) would be installed to connect these facilities to the SEP's existing No. 1 water system. In compliance with San Francisco's Reclaimed Water Use Ordinance, the SFPUC would dual-plumb all BDFP facility bathrooms for recycled water, and irrigation would be single-piped with a crossover/air gap connection such that recycled water could be used if and when available. Piping would be installed in existing and proposed utility tunnels where available. Potable water connections would also be installed to supplement use of No. 2 water, if needed.

No. 2 Water

As part of the BDFP, the SFPUC would expand the existing No. 2 water system to include a new treatment and pump station located northeast of the Maintenance Shops 1 building (refer to brown-shaded area on Figure 2-5). The No. 2 water pump station would include pumps, filters, UV disinfection, water storage tanks, booster pumps, air compressors, an electrical building, and related equipment on a concrete pad about 135 feet long and 65 feet wide; equipment would extend up to 20 feet above grade. Underground piping (up to 16 inches in diameter) would be installed between the new pump station and the unit processes (e.g., Solids Pretreatment Facility, cooling heat exchangers, Biosolids Dewatering Facility; see Figure 2-5). The project would use No. 2 water for dilution water, polymer wetting and wash water, and gas compressor water. The No. 2 water system would also provide fire protection water for the existing SEP system.

No. 3 Water

The BDFP would tie into the existing No. 3 water system that is planned to be upgraded as part of a separate project by the SFPUC prior to construction of the BDFP (refer to the description of the Building 521 Replacement/522 Disinfection Upgrade Project in Chapter 4, Section 4.1, Overview). Underground piping (up to 12 inches in diameter) would be installed within existing pipe galleries between the No. 3 water system along the north side of the SEP and the proposed Solids Odor Control Facility. The project would use No. 3 water for polymer wetting and dilution. No. 3 water would also be used for the boiler feed water system.

Pumped Plant Recycled Pump Station

The Pumped Plant Recycled Pump Station would be located within the Solids Pretreatment Facility, as described under *Solids Pretreatment Facility* in Section 2.4.1.2.

2.4.1.8 Operations, Maintenance, and Support

As shown in the rose-colored shaded areas on Figure 2-5, the project would include two new buildings, called Maintenance Shops 1 and Maintenance Shops 2, along the north side of Jerrold Avenue to support operations and maintenance activities, including the maintenance of treatment

equipment. The proposed buildings would include equipment repair areas, parts storage, and staff facilities. As described in Table 2-4, Maintenance Shops 1 would be two stories with a total floor area of 19,600 feet; the building would be approximately 180 feet long, 70 feet wide, and 30 feet high. The single-story Maintenance Shops 2 would have a total floor area of about 5,500 square feet; the building would be 110 feet long, 50 feet wide, and 15 feet high. Solar photovoltaic panels would be installed on the maintenance shop roofs consistent with San Francisco's Better Roof Ordinance. Additional support facilities would include the digester machine room (about 400 square feet and 21 feet high), digester electrical room (about 2,590 square feet and 16 feet high), chemical storage (discussed below in Section 2.5.6), and transformers.

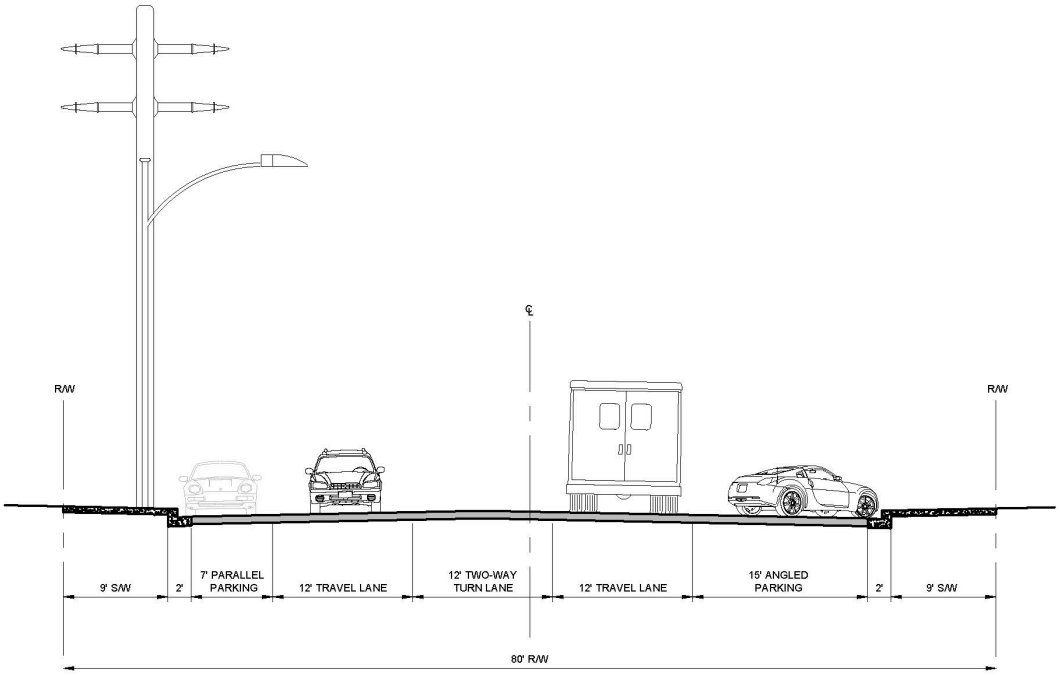
2.4.2 Other Project Features

2.4.2.1 Long-Term Changes to Local Roadway Network, Vehicular Access, and On-Site Circulation

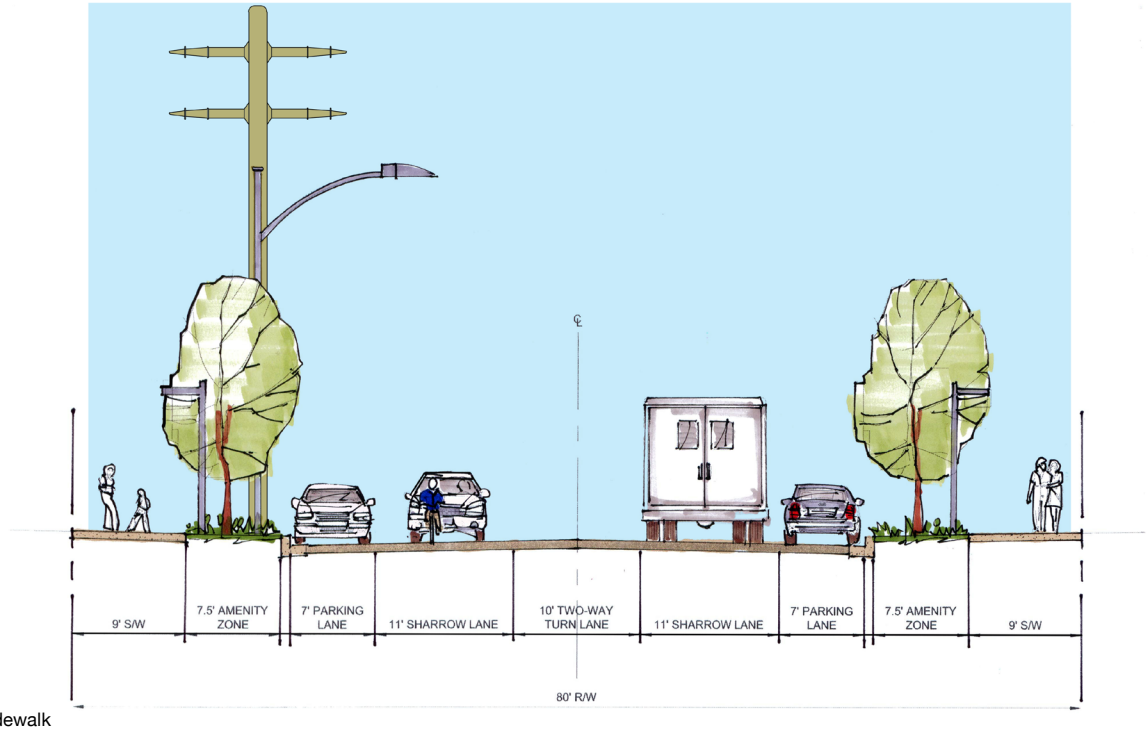
During project construction, Jerrold Avenue between the SEP entrance west of Phelps Street and the Caltrain tracks would be temporarily closed to through public traffic (for further detail refer to Section 2.6, below). Following construction, this segment of Jerrold Avenue would be redesigned as part of the BDFP and reopened. Proposed long-term improvements to Jerrold Avenue would occur in accordance with San Francisco Better Streets Plan guidelines and could include traffic calming measures, curb extensions (road narrowing), sidewalk improvements, lighting, street trees, and safer pedestrian and worker crossings. As currently envisioned, the redesign would provide a wider landscaped buffer zone with street trees between the parking lane and the sidewalk. To accommodate this green buffer zone, the SFPUC would reduce the width of the existing middle two-way turn lane and the two travel lanes, and replace angled parking with parallel parking on the north side of the street. **Figure 2-9** depicts a typical section of the proposed Jerrold Avenue improvements. Changes would maintain minimum widths for travel lanes and undergo review by the San Francisco Municipal Transportation Agency (SFMTA), and changes to the sidewalk would be in accordance with SFPW requirements.

The project would also include a new entrance at Rankin Street to facilitate the movement of truck traffic to and from the proposed facilities. Two entrances (as well as emergency access gates) on either side of Jerrold Avenue and one entrance on Quint Street are also proposed (see Figure 2-5). The project would include redesign of on-site vehicular circulation within the SEP boundaries to accommodate the new entrances, exits, and facility layout.

In October 2015, Quint Street between Oakdale Avenue and the Caltrain tracks was permanently closed to through traffic as part of Caltrain's Quint Street Bridge Replacement project. This closure resulted in a dead-end segment of Quint Street adjacent to the project site between the Caltrain tracks and Jerrold Avenue. As described in Section 2.1.1, the Asphalt Plant site was acquired by the SFPUC and ownership of this segment of Quint Street also will be transferred from SFPW to the SFPUC under actions separate from the BDFP. Quint Street between the Caltrain tracks and Jerrold Avenue is proposed to be closed to public traffic during both construction and subsequent long-term operation of the BDFP, and the project would include a new gated entrance to Quint Street from Jerrold



EXISTING - TYPICAL SECTION LOOKING WEST
JERROLD AVE



KEY
S/W - Sidewalk
R/W - Right of Way

A sharrow lane is a travel lane with a marking placed to indicate where cyclists should ride. The marking helps assist cyclists with lateral positioning in a shared lane.

PROPOSED TYPICAL SECTION LOOKING WEST
JERROLD AVE

SOURCE: SFPUC, BDFP Conceptual Engineering Report, March 2016

SFPUC Biosolids Digester Facilities
Figure 2-9
Jerrold Avenue Improvements

Avenue. Refer to Chapter 4, Section 4.6, Transportation and Circulation, for further discussion of changes to the roadway network around the SEP that are associated with other projects.[31]

2.4.2.2 Utilities and Ancillary Systems

Pipe Galleries, Chases, and Trenches

The project includes installation of numerous utilities such as piping for liquids, digester gas, steam, and electrical conduits. A new pipe gallery (shown on Figure 2-5) would be constructed to accommodate utility connections and routine staff access between the Solids Pretreatment Facility and the anaerobic digesters. The internal dimensions of this pipe gallery are approximately 23 feet wide by 13 feet high, with a tunnel floor (base) approximately 21 feet below ground surface (bgs). The project also includes construction of pipe chases (also shown on Figure 2-5), which are covered trenches designed to carry multiple pipes; these would not be designed to accommodate routine staff access. The pipe chases would connect BDFP facilities to each other (including a pipe chase beneath Jerrold Avenue) and to liquids processing facilities. Internal dimensions of the pipe chases vary and would be as large as approximately 18 feet wide by up to 14 feet high, with floors approximately 8 to 30 feet bgs. Dimensions of excavations for pipe trenches and pipe chases would vary depending upon the shoring system used, other nearby subsurface facilities, and required over-excavation. Final sizing for the pipe gallery, pipe chases, and pipe trenches would be determined during detailed project design.

Project Features to Address Sea Level Rise

Flood-Proofing for Expected Sea Level Rise

In accordance with the SFPUC's Climate Change Guidance for SSIP Projects,[32] all proposed facilities that could be affected by future flooding due to expected sea level rise of 36 inches by 2100 (i.e., proposed structures in the northernmost portion of the project site, such as the Biosolids Dewatering Facility) would be designed to be flood-proof to a minimum elevation of 2.5 feet San Francisco City Datum (SFD) (12.85 feet North American Vertical Datum of 1988 [NAVD88][33]), which is 1 foot above the *projected* 100-year flood level by 2100 (i.e., 100-year storm surge in combination with 36 inches of sea level rise). Specific flood-proofing features for each structure would be evaluated during the detailed design phase and would be consistent with the CCSF floodplain management requirements.[34] Accordingly, flood-proofing may involve precluding wall penetrations (such as doorways and vents) below 2.5 feet SFD (13.82 feet NAVD88); elevating the floor or base of each structure (including equipment pads) above 2.5 feet SFD; using flood-resistant materials and utility equipment; and designing or locating electrical, heating, ventilation, plumbing, and air conditioning equipment to prevent water from entering or accumulating within the components. In addition, all

[31] Roadway changes include those that would occur as part of the Quint-Jerrold Connector Road, described in Table 4.1-1 of Chapter 4, Section 4.1, Overview.

[32] SFPUC, Climate Change Guidance for SSIP Projects memo, March 23, 2015.

[33] San Francisco City Datum (SFD) establishes the City's zero point for surveying purposes at approximately 8.6 feet above the mean sea level established by 1929 U.S. Geological Survey datum, and approximately 11.35 feet above the North American Vertical Datum of 1988 (NAVD88).

[34] San Francisco Administrative Code, Chapter 2A, Article XX, *Floodplain Management Programs*.

proposed structures would be anchored to prevent flotation, collapse, or lateral movement in the event of flooding. See Chapter 4, Section 4.16, Hydrology and Water Quality, for further discussion of future sea level rise.

Adaptive Features for Worst-Case Sea Level Rise, Storm Surge Events

In addition, consistent with the SSIP Climate Change Guidance, the project would include adaptive features to prevent flood damage in the event of the worst-case scenario of 66 inches of sea level rise in combination with a 100-year storm surge, which could result in flood water elevations of up to 4 feet SFD (15.35 feet NAVD88) by 2100. For example, a curb could be constructed to prevent the incursion of flood waters. The SFPUC would determine the specific adaptive features to be included based on the observed level of sea level rise.

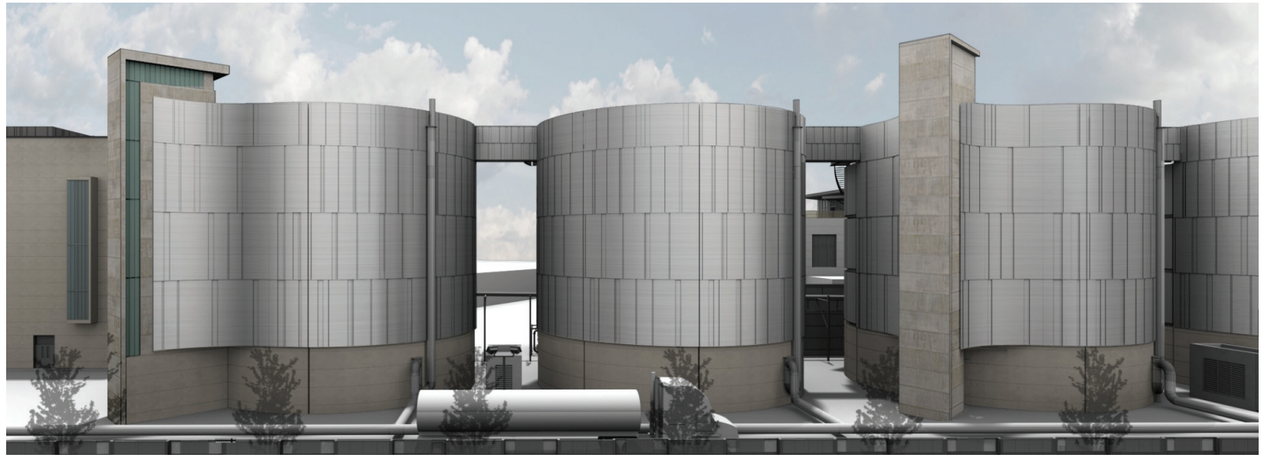
Ancillary Facilities

The project would include ancillary facilities such as security controls, energy management systems, fire protection and alarm systems, compressed air, and plant communications. These systems would require coordination with other City departments (e.g., the San Francisco Fire Department) to be compatible with existing systems where required.

The project would require connection to existing and proposed utilities, including natural gas, electricity, communications (including fiber optic cable), water, and sanitary sewer lines. The project site is currently developed and contains stormwater collection facilities that route existing stormwater runoff to plant influent or primary clarifiers for treatment. Future runoff from the roadways and new structures would be routed to the existing stormwater collection facilities at the site or future landscaped areas designed for stormwater infiltration. The existing SEP potable water distribution system would be extended to serve the BDFP facilities. Natural gas service would also be extended so that it could be used as a secondary fuel for turbines and other backup equipment.

2.4.2.3 Architecture and Landscaping

Architecture and landscaping for the BDFP would be designed consistent with the San Francisco Planning Code, the San Francisco Stormwater Management Ordinance, the San Francisco Better Roof Ordinance, the San Francisco Arts Commission Civic Design Review process and Public Art Program, and the San Francisco Better Streets Plan. **Figure 2-10** illustrates the preliminary architectural concepts that may be applied to several buildings. The project would also include the planting of trees and other landscaping, as well as fencing and street improvements (e.g., planted bulb-outs and intersection curb extensions). **Figure 2-11** depicts proposed locations for landscaping, which would be installed during the last year of construction. Landscaping would be provided along the freight rail spur and Caltrain tracks, as well as on both sides of Jerrold Avenue. Plants would include native or native-adapted species that are non-invasive, low water, low leaf litter, and low maintenance, and that have non-invasive root systems.



ANAEROBIC DIGESTION

ENERGY RECOVERY FACILITY

JERROLD AVENUE LOOKING WEST

SOLIDS PRETREATMENT FACILITY

NOTE: This figure presents concepts only; all aspects shown are subject to change.

SOURCE: SFPUC, Revised renderings, provided to ESA+Orion on November 8, 2016

SFPUC Biosolids Digester Facilities

Figure 2-10

Architectural Design Concepts

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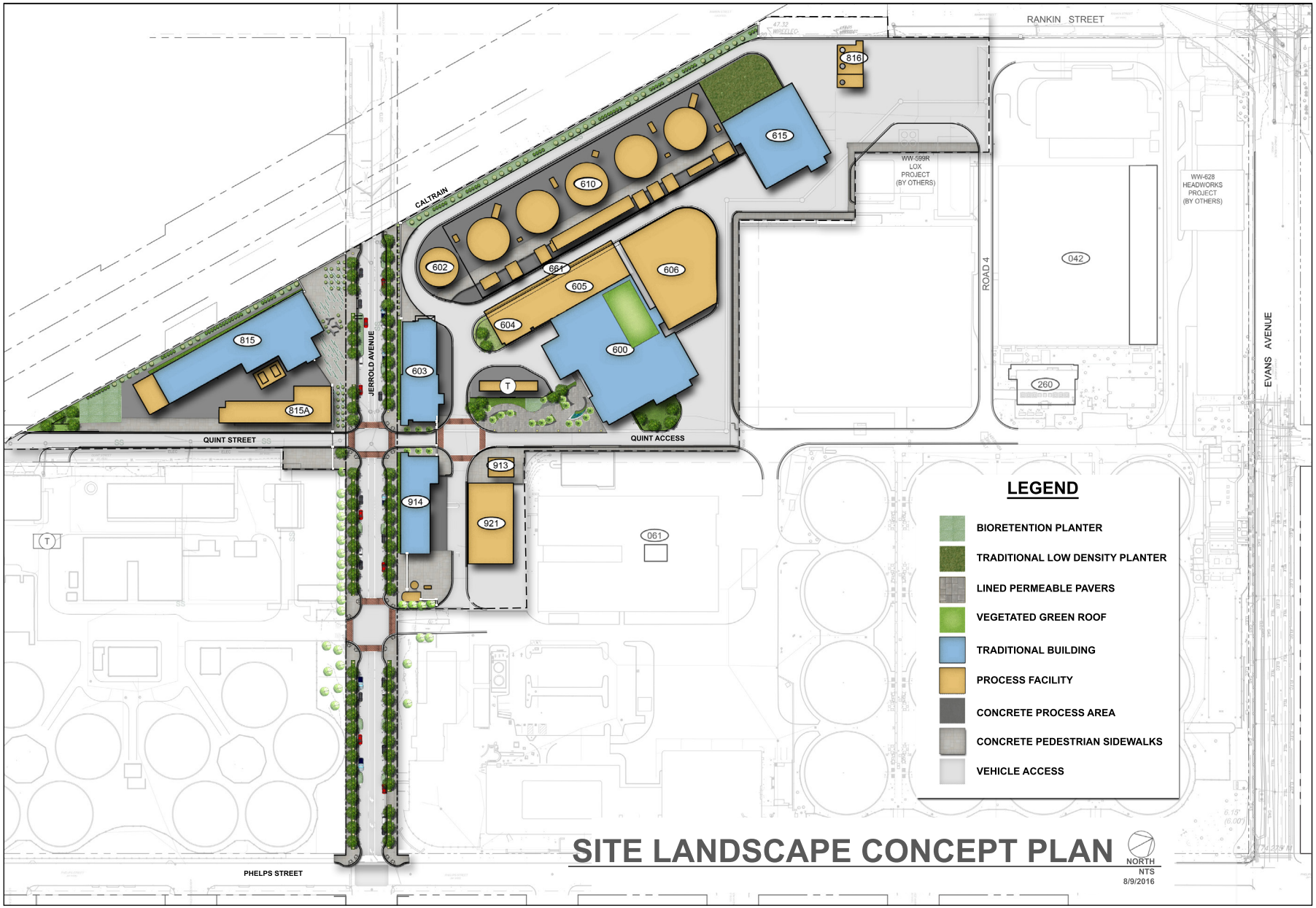


SOURCE: Brown and Caldwell, CH2M, Black & Veatch, Michael Willis Architects, Data developed in 2016 for BDFP

SFPUC Biosolids Digester Facilities

Figure 2-11

Landscaping Improvements

Low-impact development features to reduce stormwater runoff could include street tree plantings, flow-through planters, permeable paving for sidewalks, and green roofs (a roof that is partially covered by landscaping). The Solids Pretreatment Facility would include a green roof to provide stormwater management benefits. Refer to Section 2.6, below, for information regarding trees to be removed during construction.

Project facilities would meet applicable energy and water efficiency requirements associated with the Green Building Requirements for City Buildings (San Francisco Environment Code, Chapter 7).

2.4.2.4 Decommissioning of Existing Digesters

Following the successful operational performance testing of the new digester facilities (refer to Section 2.5.1, below), the existing digester tanks and solids handling facilities would be decommissioned. Decommissioning would involve emptying, cleaning, and disconnecting the facilities from flows and power. After decommissioning, the original facilities would no longer be operational. Demolition of the existing digesters and reuse of these areas in the future are not part of the project and would be determined as part of Phase 2 of the SSIP (when authorized). However, as demolition of these facilities is reasonably foreseeable, demolition of the existing digesters is considered a cumulative project in the analyses of cumulative impacts in Chapter 4, *Environmental Setting and Impacts.*

2.5 Project Operations

2.5.1 Performance Testing and Full Facility Commissioning

Long-term operation of the new solids treatment and associated facilities would be integrated with the overall SEP operations. Following construction, there would be a transition period during which the SFPUC would conduct initial performance testing (or "start-up") of the new facilities followed by full facility commissioning. During the transition period, components of both existing and proposed biosolids treatment systems would operate concurrently.[35] As the new systems are tested, stabilized, and optimized, the BDFP would gradually increase its share of the solids treatment while the old systems are phased out. During initial performance testing, all BDFP facilities and equipment would be commissioned and tested, and sufficient units would be run to handle the flows and loads. It is expected to take six months to conduct performance testing and bring online all the equipment and facilities including THP and digestion, and up to 24 months of commissioning to optimize the new solids treatment system. Full facility commissioning is expected to be complete in 2025 (see Table 2-10 in Section 2.6, below).

[35] As described in Chapter 4, Section 4.8, Air Quality, the analysis of air pollutant emissions conservatively assumed that the entire transition period could occur over the shortest possible time frame and that the proposed facilities could become fully operational as early as 2023 to avoid understating emissions with daily thresholds.

Regarding Energy Recovery Facility operations, turbines and other equipment using digester gas fuel require a minimum flow of digester gas to start operation, which may not immediately be available. As described in Section 2.4.1.5, steam generated by recovery of heat from the turbines would be used to support the THP. The backup steam boiler would primarily operate on natural gas during startup to produce steam for the THP. Any digester gas produced would be used to fuel the backup steam boilers, and excess would be safely combusted via waste gas burners. Once the turbine minimum digester gas flow is achieved, the turbines would start operation (preceded by digester gas treatment). Natural gas or propane gas would also be provided as a starting fuel for the gas turbines. During startup, the waste gas burners would be used as needed for short periods (e.g., testing of equipment) or long periods (e.g., due to poor gas quality, equipment not ready or not working properly). Use of the waste gas burners during startup would occur during the first several months (i.e., approximately six months). After that initial period and during routine operations, the waste gas burners are expected to be used only during emergency situations or in response to an abnormal operational event.

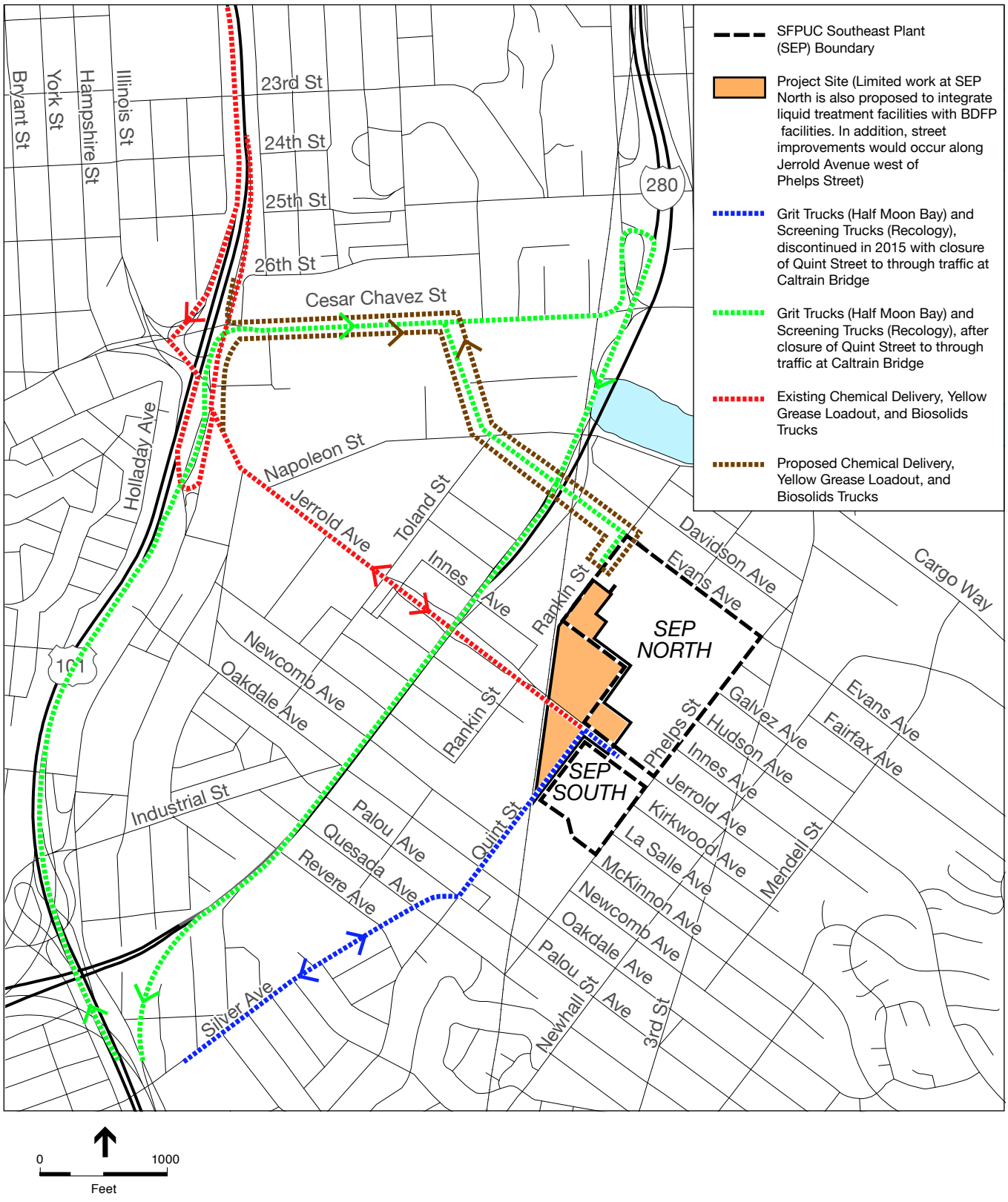
2.5.2 Plant Capacity, Operating Hours, and Work Force

As indicated in Table 2-1, the existing overall capacity of the SEP for wastewater treatment is 250 mgd wet weather flow and 85 mgd dry weather flow; the BDFP would not change this capacity. The BDFP facilities at the SEP would be designed to reliably treat year 2045 projected flows and loads. Similar to current conditions, proposed solids treatment facilities constructed as part of the BDFP would operate as needed, 24 hours per day, seven days per week. No increase in the existing operations staff levels of about 280 people for the entire SEP is anticipated from the project. During long-term operations, there would be approximately the same amount of on-site parking for employees at the SEP as under existing (2015) conditions.

2.5.3 Truck Trips and Routes

Overall, the number of daily trucks delivering or hauling materials associated with SEP solids handling operations would be a slight increase over the existing condition, from about 33 to about 36 trucks per day. Currently there are approximately 7 to 10 biosolids hauling truck trips per day, and under the BDFP, the estimated number of daily truck trips required for biosolids hauling would increase to approximately 10 to 14 haul trips per day in 2045. In the future, however, if the current solids treatment processes were to continue, the number of truck trips is estimated to be between 14 to 18 haul trips per day in 2045. (Refer to Table 4.6-16 in Section 4.6, Transportation and Circulation, for a breakdown and existing and future truck trips.)

Regarding truck routing, proposed permanent changes to vehicle entrances and exits and to on-site circulation roads (described in Section 2.4.2) would alter traffic patterns associated with the SEP's operations, shifting some truck traffic off of Jerrold Avenue and onto Rankin Street at Evans Avenue. **Figure 2-12** shows the existing truck routes for operational truck trips at the SEP together with the proposed future truck routes under the BDFP.



SFPUC Biosolids Digester Facilities

SOURCE: San Francisco Public Works 2005 GIS data;
Adavant Consulting and LCW Consulting, Data developed in 2016 for BDFP

Figure 2-12
Existing and Proposed Operational Truck Routes

2.5.4 Equipment Maintenance and Replacement

Similar to existing conditions, the SFPUC would maintain new equipment throughout the life of the proposed facilities, through replacement or repair. Major pieces of equipment (e.g., gravity belt thickeners, THP, centrifuges, and belt filter presses) would be replaced every 20 to 30 years. Minor pieces of equipment or those items subject to wear and tear would be replaced more frequently (i.e., every few years, depending on the equipment). For example, the belts for the gravity belt thickener would be replaced every one to three years and the belts for the belt filter press would be replaced every three months if operated continuously.

2.5.5 Energy Use and Supply

As shown in Table 2-1 and described under *Digester Gas Production and Power Generation* in Section 2.4.1.5, proposed energy recovery facilities would supply an estimated 4.2 MW energy from 1.6 million cubic feet of digester gas generated per day in 2023. As the total volume of solids to be treated by the BDFP increases over time due to anticipated population growth, the amount of digester gas generated would increase commensurately to 2 million cubic feet per day, which in turn would increase the amount of energy supplied by the turbines to approximately 5.2 MW. As shown in **Table 2-8**, based on 2045 projections, in the long term the BDFP would generate more energy than needed for BDFP operations; excess energy would be used by other SEP facilities.

TABLE 2-8
ESTIMATED ENERGY DEMAND AND SUPPLIES FOR SOLIDS PROCESSES, EXISTING AND FUTURE-WITH-PROJECT CONDITIONS

Description		Existing Biosolids Facilities (2014)	Future with Biosolids Digester Facilities Project (BDFP) Facilities	
			2023	2045
Electricity Demand, SEP Solids Treatment Process, megawatts (MW)		1 MW (estimated)	4.4 MW	4.9 MW
Electricity Produced from Cogeneration	From Digester Gas	0.66 MW[a]	4.2 MW[b]	5.2 MW
	Digester gas generation, cubic feet per day	*Approximately 1.3 million*	*Approximately 1.6 million*	*Approximately 2 million*
	From Natural Gas[c]	0.02 MW[d]	0	0
Electricity from Hetch Hetchy Hydropower to Supplement Electricity Generated from Digester Gas		0.32 MW	0.2 MW	0
Diesel Use, gallons per year[e]		50	5,250	5,250
Natural Gas/Propane Gas		Minor volumes to supplement digester gas for startup and during emergencies		

NOTES:

[a] Based on 2014 cogeneration engine operating record. The existing cogeneration engine can generate up to 2 MW power and provides thermal energy used to heat the digesters. When engine output exceeds the biosolids facility demand of 1 MW, the surplus power is used by liquid processes.

[b] Full production may not be realized until 2025, when the BDFP is fully commissioned.

[c] Natural gas is currently purchased from the State Department of General Services Natural Gas Services program, but delivered through Pacific Gas and Electric Company (PG&E) pipeline.

[d] The cogeneration engine consumes a small stream of natural gas.

[e] For purposes of calculating operations-phase air pollutant emissions, future diesel use was based on operation of the proposed 1.5-MW standby power generator for a maximum 50 hours annually for maintenance and testing purposes. Actual maintenance and testing hours are anticipated to be less (i.e., six hours annually).

SOURCE: SFPUC, Request for Information response regarding existing and future energy demand, e-mail from S. Chau, October 16, 2015.

BDFP operations would include energy monitoring to manage energy use. The BDFP would meet California Code of Regulations Title 24 requirements, where applicable, for energy efficiency.[36]

2.5.6 Chemicals Storage, Use, and Handling

Similar to existing operations, the BDFP treatment processes would involve the storage, use, and handling of various chemicals, including polymer (in the thickening, pre-THP dewatering, and final dewatering processes), ferric chloride (upstream/downstream of digesters for struvite[37] control), and sodium sulfite (to condition feedwater as part of the energy recovery process). **Table 2-9** indicates the net change in the volume of chemicals and on-site fuels needed for the project. Increases in chemical use are due to new technologies proposed for improved odor control and to treat increased solids loadings from projected population growth.

TABLE 2-9
PROPOSED CHANGES IN ON-SITE CHEMICAL AND FUEL USAGE

Chemical	Treatment Process or Use	Existing Use for Biosolids Handling Facilities (2014, average)	Proposed Biosolids Digester Facilities Project (BDFP) Quantity (2045)	Net Change in Usage
Polymer	Thickening, pre-thermal hydrolysis process (THP) dewatering and biosolids dewatering	Thickening: 200 pounds/day (liquid) Dewatering: 690 pounds/day (liquid)	3,600 pounds/day (annual average) (dry)	+2,710 pounds/ day (dry)
Ferric Chloride	Various injection points (upstream/downstream of digesters) for struvite control	Dewatering: 1,100 gallons/day (37% solution)	3,300 gallons/day (annual average) (41% solution)	+2,200 gallons/ day
Sodium Sulfite	Oxygen scavenger for boiler feed water de-aerator	Not currently used	120-gallon storage tank	+< 7 gallons/day
Diesel	Backup diesel generator	50 gallons/year	5,250 gallons/year	+5,200 gallons/year
Propane Gas	Turbine startup fuel	Not currently used	Two 20-pound storage cylinders	Infrequent use, negligible
Sulfuric Acid	Solids odor control (pH control and backup)	Not currently used	550 gallons/month	+550 gallons/month
Anti-Scalant	Cooling tower	Not currently used	< 1 pound/day	+< 1 pound/day
Sodium Hypochlorite	Cooling tower	Not currently used for solids handling	< 1 pound/day	+< 1 pound/day

SOURCE: SFPUC, Request for Information response regarding existing and future chemical usage, e-mail from S. Chau, September 29, 2015.

[36] The California Energy Commission has adopted and periodically updates standards (codified in Title 24, Part 6 of the California Code of Regulations) to ensure that building construction, system design, and installation achieve energy efficiency and preserve outdoor and indoor environmental quality. The standards establish a minimum level of building energy efficiency.

[37] Struvite, chemically equivalent to magnesium ammonium phosphate hexahydrate, forms when concentrations of soluble magnesium, ammonium, and orthophosphate exceed levels that promote the formation of crystals. Struvite can build up and clog wastewater treatment equipment.

Dry polymer would be stored in the Solids Pretreatment Facility and the Biosolids Dewatering Facility. Ferric chloride use is expected to increase to accommodate the proposed treatment processes. New ferric chloride storage tanks would be used. Two new 15,500-gallon ferric chloride storage tanks (up to 24 feet in height, with concrete pad dimensions of approximately 1,300 square feet) with secondary containment would be installed on-site. Either natural gas or propane gas would be provided as a starting fuel for the gas turbine generators. If required, the propane system would consist of a 20-pound storage cylinder that would supply the two gas turbines and a backup second storage cylinder. Each 20-pound cylinder would be sufficient to start a turbine 250 times. The project would also include an 1,000-gallon storage tank for diesel storage for the backup diesel generator.

All chemicals would be stored in accordance with applicable federal, state, and local regulations (e.g., chemical storage with secondary containment). Polymer, ferric chloride, and diesel are currently used at the SEP for existing processes. Sodium hypochlorite is currently used for the liquid treatment processes but not the solids handling processes. Sodium sulfite, sulfuric acid, anti-scalant, and propane gas are new chemicals not currently used at the SEP. The SFPUC maintains a Hazardous Materials Business Plan (HMBP) for SEP operations. The HMBP, which contains information including but not limited to a hazardous materials inventory and emergency response, would be updated to reflect changes in the amount of chemicals stored, used, and handled by the BDFP facilities at the SEP, in compliance with regulatory requirements. Refer to Section 4.17, Hazards and Hazardous Materials, for more information.

2.6 Project Construction

2.6.1 Construction Schedule, Work Hours, Work Force, and Coordination

2.6.1.1 Schedule and Work Hours

Table 2-10 shows the estimated construction schedule and duration by activity. Project construction would require about five years, from approximately February 2018[38] through January 2023. For most of the construction period, construction activities at the project site would occur Monday through Friday from 7:00 a.m. to 3:30 p.m., with some activities extending to 8:00 p.m. as needed. Construction could also occur on Saturdays and Sundays when needed. Work would occur on holidays and 24 hours per day only if needed for critical facility connections. Pile driving would generally occur between 7:00 a.m. and 3:30 p.m. Monday to Friday and at times until 8:00 p.m. consistent with the City's Noise Ordinance. During the peak of construction, a period of approximately one year (between mid-2021 and mid-2022), and other times during critical functions, construction would occur in two shifts per day if needed: Monday through Saturday from 7:00 a.m. to 3:30 p.m. and from 2:30 p.m. to 11:00 p.m. Nighttime work (after 8:00 p.m.) would be limited to interior facility work (e.g., electrical work) and outside work that would not result in noise exceeding

[38] Based on the Conceptual Engineering Report (SFPUC, *BDFP Conceptual Engineering Report*, March 2016), construction activities could start anytime from February 2018 to August 2018, with a five-year construction duration regardless of the start date. For the purposes of this EIR, February 2018 is assumed to be the start date.

5 dBA (A-weighted decibels) over ambient levels, pursuant to the City's Noise Ordinance. The SFPUC expects that construction activities outdoors between 8:00 p.m. and 11:00 p.m. could include:

- Large concrete placements
- Welding
- Minor backfill and road grading (related to shutdowns)
- Pipefitting
- Installation of electrical and security components
- Crane use (setting of pre-cast concrete structures, large-diameter pipe and steel supports)
- Groundwater dewatering
- Moving equipment and material between structures (associated with indoor work)
- Connections between proposed facilities and existing facilities

TABLE 2-10
APPROXIMATE CONSTRUCTION SCHEDULE AND WORK FORCE

Construction Activity		Expected Duration	Estimated Schedule[a]	Approximate Average Daily Construction Work Force
Biosolids Digester Facilities Construction				
Demolition and Site Preparation		6 months	February 2018 - July 2018	133
Soil Excavation[b]		5 months	August 2018 - December 2018	194
Foundations and Facilities Construction		49 months	January 2019 - January 2023	372 (average) 550 (peak)
Total Biosolids Digester Facilities Construction		***60 months***	***February 2018 - January 2023***	333
Post-Construction Activities				
Transition from Existing to Proposed Biosolids Treatment Systems[c]	Performance Testing (Start up)	6 months	February 2023 - July 2023	133
	Full Facility Commissioning	24 months	August 2023 - July 2025	< 50[d]
Existing Digester Decommissioning[e]		6 months	After 2025	< 20

NOTES:

[a] Based on the Conceptual Engineering Report, construction activities could start anytime from February 2018 to August 2018, with a five-year construction duration. For the purposes of this EIR, February 2018 is assumed to be the start date.

[b] The majority of excavation would occur during this period, with additional excavation for other facilities later in construction.

[c] As described in Chapter 4, Section 4.8, Air Quality, the analysis of air pollutant emissions conservatively assumed that the entire transition period could occur for the shortest possible time frame and that the proposed facilities could become fully operational as soon as 2023 to avoid understating emissions with daily thresholds.

[d] Full facility commissioning would be performed by Southeast Water Pollution Control Plant (SEP) staff (with some additional non-SEP staff on-site assisting with the work).

[e] Potential demolition of the existing digesters and solids handling facilities to be determined under a separate project.

SOURCE: SFPUC, *BDFP Conceptual Engineering Report*, March 2016.

2.6.1.2 Work Force

As shown in Table 2-10**,** the size of the construction work force would vary over the five-year construction period, averaging about 333 workers and ranging from about 133 to 550 workers. The work force would peak between approximately May 2021 and July 2022. If construction workers park at the Piers 94 and 96 staging areas, a worker shuttle would be provided and run approximately one hour before and one hour after the construction hours (see Section 2.6.2).

2.6.1.3 Construction Coordination

Southeast Area Program Construction Manager

Given the multitude of planned projects and ongoing operations at the SEP, the SFPUC has formed a Site Logistics Committee to coordinate future site construction and ongoing operations activity at the SEP. This committee works with program managers, project managers, and SEP operations staff to establish and update preconstruction plans for coordinated construction staging, parking, project interfaces, and traffic control. A Southeast Area Program Construction Manager would be hired by the SFPUC prior to the start of construction of major SEP projects (i.e., Headworks and BDFP) and would manage implementation of these plans and lead coordination efforts between projects and SEP operations throughout construction. The Southeast Area Program Construction Manager would also be responsible for coordinating with the project teams to update the SFMTA as needed to address local traffic, transit, bicycle, and pedestrian issues.

The SFPUC would conduct all construction activities in compliance with applicable regulations and ordinances. Relevant requirements would be included in the contract specifications that are issued for construction of the project.

Traffic Control Plan

In accordance with the SFPUC's Standard Construction Measures (discussed below in Section 2.6.7 and presented in **Appendix SCM**), the SFPUC or its contractor would prepare and implement a Traffic Control Plan that conforms to the SFMTA's *Regulation for Working in San Francisco Streets* (Blue Book). Elements of the Traffic Control Plan would include:

- Development of circulation and detour routes to minimize impacts on local street circulation during roadway and lane closures, taking into account a.m. and p.m. peak commute periods. Flaggers and/or signage shall be used to guide vehicles through and/or around the construction zone, and roadside construction safety protocols shall be implemented.

- Placement of advance warning signs outside the perimeter of work areas advising motorists, bicyclists, and pedestrians of the construction zone ahead in order to minimize hazards associated with construction activities, including the construction vehicle entry and egress of project-related construction activities.

- Implementation of roadside safety protocols, such as advance "Road Work Ahead," "One Lane Road Ahead," "Flagger Ahead," "Prepare to Stop," and "Trucks Entering Road" signs. Warning signs and speed control shall be provided, as appropriate, to achieve speed reductions for safe traffic flow in the project vicinity.

- Identification of construction truck routes that minimize truck traffic on local roadways and residential streets to the extent possible.
- Development of sufficient staging areas.
- Control and monitoring of construction vehicle movement by on-site inspectors through the enforcement of the standard construction specifications.
- Scheduling of truck trips on roads that would remain open to the public during hours of the day other than the peak morning and evening commute hours to the extent possible.
- Maintenance of pedestrian and bicycle access and circulation during project construction where safe to do so. The contractor shall be required to maintain bicycle lanes/lane widths to accommodate bicycle traffic or seek a permit from the SFMTA to address bicycle route detours and signage for any lane closures. Where construction activities encroach on a bicycle lane, advance warning signs (e.g., "Bicyclists Allowed Use of Full Lane" and/or "Share the Road") shall be posted to indicate that bicycles and vehicles are sharing the lane and to warn bicyclists and drivers of upcoming traffic hazards. If construction activities encroach on a sidewalk, safe crossings and appropriate signage (e.g., "Sidewalk Closed") shall be provided for pedestrians.
- Storage of all equipment and materials in designated contractor staging areas on or adjacent to the work site so that traffic obstruction is minimized.
- Coordination of construction with facility owners or administrators of police and fire stations (including all fire protection agencies), transit stations, hospitals, and schools. Facility owners or operators would be notified in advance regarding the timing, location, and duration of construction activities and the locations of detours and lane closures. Emergency service vehicles shall be given priority for access.

While not requirements of the SFMTA's Blue Book, the following additional elements would also be included in Traffic Control Plan, with the intent of minimizing disruptions to surrounding neighborhoods, resources, and land uses during project construction activity:

- A public information plan shall be developed to provide adjacent residents and businesses with regularly updated information regarding project construction in their area, including construction activities, durations, peak construction vehicle activities, travel lane and other lane closures, and full road closures. This information shall also be presented on the SFPUC website and updated regularly as construction conditions change.
- The Traffic Control Plan shall provide transportation demand management methods such as providing secure bicycle parking spaces, providing shuttle van service to the BART 24th Street Mission station, participating in emergency ride home program through the City and County of San Francisco, and providing transit information to construction workers to encourage carpool, bicycle, walk, and transit access to the project site.

Construction Noise Control Plan

The SFPUC would implement a noise control plan during construction requiring contractors to use non-impact equipment that meets the City's Noise Ordinance limit of 80 dBA at 100 feet and including monitoring to confirm the limit is not exceeded. In addition, the SFPUC would require contractors to follow regulations of the California Division of Occupational Safety and Health (DOSH) (better known as Cal/OSHA), including those related to noise exposure, to ensure the health

and well-being of their employees. Refer to Chapter 4, Section 4.7, Noise and Vibration, for discussion of noise levels in the project vicinity and applicable noise regulations.

2.6.2 Construction Staging, Worker Parking, Truck and Delivery Access, and Temporary Relocation of Muni Route

Figures 2-1 and 2-2 in Section 2.1.1 show the locations of potential construction staging areas. The project would require up to 12 acres of total construction staging area (in addition to the project site itself) which could be divided among various potential areas. The potential construction staging areas are as follows:

- **Within the SEP Site.** Some limited areas within the existing SEP boundaries may be available and could be used during construction for laydown of equipment and materials, parking, and office trailers.
- **Within Quint Street.** In October 2015, Quint Street between Oakdale Avenue and the Caltrain tracks was permanently closed to through traffic as part of Caltrain's Quint Street project.[39] This closure resulted in a dead-end segment of Quint Street adjacent to the project site between the Caltrain railroad tracks and Jerrold Avenue. As described in Section 2.1.1.1, the SFPUC would acquire and permanently close this same block of Quint Street. This segment of Quint Street is proposed as a staging/parking area during construction. No improvements would be needed for use of Quint Street for construction staging.
- **Within Jerrold Avenue.** To maintain a safe construction work area, as part of the BDFP the SFPUC proposes a temporary closure of approximately two blocks of Jerrold Avenue to public through traffic (starting at the Caltrain right-of-way and up to the SEP entrance on Jerrold Avenue west of Phelps Street) during the five-year project construction period. During this time, the closed segment of Jerrold Avenue could be used as a staging/parking area. Emergency vehicles would be allowed access through Jerrold Avenue if requested by emergency providers during advance coordination. Trucks related to plant operations would continue to have access to the SEP via the main entrance on Jerrold Avenue outside of the construction area. No improvements would be needed for use of Jerrold Avenue for construction staging.
- **Port of San Francisco Properties.** The project could use up to 12 acres at Piers 94 and 96 for construction staging, on lands available for lease from the Port of San Francisco (shown on **Figure 2-13**). The area would be used as staging for construction office trailers, construction equipment and materials, and parking for construction worker vehicles. If the Piers 94 and 96 staging areas are used for construction work force parking, shuttle buses with seating for up to 50 passengers would transport workers between the parking area and the project site; **Figure 2-14** shows the proposed shuttle route. There would be up to 17 shuttle bus round trips at the beginning and end of each work shift, and during periods when there are two work shifts, there would be a morning, mid-day, and evening round trip for a maximum of 51 shuttle bus round trips per day. No staging areas would be located within 100 feet of the Bay shoreline or any known or potential wetlands.

[39] The Caltrain Quint Street Bridge Replacement Project permanently closed Quint Street between Oakdale Avenue and the Caltrain tracks in October 2015 for replacement of the existing Quint Street Bridge. Caltrain, Quint Street Project. Available online at http://www.caltrain.com/projectsplans/Projects/Caltrain_Capital_Program/Quint_Street_Project.html. Accessed on April 5, 2017.

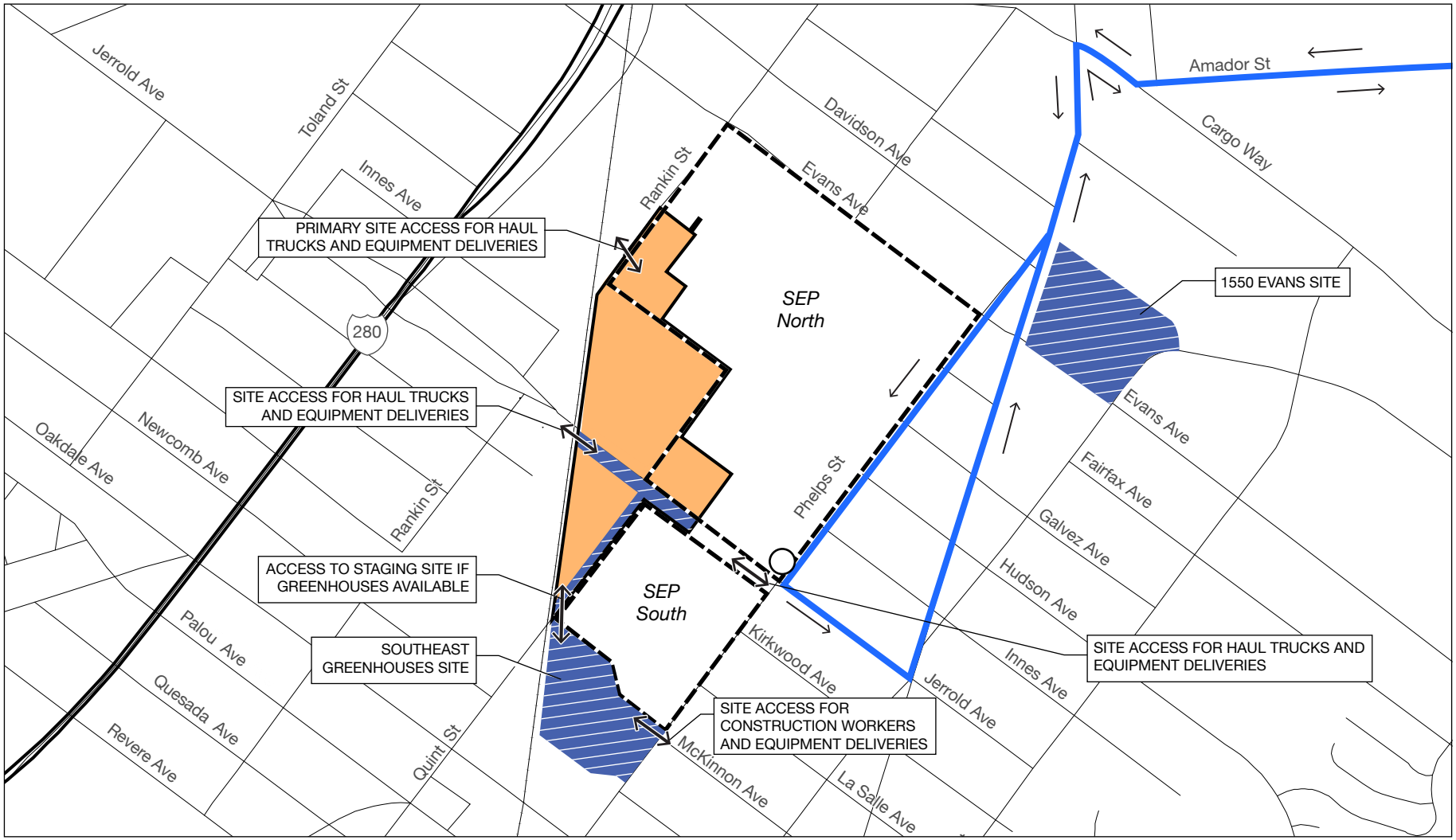
NOTE: Areas shown are approximate. The SFPUC may lease up to 12 acres from the Port of San Francisco within these areas.

SOURCE: Google Maps Imagery from 2015; ESA+Orion, data developed in 2016 for BDFP

SFPUC Biosolids Digester Facilities

Figure 2-13

Piers 94 and 96 Construction Staging Areas



SOURCE: SFPUC, BDFP Conceptual Engineering Report, March 2016, adapted by ESA+Orion

SFPUC Biosolids Digester Facilities

Figure 2-14

Construction Staging and Access Plan for Project Site

The Port of San Francisco has a number of sites available for leasing, including the following:

Pier 94 Backlands. The Pier 94 Backlands is an approximately 27-acre site located west of Amador Street, approximately 0.75 mile northeast of the SEP. This area is currently undeveloped and used for storage of soil and aggregate. As part of a separate project, the Port of San Francisco plans to spread gravel currently stockpiled at the site to create a gravel pad throughout the site, and to install solar lights, potable water, electricity, and compostable toilets. Wastewater would be collected in temporary restrooms and hauled to the SEP for treatment.

Pier 94 (East of Amador Street). This 4.8-acre paved area of Pier 94, extending east of Amador Street to the Bay, is currently used for construction staging for various other projects and storage of flatbed trailers, vehicles, and equipment. The use of this area may require installation of electric lines and potable water lines, which would likely remain following completion of construction.

Pier 96. The Pier 96 property is approximately 30.9 acres in size and extends from southeast of Jennings Street and Cargo Way to the eastern edge of the pier, which has several cranes for cargo ship loading/unloading. The site is divided by the access road to the Recology Recycle Central recycling facility located to the south of the potential staging area. The portion of the site to the east of the access road is an asphalt paved lot with traffic cones delineating the San Francisco Police Department (SFPD) emergency vehicle operations course. Trucks, containers, vehicles, and miscellaneous items (e.g., stacked wooden telephone poles) are stored around the edges of this portion of the proposed Pier 96 staging area. To the west of the access road, the staging area is occupied by the Pier 96 Administration Building, the MJB Steel rebar fabrication facility, and an unoccupied building that may have been a weigh station. The Pier 96 Administration Building has about six listed tenants, including the SFPD. Tenant parking areas are south of the building; police vehicles are parked to the east of the building. This EIR assumes the administration building and adjacent fabrication facility uses would continue throughout the project construction period. The use of this area may require installation of electric lines and potable water lines, which would likely remain following completion of construction.

- **Adjacent to the SEP at the Southeast Greenhouses (if available).** Another potential staging area is the SFPUC's four-acre site and currently occupied by the Southeast Greenhouses, southwest of the existing digester structures (as shown on Figure 2-14). The Southeast Greenhouses were originally constructed as part of a community measure for the legally mandated expansion of the SEP circa 1986 and are currently owned by the SFPUC. The greenhouse structures occupy approximately 113,000 square feet (2.6 acres) and are located at 1150 Phelps Street (Block 5304; Lots 01-08, 13, 16, 17, and 23), directly southwest of the existing digester structures. If the site becomes available, it would be used for parking, material storage, and/or office trailers. As the site is already connected to electricity, no new electric lines would need to be installed. However, temporary communication lines, potable water, a sewer line, lighting, fencing, and construction management office trailers may need to be set up or extended at the site. There would be no grading, excavation, or other ground disturbance at the site prior to its use as a staging area. Biosolids truck traffic (from the existing dewatering/loadout facility operations) may be rerouted through this area if available. The SFPUC has not yet determined if the site would be available for BDFP construction staging; staging and future use will depend upon the outcome of a separate community planning process for the rebuilding of the greenhouses. Therefore, future uses of this site are unknown

at this time and would be subject to separate environmental review; they are not evaluated in this EIR.

- **1550 Evans Avenue (if available).** Another potential staging area is an approximately 4.2-acre SFPUC property at 1550 Evans Avenue site, located at the northeast corner of Third Street and Evans Avenue, a few hundred feet east of the SEP. Two vacant buildings currently occupy the property: a 31,600-square-foot two-story office building and a 19,100-square-foot one-story warehouse building with a 2,930-square-foot office mezzanine. There are also eight warehouse loading bays and approximately 200 off-street parking spaces within the property. The property is surrounded on all four sides by landscaping trees, including a berm and trees along the Third Street frontage. The site is currently under consideration for other SFPUC uses. However, depending on the schedule for these other uses, the site could potentially become available for temporary construction staging for the BDFP. If the site becomes available, the existing structures would be demolished and the site would be used for materials staging, parking, and/or temporary office space. Trees within the fence line and near structures to be demolished would be removed. No trees would be removed within 30 feet of Third Street as there is an easement on this portion of the property.

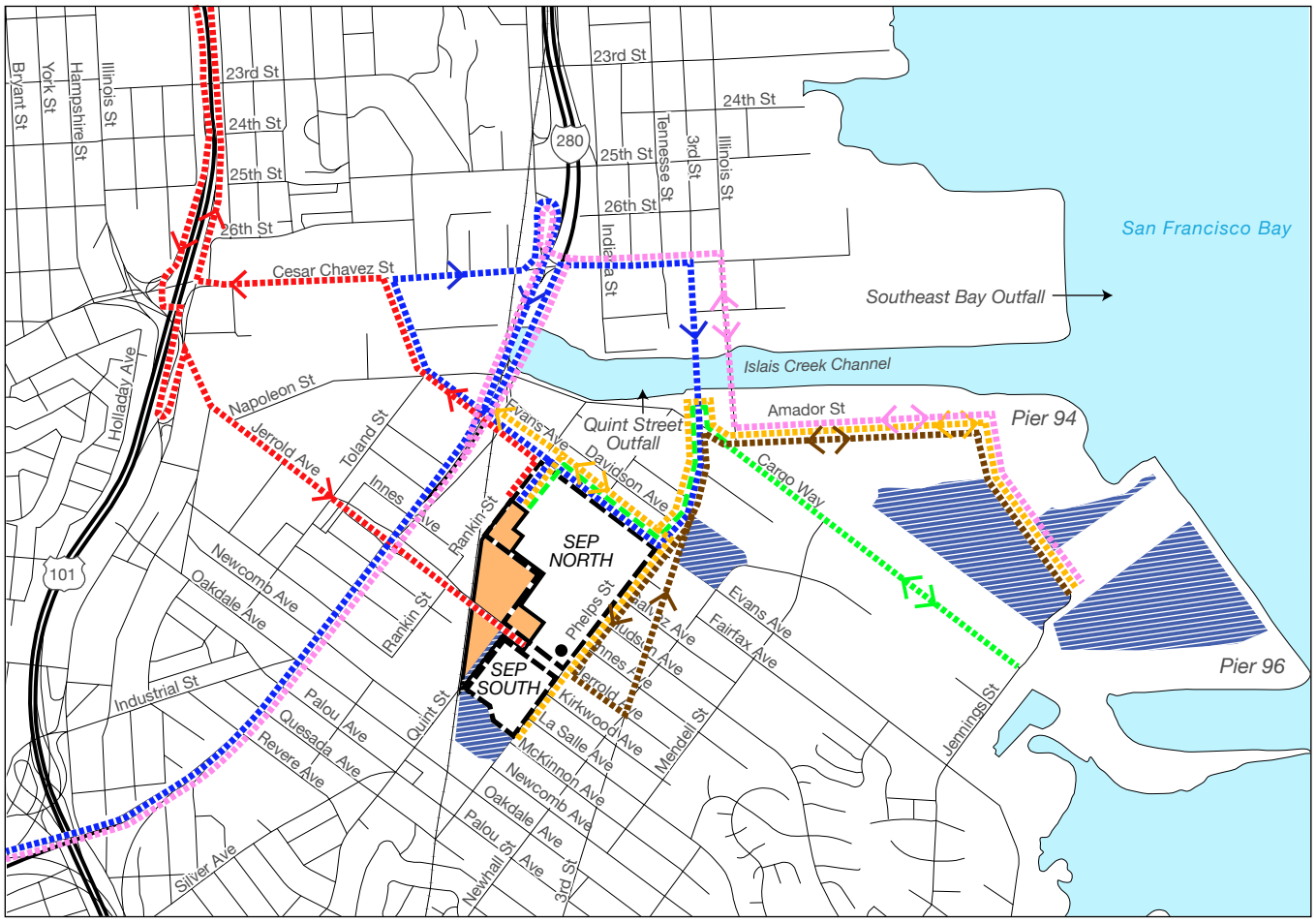
Construction worker parking would occur primarily at the Pier 94 Backlands or Piers 94 and 96 staging areas, and/or at the 1550 Evans Avenue site and the Southeast Greenhouses site, if available. For purposes of analysis in this EIR, the peak construction months in terms of maximum construction trucks and maximum construction workers were evaluated. Two conservative allocations of construction workers between the staging sites were also evaluated (see Chapter 4, Section 4.6, Transportation and Circulation). Potential construction staging area uses and activities are further detailed below.

2.6.2.1 Construction Truck and Delivery Access

The primary vehicle access route for construction haul trucks and deliveries to the project site would be via Rankin Street. Haul trucks are anticipated to travel from Rankin Street to Highway 101 and Interstate 280 using Evans Avenue and Cesar Chavez Street.[40] **Figure 2-15** depicts the anticipated construction haul and delivery truck routes to and from the project site and staging areas. Trucks delivering materials to the Piers 94 and 96 staging areas would likely travel from Highway 101 and Interstate 280 via Cesar Chavez Street, Illinois Street, and Amador Street. Deliveries from the Piers 94 and 96 staging areas would primarily travel to the Rankin Street entrance via Evans Avenue, Third Street, and Cargo Way. Deliveries to the Southeast Greenhouses staging area would travel to and from the site via Phelps Street.

During the construction period, with the closure of Jerrold Avenue, the normal SEP operational truck routes (shown on Figure 2-12) would be altered. **Figure 2-16** shows interim truck delivery and off-haul routes for SEP operations, including the existing solids treatment processes, for temporary use during the five-year construction period.

[40] These are the presumed truck routes because they represent the shortest logical route to freeways. Evans Avenue is identified as a route with significant truck traffic between Cesar Chavez Street and Jennings Street.



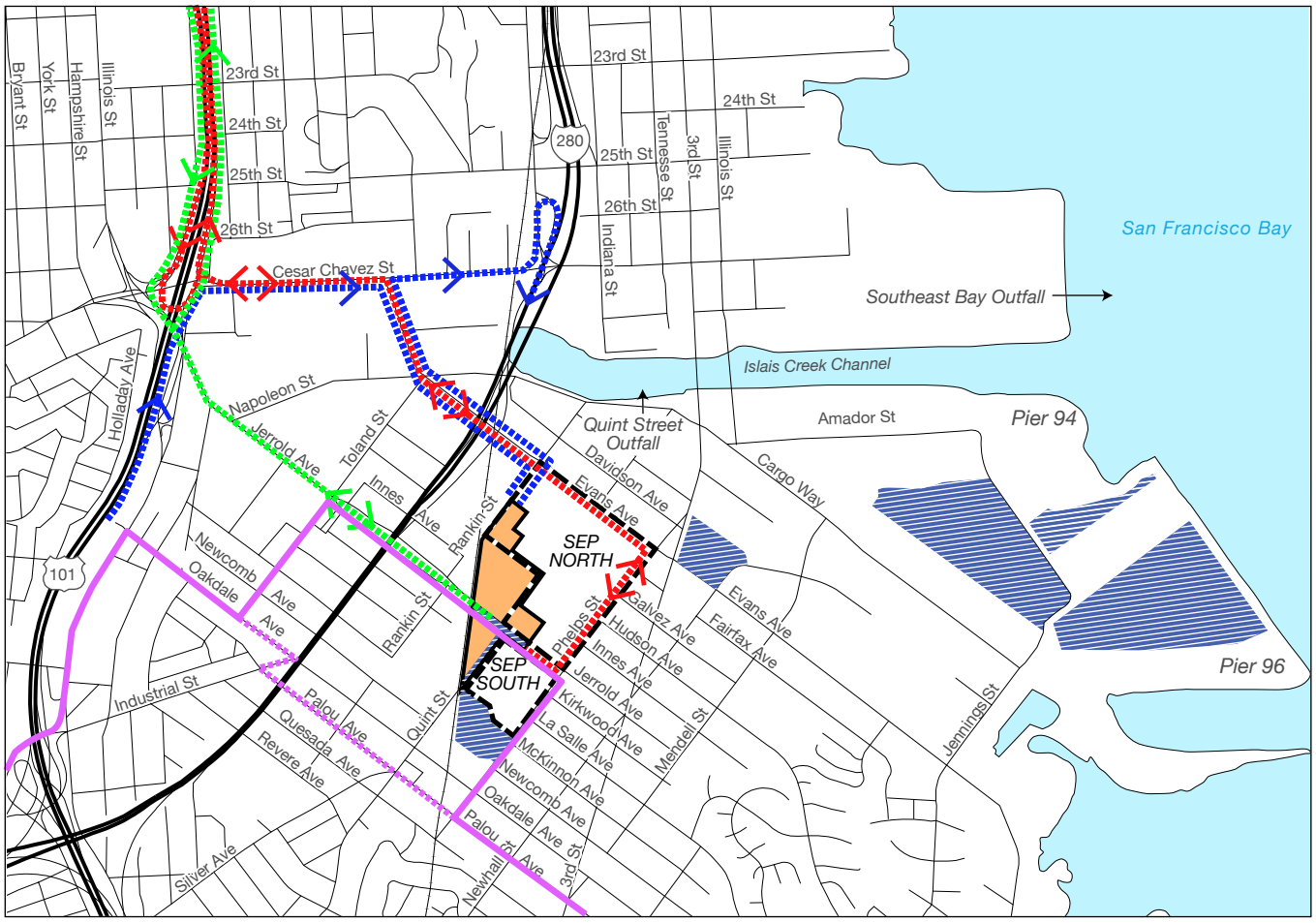
- SFPUC Southeast Plant (SEP) Boundary
- Project Site (Limited work at SEP North is also proposed to integrate liquid treatment facilities with BDFP facilities. In addition, street improvements would occur along Jerrold Avenue west of Phelps Street)
- Potential Construction Staging Areas (Staging may also occur within the existing SEP boundary)
- Excavated Soil (Altamont) and Lead/Asbestos Building Materials (Vacaville)
- Recyclable and Unrecyclable Materials (Half Moon Bay)
- Contaminated Excavated Soil (Rail Transfer)
- Equipment Deliveries and Concrete Trucks (These trips could originate within or outside of San Francisco; routes to and from the project site and staging areas would vary)
- Construction Worker Shuttle Bus
- Equipment Deliveries to Piers 94/96
- Shuttle Bus Stop

SOURCE: San Francisco Public Works 2005 GIS data;
Adavant Consulting and LCW Consulting, Data developed in 2016 for BDFP

SFPUC Biosolids Digester Facilities

Figure 2-15

Construction Haul Routes



SFPUC Southeast Plant (SEP) Boundary

Project Site (Limited work at SEP North is also proposed to integrate liquid treatment facilities with BDFP facilities. In addition, street improvements would occur along Jerrold Avenue west of Phelps Street)

Potential Construction Staging Areas
(Staging may also occur within the existing SEP boundary)

Biosolids Off Haul During Nighttime Hours (2:00 a.m. to 3:00 a.m.)

Chemical Delivery Trucks, Yellow Grease Loadout, and Biosolids Off Haul During Daytime Hours

Grit Trucks (Half Moon Bay), Screening Trucks (Recology)

Existing Muni 23 Monterey Route

Temporary Relocation of Muni 23 Monterey Route

SOURCE: San Francisco Public Works 2005 GIS data; Adavant Consulting and LCW Consulting, Data developed in 2016 for BDFP

SFPUC Biosolids Digester Facilities

Figure 2-16

SEP Operational Truck Routes During Project Construction

2.6.2.2 Temporary Relocation of Muni 23 Monterey Bus Route

Due to the proposed temporary closure of Jerrold Avenue during the construction period, the Muni 23 Monterey bus route would need to be relocated. As described further in Chapter 4, Section 4.6, Transportation and Circulation, for the purposes of this EIR, it is assumed that the temporary relocated route and stops would be on Oakdale and Palou Avenues (as shown on Figure 2-16), consistent with the Muni Forward implementation plan.[41] It is also assumed that this Muni line would return to Jerrold Avenue once construction is completed, since the schedule for the long-term relocation of the Muni 23 Monterey route is currently unknown.

2.6.3 Construction Equipment

Table 2-11 lists the types of equipment that would be used during construction. All equipment would be compliant with the San Francisco Clean Construction Ordinance. Further detail regarding scheduled use of listed equipment is included in Chapter, 4, Section 4.7, Noise and Vibration.

TABLE 2-11
CONSTRUCTION EQUIPMENT[a]

- Auger Drill Rig
- Backhoe, including large backhoe
- Bar Bender
- Boring Jack Power Unit
- Chain Saw
- Compactor
- Compressor
- Concrete Mixer Truck
- Concrete Pump Truck
- Concrete Saw
- Tower Crane
- Crawler Crane
- Demolition Hammer
- Dozer
- Drill Rig Truck
- Dump Truck
- Excavator
- Flat Bed Truck
- Front End Loader
- Generators
- Gradall 544D
- Grader
- Horizontal Boring Hydraulic Jack
- Impact Hammer
- Jackhammer (pneumatic)
- Man Lift
- Pickup Truck
- Pneumatic Tools
- Pumps
- Roller
- Scraper
- Shears

NOTES
[a] Pile driving would be accomplished using a crane and impact hammer.

SOURCE: SFPUC, *BDFP Conceptual Engineering Report*, March 2016.

2.6.4 Demolition of Existing Structures

Initial construction activities would include demolition of about 136,000 square feet of existing buildings and structures within the project site, as shown in **Table 2-12,** in order to make space for the BDFP facilities or for construction staging. **Figure 2-17** shows the location of the buildings proposed to be demolished. Structures to be demolished include the following currently utilized SEP facilities: Building 855 (office trailers), Building 870 (service building), Building 925 (pump stations), and Electrical Substations SS5A/5B. In addition, subsurface facilities remaining on the Asphalt Plant

[41] San Francisco Municipal Transportation Agency, Muni Forward, 2016. Available online at https://www.sfmta.com/projects-planning/projects/muni-forward-0. Accessed on March 21, 2016. For the citation specific to the Muni 23 Monterey route: https://www.sfmta.com/sites/default/files/routemaps/23%20Monterey.pdf

site would be removed during excavation for project construction.[42] The vacant office building and warehouse at 1550 Evans Avenue would also be demolished. Based on investigations conducted to date, two buildings at the Central Shops property (Buildings A and B) and one building at SEP North (Building 870, Service Building) proposed for demolition have been assessed as historic structures (see Chapter 4, Section 4.5, Cultural Resources).[43,44] Demolition, site preparation, and utility relocation activities are expected to take about six months, from approximately February 2018 to July 2018.

TABLE 2-12
EXISTING STRUCTURES PROPOSED FOR DEMOLITION OR RELOCATION[a]

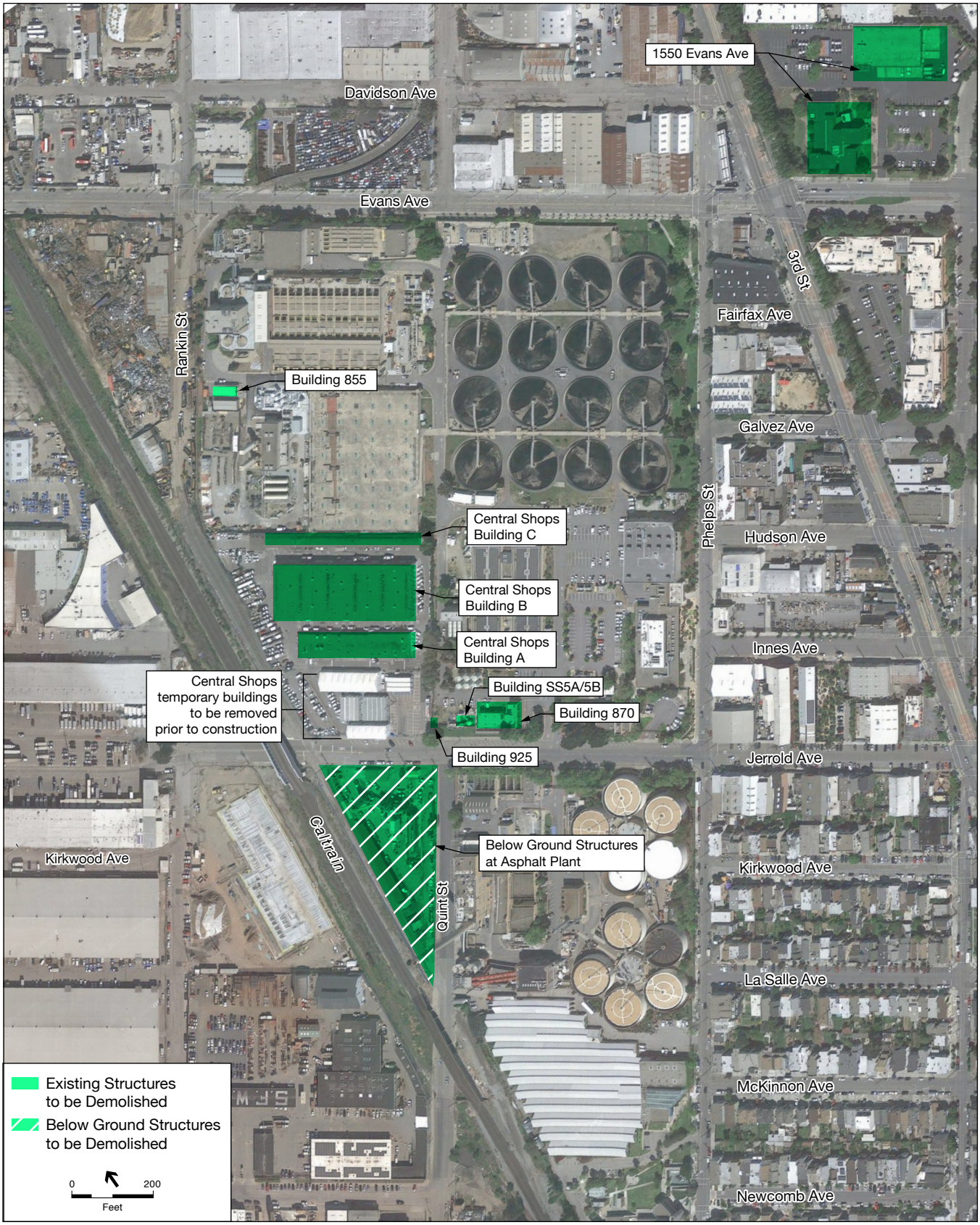
Building Name or Number		Existing Use	Year Built	Square Footage of Structures to be Demolished	Square Footage of Structures to be Relocated
Central Shops	Building A	Administration office, body shop, locker room	1959	16,200	--
	Building B	Car shop, truck shop, spray booth, welding shop, machine shop, tire shop	1959	50,000	--
	Building C	Repair, maintenance, smog check, storage. Former gas station facility.	1959	12,900	--
SEP North	Building 855[b]	Engineering Offices Annex	2009	--	3,200
	Building 870	Service Building	1952	3,800	
	Building 925	Water 1 and 2 Pump Stations	1981	1,600	
	SS5A/5B	Electrical substations	1980	800	
Belowground structures at Asphalt Plant site		Building piles, structural footings, underground storage tank	1954	n/a	
1550 Evans Avenue	Warehouse	Currently vacant	1978	19,100	--
	Office Building	Currently vacant	1978	31,600	--
Total Demolition / Relocation (approximate)				**136,000**	**3,200**

NOTES: n/a = not applicable

[a] Numbers rounded to the nearest 1,000 square feet (for demolition) and nearest 100 square feet (for relocation).
[b] Building 855 is a modular, temporary building that would be relocated elsewhere at the Southeast Water Pollution Control Plant (SEP) prior to construction.

SOURCE: SFPUC, Request for Information response regarding building demolition and construction details, e-mail from S. Chau, July 23, 2015.

[42] Aboveground asphalt plant facilities will be removed as part of a separate SFPUC project, prior to BDFP construction.
[43] JRP Historical Consulting, Department of Parks and Recreation Primary Record for 1800 Jerrold Avenue, August 20, 2014.
[44] ESA, Department of Parks and Recreation Primary Record for 750 Phelps Street, June 30, 2015.



SFPUC Biosolids Digester Facilities

Figure 2-17

Existing Structures to be Demolished

SOURCE: Google Maps Imagery from 2015; ESA+Orion, data developed in 2016 for BDFP

Note: Demolition of aboveground structures at the Asphalt Plant site to occur as part of the Land Reuse - 1801 Jerrold Avenue project (refer to Project No. 16 on Table 4.1-1).

Based on previous investigations of site buildings, demolition would require licensed removal and appropriate disposal of lead- and asbestos-containing building materials. Demolition debris would be recycled to the extent feasible and in accordance with Chapter 14 and Section 708 of the San Francisco Environment Code. The amount of demolition debris is estimated at 27,000 cubic yards, which is anticipated to consist of lead/asbestos building materials, recyclable materials (mostly metal, glass, and concrete), and non-recyclable materials. About 1,500 total truck loads would be needed to haul demolition debris to appropriate sites for disposal or recycling. Lead- and asbestos-containing debris would be hauled to the Recology Hay Road Landfill in Vacaville or to the Altamont Landfill in Livermore, as needed; other demolition debris would be hauled to the Republic Ox Mountain Landfill in Half Moon Bay. **Table 2-13** provides estimates of demolition volumes and truck loads from the BDFP site.

TABLE 2-13
DEMOLITION DEBRIS VOLUME AND TRUCK LOAD ESTIMATES

Area of the Project Site	Total Volume (cubic yards)	Total Truck Loads[a]			
		Lead/Asbestos Building Materials[b]	Recyclable Materials[c]	Non-Recyclable Materials[c]	Total[d]
Asphalt Plant (below-grade structures only)	5,000	93	93	93	280
Central Shops	11,000	205	205	205	615
Structures within Existing SEP North	7,000	130	130	130	390
1550 Evans Avenue buildings	4,000	75	75	75	225
Total [d]	***27,000***	***500***	***500***	***500***	***1,500***

NOTES: SEP = Southeast Water Pollution Control Plant

[a] Assumes a truck capacity of 18 cubic yards.
[b] The proposed disposal site for lead- and asbestos-containing building materials from demolition is the Recology Hay Road Landfill in Vacaville (about 65 miles from the project site) or the Altamont Landfill in Livermore (about 60 miles from the project site).
[c] The proposed destination for recyclable materials and non-recyclable waste from demolition is the Republic Ox Mountain Landfill in Half Moon Bay (about 24 miles from the project site).
[d] Numbers may not total due to rounding.

SOURCE: SFPUC, *BDFP Conceptual Engineering Report*, March 2016; SFPUC revised Tables A5 and A6, August 2016.

2.6.5 Site Preparation

2.6.5.1 Subsurface Construction, Pile Driving, and Retaining Walls

Construction would require substantial excavation and subsurface construction, particularly for the digesters. The digesters location would be excavated to approximately 41 feet bgs. Several other facilities would require excavation to 25 to 30 feet bgs, with the excavation depth generally 3 to 5 feet below the building foundation. Following demolition to clear the site, subsurface excavation support would be installed for structures within the project site. Structures at grade and near grade would need to be supported on deep foundations (e.g., driven, drilled, or augured piles). Deep foundations would also be required for partially buried structures (i.e., buildings with basements, odor control facilities, and utility tunnel and pipe chases).

For the digesters, a pile-supported foundation is not practical. The excavation support would consist of secant pile walls[45] or other system that allows for excavation of a pit approximately 40 feet deep and subsequent construction of the digesters. Contractors would construct a rectangular secant pile wall around the perimeter of the digesters to support the soil to facilitate excavation, limit groundwater intrusion, and provide a dry work area during construction. Secant pile walls would be installed using contiguous augur piles (to form a wall to support soil) to a maximum depth of 75 feet bgs. Due to soil loads and the depths of pits, secant pile tieback anchors likely would be used to secure the secant wall.[46] Tieback anchors would extend approximately 16 feet beyond the western project site boundary, approximately 50 to 60 feet beneath the Caltrain tracks. The tiebacks would remain in place after construction is complete. All remaining structures and equipment pads are assumed to be pile-supported. Based on current design estimates, the BDFP would require approximately 1,200 piles overall. (This estimate may change as design progresses.)

Methods for installing piles include drilling shafts (cast-in-drilled-hole piles/auger cast piles) and driving piles (likely pre-stressed concrete pile). Based on current geotechnical and design information, most of the piles would be drilled while piles for large-diameter pipes would be driven. The specific pile-driving equipment used would be identified by the contractor. The depth of the piles would be up to 75 feet bgs, depending on their individual locations.[47] In addition, temporary sheet piles may also be installed in some areas to provide support during construction.

2.6.5.2 Groundwater Dewatering

Most shallow excavations that do not extend below the young bay mud would either be shored with a temporary flexible support system such as sheet piles or soldier pile-and-lagging. Alternatively, the excavation sidewalls could be sloped. In either case, limited active dewatering systems such as use of a sump pump may be required to maintain a dry working space in these shallow excavations.

The excavation for the digesters would extend below the young bay mud and would be supported with a secant pile retaining wall system. This method of support reduces the infiltration of groundwater into the work area, results in less water to be disposed of, and makes it easier to maintain a dry construction site. Other deeper excavations that could extend beneath the young bay mud would be shored with a system such as a flexible wall system supported with tie backs or internal bracing.

[45] Secant pile walls are formed by constructing a series of overlapping concrete-filled drill holes surrounding the area to be excavated to avoid the intrusion of groundwater into the excavated pit. Secant piles are excavated by alternately advancing a temporary sectional casing and excavating the soil from inside the casing with drill tools. After a hole has been excavated to the design depth, it is filled with concrete and the casing is removed.

[46] Tieback anchors consist of a high-strength steel tendon (bar or strand) grouted into a drilled hole and tensioned against the secant pile wall.

[47] The depth of piles (installed either by drilling a shaft or pile driving) would vary based on location. For the purposes of current design, it is assumed that competent soil occurs at approximately 35 feet bgs throughout the entire site and that the piles would need to extend approximately 40 feet into competent soil; consequently, the depth of the piles would be about 75 feet bgs.

Deeper excavations may encounter groundwater under pressure, which could require more extensive dewatering to provide a dry work area and to reduce groundwater within the excavations.[48] The dewatering system in the deeper excavations would be designed to lower the groundwater and maintain relatively dry and firm working surface. The volume of groundwater produced during dewatering is not known. The groundwater would be tested and pre-treated, as required pursuant to City ordinances, prior to discharge into the combined sewer system for treatment at the SEP.

2.6.5.3 Utility Relocation

An existing 36-inch sewer line is within the proposed footprint for the digesters. The BDFP would remove segments of this pipeline, abandon in place pipeline segments outside the footprint of the digesters, and construct a replacement sewer line within the SEP using conventional open trench construction methods. Construction activities associated with the relocation of the 36-inch sewer would occur during the first six months of construction.

2.6.5.4 Soil Removal and Backfill

As noted above, soil would be excavated to different depths for different facilities. Some of the buildings would be at grade and others would be excavated between 25 and 30 feet below grade except for the digesters location, where soil would be excavated to a depth of about 41 feet. If suitable, excavated soils would be reused on-site as backfill. For the purposes of this EIR, it is assumed that some of the excavated soils would be unsuitable for reuse due to geotechnical or environmental considerations and thus would be hauled off-site. An estimated 190,000 cubic yards of soil, including an estimated 45,000 cubic yards of contaminated soil, would be removed and hauled off-site. The contaminated soil would be trucked approximately one mile to the Port of San Francisco transfer facility on Cargo Way (at Pier 94), from which it would be shipped by rail to the ECDC Landfill in Utah. Any soil that is not contaminated would be transported by truck to the Altamont Landfill in Livermore. Any asbestos-containing waste would be disposed of at either the Recology Hay Road Landfill or the Altamont Landfill, as needed. Backfilling would occur during and after foundation and structure installation. Preliminary investigations indicate that because existing on-site soils could be used as backfill, no additional fill material would need to be imported to the site for use as backfill.

Most site excavation would take approximately five months, from August through December 2018, during which time the most intensive truck traffic would occur. As summarized in **Table 2-14**, excavation would involve off-site transport of about 10,600 truck loads of soil from the project site during this period. At the peak of the soil excavation period, up to approximately 60 round trips (total of 120 truck trips) per day attributed to soil excavation would occur.

[48] As discussed in Chapter 4, Section 4.16, Hydrology and Water Quality.

TABLE 2-14
SOIL EXCAVATION VOLUME AND TRUCK LOAD ESTIMATES

	Quantity (cubic yards)	Truck Capacity (cubic yards)	Total Truck Loads[a]
Excavated Soil[b, c]	190,000	18	10,600

NOTES:
[a] The table entitled "Construction Trucks – Daily" in **Appendix TR** displays total number of truck trips for all aspects of construction (e.g., demolition, materials delivery, excavation).
[b] Only includes excavated soil for off-site hauling; some excavated soil would be reused on-site as backfill material.
[c] The proposed disposal site for the contaminated soil (approximately 45,000 cubic yards) is the ECDC Landfill in Utah. Soil would be transported via rail from the Port of San Francisco transfer facility. The remainder of the unsuitable soil would be transported to the Altamont Landfill.

SOURCE: SFPUC, *BDFP Conceptual Engineering Report*, March 2016; SFPUC revised Tables A5 and A6.

2.6.5.5 Tree Removal and Tree Protection Plan

As part of the BDFP construction activities, about 90 trees would be removed. Maps and tables contained in **Appendix BIO** depict trees to be removed, while Figure 2-11 (in Section 2.5) depicts proposed landscaping to be installed as part of the project. Consistent with standards contained in Article 16 of the San Francisco Public Works Code (described in Chapter 4, Section 4.14, Biological Resources), prior to project construction the SFPUC would retain a certified arborist to prepare a Tree Protection Plan where excavation, construction, or street work could occur within the dripline of trees. The Tree Protection Plan, which would be submitted to San Francisco Public Works for informational purposes, would document procedures for protecting trees, including but not limited to identification of tree protection zones, tree protection fencing at the dripline of the tree or as directed by a certified arborist to preclude work in this area including any staging of heavy equipment or materials, and monitoring requirements.

2.6.5.6 Water Use During Construction

During construction, recycled water would be used for dust control on roads and streets consistent with Article 21 of the Public Works Code and with Title 22 California Code of Regulations, Division 4. The SEP recycled water fill station located on Quint Street directly adjacent to the project site provides safe, disinfected recycled water for these uses. Article 21 of the Public Works Code restricts the use of potable water for soil compaction and dust control activities associated with construction and requires that recycled water, well water, or groundwater be used. Title 22 California Code of Regulations, Division 4, allows use of recycled water for dust control on roads and streets; backfill consolidation around non-potable piping; soil compaction; and cleaning of roads, sidewalks, and outdoor work areas. However, pursuant to state regulations, SEP recycled water cannot be used for demolition, pressure washing, or dust control through aerial spraying. In addition, due to high salinity, SFPUC guidelines do not allow SEP recycled water to be used for mixing concrete.

2.6.6 Facilities Construction

The largest construction effort associated with the BDFP would be the construction of the digesters, as described below. The digester foundation and substructure construction would take about two years, from October 2018 through January 2021. The aboveground portion of the digester facilities would take another two years (until January 2023) to complete.

2.6.6.1 Digesters

Once the secant pile wall is in place, a base slab, ring wall, and top slab would be constructed to form the digester foundation. The digesters would then be built within the ring wall. With the silo-shaped digester design, a reinforced concrete cone that serves as the digester floor would be constructed underground. Additional seismic cables would then be installed to provide a connection between the base and the digester walls. The silo digester likely would use a cast-in-place concrete core wall with a dome cover. After digester foundations are in place, the digester excavation could be backfilled to the surface with suitable fill materials.

2.6.6.2 Other Facilities

Most other facility foundations and superstructures would be constructed using standard techniques involving reinforced concrete, steel, and architectural treatments. The final construction stage would include installing equipment within the buildings and connecting electrical systems and mechanical equipment. Many of the proposed facilities (e.g., the THP, Solids Odor Control Facility transformers, chemical tanks, switchgears, and digester gas storage) would be installed on concrete pads and would not be enclosed within buildings.

2.6.7 SFPUC Standard Construction Measures

The SFPUC has adopted[49] standard construction measures to reduce potential environmental effects during construction. The standard construction measures apply to all SFPUC-sponsored projects, including the BDFP, and would be implemented during project construction. Presented in Appendix SCM of this EIR, these standard construction measures include seismic and geotechnical studies, air and water quality measures, traffic and noise control measures, hazardous materials measures, biological resources screening measures for special-status species and/or migratory birds, visual and aesthetic considerations, and cultural resources measures. In some cases (e.g., for cultural resources), SFPUC's standard construction measures would be superseded by mitigation measures developed by the Planning Department for the BDFP.

[49] SFPUC standard construction measures were originally adopted in August, 2006, and were updated most recently as directed by the General Manager in July 2015.

2.7 Intended Uses of this EIR and Required Actions and Approvals

This EIR is intended to provide the information and describe the environmental consequences of the project in accordance with CEQA requirements for public disclosure and to assist public agency decision-makers in considering the approvals necessary for implementing the project. The permits and approvals anticipated to be required from federal, state, and local agencies are listed below. The SFPUC would also obtain any other regulatory approvals as required by law.

2.7.1 Federal Actions and Approvals

- United States Environmental Protection Agency:
  - Consideration for Water Infrastructure Finance and Innovation Act loan and review of environmental review requirements that must be completed to apply for a loan

2.7.2 State Actions and Approvals

- State Water Resources Control Board:
  - Construction General Permit and Stormwater Pollution Prevention Plan, if more than one acre of land were disturbed[50]
  - Consideration for Clean Water State Revolving Fund loan and review of environmental review requirements that must be completed to apply for a loan
- State Historic Preservation Officer:
  - Review under Section 106 of the National Historic Preservation Act (as part of the Water Infrastructure Finance and Innovation Act and State Revolving Fund loan application process)

2.7.3 Regional and Local Actions and Approvals

- San Francisco Planning Commission: Certification of the BDFP Final EIR
- San Francisco Public Works (SFPW): Approval of Sidewalk Changes (SFDPW Order) and Street Improvement Permit
- San Francisco Department of Public Health: Approval of Site Mitigation Plan
- San Francisco Board of Supervisors: Approval of Sidewalk Legislation (if needed)
- San Francisco Municipal Transportation Agency: Approval of On-Street Parking Legislation (if needed)
- San Francisco Public Utilities Commission:
  - Adoption of CEQA Findings and Mitigation Monitoring and Reporting Program
  - Approval of the BDFP
- Bay Area Air Quality Management District: Authority to Construct and Permit to Operate
- San Francisco Port Commission: Approval of use of Pier 94 and Pier 96 for construction staging

[50] Applicable to areas that do not drain to the City's combined sewer system; therefore, not applicable to the project site but potentially applicable to the Piers 94 and 96 staging areas.

CHAPTER 3
Plans and Policies

3.1 Overview

Pursuant to the California Environmental Quality Act (CEQA) Guidelines Section 15125(d), this chapter describes land use plans and policies that may apply to the Biosolids Digester Facilities Project (BDFP or project) and discusses potential inconsistencies between the project and applicable plans. Policy conflicts do not, in and of themselves, indicate a significant environmental effect within the context of CEQA environmental review, in that the intent of CEQA is to determine physical effects associated with a project. Many of the plans of the City and County of San Francisco (CCSF or City) and the other relevant jurisdictions contain policies that address multiple goals pertaining to various resource areas. To the extent that physical environmental impacts of the project could result from conflicts with one of the goals related to a specific resource topic, such impacts are analyzed in this environmental impact report (EIR) in the respective topical sections in Chapter 4, such as Section 4.5, Cultural Resources; Section 4.6, Transportation and Circulation; Section 4.7, Noise and Vibration; Section 4.8, Air Quality; Section 4.9, Greenhouse Gas Emissions; and Section 4.14, Biological Resources.

Land use plans typically contain numerous policies emphasizing differing legislative goals, and an interpretation of consistency requires a balanced understanding of relevant policies. The board or commission that adopted the plan determines the meaning of such policies and how individual projects satisfy those policies at the time it considers approval of the project. Whether a project is consistent with particular plans will be determined at the time of project approval by the agency charged with making that consistency determination. In the case of this project, the San Francisco Planning Department and Planning Commission will evaluate the project in accordance with the *San Francisco General Plan* (General Plan) including the *Bayview Hunters Point Area Plan*, the Accountable Planning Initiative, the *San Francisco Bicycle Plan*, the *Climate Action Plan*, and the *San Francisco Better Streets Plan*. The San Francisco Public Utilities Commission (SFPUC) will evaluate the project in accordance with relevant SFPUC policies described below. Use of the off-site staging areas at Piers 94 and 96 will be evaluated by the Port of San Francisco for consistency with its *Waterfront Land Use Plan*. In each case, the approving or reviewing agency will consider any potential inconsistencies between the project and adopted plans or policies in the context of applicable objectives and policies and will determine consistency based on a balancing of relevant policies as part of the approval process.

Section 2.7 in Chapter 2, *Project Description*, describes approval requirements for the BDFP. Topical sections in Chapter 4, *Environmental Setting and Impacts*, describe resource-specific plans and policies relevant to the project.

3.2 Plans and Policies Relevant to the BDFP

3.2.1 CCSF Plans and Policies

The project is subject to the *San Francisco General Plan*, as amended; the *Bayview Hunters Point Area Plan*, which is part of the General Plan and provides policies and objectives for the Bayview Hunters Point area of San Francisco; the Accountable Planning Initiative, which establishes priority policies to guide decision-makers in balancing the objectives of the General Plan; the *San Francisco Bicycle Plan*, which includes a citywide transportation plan and specific bicycle improvements; the *Climate Action Plan*, which sets greenhouse gas reduction targets and describes recommended emissions reduction actions; and the *Better Streets Plan*, which creates a unified set of standards, guidelines, and implementation strategies for the City's public streets and rights-of-way.

3.2.1.1 San Francisco General Plan

The General Plan[1] provides general policies and objectives to guide land use decisions. The General Plan contains 10 elements—Commerce and Industry, Recreation and Open Space, Housing, Community Facilities, Urban Design, Environmental Protection, Transportation, Air Quality, Community Safety, and Arts—that set forth goals, policies, and objectives for the physical development of San Francisco.

The project would not be obviously or substantially inconsistent with any General Plan goals, policies, or objectives. There is one relevant objective, and one policy under this objective, that directly applies to the BDFP. Specifically, the project would further Community Facilities Element Objective 10: "Locate wastewater facilities in a manner that will enhance the effective and efficient treatment of storm and wastewater"; and Policy 10.1: "Provide facilities for treatment of storm and wastewater prior to discharge into the Bay or ocean. Locate such facilities according to the Wastewater and Solid Waste Facilities Plan." The Wastewater and Solid Waste Facilities Plan (Map 5 of the Community Facilities Element) identifies the general boundaries of the Southeast Water Pollution Control Plant (Southeast Plant or SEP).

The consistency of the project with General Plan goals, policies, and objectives will be considered by decision-makers as part of their assessment of whether to approve or disapprove the project. Any potential inconsistencies identified as part of this process would not alter the physical environmental effects of the project.

[1] City and County of San Francisco, *San Francisco General Plan*, 1996. Available online at http://generalplan.sfplanning.org/. Accessed March 29, 2017.

3.2.1.2 Bayview Hunters Point Area Plan

The *Bayview Hunters Point Area Plan*,[2] an area plan within the General Plan, is the CCSF's plan for the Bayview Hunters Point area of San Francisco. The *Bayview Hunters Point Area Plan* includes objectives and policies pertaining to the area covered by the plan. These objectives and policies address land use, transportation, housing, commerce, industry, urban design, recreation and open space, community facilities and services, public safety, and energy. The plan area encompasses the southeastern portion of San Francisco and is bounded roughly by Cesar Chavez Street to the north, Bayshore Boulevard/U.S. Highway 101 to the west, and San Francisco Bay to the northeast, east, and south. The project site is in the northwest part of the plan area, within the Northern Gateway activity node identified by the plan. The potential staging area at the Southeast Greenhouses is within the Town Center activity node identified by the plan. The plan assigns the Public Facilities and Light Industrial land use designations to the project site. The plan designates the Southeast Greenhouses staging area as Light Industrial. The Piers 94 and 96 staging areas are designated as Maritime Industrial and identified as Port land in the plan. The plan also identifies this area as a "required soil testing zone" for hazardous materials. Regarding land use planning for Piers 94 and 96, refer also to the *Waterfront Land Use Plan* discussed below.

The project would not be obviously or substantially inconsistent with any *Bayview Hunters Point Area Plan* objectives or policies. The relevant objectives and policies address issues such as improving the relationship between industry and housing, managing traffic, preserving residential neighborhoods, and implementing energy conservation programs.

3.2.1.3 Accountable Planning Initiative

In November 1986, the voters of San Francisco approved Proposition M, the Accountable Planning Initiative, which added Section 101.1 to the Planning Code[3] to establish the following eight priority policies:

1. Preservation and enhancement of neighborhood-serving retail uses
2. Protection of neighborhood character (see Section 4.2, Land Use; Section 4.3, Aesthetics; and Section 4.5, Cultural Resources)
3. Preservation and enhancement of affordable housing
4. Prevention of commuter automobiles from impeding Muni transit service or overburdening streets or neighborhood parking (see Section 4.6, Transportation and Circulation)
5. Protection of industrial and service land uses from commercial office development and enhancement of resident employment and business ownership

[2] San Francisco Planning Department, *Bayview Hunters Point Area Plan*, amended on June 3, 2010. Available online at http://www.sf-planning.org/ftp/General_Plan/Bayview_Hunters_Point.htm. Accessed on August 12, 2015.

[3] City and County of San Francisco, San Francisco Planning Code, Section 101.1, 2015. Available online at http://library.amlegal.com/nxt/gateway.dll/California/planning/planningcode?f=templates$fn=default.htm$3.0$vid=amlegal:sanfrancisco_ca$anc=JD_Planning. Accessed on October 29, 2015.

6. Maximization of earthquake preparedness (see Section 4.15, Geology, Soils, and Paleontological Resources)

7. Landmark and historic building preservation (see Section 4.5, Cultural Resources)

8. Protection of parks and open space and their access to sunlight and vistas (see Section 4.3, Aesthetics; Section 4.10, Wind and Shadow; and Section 4.11, Recreation)

Prior to issuing a permit for any project that requires an Initial Study under CEQA, or issuing a permit for any demolition, conversion, or change of use, and prior to taking any action that requires a finding of consistency with the General Plan, the CCSF is required to find that the project would be consistent with these priority policies.

The project would not be obviously or substantially inconsistent with the priority policies, with the potential exception of Policy 7 regarding landmark and historic building preservation. Section 4.5, Cultural Resources, identifies the project's impact on historical resources as significant and unavoidable, and identifies a mitigation measure to reduce the severity of the impact; see Section 4.5 for further discussion.

3.2.1.4 San Francisco Bicycle Plan

In August 2009, the Board of Supervisors approved the *San Francisco Bicycle Plan*[4] (Bicycle Plan), which includes a citywide bicycle transportation plan (comprising a Policy Framework and a Network Improvement document). The Bicycle Plan contains objectives and identifies policy changes to enhance bicycle access and safety with respect to San Francisco's "bike-ability." It also describes the existing bicycle route network (a series of interconnected streets in which bicycling is encouraged)[5] and identifies gaps within the citywide bicycle route network that require improvement. The 2009 Bicycle Plan updates the 1997 Bicycle Plan. The final EIR analyzing the Bicycle Plan assessed 56 short-term and long-term bicycle improvement projects.

In the vicinity of the project site and the off-site staging areas, the Bicycle Plan identifies Evans Avenue, Phelps Street, and Oakdale Avenue as being part of the existing bicycle route network, and recommends near-term bicycle improvement projects (bicycle lanes) on Cargo Way, long-term bicycle improvement projects on Jennings Street, and minor improvements as necessary to the bicycle route network on Third Street.

The project would not result in a significant impact on bicycle travel during construction or operation, as discussed in Section 4.6, Transportation and Circulation. As a result, the project would not be expected to impede implementation of the Bicycle Plan.

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[4] San Francisco Municipal Transportation Agency, *San Francisco Bicycle Plan*, June 26, 2009. Available online at https://www.sfmta.com/projects-planning/projects/2009-san-francisco-bicycle-plan.

[5] In describing the bicycle route network, the Bicycle Plan (page 1-1) states as follows: "The facilities along the bicycle route network should include conventional treatments depending on the design of the bicycle improvements and conditions such as…off-street bicycle and mixed-use paths…bicycle lanes…on-street signed bicycle routes…shared roadway bicycle markings (sharrows)…[and]..traffic-calmed streets."

3.2.1.5 Climate Action Plan

In February 2002, the San Francisco Board of Supervisors passed the Greenhouse Gas Emissions Reduction Resolution (Number 158-02) committing the CCSF to a greenhouse gas (GHG) emissions reductions goal of 20 percent below 1990 levels by the year 2012. The resolution also directed the San Francisco Department of the Environment, the SFPUC, and other appropriate City agencies to complete and coordinate an analysis and planning of a local action plan targeting GHG emission reduction activities. In September 2004, the Department of the Environment and the SFPUC published the *Climate Action Plan for San Francisco: Local Actions to Reduce Greenhouse Gas Emissions (Climate Action Plan)*[6] The *Climate Action Plan* examines the causes of global climate change and human activities that contribute to global warming and provides projections of climate change impacts on California and San Francisco from recent scientific reports; presents estimates of San Francisco's baseline GHG emissions inventory and reduction targets; describes recommended emissions reduction actions in the key target sectors—transportation, energy efficiency, renewable energy, and solid waste management—to meet stated goals by 2012; and presents next steps required over the near term to implement the plan. Although the Board of Supervisors has not formally committed the City to perform the actions addressed in the *Climate Action Plan*, and many of the actions require further development and commitment of resources, the plan serves as a blueprint for GHG emission reductions, and several actions are now in progress. The *Climate Action Plan* cites an array of potential environmental impacts on San Francisco from climate change, including rising sea levels that could threaten coastal wetlands, infrastructure, and property; increased storm activity that could increase beach erosion and cliff undercutting; warmer temperatures that could result in more frequent El Niño storms causing more rain than snow in the Sierra, reducing snow pack that is an important source of the region's water supply; decreased summer runoff and warming ocean temperatures that could affect salinity, water circulation, and nutrients in the Bay, potentially altering Bay ecosystems; other possible effects on food supply and the viability of the state's agricultural system; possible public health effects related to degraded air quality and changes in disease vectors; and other social and economic impacts.

The plan presents estimates of San Francisco's baseline GHG emissions inventory and reduction targets. It indicates that burning fossil fuels in vehicles and for energy use in buildings and facilities are the major contributors to San Francisco's GHG emissions. The plan includes GHG reduction strategies such as targeting emission reductions from fossil fuel use in cars, power plants, and commercial buildings; developing renewable energy technologies; and expanding residential and commercial recycling programs. The plan recognizes that achieving these goals will require the cooperation of a number of different City agencies. Chapter 4, Section 4.9, Greenhouse Gas Emissions, presents an analysis of potential project effects on global warming and GHG emissions.

[6] San Francisco Department of the Environment/San Francisco Public Utilities Commission. 2004. *Climate Action Plan for San Francisco: Local Actions to Reduce Greenhouse Gas Emissions*. September 2004. Available online at: http://www.sfenvironment.org/sites/default/files/fliers/files/climateactionplan.pdf.

3.2.1.6 Better Streets Plan

The *San Francisco Better Streets Plan* (*Better Streets Plan*)[7] was adopted in 2010 to support the City's efforts to enhance the streetscape and the pedestrian environment. Consisting of two major components, the Streetscape Master Plan and the Pedestrian Transportation Master Plan, the *Better Streets Plan* classifies the City's public streets and rights-of-way and creates a unified set of standards, guidelines, and implementation strategies, which govern how the City designs, builds, and maintains its public streets and rights-of-way. Major concepts applicable to the BDFP include (1) pedestrian safety and accessibility features, such as enhanced pedestrian crossings, corner or midblock curb extensions, pedestrian countdown and priority signals, and other traffic calming measures; (2) universal pedestrian-oriented streetscape design with incorporation of street trees, sidewalk plantings, streetscape furnishing, street lighting, efficient utility location for unobstructed sidewalks, shared single surface for small streets/alleys, and sidewalk/median pocket parks; and (3) integrated pedestrian/transit functions using bus bulb-outs and boarding islands (bus stops located in medians within the street). (Please see Section 2.4.2 in Chapter 2, *Project Description*, for a description of long-term improvements to Jerrold Avenue that would occur in accordance with the *Better Streets Plan* and Section 4.6, Transportation and Circulation, for an analysis of the project's impacts on pedestrian circulation.)

3.2.2 SFPUC Plans and Policies

The SFPUC's 2011 *Strategic Sustainability Plan*[8] provides a framework for planning, managing, and evaluating SFPUC-wide performance, taking into account the long-term economic, environmental, and social impacts of the SFPUC's business activities. This plan consists of a "Durable Section" that contains goals, objectives, and performance indicators to implement the SFPUC's vision and values. The goals and objectives are then used to drive the Sustainability Plan's "Dynamic Section," which contains specific actions, targets, measures, and budgeting. The SFPUC uses this document to evaluate its performance semiannually, to provide an annual score card, and to help the SFPUC measure progress on an annual basis. The plan contains objectives to "optimize planning to meet water, wastewater, and power demand" and "improve capital facilities through construction," with actions to "complete planning for the Sewer System Improvement Program (SSIP)" and "prioritize sewer replacement (SSIP) and begin the increase of sewer replacement."

3.2.3 Other Plans

The proposed off-site staging areas at Piers 94 and 96 are owned by the Port of San Francisco (Port) and addressed in whole or in part in the Port's *Waterfront Land Use Plan*, the San Francisco Bay Conservation and Development Commission's (BCDC) *San Francisco Bay Plan*, the BCDC/ Metropolitan Transportation Commission (MTC) *San Francisco Bay Area Seaport Plan*, and the BCDC *San Francisco Waterfront Special Area Plan*.

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7 City and County of San Francisco, *San Francisco Better Streets Plan,* adopted on December 7, 2010. Available online at http://www.sf-planning.org/ftp/BetterStreets/proposals.htm#Final_Plan.

8 SFPUC, *Strategic Sustainability Plan*, March 2011. Available online at http://www.sfwater.org/modules/showdocument.aspx?documentid=987.

3.2.3.1 Waterfront Land Use Plan

The Port's *Waterfront Land Use Plan*,[9] initially adopted by the Port Commission in 1997, defines acceptable uses and policies, and provides land use information applicable to properties under the Commission's jurisdiction. The plan contains goals and general land use policies, along with objectives and development standards for defined subareas of the port.

The *Waterfront Land Use Plan* designates part of the proposed staging areas (Pier 94 Backlands) as a "Waterfront Mixed Use Opportunity Area" and identifies portions of the areas as either "Existing Maritime Areas" or "Maritime Expansion Areas." The proposed use of these areas for construction staging would be an interim use that would not be inconsistent with *Waterfront Land Use Plan* policies. The plan contains policies encouraging interim uses as a means of generating revenues and reserving maritime properties that are not currently in demand. In its "General Policies for Areas South of China Basin Channel," where the proposed staging areas are located, the plan allows interim uses generally for periods of one to ten years and requires compliance with all existing environmental regulations (e.g., restrictions on noise, emissions, and transportation congestion).

3.2.3.2 San Francisco Bay Plan

BCDC's *San Francisco Bay Plan*[10] generally applies to San Francisco Bay and a 100-foot-wide band of shoreline along the Bay. The Bay Plan contains policies that address fish, other aquatic organisms, and wildlife; water quality; water surface area and volume; tidal marshes and tidal flats; smog and weather; shell deposits; fresh water inflow; subtidal areas; climate change; safety of fills; shoreline protection; dredging; water-related industry; ports; airports; transportation; commercial fishing; recreation; public access; appearance, design, and scenic views; salt ponds; managed wetlands; other uses of the Bay and shoreline; fills in accord with the Bay Plan; mitigation; public trust; and navigational safety and oil spill prevention. The proposed staging areas are not within the BCDC's 100-foot-wide shoreline band. The Bay Plan designates portions of the Piers 94 and 96 staging areas for "port priority" use. The Bay Plan contains a policy stating that, on land reserved for port use, "other uses may be allowed in the interim that, by their cost and duration, would not preempt future use of the site for water-related industry or port use." The proposed interim uses of the Piers 94 and 96 staging areas staging would not be obviously or substantially inconsistent with the Bay Plan.

3.2.3.3 San Francisco Bay Area Seaport Plan

The *San Francisco Bay Area Seaport Plan*[11] is the product of a cooperative planning effort of MTC and BCDC. The Seaport Plan constitutes the maritime element of MTC's *Regional Transportation Plan* and is incorporated into BCDC's *San Francisco Bay Plan*, where it is the basis of the Bay Plan port policies. MTC uses the Seaport Plan to assist in making project funding decisions and managing the

[9] Port of San Francisco, *Waterfront Land Use Plan*, 1997, revised version October 2009. Available online at http://www.sfport.com/index.aspx?page=199.

[10] BCDC, *San Francisco Bay Plan*, 1969 (with periodic amendments). Available online at http://bcdc.ca.gov/pdf/bayplan/bayplan.pdf.

[11] BCDC/MTC, *San Francisco Bay Area Seaport Plan*, April 18, 1996 as amended through January 2012. Available online at http://www.bcdc.ca.gov/seaport/seaport.pdf.

metropolitan transportation system, and BCDC uses the Seaport Plan to help guide its regulatory decisions on permit applications, consistency determinations, and related matters.

The Seaport Plan designates a portion of the proposed construction staging areas at Piers 94 and 96 as a "port priority use area." For port priority use areas, the Seaport Plan contains a policy stating the following:

> Interim uses should be of a nature that allow [*sic*] the site to be converted to port use when it is needed for marine terminal development or other port priority use. The length of the interim use period should be determined on a case-by-case basis for each site and proposed use. Factors to be considered in determining the length of the interim use should include, but are not limited to: (1) the amortization period of investments associated with the proposed use; (2) the lead time necessary to convert the site to the designated marine terminal or port use; and (3) the need for the site as measured by the Bay Area volume of the cargo type specified to be handled at that site and the available capacity at other ports in the Bay Area to accept the specified cargo.

An additional policy states that "no Bay fill should be authorized for interim uses that are not water-oriented."

3.2.3.4 San Francisco Waterfront Special Area Plan

BCDC's *San Francisco Waterfront Special Area Plan*[12] (April 1975, as amended through April 2012) applies the requirements of the McAteer-Petris Act and the provisions of the *San Francisco Bay Plan* to the San Francisco waterfront in greater detail. The *San Francisco Waterfront Special Area Plan* designates a portion of the proposed construction staging areas (Pier 94 staging area east of Amador Street and Pier 96) as a "port priority area." In this area, the plan permits maritime and public access uses on new or replacement fill, and states that "development permitted in this area should be consistent with the provisions of the Seaport Plan."

3.2.4 Regional Plans and Policies

Plan Bay Area,[13] which includes the region's Sustainable Communities Strategy, is a collaboration led by the Association of Bay Area Governments (ABAG) and MTC, in partnership with the Bay Area Air Quality Management District (BAAQMD) and BCDC. *Plan Bay Area*, adopted by ABAG and MTC in July 2013, is the region's first integrated land use and transportation plan, combining elements of ABAG's former Projections series of housing and employment growth forecasts and MTC's former stand-alone *Regional Transportation Plan*. The plan calls for concentrating housing and job growth around transit corridors, particularly within areas identified by local jurisdictions as Priority Development Areas. *Plan Bay Area* also specifies strategies and investments to maintain, manage, and improve the region's multi-modal transportation network, and proposes transportation projects and

[12] BCDC, *San Francisco Waterfront Special Area Plan,* April 1975, as amended through April 2012. Available online at http://www.bcdc.ca.gov/sfwsap/SFWSAP_Final_2012.pdf.

[13] ABAG/MTC, *Plan Bay Area: Regional Transportation Plan and Sustainable Communities Strategy for the San Francisco Bay Area, 2013-2040*, adopted July 18, 2013. Available online at http://files.mtc.ca.gov/pdf/Plan_Bay_Area_FINAL/Plan_Bay_Area.pdf.

programs to be implemented with reasonably anticipated revenue. The plan will be updated every four years. The project site and potential staging areas, like much of eastern San Francisco, are within a Priority Development Area, where growth is anticipated and planned for near transit.

Other regional plans pertinent to the project include:

- BAAQMD's 2010 *Clean Air Plan*[14] (2010 CAP) demonstrates how the San Francisco Bay Area will reduce emissions and decrease concentrations of harmful air pollutants, achieve compliance with the state ozone standards, and reduce the transport of ozone and ozone precursors to neighboring air basins. Refer to Section 4.8, Air Quality, for further discussion of the 2010 CAP.

- The San Francisco Regional Water Quality Control Board (RWQCB) *Water Quality Control Plan for the San Francisco Bay Basin*[15] (commonly referred to as the Basin Plan) guides water quality control planning in the San Francisco Bay Basin. The Basin Plan designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes implementation programs to achieve water quality objectives. Refer to Section 4.16, Hydrology and Water Quality, for further discussion of the Basin Plan.

[14] BAAQMD, Clean Air Plan, 2010. Available online at http://www.baaqmd.gov/plans-and-climate/air-quality-plans/current-plans. As described in Section 4.8, Air Quality, the 2010 CAP is being updated.

[15] RWQCB, *Water Quality Control Plan for the San Francisco Bay Basin,* approved March 20, 2015.Available online at http://www.waterboards.ca.gov/sanfranciscobay/basin_planning.shtml.

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CHAPTER 4
Environmental Setting and Impacts

4.1 Overview

This chapter provides an analysis of the physical environmental effects of implementing the Biosolids Digester Facilities Project (BDFP or project) as described in Chapter 2, *Project Description*. This chapter describes the environmental setting, assesses impacts, and identifies mitigation measures for significant impacts.

4.1.1 Scope of Analysis

This chapter is organized by environmental resource topics, as follows:

Chapter 4 Sections	
4.1 Overview	4.11 Recreation
4.2 Land Use	4.12 Utilities and Service Systems
4.3 Aesthetics	4.13 Public Services
4.4 Population and Housing	4.14 Biological Resources
4.5 Cultural Resources	4.15 Geology, Soils, and Paleontological Resources
4.6 Transportation and Circulation	4.16 Hydrology and Water Quality
4.7 Noise	4.17 Hazards and Hazardous Materials
4.8 Air Quality	4.18 Mineral Resources, Energy Resources, and Water Use
4.9 Greenhouse Gas Emissions	4.19 Agriculture and Forest Resources
4.10 Wind and Shadow	

Each section of Chapter 4 contains the following elements, based on the requirements of the California Environmental Quality Act (CEQA):

- **Setting.** This subsection describes the existing physical environmental conditions in the project area with respect to each resource topic, at an appropriate level of detail to allow the reader to understand the impact analysis.
- **Regulatory Framework.** This subsection describes the relevant laws and regulations that apply to protecting the environmental resources within the project area, and the governmental agencies responsible for enforcing those laws and regulations.

- **Impacts.** This subsection evaluates the potential for the project to result in adverse effects on the physical environment described in the setting. Each impact analysis section defines significance criteria for evaluating environmental impacts, and the Approach to Analysis explains how the significance criteria are applied in evaluating the project impacts. The conclusion of each impact analysis is expressed in terms of the impact significance under CEQA, which is discussed further in Section 4.1.2 below. For longer impact discussions (in general, those exceeding two pages), a summary paragraph of the impact conclusion is presented.

- **Mitigation Measures.** Each impact subsection identifies mitigation measures for all of the impacts considered significant, consistent with CEQA Guidelines Section 15126.4, which states that an environmental impact report (EIR) "shall describe feasible measures which could minimize significant adverse impacts…" In this EIR, mitigation measures are identified (where feasible) for all of the significant impacts and residual effects after mitigation are noted. If additional impacts could result from implementation of a mitigation measure, those impacts are identified, consistent with CEQA Guidelines Section 15126.4.[1]

- **Cumulative Impacts.** As described below in Section 4.1.3, each section discusses cumulative impacts, if applicable, immediately following the description of the project-specific impacts and identified mitigation measures. The cumulative impacts consider the impacts of the BDFP in combination with the impacts of other past, present, and probable future projects in the vicinity of the BDFP.

4.1.2 Significance Determinations

The significance criteria used in this EIR are based on guidance from the Environmental Planning (EP) Division of the San Francisco Planning Department regarding the thresholds of significance used to assess the severity of the environmental impacts of the project. EP guidance is based on CEQA Guidelines Appendix G, with some modifications. Each section of Chapter 4 presents, before the discussion of impacts, the significance criteria used to analyze each resource topic. The categories used to designate impact significance are as follows:

- **No Impact (NI).** An impact issue is considered not applicable (no impact) if there is no potential for impacts or the environmental resource does not occur within the project area or the area of potential effect. For example, there would be no impacts related to grading if there is no grading proposed at a particular project site.

- **Less than Significant (LS).** This determination applies if there is a potential for some limited impact but not a substantial, adverse effect that qualifies under the significance criteria as a significant impact. No mitigation is required for impacts determined to be less than significant.

- **Less than Significant with Mitigation (LSM).** This determination applies if there is a potential for the project to result in an adverse effect that would or could meet or exceed the significance criteria, but feasible mitigation is available that would reduce the impact to a less-than-significant level. An impact described as "potentially" significant indicates there is a potential for this impact to occur, but there is not enough project information or site-specific information

[1] CEQA Guidelines Section 15126.4 states that "if a mitigation measure would cause one or more significant effects in addition to those that would be caused by the project as proposed, the effects of the mitigation measure shall be discussed but in less detail than the significant effects of the project as proposed."

to determine definitively whether or not it qualifies under the significance criteria as significant. Impacts identified as "potentially significant" are treated the same as significant impacts in this EIR.

- **Significant and Unavoidable (SU).** This determination applies if the project would result in an adverse effect that would or could meet or exceed the significance criteria and for which there is no feasible mitigation available.

- **Significant and Unavoidable with Mitigation (SUM).** This determination applies if the project would result in an adverse effect that would or could meet or exceed the significance criteria and there is feasible mitigation available to lessen the severity of the impact, but either the residual effect after implementation of the measure would remain significant or there is some uncertainty as to the effectiveness of the mitigation measure.

4.1.3 Approach to Cumulative Impact Analysis and Cumulative Projects

4.1.3.1 CEQA Provisions Regarding Cumulative Impacts

Cumulative impacts, as defined in Section 15355 of the CEQA Guidelines, refer to two or more individual effects that, when taken together, are "considerable" or that compound or increase other environmental impacts. A cumulative impact from several projects is the change in the environment that would result from the incremental impact of each project when added to those of other closely related past, present, or probable future projects. Section 15130 of the CEQA Guidelines provides the following pertinent guidance for cumulative impact analysis:

- An EIR shall discuss cumulative impacts of a project when the project's incremental effect is "cumulatively considerable" (i.e., the incremental effects of an individual project are considerable when viewed in connection with the effects of past, current, and probable future projects, including those outside the control of the agency, if necessary).

- An EIR should not discuss impacts that do not result in part from the project evaluated in the EIR.

- A project's contribution is less than cumulatively considerable, and thus not significant, if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.

- The discussion of impact severity and likelihood of occurrence need not be as detailed as for effects attributable to the project alone.

- The focus of analysis should be on the cumulative impact to which the identified other projects contribute, rather than on attributes of the other projects that do not contribute to the cumulative impact.

CEQA Guidelines Section 15130(b)(1) provides two approaches to a cumulative impact analysis. The analysis can be based (a) on a list of past, present, and probable future projects producing related or cumulative impacts; or (b) a summary of projections contained in a general plan or related planning document.

4.1.3.2 Approach to Cumulative Impact Analysis in this EIR

The cumulative impact analysis considers the effects of the project together with those of other past, present, or probable future projects proposed by the San Francisco Public Utilities Commission (SFPUC) or others. In Sections 4.2 through 4.19 of this chapter, the cumulative impact analysis for each resource topic follows the analysis of the project-specific impacts. Each analysis of cumulative impacts is based on the same setting, regulatory framework, and significance criteria as the project-specific analysis. Additional mitigation measures are identified if the cumulative analysis determines that a significant cumulative impact could occur and the project's contribution to a significant cumulative impact would be considerable, even with project-level mitigation. As permitted in CEQA Guidelines Section 15130(b)(1), the analyses in this EIR employ the list-based approach, a projections approach, or a hybrid of the two as appropriate. In the list-based approach, the analysis is based on a list of past, present, and probable future projects that could result in related or cumulative impacts. A probable future project is defined as one that is "reasonably foreseeable," which is generally a project for which an application has been filed with the approving agency or that has approved funding. In the projections approach, projections contained in an adopted local, regional, or statewide plan, or related planning document, are summarized to describe or evaluate conditions contributing to the cumulative effect. Some other projects, such as Demolition of the Existing SEP Digesters and Southside Renovation Project, are also considered reasonably foreseeable because it is reasonable to expect that they would be implemented, even if an application has not been filed and there is no approved funding at this time. The probable future projects are subject to independent environmental review and consideration by approving agencies. Consequently, it is possible that some of the projects will not be approved or will be modified prior to approval (e.g., as a result of the CEQA process).

Projects that are relevant to the cumulative analyses include those that could contribute incremental effects on the same environmental resources and would have similar environmental impacts as those identified for the BDFP in this EIR. The following factors were used to determine an appropriate list of relevant projects to be considered in the list-based cumulative analyses:

- **Similar Environmental Impacts.** A relevant project contributes to effects on the same environmental resources that are also affected by the BDFP and would have similar or related environmental impacts as those discussed in this EIR (Sections 4.2 through 4.19 in this chapter).
- **Geographic Scope and Location.** A relevant project is located within the defined geographic scope for the cumulative effect. The geographic scope of cumulative projects depends on the resource topic affected and is identified within each section. The geographic scope generally coincides with the physical environment described in the setting and could include the areas adjacent to the proposed construction activities that are within and adjacent to the project site. For some resource topics, however, the geographic scope can extend farther, such as for the discussion of traffic in which the regional roadway network is relevant, or the evaluation of air quality effects in which the regional air basin is the appropriate geographic scope for the analysis.
- **Timing and Duration of Implementation.** The schedule of activities for a relevant project would need to coincide in timing with the effects of the BDFP to result in cumulative impacts. For temporal impacts such as noise and traffic, the cumulative analyses consider the short-term cumulative effects of those projects with overlapping construction schedules as well as the long-term cumulative effects of those projects that would be in operation concurrently with the BDFP and would affect the same environmental resources and sensitive receptors.

The cumulative analyses presented in Sections 4.2 through 4.19 first consider whether there is an impact of the project that could result in adverse physical effects on the environment. If so, the cumulative analysis considers whether any of the relevant projects would result in related impacts or affect the same environmental resources as the BDFP, resulting in a cumulative impact. If the cumulative impact is considered significant based on the identified significance criteria, the analysis considers whether the project's contribution would be cumulatively considerable (significant) or not cumulatively considerable (less than significant). If the project's contribution would be cumulatively considerable, mitigation measures are identified to reduce the project's contribution to a less-than-cumulatively-considerable level (less than significant with mitigation). If there is no feasible mitigation to reduce the project's contribution to a less-than-significant level, the project's contribution to the cumulative impact is considered significant and unavoidable.

Table 4.1-1 describes the past, present, and probable future projects that are considered in the list-based cumulative analyses (based on the factors described above), and their locations are shown on **Figure 4.1-1**. The list includes projects that have overlapping construction schedules with the BDFP (or would be completed prior to or following project construction) and that would be constructed in the general vicinity of the project, with the potential to result in cumulative impacts during construction. The list also includes projects that would be in operation concurrently with the BDFP and that would have similar environmental impacts to the BDFP operations, with the potential to result in cumulative operational impacts.

As discussed in Chapter 2, *Project Description*, Section 2.6.7, the SFPUC has adopted standard construction measures to reduce potential environmental effects during construction. Because the standard construction measures apply to all SFPUC projects, the analysis of cumulative projects assumes that like the BDFP, all SFPUC-sponsored projects would implement the standard construction measures.

TABLE 4.1-1
PROJECTS CONSIDERED IN CUMULATIVE IMPACT ANALYSIS

Project No. on Map	Project Name (Project Sponsor or Jurisdiction)	Project Description[a]	Construction Dates
1	Southeast Plant Headworks Replacement Project (SFPUC)	This project would construct a new 250 million gallon per day (mgd), all-weather headworks facility to provide better screening and grit removal at the Southeast Water Pollution Control Plant (Southeast Plant or SEP). This project would replace two existing headworks facilities, modify the Bruce Flynn Pump Station (BFS), and construct a new odor control facility. It would provide redundant infrastructure to provide reliability and ensure operational reliability. It would also improve the seismic reliability of the headworks facility and improve odor control. The new headworks facility would include an odor control facility, an influent junction structure, a bar screen facility, grit tanks, a primary influent distribution structure, a process/operations control room, and an electrical control room. The project would modify and eventually demolish the influent control structure (ICS)/Southeast Lift Station. The two existing headworks buildings (SEP 011 and SEP 012) would also be demolished. The BFS would be converted to all-weather operations. Phase 1 of the BFS upgrades consists of first constructing a new junction structure on Rankin Street, just south of Davidson Avenue. A new sewer line would extend from the junction structure to the BFS and would run along Davidson Avenue. Construction of this sewer would require the closure of the southern half of Davidson Avenue between Rankin Street and the BFS. A second phase of BFS upgrades includes constructing a junction structure on Rankin Street, just north of Evans Avenue. A new sewer line would be constructed along Rankin Street between the two new junction structures. Both new sewers would be installed using open cut excavation, and the sewers would be supported on piles 50 to 75 feet deep. An existing sewer line crossing the intersection of Rankin Street and Evans Avenue would be abandoned and replaced. Construction of this new line would require the closure of the sidewalk, one parking lane, and two travel lanes on the northern half of Evans Avenue, beginning from the western edge of the Evans Avenue and Rankin Street intersection and continuing east approximately 60 feet. This change would leave two travel lanes available after repurposing of the south parking lane and restriping. A new sewer line would be constructed within the existing sewer line between the Southeast Lift Station and the new junction structure at the intersection of Rankin Street and Evans Avenue. Shallower local sewers would be rerouted to accommodate the new sewer flow. During construction of these modifications, one travel lane in each direction would remain open on Evans Avenue and at least one travel lane (with flaggers) would remain open on Davidson Street at all times. Pedestrians would have access through Evans Avenue between Phelps and Rankin Streets at all times. The project components would be constructed in several phases to allow the SEP preliminary treatment facilities to continue operating. The BFS upgrades and modifications would occur first; these modifications would allow the pump station to receive and reliably pump all-weather flow currently handled by the Southeast Lift Station. Site preparation would occur concurrently with the BFS upgrades and would include constructing a temporary 78-inch pipe to reroute wet-weather flow during construction. The headworks project would also use a staging area on the SEP property along Phelps Street by the existing liquid processing facilities. Off-site staging would take place in the parking lane and one travel lane on the south side of Evans Avenue between Rankin and Quint Streets, in the lot adjacent to BFS, and at Piers 94 and 96. Lane closures are anticipated along Evans Avenue for the duration of the project. Two travel lanes (one in each direction) would be maintained throughout the construction period to accommodate through traffic. The sidewalk adjacent to the SEP between Quint and Rankin Streets would also be closed during construction. Trees would be removed in the project area as well as along Phelps Street to accommodate temporary construction trailers.	January 2017 to December 2021

TABLE 4.1-1 (Continued)
PROJECTS CONSIDERED IN CUMULATIVE IMPACT ANALYSIS

Project No. on Map	Project Name (Project Sponsor or Jurisdiction)	Project Description[a]	Construction Dates
2	SEP Chemical System Relocation and Facilities Upgrade (SFPUC)	This project constructed a new sodium hypochlorite chemical feed station adjacent to Building SEP 042 (Primary Sedimentation) to replace the existing feed station at Building 511. Structural and mechanical repairs as well as upgrades to the odor control systems were also be made in various buildings. In addition, the SFPUC installed a new 200-kilowatt (kW) emergency generator.	March 2014 through June 2016
3	SEP Existing Digester Roof Repairs (SFPUC)[b]	This project repaired/replaced the roofs on five existing digesters and associated appurtenances to maintain sufficient capacity and reliability to produce Class B biosolids until new facilities constructed under the Biosolids Digester Facilities Project (BDFP) are online. Repairs to two existing digester covers and replacement of three covers with new floating covers have been completed.	April 2013 through December 2015
4	SEP Existing Digester Gas Handling Improvements (SFPUC)	This project involves construction of improvements to digester gas handling facilities in various buildings to maintain sufficient capacity and reliably produce Class B biosolids until new facilities constructed under the BDFP are online. The project would improve the digester gas control system. The project could use the 2 Rankin Street property (across the street from the existing BFS) for staging.	May 2016 through March 2018
5	SEP Building 521 Replacement/ 522 Disinfection Upgrade (SFPUC)	The project would consist of moving the functions of Building 521 to a new building (Building 522) to house electrical equipment for power distribution and process control of motors associated with secondary and primary effluent in the vicinity of the chlorination control station. Changes to Building 521 would include interior modifications to accommodate other uses. The project would also include internal modifications of the chlorine contact channel (SEP 530), which is located underground along Evans Avenue and Phelps Street. New No. 3 water pumps (not enclosed) would be constructed adjacent to the new building. A portion of an existing wall that is within the SEP along Evans Avenue would be removed and a new access gate along Evans Avenue (approximately 200 feet west of the Evans Avenue and Phelps Street) would be installed to accommodate construction traffic; the gate would be converted to a permanent gate in the future. In addition, 2 Rankin Street would be used for off-site staging (for material storage, worker trailers, and worker parking). Several trees would be removed to address damage to the existing chlorine contact channels. Off-site staging would require installing fencing around the property, putting up power poles, and installing utilities. A shuttle bus service traveling between the work sites and the Rankin Street property may be necessary to transport workers.	April 2016 through July 2018
6	SEP Power Feed and Primary Switchgear Upgrades (SFPUC)	The project would upgrade the existing SEP electrical infrastructure from 9 to 12 megavolt amperes (MVA) to provide redundancy for SEP facilities when cogeneration facilities are not operational or during maintenance of SEP equipment Anticipated improvements include constructing a two-story structure to house the new primary switch gear station, and integrating nearby pump stations into the SEP power system. The project also includes replacement/upgrading of the existing unit substations and installation of an Energy Monitoring and Management System.	November 2017 through January 2020

TABLE 4.1-1 (Continued)
PROJECTS CONSIDERED IN CUMULATIVE IMPACT ANALYSIS

Project No. on Map	Project Name (Project Sponsor or Jurisdiction)	Project Description[a]	Construction Dates
7	SEP Primary/Secondary Clarifier Upgrades (SFPUC)	This project would replace and retrofit mechanical, structural, and electrical components related to the primary and secondary clarifiers. Specifically, it would construct a ventilation system to exhaust and dilute the head space in seven primary clarifier tanks at SEP 042. The ventilation system includes the installation of two 27,000 cubic foot per minute dilution fans, ducts, dampers, and fabric-type covers. Concrete crack repair, coating, replacement of the flight system supports, air compressor system, motor control centers, and associated electrical work are included at SEP 042. Work at SEP 230 includes the replacement of secondary clarifier mechanisms and concrete repairs and coating for 8 of the 16 secondary clarifiers. Associated secondary clarifier electrical upgrades would be completed at SEP 260. No. 3 water system improvements at SEP 230 would include the replacement of piping and the installation of water monitors for odor control and wash down purposes.	Construction March 2016 through October 2017, final completion March 2018
8	SEP Seismic Reliability and Condition Assessment Improvements (SFPUC)	Activities could include rehabilitation (such as concrete spalling and crack repair) as well as seismic retrofit of process tanks and buildings. The project would be conducted in two phases: retrofit and rehabilitate the channel under the post-chlorination building and SEP 530 channel and the remaining channel structures, and retrofit of SEP 042. Proposed staging could include 2 Rankin Street and lot adjacent to the BFS.	May 2016 to August 2019
9	SEP Northside Reliability Project (SFPUC)	This project implemented multiple phases of improvements to increase the reliability of the SEP. Phase 1 addressed corrosion and ventilation issues at Building 040/041. Phase 2 addressed the return activated sludge pumps and motors and associated variable frequency drives as well as aging secondary treatment electrical and mechanical equipment at Building 260.	All major work was completed as of July 2012, and minor work was completed in October 2015
10	SEP Oxygen Generation Plant Replacement (SFPUC)	This project consists of installing new equipment (used for feeding oxygen to the aeration deck) next to the existing building (new facilities known as SEP 275). Upon completion of the new equipment installation, the project would involve demolition of the existing facility (SEP 270) and installation of new liquid oxygen storage tanks (double layer vacuum insulated tank) and vaporizers.	January 2013 through February 2018
11	SEP Repair and Replacement (R&R) Projects (SFPUC)	In order to maintain operational reliability of existing facilities at the SEP, ongoing repair and maintenance activities are conducted including replacement of equipment that has reached the end of its useful life, is no longer operational due to structural defects caused by continuous operation in a highly corrosive environment, or does not meet current operational requirements. Known R&R activities in 2016 and 2017 include upgrades to the SEP fire and evacuation alarm systems; heating, ventilation, and air conditioning (HVAC) and mechanical system improvements; handrail/guardrail replacement; and other parts replacements in existing facilities.	Ongoing
12	Demolition of the Existing SEP Digesters and Southside Renovation Project (SFPUC)	This Phase II Sewer System Improvement Program (SSIP) project (Phase II has not yet been approved) would include demolition of the existing SEP digesters and associated control buildings, and improvements within the south side of the SEP. This project has not yet begun the planning phase and the SFPUC has not yet determined the specific improvements to be constructed. The schedule is not available at this time, but the project would not be implemented until the new digesters constructed under the BDFP are operational and have been tested to ensure that they are working as designed.	After 2025, schedule to be determined
13	Eastside Recycled Water Project (SFPUC)	The purpose of the Eastside Recycled Water Project is to deliver high-quality recycled water to a variety of customers on the east side of the city for non-drinking uses such as irrigation and toilet flushing. The project has been on hold in part to allow for better coordination with the SSIP. In the future, construction is anticipated at the SEP, a potential site and water source for the eastside recycled water facility.	2026 through 2029

TABLE 4.1-1 (Continued)
PROJECTS CONSIDERED IN CUMULATIVE IMPACT ANALYSIS

Project No. on Map	Project Name (Project Sponsor or Jurisdiction)	Project Description[a]	Construction Dates
14	Central Bayside System Improvement Project (SFPUC)[c]	This project would construct improvements to address long-term infrastructure needs in the Central Bayside basin of the City and County of San Francisco (City) combined sewer system. Several options are under evaluation for this project including different alignment and shaft locations; specific project improvements that would be constructed in the immediate vicinity of the SEP would include improvements to the BFS and construction of a tunnel portal at 2 Rankin Street. Under all options, the SFPUC would construct the Channel Tunnel to convey dry weather and wet weather flows from the Channel Pump Station to the SEP. The tunnel would be a maximum 30-foot diameter and would be more than 8,000 feet long. One of the tunnel portals could be located at 2 Rankin Street, near the SEP. In addition to the tunnel, the SFPUC would repurpose the existing Channel Pump Station; rehabilitate the Channel Force Main; modify the BFS; construct a new Channel Tunnel Dewatering Pump Station; and connect to the new Headworks facility (see Project 1 above), Islais Creek Transport/Storage Box, and Channel Pump Station. The SFPUC would also construct two connector tunnels; the Inner Mission Connector Tunnel would be a maximum 17-foot diameter and maximum 6,500 feet long, and the Mariposa Connector Tunnel would be a maximum 5-foot diameter and maximum 3,800 feet long. Green infrastructure to be constructed under this project would include the Wiggle Neighborhood Green Corridor as well as green and grey watershed projects within the Channel and Islais Creek watersheds. The SFPUC is considering three alternative alignments for the Channel Tunnel along Arkansas Street, Carolina Street, or Indiana Street. Specific locations for tunnel shafts and construction staging areas have not been identified.	Construction date uncertain, no sooner than early 2019
15	Central Shops Relocation and Land Reuse (SFPUC and GSA)	The General Services Agency (GSA) would acquire new sites for Central Shops at two locations (450 Toland Street as well as at 1975 Galvez Avenue and 555 Selby Street [between Galvez Avenue and Innes Avenue]), demolish or refurbish existing buildings, and construct new buildings to house the new Central Shops facilities. The SFPUC is expected to acquire the existing 6.04-acre Central Shops site at 1800 Jerrold Avenue adjacent to the SEP. The central shop functions (vehicle repair) would be relocated to the new facility. This project consists of the acquisition of the properties and relocation of Central Shops only; any demolition, soil excavation, or cleanup of hazardous materials would be conducted under separate environmental review. 1800 Jerrold Avenue (the Central Shops site) is part of the proposed BDFP project site.	January 2016 through January 2017
16	Land Reuse - 1801 Jerrold Avenue (SFPUC and SFPW)	The SFPUC has acquired jurisdiction over a 1.54-acre site near the SEP that was previously under the jurisdiction of San Francisco Public Works (SFPW). Formerly used as an asphalt plant, the existing aboveground facilities would be demolished but no excavation would be conducted. The adjacent one-block segment of Quint Street would also be acquired and closed to public access. The site would serve a variety of functions to support the SEP's short- and long-term needs. 1801 Jerrold Avenue (the asphalt plant site) is part of the proposed BDFP project site.	Spring 2016 through Fall 2016
17	Kansas and Marin Streets Sewer Improvements (SFPUC)	This project would construct a new 18-by-24-by-15-foot transport and storage box to improve the sewer system conveyance from the Islais Creek watershed east of Highway 101 to the Islais Creek transport and storage box. Acquisition of new right-of-way would be required.	November 2017 through October 2018
18	Griffith Yard Improvements (SFPUC)	This project is on SFPUC property next to the Griffith Pump Station, which is at 1601 Griffith Street. Plans for the site include installation of a wall around the site, paving, installation of trailers, and installation of two vactor waste stations.[2]	September 2016 to February 2017

[2] A vactor waste station is where the sewage collected by vactor (vacuum) trucks at various locations is disposed and sent to the treatment plant.

TABLE 4.1-1 (Continued)
PROJECTS CONSIDERED IN CUMULATIVE IMPACT ANALYSIS

Project No. on Map	Project Name (Project Sponsor or Jurisdiction)	Project Description[a]	Construction Dates
19	Southeast Outfall Islais Creek Crossing Replacement (SFPUC)	The Southeast Outfall Islais Creek Crossing has reached the end of its useful life and must be replaced. A project to replace the two existing ductile iron underwater crossing pipes beneath Islais Creek is underway.	April 2017 through March 2018
20	Southeast Community Facility Revitalization (SFPUC)	The existing Southeast Community Facility (1800 Oakdale Avenue) is more than 30 years old and has been under used. With limited parking, old mechanical systems, and outdated design elements, the building no longer adequately meets the needs of its users. This project consists of rehabilitating the Southeast Community Facility in place or relocating the center to a new site such as at SFPUC property at 1550 Evans Avenue. The SFPUC could partner with other academic entities for a campus at the 1550 Evans Avenue site.	Not yet determined; planning has begun with outreach to the public
21	Southeast Greenhouses Demolition (SFPUC)[d]	This project would demolish the 113,400 gross square foot greenhouses and the 22,280 gross square foot administrative building and exhibit gallery on the Southeast Greenhouses site to the south of the SEP. These buildings were constructed in 1986 and are not historic structures. The demolition debris would be off-hauled and recycled or disposed of in accordance with applicable solid waste regulations. There would be no grading, excavation, or other ground disturbance at the site as part of the demolition activities.	Spring 2017
22	Jerrold Bridge North Span Replacement (Caltrain)[e]	This project replaced the northern approach span to the Jerrold Avenue Bridge and installed a new worker walkway. Improvements included replacing four pre-cast concrete north span segments with an earthen berm, supporting the existing vertical concrete support structures with micro-piles, and installing a new walkway at track level to meet Federal Railroad Administration (FRA) requirements.	Completed in 2011
23	Quint Street Bridge Replacement Project (Caltrain)[f]	This project would remove the existing Quint Street bridge and construct a new 325-foot-long-by-80-foot-wide berm in its place. The new berm would be supported by retaining walls and soil improvements would be made to address seismic vulnerabilities. The new berm would also cross Quint Street, making it a dead end near the SEP. (Note: Quint Street was permanently closed to through traffic in October 2015.) Some night and weekend work would be required to maintain operations during construction. In the future, a new Caltrain Station may be constructed atop the berm at Oakdale Avenue (one block from Quint Street).	October 2015 through mid-2016
24	Quint-Jerrold Connector Road (San Francisco County Transportation Authority)[g]	This project would construct a new 950-foot-long roadway to provide access between existing Quint Street and Jerrold Avenue. The roadway would consist of two 13-foot-wide lanes (within a 50-foot-wide corridor), one northbound and one southbound. In addition, the project would construct or install several other elements along or beneath the length of the new roadway. Along the western side of the new roadway, the project would construct a new 5.5-foot-wide to 20-foot-wide sidewalk, depending on location; construct a new 27-foot-wide curb cut located along the San Francisco Wholesale Produce Market property (Project 25, below); and install street trees and street lighting. Along the eastern side of the new roadway, the project would construct a new 6.5-foot-tall reinforced concrete retaining wall. A new stop sign would be installed at the intersection of the new roadway and Jerrold Avenue. New sewer and water pipelines would be installed beneath the new roadway to provide on-site drainage and overall system reliability. The new road would support a potential new Caltrain station at Oakdale Avenue. The intersection with Jerrold Avenue also would accommodate trucks, although some movements would require wide turns. The San Francisco County Transportation Authority, Caltrain, and SFPW have coordinated project schedules to minimize the duration of the street closure.	Late 2018 to 2019 (dependent on land acquisition)

TABLE 4.1-1 (Continued)
PROJECTS CONSIDERED IN CUMULATIVE IMPACT ANALYSIS

Project No. on Map	Project Name (Project Sponsor or Jurisdiction)	Project Description[a]	Construction Dates
25	San Francisco Wholesale Produce Market Expansion (City and County of San Francisco Market Corporation)[h]	This project consists of phased development to expand the existing San Francisco Wholesale Produce Market. Two development scenarios are under consideration. The maximum development scenario would demolish 12 of the existing 13 buildings and construct five new warehouse buildings. Two of the new buildings would have rooftop parking. One hall would include a meeting hall/education center and demonstration kitchen. Under the maximum development scenario, there would be a total of 440 parking spaces (42 more than existing) and 186 loading spaces, and the total building floor area would be 525,855 square feet. The new buildings would be 16 to 45 feet tall and would have a larger footprint than the existing buildings. Under both scenarios, Jerrold Avenue would be reconfigured to direct through traffic around the site onto Innes and Kirkwood Avenues. To accomplish this, the following street segments would be vacated (i.e., closed to public traffic): • Jerrold Avenue between Toland and Rankin Streets • Kirkwood Avenue to the east of Rankin Street • The Lettuce Lane and Milton I Ross Lane rights-of-way and a portion of the Rankin Street right-of-way on the project site • Innes Avenue would be improved and portions of the project site would also be dedicated to create two new intersections where Toland Street crosses Innes and Kirkwood Avenues. The existing dead-ends on Innes and Kirkwood Avenues would be removed from the street grid. Rankin Street would be relocated between Kirkwood and Innes Avenues to parallel the west side of the Caltrain right-of-way, and the intersection of Rankin Street and Jerrold Avenue would be reconfigured. A portion of Selby Street between Innes and Kirkwood Avenues would be leased. All roadway improvements would be constructed under Phase 1.	Uncertain; development decisions would be market-driven
26	1995 Evans Avenue (San Francisco Police Department)[i]	This project would demolish the existing four vacant buildings and construct a new four-story 128,000-square-foot building with a separate two-level 47,000-square-foot parking garage to house the San Francisco Police Department's Forensic Services Division and Traffic Company. The Traffic Company includes a fleet of motorcycle police officers.	2018 through 2020
27	Candlestick Point-Hunters Point Shipyard Phase I and II Development Project (Lennar Urban)[j]	This project would redevelop the 702-acre Candlestick Point-Hunters Point Shipyard area along the waterfront between south of India Basin and Candlestick Point. The project includes a mixed-use community with a wide range of residential, retail, office, research and development, civic, and community uses, and parks and recreational open space. In addition, a 300-slip marina would be constructed as would shoreline improvements to stabilize the shoreline. Phase I is already underway, including demolition of Candlestick Park Stadium. Phase II includes 6,225 units of housing (including rebuilding the Alice Griffith Public Housing), a regional retail center, a 220-room hotel, a performance venue, and 160 acres of new and revitalized open space.	Phased construction over the next 15 to 20 years
28	Event Center and Mixed-Use Development (Golden State Warriors Arena) at Mission Bay Blocks 29-32 (GSW Arena LLC)[k]	This project would construct a multi-purpose event center and a variety of mixed uses, including office, retail, open space, and structured parking, on an approximately 11-acre site on Blocks 29-32 within the Mission Bay South Redevelopment Plan Area of San Francisco. The event center would serve as the new home court for the Golden State Warriors professional basketball team. It would have a capacity of 18,064 seats for basketball games, but could be reconfigured for concerts for a maximum capacity of about 18,500. Two office and retail buildings would be located on the west side of the project site. These buildings would each be 11 stories (160 feet tall at building rooftop) and could serve a variety of office and/or research and development uses, with retail uses on the lower floors. Additional retail uses would front on South Street and Terry A. Francois Boulevard. Approximately 3.2 acres of open space would be provided within the site.	2017 through early 2019

TABLE 4.1-1 (Continued)
PROJECTS CONSIDERED IN CUMULATIVE IMPACT ANALYSIS

Project No. on Map	Project Name (Project Sponsor or Jurisdiction)	Project Description[a]	Construction Dates
29	Pier 70 Waterfront Site (Forest City Development CA)[l]	This project consists of redevelopment of approximately 28 acres (identified as the "Waterfront Site") of the former industrial shipyard at Pier 70 and an additional 7 acres of land owned by the Port and PG&E. The site would be developed into a new mixed-use community with new commercial office development, new residential development, and a retail and arts component. New above-grade and below-grade parking and approximately 8 acres of new and expanded parks and shoreline access would be constructed. The project also includes the rehabilitation and adaptive reuse of Buildings 2, 12, and 21, which contribute to the eligible Pier 70 National Register Historic District. Overall, the project would construct a maximum of 4.2 million gross square feet in four phases over about 11 years. Two land use scenarios are under consideration, each with different amounts of commercial and residential land uses. The project would include up to 3,025 new residential units and up to 2.4 million square feet of commercial, restaurant, retail, and arts/light industrial land uses.	2018 through 2029
30	Blue Greenway Project and Heron's Head Park Improvements (Port of San Francisco)[m]	The Blue Greenway is the City's project to improve a portion of the 500-mile, nine-county, region-wide Bay Trail, as well as the newly established Bay Area Water Trail and associated waterfront open space system. In San Francisco, the alignment of the Blue Greenway generally follows the alignment of the Bay Trail and Bay Area Water Trail from Mission Creek on the north to the County line on the south. The project includes open space improvements at numerous points along the trail, including Heron's Head Park.	Undetermined
31	Pier 90-94 Backlands Improvements Project (Port of San Francisco)[n]	This project would improve 23 acres of unimproved land previously used as a landfill. Proposed uses for the site include construction lay down, marshalling of trucks, auto storage, self-storage, construction material recycling, and eco-industrial uses such as batching operations and biofuel production. The site would be filled and graded to create a level surface using existing materials stockpiled at the site. A new road, utilities, and stormwater management facilities would be constructed to prepare the site for future uses. This site is currently used to recycle concrete for use as structure fill materials at construction sites and in road construction. Adjacent existing uses that hold long-term leases with the Port include the SF Recycle Central facility, aggregate operations by Hanson, recycling, rendering operations by Darling International, and ready-mix concrete operations by Cemex and Bode. The tracks of San Francisco Bay Railroad border the northwest boundary of the backlands.	Undetermined – still in planning stages
32	Asphalt and Concrete Recycling and Production Plant at Pier 94 (Port of San Francisco and SFPW)[o]	The City and Port are in negotiations with NewCo to build and operate an asphalt and concrete recycling and production facility within approximately 204,688 square feet of land located at Pier 94/ Seawall Lot 352. The City would require a companion long-term purchase contract negotiated by the parties that would provide the City with a reliable, high-quality and competitively priced source of recycled asphalt and concrete	Undetermined – still in planning stages
33	Quint Street Lead Track (Port of San Francisco and Federal Railroad Administration)[p]	The Quint Street Lead is a one-mile-long freight rail spur track connecting the Peninsula corridor mainline with the Port of San Francisco (Port) cargo terminals and rail yard. It is on the south side of Islais Creek, just east of Third Street. The mainline is owned and operated by the Peninsula Corridor Joint Powers Board, primarily for Caltrain commuter rail. The lead is jointly owned by Burlington Northern Santa Fe (BNSF) Railway and Union Pacific Railroad. There are no other rail lines serving the Port. The project includes reconstruction of the rail track between Jerrold Avenue and Third Street to upgrade it from an industrial lead to a Federal Railroad Administration Class I track, along with construction of associated improvements. This project would improve the safety and efficiency of freight rail service to the Port at Piers 80, 90, 92, 94, and 96. Rankin Street would be closed temporarily as part of this project.	Summer 2016 through early 2017

TABLE 4.1-1 (Continued)
PROJECTS CONSIDERED IN CUMULATIVE IMPACT ANALYSIS

Project No. on Map	Project Name (Project Sponsor or Jurisdiction)	Project Description[a]	Construction Dates
34	Pier 96 Bulk Export Terminal (Port of San Francisco)[q]	This project would construct a new terminal to facilitate the export of bulk cargo on approximately 30 acres at Pier 96, including 900 linear feet of deep-water berth space at Pier 96. The project would provide on-dock rail access.	Undetermined – in planning stages
35	Peninsula Corridor Electrification Project (Caltrain Peninsula Corridor Joint Powers Board)[r]	This project consists of converting Caltrain from diesel-hauled to electric multiple unit trains for service between the 4th and King Street Station in San Francisco and the Tamien Station in San Jose. The project would require the installation of 130 to 140 single-track miles of overhead contact system for the distribution of electrical power to new electric rolling stock. In the vicinity of the SEP, the project would include construction of vertical steel poles on either side of the Caltrain tracks from which conductors would be suspended. The electrical infrastructure provided by this project would be compatible with future high-speed rail service. Improvements for the section of the California High Speed Rail Project between San Francisco to San Jose would affect the same portions of Caltrain tracks as the electrification project, but the timing and scope of improvements required under the High Speed Rail project are uncertain at this time.[s]	As early as 2017 and lasting 3 to 4 years
36	Griffith Pump Station Project (SFPUC)	The project consists of replacing/upgrading the electrical, mechanical, and structural systems of Griffith Pump Station, an all-weather facility that serves as the primary sewage and stormwater pumping station in southeast San Francisco. The project would extend the life of the existing facility as well as modernize it to increase the station's reliability and operational flexibility. The majority of the work would occur inside the station (e.g., replacement of pumps, piping, bar screens, water-tight doors; modification of the HVAC system; installation of roof-access ladder; replacement of the lighting with LED). Proposed outdoor work would include the installation of canopies over the chemical storage and transformer areas to protect equipment and exterior lighting in the chemical storage area and storage yard to aid operations. No soil disturbance would be required as part of this project. The pump station would not increase in capacity.	2017 - 2018
37	2225 Jerrold Avenue Facility (Academy of Art University)[t]	The Academy of Art University (AAU) is seeking approval of modifications to six different buildings that house university activities. One of the facilities is located near the SEP: an existing 91,367-square-foot building at 2225 Jerrold Avenue that houses office space, storage and janitorial functions, which would be modified to allow recreational use. Construction would include laying down flooring for athletic courts, renovation of bathrooms, creation of locker room facilities, and painting of the building and interior spaces. Internal utility upgrades, including electrical and plumbing, would be required but structural improvements are not anticipated at this time. ADA accessibility would require improvements to pedestrian access points, bathroom facilities, and locker rooms. Because institutional and recreational uses are not permitted in the zoning district, a legislated text change to the Planning Code would be required to allow AAU's uses as either a permitted or conditional use.	No external construction required. Dates for internal construction not established.
38	Marin Street Sewer Replacement Project (SFPUC)[u]	This project would replace about 1,800 feet of the existing 24-inch Marin Street sewer line from Third Street., westward to the Marin Outfall at Islais Creek. The sewer line is concrete-encased vitrified pipe and was constructed in 1954; it is part of the City's combined sewer system. The new pipeline would be constructed of reinforced concrete pipe and the diameter would be increased to 30-inches to accommodate development to the north of Islais Creek. The new pipeline would follow the same alignment as the existing pipeline. Up to eight support pilings could be replaced to a depth of 60 feet. Construction access would be provided via Cesar Chavez Street. A portion of the pipeline alignment adjacent to Islais Creek is within the jurisdiction of the Bay Conservation and Development Commission. Construction would require temporary easements between Tennessee and Third Streets, within the SFMTA yard, and between the southwest edge of the yard and the Marin Street Outfall.	March 2017 through February 2018

TABLE 4.1-1 (Continued)
PROJECTS CONSIDERED IN CUMULATIVE IMPACT ANALYSIS

Project No. on Map	Project Name (Project Sponsor or Jurisdiction)	Project Description[a]	Construction Dates
39	India Basin Mixed-Use Development (Build, Inc. and San Francisco Recreation and Parks Department)[v]	This project would encompass publicly and privately owned parcels, including existing streets, totaling approximately 38.8 acres at 700 Innes Avenue, 900 Innes Avenue, India Basin Shoreline Park, and India Basin Open Space locations. The project at 700 Innes Avenue would develop 17.12 acres of privately owned land plus 5.94 acres of developed and undeveloped public rights-of-way in phases; proposed uses include residential, retail, commercial, office, research and development/laboratory and clinical care space, institutional, flex space, recreational and art uses, parking, and a shoreline network of publicly accessible open space. Two options are being considered for the 700 Innes Avenue property: the "proposed project" (a residential-focused mixed-use development including approximately 1,240 dwelling units and 275,330 gross square feet [gsf] of ground-floor retail, commercial, or flex space); and a "project variant" (up to approximately 1,000,000 gsf of commercial/institutional uses and 500 dwelling units). The project at 900 Innes Avenue, India Basin Shoreline Park, and India Basin Open Space would include improvement of 14.2 acres of publicly owned parcels along the shoreline plus 1.58 acres of unimproved "paper" streets to create a publicly accessible network of new and/or improved parkland and open space. The 900 Inness Avenue properties would be enhanced for park and open space use and would be combined to create a network of new and/or improved parkland and open space. This new shoreline network would extend the Blue Greenway/Bay Trail and would provide pedestrian and bicycle connections to and along the shoreline, fronting San Francisco Bay.	2018 through 2024
40	San Francisco Gateway (Prologis, Inc.)[w]	The San Francisco Gateway Project would redevelop two City blocks to serve as a new industrial center for the City. The Project Sponsor would demolish the four existing buildings on site (constructed around 1945), vacate Selby Street between Kirkwood and McKinnon Avenues, and create a new multi-level, multi-building Production Distribution and Repair (PDR) facility. The existing structures provide about 448,000 square feet of PDR space. The San Francisco Gateway Project would include four main buildings totaling approximately 1,160,000 square feet along with two 3-level central vehicle staging/truck court/parking structures totaling approximately 688,400 square feet. The maximum height of the buildings would be 115 feet.	TBD

SOURCES:

a Project descriptions without noted sources were prepared by the SFPUC.
b San Francisco Public Utilities Commission, e-mail from Sue Chau to Jill Hamilton and others, Subject: BDFP – Schedule Change, OCR, Existing Conditions Photos, Cumulative Projects, Etc., December 17, 2015.
c San Francisco Public Utilities Commission, Central Bayside System Improvement Project Description Information, provided to ESA+Orion on December 22, 2015.
d San Francisco Public Utilities Commission, E-mail from Sue Chau to BDFP and Headworks Project Teams, August 8, 2016.
e San Francisco County Transportation Authority (SFCTA), My Streets Project Map. Available online at http://www.sfcta.org/mystreetsf-projects-map#/?address=750%20phelps%20street%20San%2BFrancisco&radius=805. Accessed on August 22, 2016.
f Caltrain, Quint Street Project. Available online at http://www.caltrain.com/projectsplans/Projects/Caltrain_Capital_Program/Quint_Street_Project.html. Accessed on August 8, 201.
g San Francisco Planning Department, Preliminary Mitigated Negative Declaration, Quint-Jerrold Connector Road Project, Case No. 2013.0858E, August 5, 2015.
h San Francisco Planning Department, Final Mitigated Negative Declaration, San Francisco Wholesale Produce Market Project, Case No. 2009-1153E, May 11, 2011, as amended July 5, 2011.
i San Francisco Planning Department, Final Mitigated Negative Declaration, 1995 Evans Avenue/ San Francisco Police Department (SFPD) Forensic Service Division (FSD) & Traffic Company (TC), Case No. 2013.0342E, October 2, 2013, amended on November 15, 2013.
j City and County of San Francisco, Office of Community Investment and Infrastructure, Candlestick Point-Hunters Point Shipyard Stadium Demolition. Available online at http://sfocii.org/index.aspx?page=446. Accessed on August 22, 2016.
k Office of Community Investment and Infrastructure, Subsequent Environmental Impact Report, Event Center and Mixed-Use Development at Mission Bay Blocks 29 to 32, State Clearinghouse No. 2014112045, November 3, 2015.
l San Francisco Planning Department, Notice of Preparation of an Environmental Impact Report and Notice of a Public Scoping Meeting, Pier 70 Mixed-Use District Project, Case No. 2014-001272ENV, August 14, 2013.
m Port of San Francisco, Blue Greenway Project. Available online at http://sfport.com/index.aspx?page=1433. Accessed on August 22, 2016.
n Port of San Francisco, Pier 90-94 Backlands Planning. Available online at http://sfport.com/index.aspx?page=222. Accessed on August 8, 2016.
o San Francisco Public Works, Bid listing for Sustainable Recycled Asphalt and Concretes Plants and Lease Opportunity, DPW ID No. NPE15108. Available online at https://stgint.sfdpw.org/_Layouts/DPWPORTAL/Construction.aspx?ID=1539. Accessed on August 22, 2016.

TABLE 4.1-1 (Continued)
PROJECTS CONSIDERED IN CUMULATIVE IMPACT ANALYSIS

SOURCES (cont.)

p Port of San Francisco, Federal Railroad Administration (FRA) Categorical Exclusion Worksheet, September 25, 2013.
q Port of San Francisco, Request authorization to advertise and issue a Request for Proposals (RFP) soliciting a developer and operator for a Bulk Export Maritime Terminal Operation at Pier 96, March 5, 2015.
r Peninsula Corridor Joint Powers Board, Peninsula Corridor Electrification Project Final Environmental Impact Report, State Clearinghouse No. 2013012079, December 2014.
s California High Speed Rail Authority, Notice of Preparation of a Project Environmental Impact Report/Environmental Impact Statement for the California High-Speed Rail System, San Francisco to San Jose Project Section, Blended System Project, State Clearinghouse No. 2016052019, May 9, 2016.
t San Francisco Planning Department, Draft Environmental Impact Report, Academy of Art University, Case No. 2008.0586E, State Clearinghouse No. 2010092080.
u San Francisco Planning Department, CEQA Categorical Exemption Form, SFPUC Marin Street Replacement Project. September 12, 2016.
v San Francisco Planning Department, Notice of Preparation of an Environmental Impact Report and Public Scoping Meeting, India Basin Mixed-use Project, which entails the 700 Innes Avenue, 900 Innes Avenue, India Basin Shoreline Park, and India Basin Open Space locations, Build Inc. and San Francisco Recreation and Parks Department, Case No. 2014-002541ENV, June 1, 2016.
w Prologis, Application for Preliminary Project Assessment, December 20, 2016.

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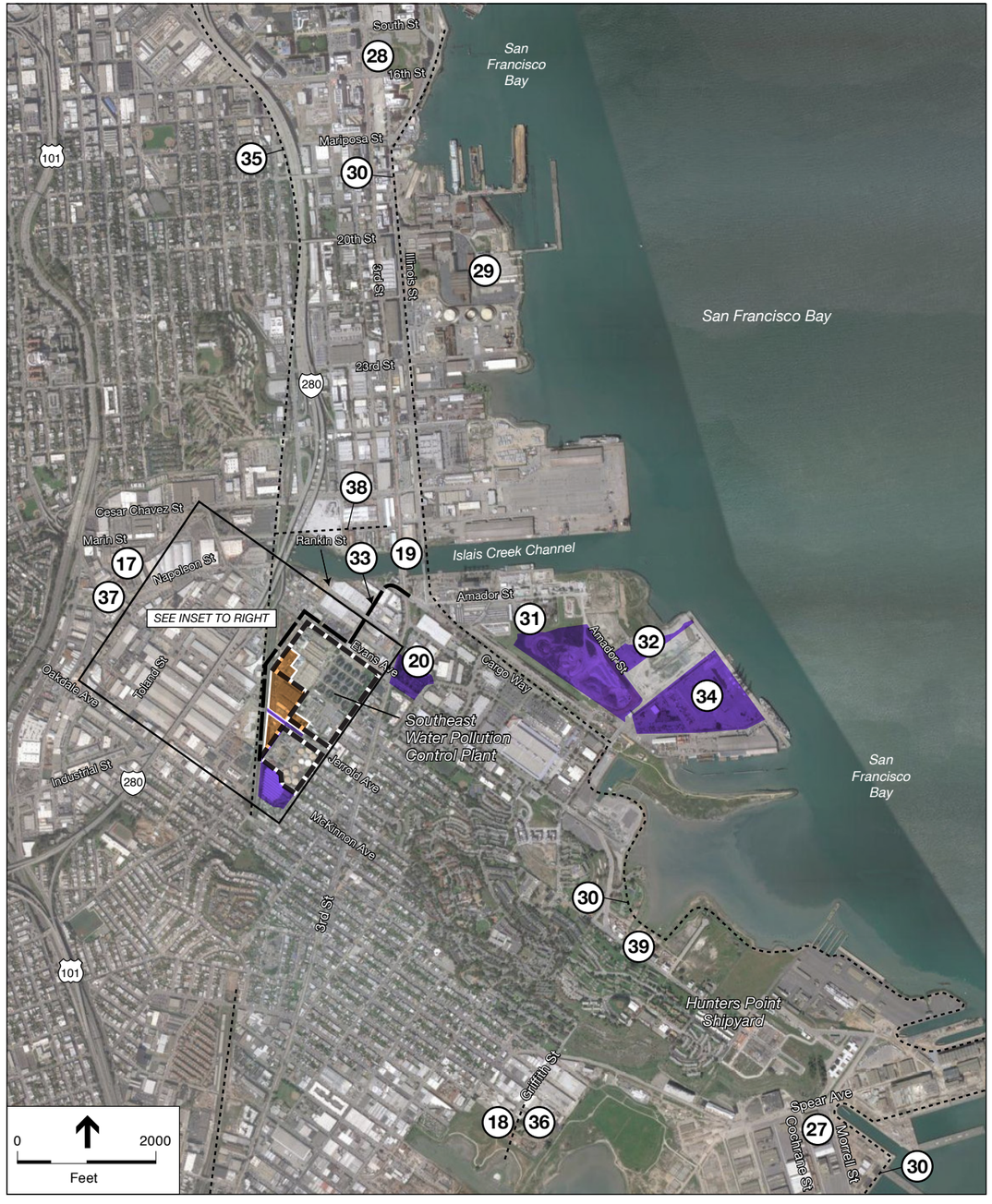

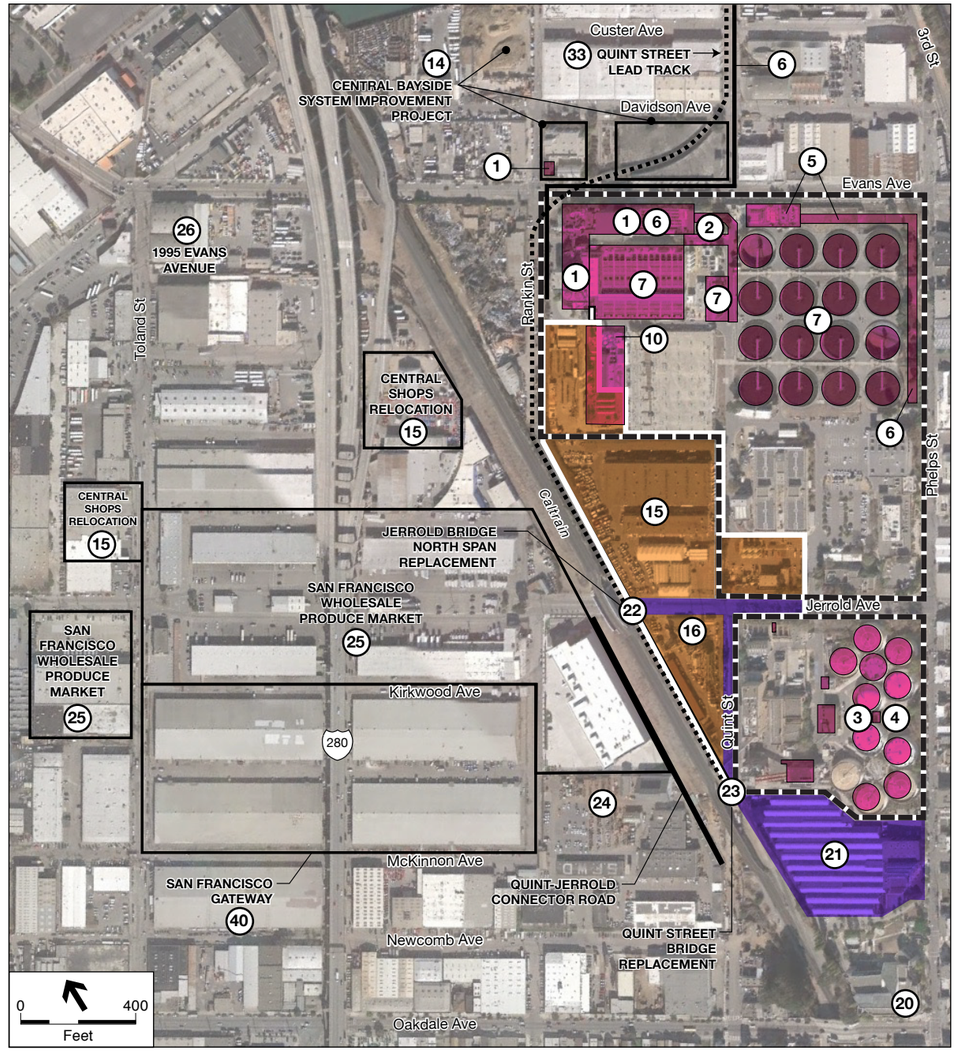

CUMULATIVE PROJECTS

1 Southeast Plant Headworks Replacement Project
2 SEP Chemical System Relocation and Facilities Upgrade
3 SEP Existing Digester Roof Repairs
4 SEP Existing Digester Gas Handling Improvements
5 SEP Building 521 Replacement/ 522 Disinfection Upgrade
6 SEP Power Feed and Primary Switchgear Upgrades
7 SEP Primary/Secondary Clarifier Upgrades
8 SEP Seismic Reliability and Condition Assessment Improvements*
9 SEP Northside Reliability Project*
10 SEP Oxygen Generation Plant Replacement
11 SEP Repair and Replacement Projects*
12 Demolition of the Existing SEP Digesters and Southside Renovation Project*
13 Eastside Recycled Water Project*
14 Central Bayside System Improvement Project
15 Central Shops Relocation and Land Reuse
16 Land Reuse - 1801 Jerrold Avenue
17 Kansas and Marin Streets Sewer Improvements
18 Griffith Yard Improvements
19 Southeast Outfall Islais Creek Crossing Replacement
20 Southeast Community Facility Revitalization
21 Southeast Greehouse Demolition
22 Jerrold Bridge North Span Replacement
23 Quint Street Bridge Replacement Project
24 Quint-Jerrold Connector Road
25 San Francisco Wholesale Produce Market Expansion
26 1995 Evans Avenue (SF Police)
27 Candlestick Point-Hunters Point Shipyard Phase I and II Development Project
28 Event Center and Mixed-Use Development at Mission Bay Blocks 29-32
29 Pier 70 Waterfront Site
30 Blue Greenway Project and Heron's Head Park Improvements
31 Pier 90-94 Backlands Improvements Project
32 Asphalt and Concrete Recycling and Production Plant at Pier 94
33 Quint Street Lead Track
34 Pier 96 Bulk Export Terminal
35 Peninsula Corridor Electrification Project
36 Griffith Street Pump Station Project
37 2225 Jerrold Avenue Facility (Academy of Art)
38 Marin Street Sewer Replacement Project
39 India Basin Mixed-Use Development
40 San Francisco Gateway Project

NOTE: A project with an asterisk (*) has not been mapped either because it occurs in several locations, because no specific location has been identified, or because the project has been completed.

- Southeast Plant (SEP)
- Project Site
- Potential Construction Staging Area
- Potential Cumulative Projects at the SEP

SOURCE: Google Maps Imagery from 2015; ESA+Orion data developed in 2016 for BDFP

SFPUC Biosolids Digester Facilities

Figure 4.1-1

Cumulative Projects

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4.2 Land Use

This section describes existing land uses in the vicinity of the Biosolids Digester Facilities Project (BDFP or project) and the potential for implementation of the project to adversely affect an established community or conflict with applicable land use plans or policies. The impact analysis evaluates the potential land use impacts of the project and identifies mitigation measures to avoid or reduce adverse impacts, as appropriate.

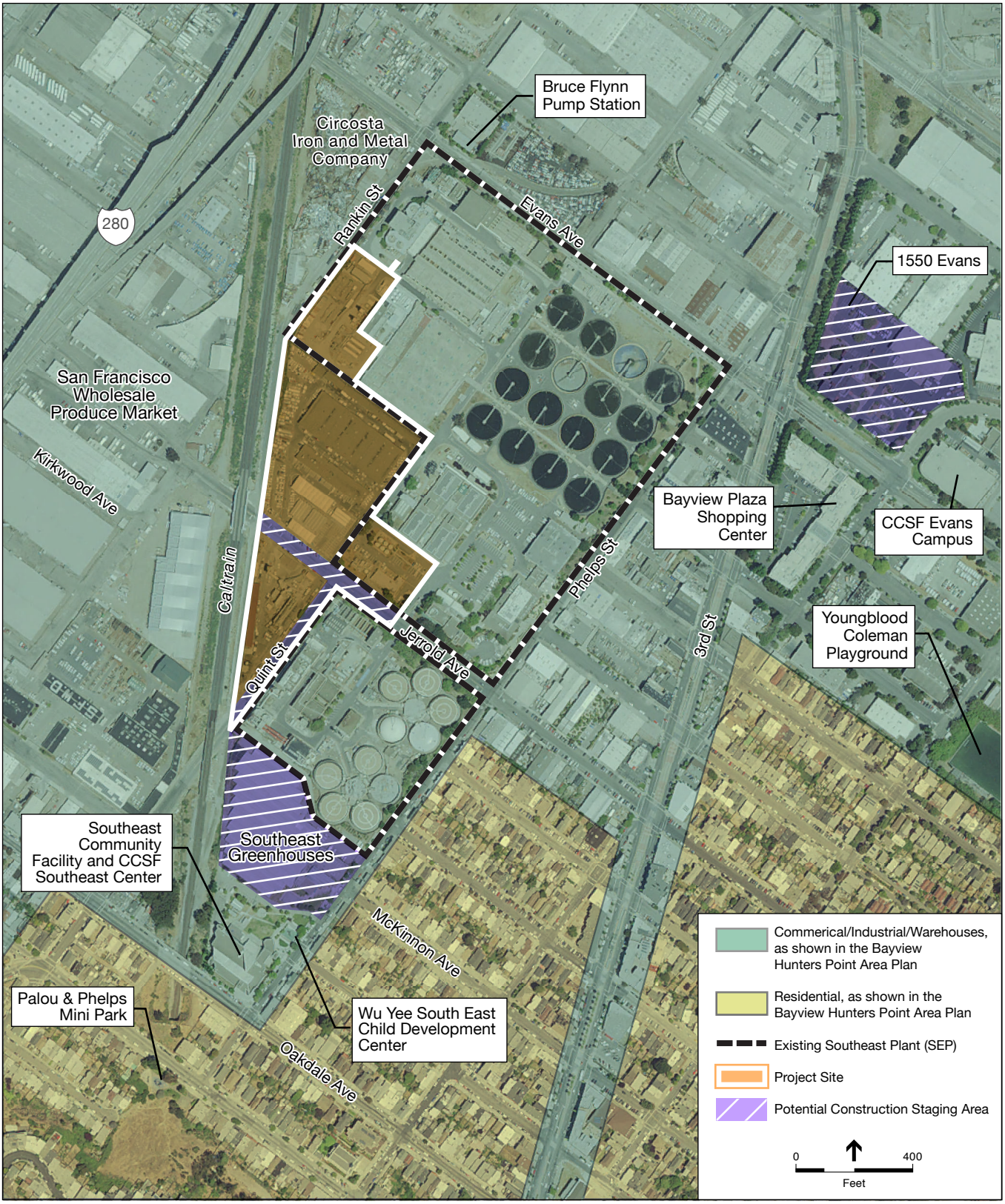
4.2.1 Setting

4.2.1.1 Existing Land Uses at the Southeast Plant and in Surrounding Areas

The Southeast Water Pollution Control Plant (Southeast Plant or SEP) is located in San Francisco's Bayview-Hunters Point neighborhood, in an area consisting of a mix of residential, commercial, and light/heavy industrial land uses. The San Francisco Planning Department identifies the Bayview-Hunters Point neighborhood as the area east of Highway 101 extending from the southern City boundary north to Cesar Chavez Street. As shown on **Figure 4.2-1**, the SEP is bounded by Evans Avenue to the northeast, Quint and Rankin Streets to the northwest, Phelps Street to the southeast, and the Caltrain railroad tracks to the west. The Southeast Community Facility and Southeast Greenhouses are located southwest of the SEP.

Jerrold Avenue bisects the SEP, dividing it into SEP North (i.e., facilities north of Jerrold Avenue) and SEP South (facilities south of Jerrold Avenue). Facilities on SEP North are associated with processing the liquids portion of the wastewater. Facilities on SEP South are associated with processing the solids portion of the wastewater and include the existing digesters and energy recovery facilities. The project site includes portions of the existing SEP at 750 Phelps Street and 1700 Jerrold Avenue, adjacent properties at 1800 Jerrold Avenue (the Central Shops site) and 1801 Jerrold Avenue (the decommissioned Asphalt Plant site), and construction staging areas along Jerrold Avenue and Quint Street. The Central Shops facility is currently operated by the City and County of San Francisco (CCSF or "City") General Services Agency (GSA) and provides vehicle and equipment maintenance services for multiple City agencies through the Fleet Management Department; the site is pending transfer to the San Francisco Public Utilities Commission (SFPUC) as part of a separate action. The Asphalt Plant has been decommissioned and is non-operational; jurisdiction of this City-owned property was recently transferred to the SFPUC. The site is currently used for City vehicle parking and dispatch. Prior to BDFP construction, the non-operational, aboveground facilities will be demolished.

Multiple land use types surround the SEP and the project site. Industrial uses (e.g., warehouses, auto dismantlers, a scrap iron and metal company (Circosta), and the San Francisco Wholesale Produce Market) are located to the northeast, northwest, and west of the SEP. Residential and commercial land uses are located directly across Phelps Street along the southeast boundary of the SEP. The Southeast Greenhouses are located southwest of the existing digester structures, at 1150 Phelps Street. As a separate action from the BDFP, the SFPUC is proposing to demolish the existing greenhouses at the Southeast Greenhouses site (refer to Table 4.1-1 in Section 4.1); future use of the site is undetermined. If this site becomes available, it would be used for BDFP construction staging.



SFPUC Biosolids Digester Facilities

SOURCE: National Agriculture Imagery Program, Imagery from 2014;
City and County of San Francisco, Bayview Hunters Point Area Plan, 2010

Figure 4.2-1
Generalized Land Uses Near the SEP

NOTE: Generalized land uses around the SEP based on the Bayview Hunters Point Area Plan; some mixed residential and commercial uses occur within commerical/industrial/warehouse areas

The 1550 Evans site is located east of the SEP and is surrounded by industrial and commercial uses to the west (across Third Street), north, and south, and is adjacent to the City College of San Francisco Evans Campus to the southeast. An office building and warehouse building, both vacant, currently occupy the site, along with a parking lot (containing approximately 200 off-street parking spaces). The site is currently used for parking and storage.

Additional surrounding land uses include parks, places of worship, and schools. Palou & Phelps Mini-Park is located at the southeast corner of Palou Avenue and Phelps Street, approximately 0.2 mile south of the SEP boundary. The Youngblood Coleman Playground is located at 1398 Hudson Street, approximately 0.3 mile southeast of the SEP. There are no elementary, middle, or high schools within one-quarter mile of the project site. The following schools and daycare center are located within one-quarter mile of the project site:

- City College of San Francisco, Southeast Center at the Southeast Community Facility (1800 Oakdale Avenue) is located less than 0.1 mile from the project site. City College of San Francisco uses space within the Southeast Community Facility for classrooms, a computer laboratory, library, and administrative services. Services provided include admissions and enrollment, new student counseling, biotech outreach, financial aid, and tutoring services.[1]

- City College of San Francisco, Evans Campus (1400 Evans Avenue), is located approximately 0.2 mile east of the project site and adjacent to the 1550 Evans construction staging site. The Evans Campus provides day, evening, and weekend classes in automotive and motorcycle technology, construction, welding, fashion, business, and custodial training, as well as construction industry workforce training and job placement services for San Francisco residents.[2]

- The Wu Yee South East Child Development Center (1300 Phelps Street), a children's daycare, shares space with the City College Southeast Center at the Southeast Community Facility, less than 0.1 mile from the project site.[3] Early Head Start and Head Start services, for children from birth through age five, are offered at this location.[4]

4.2.1.2 Existing Land Uses at Piers 94 and 96 Staging Areas and in Surrounding Areas

The Piers 94 and 96 staging areas, shown on **Figure 4.2-2**, are largely undeveloped. The Pier 94 staging area east-northeast of Amador Street is currently undeveloped and used for construction staging and storage of flatbed trailers and other pieces of construction vehicles and equipment. The Pier 96 staging area consists of an undeveloped, paved eastern portion that is currently used primarily as a San Francisco Police Department emergency vehicle operations course (with traffic cones

[1] City College of San Francisco, *City College of San Francisco, Southeast: One Stop Service Center*, 2016. Available online at http://www.ccsf.edu/en/our-campuses/southeast/1stop.html. Accessed on July 15, 2016.
[2] City College of San Francisco, *City College of San Francisco, Evans Campus: Administrative Services*, 2016. Available online at http://www.ccsf.edu/en/our-campuses/evans/administrative_services.html. Accessed on July 15, 2016.
[3] Wu Yee Children's Services, *Early care and education*, 2016. Available online at http://www.wuyee.org/center-based-care/. Accessed on July 15, 2016.
[4] U.S. Department of Health & Human Services, *Head Start: About us*, 2016. Available online at https://eclkc.ohs.acf.hhs.gov/hslc/hs/about. Accessed on July 15, 2016.

SOURCE: National Agriculture Imagery Program, Imagery from 2014; City and County of San Francisco, Bayview Hunters Point Area Plan, 2010; Port of San Francisco, Piers 90-94 Backlands Planning, http://sfport.com/pier-90-94-backlands-planning, accessed July 24, 2016; San Francisco Planning, San Francisco Zoning Map, July 2016.

NOTE: Generalized land uses around Piers 94 and 96 staging areas based on the Bayview Hunters Point Area Plan; some mixed residential and commercial uses occur within commerical/industrial/warehouse areas.

SFPUC Biosolids Digester Facilities

Figure 4.2-2

Generalized Land Uses in the Vicinity of Piers 94 and 96 Staging Areas

delineating the course); trucks, containers, and miscellaneous equipment are stored around the edges of this area. Several structures occupy the west side of the Pier 96 staging area: a pier administration building, which includes about six tenants, a steel fabrication facility beneath a metal canopy, and an unoccupied building that appears to have been part of a former weigh station. The Pier 94 Backlands is part of Seawall Lot 352 and currently used for storage of large stockpiles of soil and aggregate; a small one-story shed and water tank are also located in this part of the staging area.

The Piers 94 and 96 staging areas are generally bounded by industrial uses to the south, Cargo Way to the southwest, and industrial uses and San Francisco Bay to the north and east (see Figure 4.2-2).

South of the Piers 94 and 96 staging areas, a Recology recycling facility (Recycle Central) is located along the south side of Pier 96. Heron's Head Park is located at the foot of Cargo Way at Jennings Street, approximately 0.2 mile to the south. The Bay Trail crosses Heron's Head Park near the park entrance and a spur of the Bay Trail extends through the park.

West of the Piers 94 and 96 staging areas, a paved portion of the Bay Trail extends along Cargo Way from Heron's Head Park to Amador Street. The San Francisco Bay Railroad Company operates a yard along the eastern side of Cargo Way (between Cargo Way and the Pier 94 Backlands), where Port cargo and other materials are transferred to railcars.[5] Up to 300 cars can be stored at this rail yard. A mix of primarily commercial and light industrial uses are located on Cargo Way and Evans Avenue between Cargo Way and the nearest residential land uses, which are approximately 0.4 mile southwest of the staging areas. The Youngblood Coleman Playground is approximately 0.4 mile southwest. The nearest school is the City College of San Francisco, Evans Campus, located southwest of Cargo Way at 1400 Evans Avenue, approximately 0.2 mile southwest of the staging areas.

North of the Piers 94 and 96 staging areas, industrial land uses, including concrete plants (Cemex and Central/Bode Concrete), a rendering plant (Darling International), and a sand offloading and storage area (Hanson Aggregate), occupy the area between the Pier 94 Backlands and the Islais Creek Channel. A restored marsh area along San Francisco Bay is located directly north of the Pier 94 staging area east of Amador Street.

4.2.2 Regulatory Framework

Chapter 3, *Plans and Policies*, discusses the land use regulatory framework relevant to the project, and includes summaries of the following applicable land use planning documents: *San Francisco General Plan*, *Bayview Hunters Point Area Plan*, *San Francisco Bicycle Plan*, *Climate Action Plan*, *Plan Bay Area*, *2010 Clean Air Plan*, and *San Francisco Better Streets Plan*.

[5] Union Pacific Rail Road, 2016. *San Francisco Bay Railroad Company SFB #543*. Available online at http://www.up.com/customers/shortline/profiles_q-s/sfb/index.htm. Accessed July 15, 2016.

4.2.3 Impacts and Mitigation Measures

4.2.3.1 Significance Criteria

The project would have a significant impact related to land use if the project were to:

- Physically divide an existing community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or

4.2.3.2 Approach to Analysis

Construction and Operational Impacts

This analysis considers the project's potential to physically divide a community by evaluating the project's location and characteristics in relation to existing land uses in the vicinity and by evaluating whether the project could result in a change in land use at the project site or off-site staging areas (during construction) by creating new facilities and operations that affect established land uses. Regarding consistency with land use plans and policies, the analysis compares the project to applicable policies of the *San Francisco General Plan* and other relevant land use plans and policies adopted for the purpose of avoiding or mitigating an environmental effect. Pursuant to California Environmental Quality Act (CEQA) Guidelines Section 15382, which defines a significant effect as one that would result in a substantial change in the physical environment, and related guidance in Section 15064(d), the analysis does not identify policy conflicts in and of themselves as significant effects.

Cumulative Impacts

Section 4.1.3, Approach to Cumulative Impact Analysis and Cumulative Projects, describes the overall approach to the cumulative analysis for those topics using a list-based approach and summarizes reasonably foreseeable future projects in the vicinity of the project that could contribute to a cumulative impact; please refer to Table 4.1-1 and Figure 4.1-1 for a description and location of potential cumulative projects in the vicinity of the BDFP. The cumulative analysis for land use uses a list-based approach to analyze the effects of the project in combination with other past, present, and probable future projects in the immediate vicinity. The cumulative impact analysis assumes that similar to the project, construction and operations of other projects in the geographical area, listed in Table 4.1-1, would be required to comply with all applicable regulatory requirements, which in some cases would serve to avoid and reduce many impacts to less-than-significant levels on a project-by-project basis.

The cumulative analysis first considers whether or not the proposed project in combination with past, present, and probable future projects in the geographical area would result in a significant, adverse cumulative impact relative to the significance criteria identified above. If not, then the cumulative impact would be less than significant. If so, the analysis then determines whether or not

the project's incremental contribution to the impact would be cumulatively considerable. Both conditions must apply in order for a project's contribution to cumulative effects to be deemed significant. If the project would have a cumulatively considerable contribution to a significant cumulative impact, mitigation measures are identified to reduce the project's contribution to the extent feasible. The geographic scope for potential cumulative land use impacts encompasses areas in the vicinity of project facilities. These areas generally include the SEP and the areas around the SEP within the Bayview-Hunters Point community.

4.2.3.3 Impact Evaluation

Construction and Operational Impacts

Impact LU-1: The project would not physically divide an established community. (Less than Significant)

Project construction would temporarily affect land uses in the project vicinity. During the five-year construction period, the segment of Jerrold Avenue between Phelps Street and the Caltrain right-of-way would be closed to public through-traffic to maintain a safe construction work area. Land uses to the west of this segment of Jerrold Avenue are a mix of commercial and industrial warehouse-type operations (including the San Francisco Wholesale Produce Market), while land uses to the east are a mix of residential and commercial uses. This closure would be temporary. As detailed in Section 4.6, Transportation and Circulation, alternative routes are available and a detour around the temporary road closure would be provided and signed. Moreover, due to the distinct nature of land uses on either side of this segment of Jerrold Avenue (e.g., industrial warehouses to the west and residences and commercial uses to the east), along with the large-scale intervening industrial land uses that comprise the existing SEP site, the area affected by the proposed road closure does not clearly constitute an established community. For these reasons, the closure of Jerrold Avenue would not physically divide an established community.

Proposed temporary use of the Piers 94 and 96 staging areas would occur on parcels without an established community and in areas that are not used by the public, and would not divide or block access between adjacent land uses. Therefore, the proposed use of these sites for staging areas would not divide an established community. Similarly, repurposing 1550 Evans Avenue and the Southeast Greenhouses site for constructing staging also would not divide an established community. The temporary impacts of BDFP construction would thus be less than significant with respect to physically dividing an established community.

Once constructed, the BDFP would operate new solids treatment, odor control, energy recovery, and associated facilities within the existing SEP as well as on property adjacent to the existing SEP. Implementation of the BDFP would effectively expand SEP wastewater treatment operations to the Central Shops and Asphalt Plant sites. As discussed above, the Central Shops and Asphalt Plant sites are currently being used for storage and for industrial uses and are not accessible by the public, similar to the SEP. As the SEP is an existing industrial use, the project would not divide any established land uses. Because the facilities would be constructed in areas that are not currently accessible by the public, and would not block access between adjacent land uses, operation of these

facilities would not divide an established community. In addition, the project would include long-term streetscape and landscape improvements along Jerrold Avenue that would generally enhance the safety and connectivity of this street segment for various transportation modes (e.g., bikes, pedestrians) in the vicinity. Therefore, no adverse impact related to dividing an established community would result from operation of the project.

For the reasons described above, neither construction nor operation of the project would divide an established community and this impact would be ***less than significant.***

Mitigation: None required.

Impact LU-2: The project would not conflict with land use plans and policies adopted for the purpose of avoiding or mitigating an environmental effect. (Less than Significant)

The project would construct wastewater treatment facilities in an area designated as Public Facilities and Light Industrial in the *San Francisco General Plan*, as discussed in Chapter 3, and would implement landscaping and streetscape improvements along Jerrold Avenue. As also discussed in Chapter 3, the project would advance the General Plan objective and policy concerning the location of wastewater facilities and provision of effective and efficient wastewater treatment — the one General Plan objective and one policy under that objective that directly apply to the BDFP. The project would not conflict with relevant objectives and policies of the Bayview-Hunters Point Area Plan, including policies that concern improving the relationship between industry and housing, managing traffic, preserving residential neighborhoods, and implementing energy conservation programs. The proposed streetscape improvements would be consistent with the *Better Streets Plan*.

The project could conflict with General Plan policies related to the preservation of historic resources (refer to Section 4.5, Cultural Resources). As discussed in Chapter 3, land use plans typically contain numerous policies emphasizing differing legislative goals. As such, policies and goals may conflict with one another, depending on the project. On the whole, the BDFP would not conflict with applicable land use plans and policies adopted for the purpose of avoiding or mitigating an environmental effect. This impact is therefore considered ***less than significant***. Whether the project is consistent with particular plans will ultimately be determined at the time of project approval by the agency charged with making that consistency determination.

Mitigation: None required.

Cumulative Impacts

Impact C-LU-1: The project, in combination with past, present, and probable future projects, would not physically divide an established community, nor would it conflict with applicable land use plans and policies adopted for the purpose of avoiding or mitigating an environmental effect. (Less than Significant)

A cumulative land use impact would occur if the proposed project in combination with the cumulative projects were to result in the physical division of an established community or conflict with applicable land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. During the five-year construction period, the project would close the segment of Jerrold Avenue between Phelps Street and the Caltrain right-of-way, which would disrupt access between land uses east of and west of this segment of Jerrold Avenue. Among the cumulative projects identified in Table 4.1-1 and Figure 4.1-1 (in Section 4.1), the following would also affect access in the project vicinity, potentially resulting in the cumulative effect of physically dividing an established community:

- **Land Reuse – 1801 Jerrold Avenue**. This SFPUC and San Francisco Public Works project involves the acquisition by the SFPUC of 1801 Jerrold Avenue and the closure of a one-block segment of Quint Street between Jerrold Avenue and the Caltrain right-of-way.
- **Quint Street Bridge Replacement Project.** This Caltrain project removed the existing Quint Street bridge and constructed a berm in its place, permanently closing Quint Street to through traffic by making it a dead end on either side of the Caltrain tracks.
- **Quint-Jerrold Connector Road**. This project, proposed by the San Francisco County Transportation Authority, is intended to remedy the disruption to travel on Quint Street caused by the preceding project.[6] The Quint-Jerrold Connector Road project would construct a new roadway and related amenities (e.g., sidewalk, street trees, and lighting) to provide access on the west side of the Caltrain tracks between Quint Street and Jerrold Avenue. The new road would also support a potential new Caltrain station at Oakdale Avenue.
- **San Francisco Wholesale Produce Market Expansion**. This project consists of phased development to expand the existing San Francisco Wholesale Produce Market. Two development scenarios are under consideration for this long-term project, both of which would involve reconfiguring Jerrold Avenue to direct through traffic around the Produce Market onto Innes and Kirkwood Avenues. To accomplish this, several streets in the vicinity of the Produce Market (e.g., Jerrold Avenue between Toland and Rankin Streets) would be closed to public traffic.

The proposed road changes/closures listed above would not divide an established community because (as indicated under Impact LU-1) the land uses on either side of the area where street closures or changes would occur – that is, the industrial warehouses to the west of the Caltrain tracks and residences and commercial uses to the east of the Caltrain tracks and the SEP – are distinct areas. Together these areas do not constitute a unified, established community that changes proposed by the cumulative projects would divide. In addition, some land uses directly adjacent to the proposed street

[6] San Francisco Planning Department, *Mitigated Negative Declaration Quint-Jerrold Connector Road Project*, Case No. 2013.0858E, amended September 23, 2015.

changes would be more unified by them. For example, it is expected that the San Francisco Wholesale Produce Market would be more unified by the changes to Jerrold Avenue associated with that project, and the closure of the block of Quint Street between Jerrold Avenue and the Caltrain tracks would help unify the existing SEP site with the Asphalt Plant site that is becoming part of the SEP. Consequently, implementation of the above projects would not result in a significant cumulative impact related to the physical division of an established community. During construction, detours would be provided around affected street segments, and a permanent alternative route would be provided by one of the projects, the Quint-Jerrold Connector Road, which would reduce potential adverse effects on circulation and ensure adequate connections between the different communities on either side of the road closures. For more information on the effects of the roadway changes identified above, refer to the discussion of Traffic Circulation Effects under Impacts C-TR-1 and C-TR-2 in Section 4.6, Transportation and Circulation.

The project is not expected to conflict with any land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect, as discussed under Impact LU-2. The project in combination with past, present and probable future projects identified in Table 4.1-1 would intensify uses in the project vicinity but, like the BDFP, the cumulative projects would be required to comply with applicable regulations and would not substantially change the mix of land uses in the project vicinity. It is therefore expected that, in general, implementation of the cumulative projects in combination with the BDFP would be consistent with relevant plans and policies. An exception to this conclusion may be the San Francisco Gateway project, which proposes to construct new industrial facilities to a height of 115 feet in an area currently zoned with a 65-foot height limit. The consistency of that project with applicable plans, policies, and regulations will be addressed in the environmental impact report (EIR) prepared for it and will be considered by the agency responsible for making a consistency determination about it. Regardless of such determination, the BDFP's incremental contribution to a related cumulative impact would not be cumulatively considerable given the BDFP's overall consistency with applicable plans, policies and regulations. Regarding cumulative impacts related to cultural resources and air quality noted in Impact LU-2, refer to Section 4.5, Cultural Resources, and Section 4.8, Air Quality.

On the basis of the factors discussed above, cumulative land use impacts are considered ***less than significant***.

Mitigation: None required.

4.3 Aesthetics

This section describes the existing visual character of the project site and vicinity and analyzes the potential for the Biosolids Digester Facilities Project (BDFP or project) to affect those conditions, including effects on views from surrounding public areas. This section includes photographs to show existing visual conditions in the project area from various perspectives and photo simulations of visual conditions with implementation of the BDFP. The impact analysis evaluates potential aesthetic impacts of the project and identifies mitigation measures to avoid or reduce significant adverse impacts, as appropriate.

4.3.1 Setting

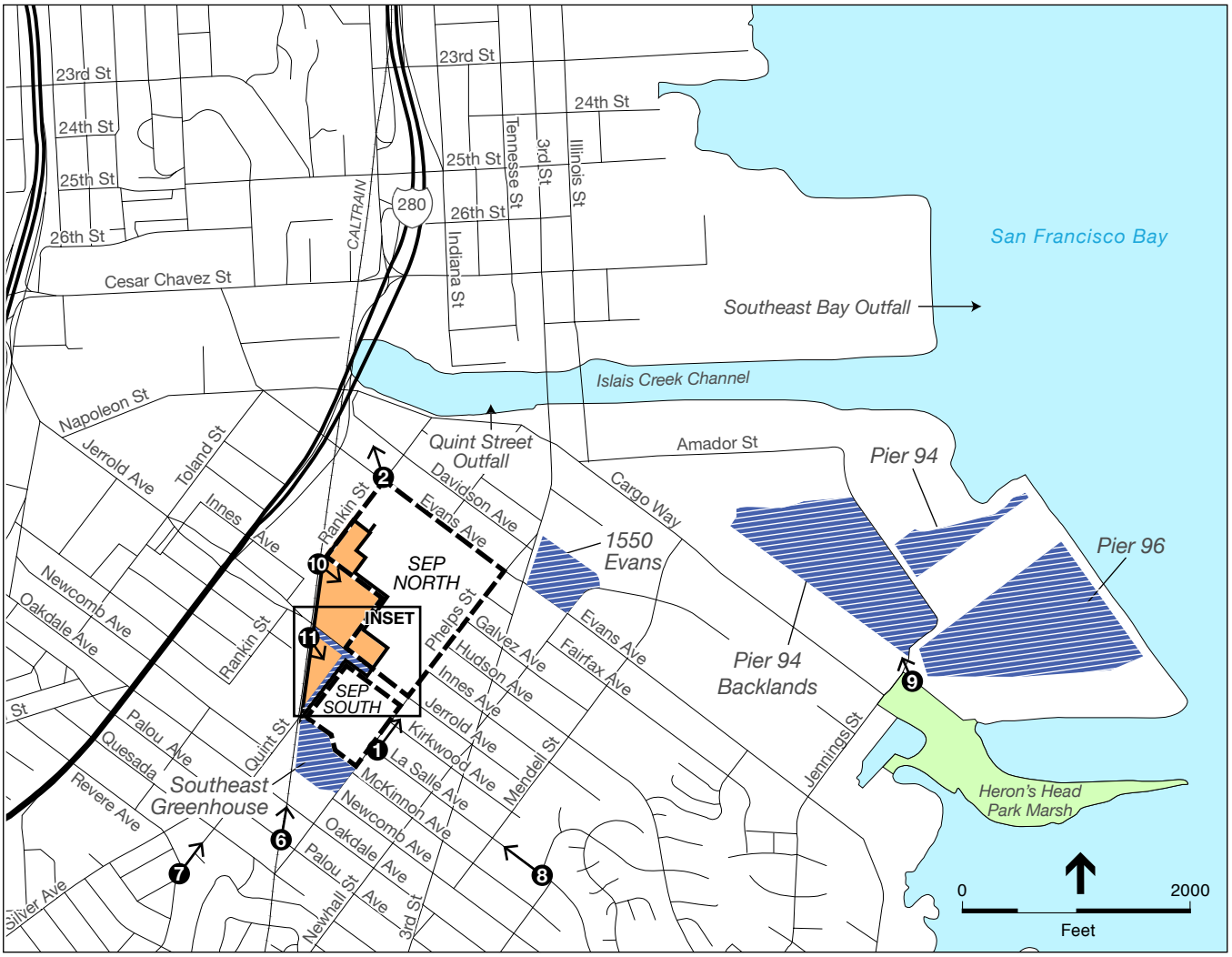
4.3.1.1 Visual Character of Project Site and Surroundings

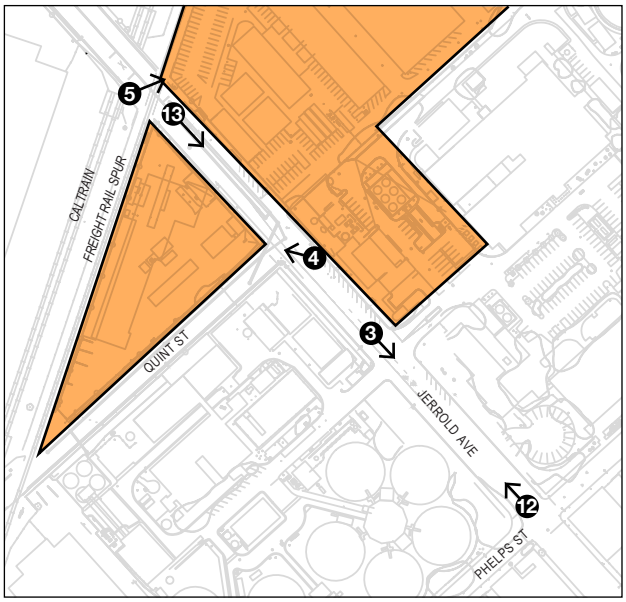
The visual character of the project site and vicinity reflects the mix of industrial, commercial, and residential land uses located in the area. The area north and west of the Southeast Water Pollution Control Plant (Southeast Plant or SEP) is generally industrial, while commercial and industrial areas lie to the east in the area, north of Jerrold Avenue, and residential areas lie to the south and southeast, south of Jerrold Avenue. **Figure 4.3-1** provides a map showing the location and direction of photograph viewpoints presented in this section. **Figures 4.3-2** and **4.3-3** show views of the site and surroundings near the project site, and **Figures 4.3-4** and **4.3-5** show long-range views toward the project site from hillslopes south and southeast of the site.

Topography

Topography is relatively flat at the project site and to the west, north, and northeast, except for the 15-foot-tall Caltrain berm, which separates the project site from other flat industrial lands to the west. The land starts to gradually slope upward near the SEP's southern boundary, and then steepens south of Oakdale Avenue to become Silver Terrace, a hill that overlooks the project site from the south. Another hill (Stony Hill) rises to the southeast of the SEP, east of Mendell Street. Hills to the west are more distant; the western slopes of Bernal Heights lie west of Highway 101, approximately three-quarters of a mile from the project site's western boundary. Because the project site is located in a densely developed and relatively flat, low-lying industrial area, there are no scenic views or vistas[1] in the vicinity, and the SEP is not a prominent or distinct feature within the middle ground of any distant scenic views or vistas from other areas (e.g., from Bernal Heights or Silver Terrace toward the Bay).

[1] A scenic vista is generally considered to be a location from which the public can experience unique and exemplary high-quality views—typically from elevated vantage points that offer panoramic views of great breadth and depth.





SFPUC Southeast Plant (SEP) Boundary

Project Site (Limited work at SEP North is also proposed to integrate liquid treatment facilities with BDFP facilities. In addition, street improvements would occur along Jerrold Avenue west of Phelps Street)

Potential Construction Staging Areas (Staging may also occur within the existing SEP boundary)

Photo Location and Number

Direction of View

SOURCE: San Francisco Public Works 2005 GIS data; ESA+Orion, data developed in 2016 for BDFP

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Figure 4.3-1

Photo Location Map

Photo 1 - Phelps Street near LaSalle Avenue facing northeast

Photo 2 - Rankin Street at Evans Avenue facing northwest

SOURCE: ESA+Orion

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Figure 4.3-2
Views of SEP and Surrounding Area
from Phelps and Rankin Streets

Visual Character

Project Site

SEP

The SEP site on both sides of Jerrold Avenue (SEP North and SEP South) is densely developed with industrial buildings, tanks, pump stations, piping, and other associated facilities. Figure 2-3 in Chapter 2, *Project Description*, indicates the location of existing facilities at the SEP.

The project site includes portions of SEP North near Rankin Street and Jerrold Avenue. Except for a 200-foot-tall chimney within SEP South near Quint Street (visible in Photos 6 and 7 on Figure 4.3-4 and in Photo 8 on Figure 4.3-5), the tallest structures are up to 65 feet in height; these include the Oxygen Generation Air Separators, which resemble two square towers at the oxygen generation building in SEP North, and waste gas burners and bin hoppers in SEP South. One of the existing headworks buildings extends for about 400 feet along Evans Avenue between Rankin Street and Phelps Street and is 62 feet tall. The other existing headworks building is on Rankin Street, just southwest of Evans Avenue, and is 60 feet tall. The digesters, located in the eastern half of SEP South adjacent to Phelps Street and Jerrold Avenue, are each approximately 100 feet in diameter and 30 feet in height. A 12-foot-tall wall surrounds most of the site, except at the offices and maintenance building on Phelps Street and the existing Headworks building, which abuts the sidewalk on Evans Avenue. The wall is constructed of concrete with a red brick veneer and topped with security bars painted black (see Photos 1, 3, and 4 on Figures 4.3-2 and 4.3-3).

As described in Section 4.5, Cultural Resources, most of the buildings and tanks at the SEP are constructed in the modern Streamline Moderne and Brutalist architectural styles. A total of 26 buildings and tanks in the Streamline Moderne style are part of the Southeast Treatment Plant Streamline Moderne Industrial Historic District (shown on Figure 4.5-2 in Section 4.5, Cultural Resources), which is eligible for listing on the National Register of Historic Places. Defining features of the Streamline Moderne style seen in SEP structures include board-formed concrete wall surfaces, glass block windows, cast concrete double moldings around windows and doors, and flat roofs with tile coping at the roofline.[2] Buildings in the Brutalist style (the name of which derives from the French term for raw concrete) are typically constructed of poured concrete with a rough blocky appearance, repetitive angular geometries, recessed windows, and geometric patterns including vertical and horizontal scoring.[3] The office and maintenance building on Phelps Street and the existing headworks building on Evans Avenue are the most visible SEP structures in the Brutalist style. The site also includes buildings that were added more recently and designed in utilitarian versions of Post Modern and Modern/Industrial architectural styles. The overall visual character of the SEP is represented by the perimeter brick-veneer wall surrounding interior structures of generally similar architectural styles that are mostly painted pale yellow or a similar color (ranging from buff to terra cotta) or have unpainted concrete surfaces. The existing headworks building on

[2] Brewster, Brad (ESA), California Department of Recreation Primary Record for 750 Phelps Street (San Francisco Public Utilities Commission [SFPUC] Southeast Water Pollution Control Plant), June 2015.
[3] Ibid.

Photo 3 - Jerrold Avenue at Quint Street facing southeast

Photo 4 - Jerrold Avenue near Quint Street facing west toward asphalt plant

Photo 5 - Jerrold Avenue facing northeast toward Central Shops site

SOURCE: ESA+Orion

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Figure 4.3-3

Views of BDFP Project Site, SEP from Jerrold Avenue

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Photo 6 - Palou Phelps Mini Park facing north (chimney at SEP at center of photo)

Photo 7 - Quint Street at Maddux Avenue facing northeast (chimney at SEP at center of photo)

SOURCE: ESA+Orion

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Figure 4.3-4

Views Toward BDFP Project Site from South

Photo 8 - LaSalle Avenue at Cashmere Street facing northwest

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Figure 4.3-5
View Toward BDFP Project Site from Southeast

Evans Avenue and SEP offices and maintenance building on Phelps Street are beige concrete; green ductwork near the existing headworks buildings provides some visual contrast. The perimeter brick-veneer wall and similar architectural styles and coherent color scheme of structures within the site lend visual cohesion to the SEP facility.

Central Shops Site

The Central Shops site includes two fully enclosed permanent buildings, Buildings A and B (one and two stories, respectively), constructed in the Industrial Modern architectural style (as discussed in more detail in Section 4.5, Cultural Resources, Section 4.5.1); a smaller open-sided building, Building C (one story); several portable buildings; and a parking area currently used for City and County of San Francisco (CCSF or City) vehicles (see Photo 5 on Figure 4.3-3). The site is surrounded by a chain-link fence topped by razor wire. Buildings A and B have small-paned steel sash windows, which have been whitewashed or coated with translucent film, covering the upper two-thirds of the building façade. Building B is about 50,000 square feet in area and about 30 feet tall, Building A is about 16,200 square feet in area, and Building C is about 13,000 square feet.[4] The portable buildings are each one story with white walls and together occupy about one-half acre.

[4] JRP Historical Consulting, LLC, Department of Parks and Recreation (DPR) form, 1800 Jerrold Avenue Prepared for the San Francisco Public Utilities Commission, November 2014. On file with the San Francisco Planning Department.; reference case number 2015.000644, Biosolids Digester Facilities Project.

Asphalt Plant Site

The Asphalt Plant site (shown in Photo 4 on Figure 4.3-3) includes several prominent decommissioned pieces of equipment—a steel asphalt-mixing structure that is about 65 feet long and 40 feet tall, two asphalt silos that are about 10 feet in diameter and 30 feet tall, and aggregate storage bins that are about 25 feet tall and have a combined length of about 100 feet—as well as a 220-foot-long, single-story storage shed along the back of the site, parallel to the Caltrain tracks; and other associated industrial buildings and equipment that contribute to the industrial character of the site. A chain-link fence topped by razor wire surrounds the site.

Surrounding Areas

The residential neighborhood adjacent to the SEP (shown in Photo 1 on Figure 4.3-2) extends south from Jerrold Avenue and east from the east side of Phelps Street. It consists primarily of closely spaced one- to three-story residences and includes single-family and multi-family units with some interspersed commercial uses. The units reflect a mix of housing styles and are painted primarily in subdued neutral and pale pastel colors.

Commercial land uses bordering the SEP on the east side of Phelps Street north of Jerrold Avenue and on the north side of Evans Avenue are housed in utilitarian one- and two-story buildings set close to the sidewalk. Most of the buildings are corrugated metal interspersed with a few stucco and brick buildings. Rooflines vary from flat to low- and medium-pitched. Near the northwestern corner of the SEP, a gray corrugated metal fence that until recently enclosed an auto salvage yard lines most of the block opposite the SEP on the north side of Evans Avenue between Quint and Rankin Streets, and an industrial scrap iron and metal dealer is located opposite the SEP on the west side of Rankin Street. Interstate 280 (I-280), an elevated, divided six-lane freeway west of the scrap metal dealer, is a prominent visual feature in this area. A view of this area, facing northwest from the SEP, is shown in Photo 2 on Figure 4.3-2. The scrap metal business includes several long windowless, two-story warehouses and fenced-in scrap yards on the west side of Rankin Street south of Evans Avenue. This block of Rankin Street dead-ends at the Caltrain berm near the back of the Central Shops site, has no sidewalks, includes the rail spur tracks, provides parking for heavy-duty haul vehicles and equipment, and has several bins and barrels holding scrap metal and scrapped equipment on the side of the street. It appears that structures on this block of Rankin Street are often subject to graffiti, probably due to the low level of public use of this area.

Numerous food and beverage distribution warehouses, including the San Francisco Wholesale Produce Market, are located west of the Caltrain berm to the west of the project site. Buildings in this area consist primarily of large one- and two-story, mostly windowless warehouses made of corrugated metal with flat or low-pitched roofs. Streets in the area are wide, and the warehouses include loading bays and substantial paved areas to accommodate large trucks. Chain-link fences surround many of the properties. Aboveground utility poles and lines contribute an element of visual clutter to the streetscapes in the project area.

Street-facing trees, which constitute a visual resource in this urbanized setting, line the south side of Evans Avenue and both sides of Phelps Street and Jerrold Avenue in the project site vicinity. Many of the trees on Evans Avenue are young and currently provide minimal screening or shade, but can be

expected to grow and enhance the visual environment over time. Most of the trees on Phelps Street and Jerrold Avenue are more mature and contribute more to the visual setting.

4.3.1.2 Visual Character of Potential Off-Site Staging Areas[5]

Piers 94 and 96

The Piers 94 and 96 staging areas are located in a mostly flat, expansive, highly industrialized port area. The elevation of the Pier 94 Backlands area is slightly higher than that of the piers, and the area is currently used for storage of large piles of dredged sand and other materials (see Photo 9, **Figure 4.3-6**). (As part of the Pier 90-94 Backlands Improvements project described in Section 4.1, the Port of San Francisco intends to remove these materials and make other site improvements.) The Piers 94 and 96 staging areas east of Amador Street include expanses of paved surface area interspersed with few structures and buildings. Container cranes are located on the east end of Pier 96. Recology's recycling facility, housed in a large corrugated metal building, is located on the south side of Pier 96, and a rail transfer facility operated by San Francisco Bay Railroad Company is located between Cargo Way and the Pier 94 Backlands.[6] Numerous heavy industrial uses are located between the Islais Creek Channel and Amador Street north of the Pier 94 and Pier 94 Backlands staging areas. There is also a paved portion of the Bay Trail that extends along Cargo Way from Heron's Head Park to Amador Street.[7]

Photo 9 - Heron's Head Park facing northwest

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Figure 4.3-6
View Toward Pier 94 Backlands Staging Area from Heron's Head Park

[5] The visual character of the staging areas on Quint Street and Jerrold Avenue is the same as described above for the project site, which they border.
[6] San Francisco Bay Railroad. Available online at http://www.sfbayrail.com/. Accessed on August 22, 2016.
[7] San Francisco Bay Trail Project, San Francisco Bay Trail Navigational Map. Available online at http://www.baytrail.org/baytrailmap.html. Accessed on April 5, 2017.

Just south of Pier 96, Heron's Head Park is a small peninsula with low-growing vegetation and restored wetlands that extends about one-half mile into the Bay parallel to the south side of Pier 96. Heron's Head Park contains an entrance to a portion of the Bay Trail that extends through the park via a dirt/gravel path. Except for a knoll near the park entrance, on which a small one-story building (the park's education center) is located, the park and its surroundings are relatively flat. The low-growing vegetation and generally flat topography afford views in many directions from the single wide path that extends the length of the park. While the relatively natural landscape within the park is visually different from surrounding areas, the park is narrow, has a paved parking area near the entrance, and as seen from nearby roadways does not substantially influence the overall visual character of the area. The visual character of the park vicinity is primarily industrial due to the surrounding land uses, which include port facilities and activities at Piers 96 and 94 to the north and northwest, an electrical substation to the south, and warehouses and related industrial structures to the west.

Southeast Greenhouses

This staging area is located at 1150 Phelps Street, between the existing digesters and Southeast Community Facility. Most of the Southeast Greenhouses are low, nondescript, one-story structures with whitewashed windows, set back from the street. The most prominent features of the greenhouses are four tall, narrow structures near the edge of the property on Phelps Street. As a separate action from the BDFP, the San Francisco Public Utilities Commission (SFPUC) plans to demolish the existing structures at the Southeast Greenhouses site (refer to Table 4.1-1 in Section 4.1). The site would be used for construction staging for the project if it becomes available prior to BDFP construction.

1550 Evans Avenue

This staging area is located at the corner of Evans Avenue and Third Street, a major arterial in this part of San Francisco. Existing buildings and fencing are set back from both Evans Avenue and Third Street, separated from the sidewalk by a grass berm and trees next to perimeter fencing. There are also trees between the sidewalk and street, although these are younger and smaller than the trees along the berm. The fencing and two-story buildings that can be seen from the street are painted brick red, which provides visual cohesion to the site. The berm and trees on Third Street continue to the north and south of the site, providing visual continuity with these adjacent areas. The site is across Evans Avenue from the Bayview Plaza shopping center, consisting of two-story retail and office buildings surrounding a central paved parking area, across Newhall Street from City College of San Francisco Evans Campus, and across Third Street from two gas stations. Other light industrial and commercial businesses in the area are housed in utilitarian two or three-story buildings interspersed with parking areas.

4.3.1.3 Views

The project site and nearby staging areas (i.e., Southeast Greenhouses site, 1550 Evans Avenue) are located in a densely developed and generally flat, low-lying area of the city. Views of the sites are typically very short-range, primarily from adjacent areas (as shown in Photo 1 on Figure 4.3-2 and on Figure 4.3-3), due to the intervening structures (and, to some extent, trees) between the sites and an observer located at greater distances. The clearest view corridors toward the project site and nearby staging areas are provided by adjacent streets, and these views are nevertheless limited by nearby structures and trees or, in the case of views of the project site from higher elevations, by distance (as shown on Figures 4.3-4 and 4.3-5). The views of the project site and staging areas from street corridors are necessarily brief as the viewer (motorist, bicyclist, or pedestrian) moves through the area.

From the higher-elevation vantage points, the project site appears below the horizon line (except for the existing 200-foot-tall chimney located within SEP South). Therefore, structures at and near the SEP are less noticeable from these vantage points than if more of the site's structures could be seen against the sky or Bay.

In addition, fleeting views of the project site and the SEP are available to passengers traveling on Caltrain between the 22nd Street and Bayshore stations, since the train tracks lie directly adjacent to the project site. This route carries large numbers of people commuting between San Francisco and various locations on the Peninsula, and close-up views of the project site dominate the foreground of views of this part of the city. **Figure 4.3-7** shows fleeting views from the southbound Caltrain local route, train #190; Photo 10 shows the Central Shops site and Photo 11 shows the Asphalt Plant site.

Views of the Piers 94/96 staging areas are substantially limited by intervening structures and landscaping. Existing views toward the Piers 94 and 96 staging areas from Cargo Way and from industrial areas located south of Cargo Way are largely blocked by materials stored in the Backlands area and to a lesser extent by the small street trees along Cargo Way. Similarly, views north and west toward the Pier 94 Backlands area from the entrance of Heron's Head Park are largely blocked by nearby structures on Jennings Street and the stored materials, as shown on Figure 4.3-6.

Farther into Heron's Head Park, the recycling building and cranes at Pier 96 are visible to the north. Wider streets along Cargo Way near the Piers 94 and 96 staging areas and near the 1550 Evans Avenue staging area provide somewhat longer views toward these staging areas. However, wider streets also may involve higher speed limits (making views more transitory) and intervening structures and landscaping limit views from street corridors in these areas as well.

Photo 10 - Southbound Caltrain Local Route Train #190 facing southeast toward Central Shops site

Photo 11 - Southbound Caltrain Local Route Train #190 facing southeast toward Asphalt Plant site

SOURCE: ESA+Orion

SFPUC Biosolids Digester Facilities

Figure 4.3-7
View (Fleeting) Toward BDFP Project Site from
Southbound Caltrain Local Route, Train #190

4.3.2 Regulatory Framework

4.3.2.1 Federal Regulations

No federal regulations related to aesthetics apply to the project.

4.3.2.2 State Regulations

Scenic Highway Program

In 1963, the state legislature established the California Scenic Highway Program, a provision of the Streets and Highways Code, to preserve and enhance the natural beauty of California. The State Highway System includes highways that either are eligible for designation as Scenic Highways or have been designated as such. There are no officially designated Scenic Highways in San Francisco County, although I-280 is identified as an Eligible State Scenic Highway along its length in the county.[8]

California Green Building Code

The California Green Building Code includes mandatory requirements for exterior light sources to reduce the amount of light and glare that extends beyond a property. Non-residential mandatory measures contained in Section 5.106.8, Light Pollution Reduction, require that exterior lights be shielded or meet "cutoff" lighting standards and meet specified backlight, uplight, and glare ratings designed to limit the amount of light that escapes beyond a site's boundary.

4.3.2.3 Local Regulations

Several local plans and policies, including the *Bayview Hunters Point Area Plan* and the Accountable Planning Initiative (described in Chapter 3, *Plans and Policies*), and the Arts Commission Civic Design Review guide elements of project design in the BDFP vicinity and relate to aesthetics but do not otherwise inform the California Environmental Quality Act (CEQA) analysis of aesthetic impacts. Thus, they are not discussed below**.**

San Francisco General Plan

The Urban Design Element of the *San Francisco General Plan* concerns the physical character and order of the city, and the relationship between people and their environment. It includes a "Quality of Street Views" map that rates city streets as "excellent," "good," or "average" for the quality of their views. In the project area, Jerrold Avenue between Phelps Street and Quint Street is identified as having good-quality street views. The remainder of Jerrold Avenue in the project area (northwest of Quint Street and southeast of Phelps Street) is rated as having average-quality street views. Rankin Street and Quint Street northeast of the SEP (from Evans Avenue to where the streets end near the

[8] California Department of Transportation (Caltrans), California Scenic Highway Mapping System, San Francisco County. Available online at http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/lists/2016-02_OD_and_E.xlsx. Accessed on July 19, 2016.

Islais Creek Channel) are rated as having good-quality street views. Rankin Street south of the SEP and Phelps Street along the SEP boundary northeast of Jerrold Avenue are also rated as having average-quality street views. Oakdale Avenue between Phelps Street and I-280 is rated as having good-quality street views, and a block of Quint Street between Oakdale and Newcomb Avenues is rated as having excellent-quality views.

General Plan policies relevant to the analysis of the project's aesthetic effects include the following:

- **Transportation Element Policy TRA.PED.24.2*:*** Maintain and expand the planting of street trees and the infrastructure to support them.

San Francisco Better Streets Plan

The *San Francisco Better Streets Plan* (*Better Streets Plan*)[9] was adopted in 2010. As discussed in Chapter 2, *Project Description*, Section 2.4.2.3, proposed architecture and landscaping associated with the BDFP would be designed consistent with the *Better Streets Plan*. *Better Streets Plan* policies related to enhancing the attractiveness of the streetscape and addressing light and glare effects include maximizing opportunities for street trees and other plantings, ensuring adequate light levels and quality for pedestrians and other sidewalk users, and minimizing light trespass and glare to adjacent buildings.

Better Streets Policy

San Francisco's Better Streets Policy was adopted and added to the City's Administrative Code as Chapter 98 in 2006. It includes the following provisions of particular relevance to visual character and quality:

- **Section 98.1(c):** The Better Streets Policy also is intended to ensure that the City's public rights-of-way become:
  - (1) Attractive, safe, and useable public open spaces corridors with generous landscaping, lighting, and greenery
  - (3) Providers of access to properties, public view corridors, light, and air
- **Section 98.1(d):** As part of an approval or decision concerning any public and private project that impacts or is adjacent to a publicly accessible right-of-way, all City departments shall coordinate their various determinations regarding the planning, design, and use of public rights-of-way in accordance with the Better Streets Policy and the following supporting principles:
  - (7) The design of the right-of-way and adjacent development, including the maintenance and removal of street trees and other landscaping, allowance of curb cuts, and placement of utilities, have significant impact on the street environment. Decisions regarding street design must consider and prioritize pedestrian safety, enjoyment, and comfort.

[9] City and County of San Francisco, *San Francisco Better Streets Plan,* adopted by the San Francisco Board of Supervisors on December 7, 2010. Available online at http://www.sf-planning.org/ftp/BetterStreets/proposals.htm#leg. Accessed April 5, 2017.

Urban Forestry Ordinance

San Francisco's Urban Forestry Ordinance, Article 16 of the San Francisco Public Works Code, was enacted to ensure the protection of several categories of trees. "Street Trees" is the category that is particularly relevant to the visual character of the project site vicinity. Section 806, Planting and Removal of Trees, provides guidance regarding planting and removal of trees, including by City agencies, commissions, and departments.

San Francisco Green Building Code

The San Francisco Green Building Code was adopted in 2008 and became part of the San Francisco Building Inspection Commission Code; its requirements are intended to reduce energy and water use, divert waste from landfill, encourage alternative modes of transportation, and support the health and comfort of building occupants in San Francisco. The requirements were updated in 2010 to combine the mandatory elements of the 2010 California Green Building Standards Code with stricter local requirements, and updated again in 2013 to incorporate changes to California's Green Building Standards and Energy Efficiency Standards (California Building Code Title 24 Part 6 - 2013).[10] The San Francisco Green Building Code incorporates California Green Building Code requirements to reduce light pollution (described in Section 4.3.2.2, State Regulations, above).

Industrial Area Design Guidelines

The City's Industrial Area Design Guidelines (IADG) support the San Francisco General Plan and Planning Code and act as a tool to implement their objectives, policies and requirements. The IADG are primarily concerned with whether a design respects established context, contributes to the visual quality of surroundings, and maintains or creates appropriate streetscapes. The IADG identify the context of the area where the project site is located as "a primarily industrial context." The IADG's main objective for primarily industrial context is to "maintain and enhance the unique architectural character of predominantly industrial districts while still allowing for an appropriate integration of new development."[11]

Reflective Glass (Planning Commission Resolution 9212)

Planning Commission Resolution No. 9212 (1981) established a pair of guidelines for reviewing and acting on proposed building projects. The first guideline states that clear, untinted glass should be used at and near the street level. The second guideline states that mirrored, highly reflective, or densely tinted glass should not be used except as an architectural or decorative element. By prohibiting mirrored or reflective glass, this resolution serves to limit glare.

[10] San Francisco Department of the Environment, San Francisco Green Building Code. Available online at http://sfenvironment.org/article/new-construction-and-major-renovations/green-building-ordinance-san-francisco-building-code. Accessed on March 21, 2016.

[11] City and County of San Francisco, San Francisco Planning Department, Industrial Area Design Guidelines, August 2001.

Local Roadway Designations

San Francisco's Downtown Association created the 49-Mile Scenic Drive in 1938 to highlight San Francisco's beauty and to promote the city as a tourist destination. The scenic roadway nearest to the SEP and off-site staging areas is Cesar Chavez Street between I-280 and Dolores Street. This roadway is recognized for its aesthetic value. At its nearest point (Cesar Chavez Street at I-280), this scenic roadway is about one-third mile from the SEP and three-quarters of a mile from the Piers 94 and 96 staging areas. From this scenic roadway, the freeway and numerous intervening structures block views toward the project site and staging areas.

SFPUC Standard Construction Measure 8

The SFPUC would implement standard construction measures for the BDFP (described in **Appendix SCM**), including the following measure applicable to aesthetic resources:

- All project sites will be maintained in a clean and orderly state. Construction staging areas will be sited away from public view where possible. Nighttime lighting will be directed away from residential areas and have shields to prevent light spillover effects. Upon project completion, project sites on SFPUC-owned lands will be returned to their general pre-project condition, including re-grading of the site and re-vegetation or re-paving of disturbed areas to the extent this is consistent with SFPUC's Integrated Vegetation Management Policy. However, where encroachment has occurred on SFPUC-owned lands, the encroaching features may not be restored if inconsistent with the SFPUC policies applicable to management of its property. Project sites on non-SFPUC land will be restored to their general pre-project condition so that the owner may return them to their prior use, unless otherwise arranged with the property owner.

4.3.3 Impacts and Mitigation Measures

4.3.3.1 Significance Criteria

The project would have a significant impact related to aesthetics if the project were to:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and other features of the built environment or natural environment which contribute to a scenic public setting;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area, or which would substantially impact other people or properties.

Due to the nature of the proposed project, there would be no impact related to the following topic for the reasons described below:

- ***Have a substantial adverse effect on a scenic vista.*** There are no scenic vistas in the project vicinity, and no scenic vistas would be affected by the project because the project site and off-site staging areas are located in a low-lying densely developed industrial part of the city. Most views of the site are limited to short-range views from adjacent streets or properties, because intervening development would obstruct longer-range views from similar elevations. As seen from higher elevations, such as hillsides to the south that have views toward the Bay, project

facilities would be below the horizon, in the middle-ground of such views, and barely noticeable or indistinguishable from surrounding development. Therefore, this significance criterion is not discussed further in this environmental impact report (EIR).

4.3.3.2 Approach to Analysis

The visual quality impact analysis is based on field observations conducted by ESA in July 2015; review of project maps and drawings; aerial and ground-level photographs; simulations of the project within photographs; and review of a variety of data in the record, including local planning documents. The analysis evaluates potential temporary (short-term) and permanent (long-term) project impacts on visual character and views of the site as seen from nearby and more distant urban locales, and the potential visual impacts of the proposed temporary use of off-site staging areas. The approach to evaluating the effect of the project under each applicable significance criterion is briefly described as follows:

- ***Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings which contribute to a scenic public setting.*** Damage to a scenic resource is substantial when it is reasonably perceptible to affected viewers and when it appreciably degrades one or more of the aesthetic qualities that contributes to a scenic setting. Given the industrial, intensely urbanized setting of the project site and off-site staging areas, the only scenic resources potentially affected are street trees and other landscaping. This analysis considers the presence of and potential damage to scenic resources, along with project-related effects on the existing visual character and quality of a site or surroundings (see next bullet).

- ***Substantially degrade the existing visual character or quality of the site and its surroundings.*** A project is considered to "substantially degrade" the visual character or quality of a site if it would have a strongly negative influence on the public's experience and appreciation of the visual environment. As such, visual changes are considered in the context of the site and locale's visual sensitivity. Visual sensitivity is the overall measure of a site's susceptibility to adverse visual changes based on the combined factors of visual quality, viewer types and volumes, and viewer exposure to the project. Due to the industrial, utilitarian character of the SEP, the Asphalt Plant and Central Shops sites, and the staging area sites, the visual quality of the project site and staging areas is considered moderate to low. Views of the project site from public areas are limited to those available to motorists, bicyclists, and pedestrians passing by on adjacent streets. Views of the project site from public areas within the residential area southeast of the SEP are limited by intervening structures and landscaping. Views of the off-site staging areas are similarly limited by intervening structures and landscaping. Therefore, overall the number of viewers and their exposure to views of the project and staging area sites are limited. Visual changes caused by the project are evaluated in terms of their visual contrast with the area's predominant landscape elements and features, their dominance in views relative to other existing features, and the degree to which they could block or obscure views of aesthetically pleasing landscape elements. Visual changes are also evaluated in terms of potential damage to or removal of features of the natural or built environment that contribute visual appeal to a public setting. The magnitude of visual change that would result in a significant impact (i.e., substantial degradation) is influenced by its degree of permanence, and is inversely related to the visual sensitivity of a site (that is, more visual change could occur at a site with low visual sensitivity without resulting in a significant impact, compared to a site with greater visual sensitivity, which could be substantially degraded by a smaller degree of visual change).

- ***Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area or which would substantially impact other people or properties.*** This criterion

is applicable to project components that require nighttime lighting (either during construction or operation), or that involve structures or finishes that could create substantial glare. If there are project components that would create glare, the analysis determines if new sources of glare would adversely affect day or nighttime views in the area or would substantially affect other people or properties.

Construction Impacts

The evaluation of temporary visual impacts considers whether project construction activities could substantially degrade the existing visual character or quality of the site or surrounding area, including potential impacts on scenic resources, or introduce substantial new sources of light and glare during nighttime construction.

Operational Impacts

Permanent visual impacts were assessed based on the project's potential to substantially alter scenic resources (by removing trees and other landscaping), introduce substantial new sources of light and glare, or permanently alter the urban landscape in a manner that would adversely affect the visual character or quality of the area. The visual sensitivity of the project area was also a factor in determining impact potential.

Cumulative Impacts

Section 4.1.3, Approach to Cumulative Impact Analysis and Cumulative Projects, describes the overall approach to the cumulative analysis for those topics using a list-based approach and summarizes probable future projects in the vicinity of the project that could contribute to a cumulative impact; please refer to Table 4.1-1 and Figure 4.1-1 for a description and location of potential cumulative projects in the vicinity of the BDFP. The cumulative analysis for aesthetics uses a list-based approach to analyze the effects of the project in combination with other past, present, and probable future projects in the immediate vicinity. The effects that construction at the project site and construction equipment and activities at the staging areas could have on the visual character of the area would not fundamentally differ from the visual effects of the project during operations (except that the staging areas would no longer be used in connection with the project); therefore, these cumulative impacts of construction and operation are analyzed together; cumulative light and glare impacts of construction and operation are analyzed separately. The cumulative impact analysis assumes that construction and operations of other projects in the geographical area, listed in Table 4.1-1, would be required to comply with the same regulatory requirements as the project, which would serve to avoid and reduce many impacts to less-than-significant levels on a project-by-project basis. The analysis then considers whether or not there would be a significant, adverse cumulative impact associated with project implementation in combination with past, present, and probable future projects in the geographical area, and if so, whether or not the project's incremental contribution to the cumulative impact would be considerable. Both conditions must apply in order for a project's contribution to cumulative effects to be deemed cumulatively considerable (significant). If so, then mitigation measures are identified to reduce the project's contribution to the extent feasible.

The geographic scope of the cumulative analysis includes all projects that would be located within the publicly accessible viewshed of the project. The cumulative project sites do not necessarily need to be visible simultaneously with the BDFP site from one fixed vantage point, but for an impact to occur, the sites must be visible in the same general vicinity as a viewer looks around or travels about. As stated above, the visual setting of the project site and SEP is defined by topography and the density of development in the area. Therefore, the geographic scope of cumulative aesthetic impacts extends about 2,000 feet in every direction from the combined project site and SEP boundaries. This distance is consistent with the most distant of the long-range views presented in Section 4.3.1, Setting (Figure 4.3-5). Due to the density of development in the area and the project's location in a topographically low area, most views of the project site are much shorter-range. The analysis also includes consideration of cumulative projects at and near Piers 94 and 96 due to their proximity to the Piers 94 and 96 staging areas.

4.3.3.3 Impact Evaluation

Construction Impacts

Impact AE-1: Project construction would not substantially degrade the existing visual character of the site or its surroundings or damage scenic resources. (Less than Significant)

Project Site

Equipment associated with project construction would be smaller than or similar in size and height to other equipment and buildings in the area, and much of it would be similar in character to equipment typically used at industrial sites in the area, including equipment used for ongoing repair and replacement activities at the SEP. In addition, over the five-year construction period, much of the project demolition and construction activities and equipment would not be visible from public streets and residential, commercial, and industrial properties in the area because views of the project site would be blocked by other SEP buildings on the north and east of the project site, the 15-foot-tall Caltrain berm on the west, and other surrounding buildings in the area, as discussed in Section 4.3.1.3, Views. Views from adjacent or nearby streets for passing motorists, bicyclists, and pedestrians, including those from Caltrain, would be brief and quickly replaced by succeeding streetscape views as the viewer moves through the area. The potential closure of Jerrold Avenue east of the Caltrain tracks for use as a staging area would further limit views of project construction. Because the project site is situated in a topographically low area, some project construction may be discernable from hills to the south and southeast but is not expected to substantially affect such views due to distance; the project area as seen from these higher elevations would be below the horizon and difficult to distinguish from surrounding land uses (refer to Figures 4.3-4 and 4.3-5, above). The visual effect of the Quint Street and Jerrold Avenue staging areas would be as described above for the project site; staging activities and equipment would be similar in character to activities and equipment used at surrounding industrial sites and would not substantially degrade the visual character of the area.

Piers 94/96

The off-site staging areas are also located in areas that are largely industrial in character, and their use for construction staging would be similar to the existing visual character of the sites and their

surroundings. Staging areas would primarily accommodate office trailers, construction materials such as pipe, wiring and formwork, truck parking, and construction workforce parking; a shuttle service would transport workers between the staging area and project site at the beginning and end of each shift.[12] The Piers 94 and 96 staging areas are designated for port and heavy industrial uses and surrounded by industrial land uses. Portions of these areas are currently used for storage of dredged sand and demolition debris (e.g., the former Embarcadero Freeway) which may shield views toward portions of these staging areas from some directions, assuming this use continues. Views toward Piers 94 and 96 from Heron's Head Park (and the Bay Trail) are partially blocked by intervening structures and topographic features (see Figure 4.3-6, above), and the activities and equipment associated with construction staging would be similar in character to current uses of the piers; therefore the equipment and activities associated with project staging would not adversely affect views from the park.

Southeast Greenhouses Site

One side of the Southeast Greenhouses site borders a residential neighborhood and another side borders the Southeast Community Facility. As noted above in Section 4.3.1.2, the SFPUC plans to demolish buildings at the Southeast Greenhouses site as part of a separate project. Use of the site for temporary construction staging, if the site becomes available, would not substantially degrade the visual character of the area given its existing visual character and future appearance following removal of the structures at the site.

1550 Evans Avenue Site

As part of the project, the SFPUC would remove some perimeter trees and other landscaping along Evans Avenue and Newhall Street and within the site to facilitate use of the site for construction staging (parking and materials storage). No trees would be removed within 30 feet of Third Street as the San Francisco Redevelopment Agency holds an easement for the landscaping in this portion of the site.[13] The trees along Evans Avenue that would be removed are those closest to the structures that would be demolished, while trees closer to the street would be retained. Although the mature trees and other landscaping that would be removed provide some visual interest, perimeter trees that would be retained would continue to provide visual interest; in addition, there are few viewing opportunities from the surrounding area, which includes commercial, industrial and institutional uses. In this context, while removal of some trees would lessen the overall visual quality of the site, the net change in visual quality would not be substantial. As described in Chapter 2, Project Description, this site would be used for parking, material staging, and/or office space during construction, which would be similar to and visually compatible with the surrounding land uses.

SFPUC Standard Construction Measures

The SFPUC would implement standard construction measures (described in Appendix SCM) pertaining to visual and aesthetic considerations, which would ensure that the project construction

12 SFPUC, *BDFP Conceptual Engineering Report*, 2016. [pdf pp 3913-3918]

13 San Francisco Public Utilities Commission Water Supply and Treatment Division Survey Section, City and County of San Francisco, 1550 Evans Avenue, A.L.T.A. Survey for San Francisco Public Utilities Commission, provided to ESA by SFPUC July 13, 2016. The San Francisco Office of Community Investment and Infrastructure is the state-authorized local entity serving as the successor to the former San Francisco Redevelopment Agency.

site and staging areas are maintained in a clean and orderly condition and thereby limit the impact of construction-related litter and debris on the visual character of the surrounding neighborhood.

Summary of Impact AE-1

For reasons stated above, the impact of project construction on the visual character and scenic resources of the project site and staging areas would be ***less than significant***.

Mitigation: None required.

Impact AE-2: Project construction would not create a substantial new source of light or glare that could adversely affect nighttime views in the area, or could substantially impact other people or properties. (Less than Significant)

No equipment or activities associated with daytime construction are expected to create a substantial new source of light or glare that could adversely affect daytime views or substantially affect other people or properties in the area. However, as stated in Chapter 2, *Project Description* (Section 2.6.1), for most of the project construction period, construction activities at the project site would occur Monday through Friday from 7:00 a.m. to 3:30 p.m., with some activities extending to 8:00 p.m. as needed. Construction could also occur on Saturdays and Sundays when needed. During the peak of construction (a period of approximately one year), construction would occur in two shifts per day: Monday through Saturday from 7:00 a.m. to 3:30 p.m. and from 2:30 p.m. to 11:00 p.m. The project site and off-site staging areas are expected to have all-night security lighting during construction. Nighttime work would require illumination of construction work areas and, if not adequately shielded, light needed to safely illuminate a construction site could produce substantial light and glare outside the work area that could adversely affect people and properties in the vicinity. Although potentially affected areas outside the SEP would include public streets adjacent to the project site and off-site staging areas used by motorists and pedestrians, Caltrain traveling on the adjacent tracks occupied by operators and passengers, industrial areas west of the Caltrain tracks, and upper floors of nearby residential areas, the potential for residential areas to be affected is limited due to distances from the project site as well as intervening structures. The area affected would be limited, and the duration of nighttime illumination of work areas would be limited as well. In addition, the SFPUC would implement standard construction measures (described in Appendix SCM) pertaining to visual and aesthetic considerations, which require that nighttime lighting be directed away from residential areas and have shields to prevent light spillover effects. For these reasons, the effects of light and glare on people and properties in the vicinity would be ***less than significant***.

Mitigation: None required.

Operational Impacts

Impact AE-3: Project operation would not substantially degrade the existing visual character of the site or its surroundings or damage scenic resources. (Less than Significant)

The proposed BDFP facilities would be located within existing industrial sites that are, or until recently have been, developed with industrial facilities at the SEP, Asphalt Plant, and Central Shops sites. The tallest new facilities (new digesters, biosolids dewatering facility, and solids pretreatment facility) would be 65 feet above grade, similar to several existing SEP facilities, and the digester gas storage tank and energy recovery facility would be about 60 feet above grade. (Some appurtenant features would extend above 65 feet, such as the exhaust stack for the energy recovery facility.) Most of the other new structures would range in height from about 20 feet to about 50 feet above grade. The SFPUC is designing project architectural and landscaping features to meet the project objective to "provide visual improvements that promote a cohesive architectural design and identity at the BDFP site, enhance the overall aesthetics, and improve the public edges in a manner consistent with the surrounding neighborhood and the rest of the SEP." Refer to Figure 2-6 in Chapter 2, *Project Description*, for a preliminary massing diagram of the BDFP. Figures 2-9 through 2-11 present the proposed streetscape for Jerrold Avenue, architectural design concepts, and landscaping improvements for the BDFP.

Visual Character of Project Facilities

The new energy facilities and maintenance shops would incrementally increase the density of development on Jerrold Avenue. However, the new facilities would replace industrial facilities and would be accompanied by street improvements on both sides of Jerrold Avenue. **Figures 4.3-8 and 4.3-9** present existing views on Jerrold Avenue in the project site vicinity and photo simulations showing the same views with proposed project facilities and street improvements as currently envisioned, based on design information regarding building finishes and materials, and landscaping and streetscaping components. It is expected that minor changes in building design and landscaping/streetscape plans would occur as the project design proceeds; however, the overall building mass and scale, and design elements would generally remain similar to that depicted in photo simulations. The new energy recovery facilities would be present briefly in the foreground of views seen by motorists, bicyclists, and pedestrians traveling southeast on Jerrold Avenue, as shown on Figure 4.3-9, and an increase in massing in the foreground and reduced views of the distant hillside southeast could be noticeable. When a viewer reaches the next block of Jerrold Avenue (i.e., between Quint and Phelps Streets) to the southeast (which is identified in the *San Francisco General Plan* as having good-quality street views), the view would be unchanged with BDFP implementation as no structures are proposed in this area. The resulting view of the new energy recovery facilities along with the proposed street improvements (discussed further below) may be perceived as an aesthetic improvement compared to the existing view of the Asphalt Plant.

The largest new structures under the BDFP would be the five anaerobic digesters that would be constructed parallel to the Caltrain right-of-way at the Central Shops site, as shown on Figure 2-6 in Chapter 2, *Project Description*. The digesters would have a cylindrical shape, be up to 70 feet in diameter, extend 65 feet above grade, and be constructed with vertical concrete walls.

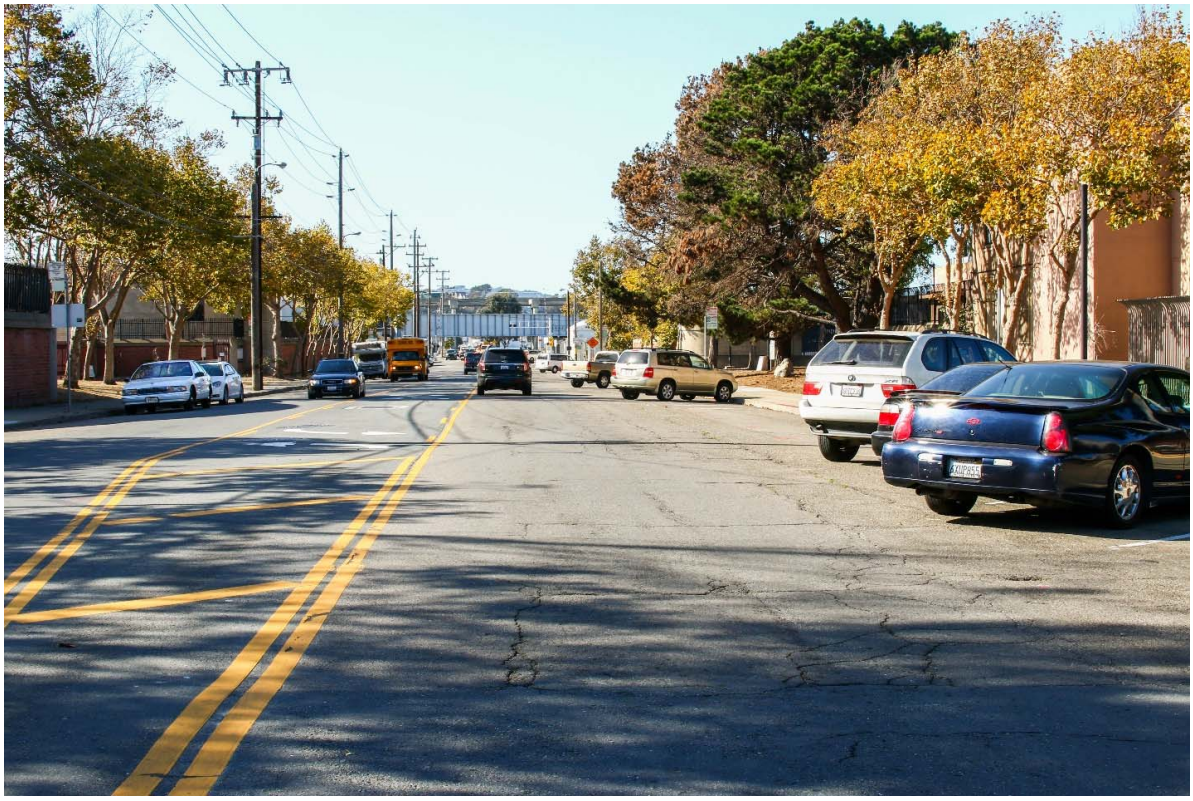

Photo 12 - Existing conditions

Simulation

SOURCE: ESA+Orion

SFPUC Biosolids Digester Facilities

Figure 4.3-8
Simulation of BDFP, Jerrold Avenue at Phelps Street Facing Northwest

Photo 13 - Existing conditions

Simulation

SOURCE: ESA+Orion

SFPUC Biosolids Digester Facilities

Figure 4.3-9
Simulation of BDFP, Jerrold Avenue at Freight Rail Spur Facing Southeast

Although a final decision on the surface finish for the digesters has not been made, cladding alternatives currently under consideration include stainless steel panels, translucent channel glass, or similar materials. The new digester gas storage tank would be located in line with the digesters, next to Jerrold Avenue. Somewhat smaller than the digesters, the digester gas storage tank would be 50 feet in diameter with a 60-foot diameter outer screen and 60 feet high, and would have the same surface finish as the digesters. **Figure 4.3-10** shows the existing view toward the digester location from under the Caltrain overpass and a simulation of the same view with the proposed digesters and digester gas storage tank. This view approximates the closest and most prominent view a person traveling southeast on Jerrold Avenue is likely to have of the digesters, where the viewer would likely be glancing to the left, away from the travel direction and toward the digesters. While the digesters and digester gas storage tank dominate in this view, the view would be fleeting as the typical motorist or pedestrian continued southeast on Jerrold Avenue. As someone facing the travel direction moves toward the site, views of the site would become peripheral and as travelers move slightly beyond this point, as shown in the simulation on Figure 4.3-9, these facilities would no longer be within view. The digesters would be far less prominent in most other views toward the site, due to intervening structures and landscaping as well as distance, depending on the viewer's location. As shown in the simulation on Figure 4.3-8, from street level the digesters would not be visible from Jerrold Avenue at Phelps Street, facing toward the Caltrain overpass and digester location, due to intervening structures and trees. (Note that the simulation depicts relatively mature trees. New street trees and vegetation are not expected to be fully developed immediately after planting and may take approximately five years to reach the level of maturity depicted.) Of the proposed new facilities, the digesters would be located farthest from the residential area southeast of the SEP, thereby limiting potential effects on views from these residences due to both distance and intervening structures and landscaping. Views of the other tallest structures (the solids pretreatment and biosolids dewatering facilities) would be limited due to intervening structures between these facilities and the through streets in the area. (Although the biosolids dewatering facilities would be located near Rankin Street, this block of Rankin Street ends at the Caltrain tracks and receives no through traffic.)

Views of the project site are limited and/or fleeting, as discussed under Impact AE-1, above. Some of the new facilities would be visible from some areas surrounding the plant, including from portions of industrial areas to the west (from which the digesters and other BDFP facilities would be visible above the Caltrain berm), industrial and commercial areas north and east of the site, and potentially from portions of the residential area southeast of the SEP. However, short-range views of the new facilities would primarily be from adjacent streets, where views would be limited to the time taken to pass the site, or from the Caltrain trains, where views would be extremely fleeting depending on the speed of the train. And, while the BDFP facilities may be visible in longer-range views from surrounding hills, they are not expected to substantially affect views from these areas.

Landscaping and Street Improvements

Some street-facing trees, which can be considered scenic resources that have a positive effect on the visual character of this urban area, would be removed during project construction; this could have a long-term effect on visual quality of the area. However, the project would include new landscaping and street improvements along Jerrold Avenue and new landscaping along the freight rail and

Photo 5 - Existing conditions

Simulation

SOURCE: ESA+Orion

SFPUC Biosolids Digester Facilities

Figure 4.3-10
Simulation of BDFP Digesters, Jerrold Avenue
at Caltrain Overpass Facing Northeast

Caltrain tracks (shown on Figure 2-11 in Chapter 2, *Project Description*). As noted above, landscaping improvements are not expected to be as shown in the simulations in Figures 4.3-8 and 4.3-9 immediately, but instead would take some years to develop.

Long-term improvements to Jerrold Avenue could include traffic calming measures, curb extensions (road narrowing), sidewalk improvements, lighting, street trees, vegetated planters, and safer pedestrian and worker crossings consistent with *Better Streets Plan* guidelines. As currently envisioned, the redesign would provide a wider landscaped buffer zone with street trees between the parking lane and the sidewalk. As described in Chapter 2, *Project Description*, architecture and landscaping for the BDFP would be designed consistent with the San Francisco Planning Code, the Stormwater Management Ordinance, the San Francisco Arts Commission Civic Design Review process and the Public Art Program, and the *Better Streets Plan*, which would ensure consistency with the Industrial Area Design Guidelines and visual compatibility with the SEP and surroundings. Such improvements would be designed to meet the project objective related to improved public edges and would enhance the visual quality of the area compared to existing conditions.

Visual Character of Staging Areas

Following construction, the staging areas would be cleared of equipment and debris. Street improvements described above for Jerrold Avenue would be implemented before the Jerrold Avenue staging area is reopened to the public, and following clearing, Piers 94 and 96 and the other staging areas would generally resemble existing conditions with the exception of 1550 Evans Avenue. As noted above under Impact AE-1, while removal of some trees at 1550 Evans Avenue would lessen the overall visual quality of the site, the net change in visual quality would not be substantial.

Summary of Impact AE-3

Overall, the BDFP facilities would consist of new industrial facilities that would be visually compatible with existing industrial facilities at the SEP. Views of the new facilities from outside the project site would be limited by intervening structures and trees or would be fleeting views from cars or the train. While some of the new facilities would be visible from some areas surrounding the plant, the visual character of the SEP as seen from surrounding areas would remain essentially the same as the existing character, that of a major industrial facility. As discussed above, design of the new facilities would be consistent with applicable standards and the project would include landscaping and other street improvements. Such improvements are expected to enhance the overall long term visual quality of the area. Therefore, the project would not substantially degrade the existing visual character or damage scenic resources of the site and its surroundings, and the impact of the project would be ***less than significant***.

Mitigation: None required.

Impact AE-4: Project operation would not create a substantial new source of light or glare that could adversely affect day or nighttime views in the area, or substantially impact other people or properties. (Less than Significant)

During project operation, outdoor lighting would be provided for safe vehicular and staff access to the site at night. Such lighting would be provided along internal site roadways and over doors at building entrances. Localized lighting would be provided as needed for outdoor maintenance activities and would be equipped with localized switches. General area lighting would be kept to a minimum level as deemed necessary for general safety. Compliance with the requirements of California Green Building Code Section 5.106.8, which specifies that exterior lights be shielded or meet performance standards to reduce light pollution, and with the *Better Streets Plan* policy to minimize light trespass and glare to adjacent buildings, would ensure that changes in lighting would not result in substantial new sources of light or glare that affect nighttime views in the area or substantially impact other people or properties.

Windows and building surfaces with highly reflective finishes can be a source of daytime glare. Daytime glare can create hazards for motorists and nuisances for pedestrians and other viewers. Windows in project buildings, especially those near the exterior of the SEP boundary such as the maintenance buildings on Jerrold Avenue, could be potential new sources of daytime glare. However, glazing used in project structures would be consistent with Planning Commission Resolution 9212, which prohibits the use of mirrored or reflective glass; this would ensure that windows in the new BDFP buildings would not produce excessive glare. In addition, street trees that are planned as part of project landscaping would shield portions of some of the new windows, further reducing potential glare. Painted steel or pre-finished metals used for project structures may have a semi-gloss finish but would not be reflective. The solar photovoltaic panels proposed to be located on the maintenance shop roofs would not be visible from nearby public areas given their rooftop location, well above street-level sightlines. The panels may be visible from surrounding hills, but would not create substantial glare as seen from these areas due to distance and intervening structures and because the photovoltaic panels themselves, which are designed to absorb light rather than reflect it, have anti-reflective coatings, are stippled, and would not be highly reflective. The digesters and digester gas storage tank would be the largest new structures and, as noted above, the SFPUC has not yet made a decision on the surface finish. Use of a highly reflective finish on these prominent structures could result in a potentially significant impact from daytime glare. The cladding alternatives currently under consideration include stainless steel panels, translucent channel glass, and similar materials currently in use throughout San Francisco. The finish illustrated in the Figure 4.3-10 simulation is not highly reflective and would not be expected to produce substantial glare. Further, as discussed in Section 2.4, Project Components, in Chapter 2, *Project Description*, the selected cladding material, whether metallic, glass, or other, would be textured, brushed, frosted, or otherwise treated to diffuse light and reflectivity. In addition, it is noted that the movement of the sun relative to the reflective surface would make the incidence of daytime glare on a given area short-term, and it is expected that only areas in proximity to the digesters would potentially be affected. Given that the selected finish of the digester cladding would have low reflectivity and lighting would comply with applicable policies and regulations, project changes in lighting and glare would not be in excess of levels commonly found and accepted in urban areas, and the environmental effects of light and glare due to the project would be ***less than significant***.

Mitigation: None required.

Cumulative Impacts

Impact C-AE-1: Implementation of the BDFP, in combination with past, present, and probable future projects in the vicinity, would not substantially degrade the existing visual character of the site or its surroundings or damage scenic resources. (Less than Significant)

As described in Section 4.3.3.2, Approach to Analysis, above, the geographic scope for the analysis of cumulative aesthetic impacts includes all projects that would be located within the publicly accessible viewshed of the project; that viewshed extends about 2,000 feet in every direction from the combined project site and SEP boundaries and extends eastward to include Piers 94 and 96. Projects that could have a cumulative aesthetic impact in combination with the BDFP include all SFPUC projects at and adjacent to the SEP and the following non-SFPUC projects (refer to Table 4.1-1 and Figure 4.1-1 for descriptions and locations of the following projects):

- Jerrold Bridge North Span Replacement
- Quint Street Bridge Replacement Project
- Quint-Jerrold Connector Road
- San Francisco Wholesale Produce Market Expansion
- 1995 Evans Avenue
- Blue Greenway Project and Heron's Head Park Improvements
- Pier 90-94 Backlands Improvements Project
- Asphalt and Concrete Recycling and Production Plant at Pier 94
- Quint Street Lead Track
- Pier 96 Bulk Export Terminal
- Peninsula Corridor Electrification Project
- India Basin Mixed Use Development
- San Francisco Gateway

While some of these projects involve demolition of existing structures or replacement of existing structures with similar ones, others involve replacement of existing structures with larger ones and new construction. Construction activities and the design of these projects are expected to be visually compatible with existing development in the area based on the existing industrial setting of the area (which is designated for, and largely developed with, light and heavy industrial land uses and includes, for example, ongoing repair and maintenance activities at the SEP) and the consistent nature of these cumulative projects with the surrounding land uses. In fact, most of the cumulative projects in the long term can be expected to have a revitalizing effect and may be perceived as improving the visual quality of the area (e.g., by replacing unused and/or deteriorating structures and providing amenities such as improvements to the Bay Trail in this area). The cumulative projects, in combination with the BDFP, would not substantially interfere with view corridors, which are generally limited in the area by existing development, or with long-range views from

surrounding hills, because the area in which these projects and the BDFP are located is at a relatively low elevation. Due to its height (115 feet, taller than the 65-foot height limit in the area), the proposed San Francisco Gateway project would be visible behind the SEP and in front of and behind I-280 as seen from the intersection of La Salle Avenue at Cashmere Street shown in Figure 4.3-5, but would be only marginally visible, if at all, in the views presented in Figure 4.3-4 due to intervening structures. Together the cumulative projects would intensify or replace development in existing industrialized areas north, west, and east of the project site but would not substantially degrade the visual character of the area. The cumulative projects at Piers 94 and 96 (that is, the Pier 90-94 Backlands Improvements Project, Asphalt and Concrete Recycling and Production Plant at Pier 94, and Pier 96 Bulk Export Terminal) and the India Basin Mixed Use Development project to the south, in combination with the project staging area would be visually compatible with existing industrial uses in the vicinity and would not degrade the visual character of this part of the industrial waterfront. Therefore, the cumulative projects in combination with the BDFP would result in a ***less-than-significant*** impact on visual character and scenic resources.

Mitigation: None required.

Impact C-AE-2: Implementation of the BDFP, in combination with past, present, and probable future projects in the vicinity, would not contribute considerably to substantial new sources of light or glare that could adversely affect nighttime views in the area, or could substantially impact other people or properties. (Less than Significant)

Construction Impacts

Similar to the BDFP as described under Impact AE-2, the cumulative projects in the immediate vicinity could have a significant light and glare impact if those cumulative projects require nighttime construction and associated lighting. All projects sponsored by the SFPUC would be required, at a minimum, to comply with the SFPUC's standard construction measures, which include directing nighttime lighting away from residential areas and shielding nighttime lighting to prevent light spillover effects (refer to Appendix SCM). Although the BDFP and future projects in the immediate project vicinity that are not sponsored by the SFPUC (listed above) could result in a significant cumulative light and glare impact during nighttime construction, the SFPUC's implementation of these standard construction measures would ensure that the project's contribution to a potential cumulative impact would not be considerable and the impact would be ***less than significant.***

Operational Impacts

The cumulative projects in the immediate vicinity could result in long-term light and glare effects, depending on the type of building materials selected. However, of the cumulative projects proposed in the project vicinity, only the Southeast Plant Headworks Replacement Project is expected to include substantial new buildings and structures. That project site is located along Evans Avenue, and any light and glare associated with that project would be focused on areas in the immediate vicinity of that project and would not be expected to affect the same land uses that may be subject to light and glare from the proposed digesters and digester gas storage tank. Further, as described above in Impact AE-4, the BDFP would not result in substantial light and glare because glazing used

in project structures would be consistent with Planning Commission Resolution 9212 prohibiting use of mirrored or reflective glass, the new solar panels would not be visible from most nearby areas and would have a non-reflective coating, the building material selected would be treated to diffuse light and reflectivity (see Chapter 2, *Project Description*), and street trees that are planned as part of project landscaping would shield portions of some of the new windows. Therefore, changes in lighting and glare in the project vicinity from the cumulative projects in combination with the effects of the BDFP would not be in excess of levels commonly found and accepted in urban areas, and would result in a ***less-than-significant*** cumulative light and glare impact.

Mitigation: None required.

4.4 Population and Housing

This section describes existing population, housing, and employment characteristics and trends in San Francisco and the potential for implementation of the Biosolids Digesters Facilities Project (BDFP or project) to induce substantial unplanned population growth, either directly or indirectly, or displace housing or residents in the project vicinity or citywide. This impact analysis evaluates the potential population and housing impacts of the project and identifies mitigation measures to avoid or reduce adverse impacts, as appropriate.

4.4.1 Setting

4.4.1.1 Regional Setting

Given the project's location, San Francisco is the primary area that would be affected directly by potential project-related population and housing effects, and by employment effects that could result in demand for additional housing. Because project construction could draw on the regional labor pool, this section also describes employment trends in surrounding counties.

Population and Housing

In 2010, there were 805,235 people living in San Francisco, a 4 percent increase in the city's population compared to 2000.[1] The California Department of Finance, which provides population estimates and tracks changes in housing and vacancy rates for years between the decennial census counts, estimates that the city's population in 2015 was 845,600, a 5 percent increase since 2010.[2]

San Francisco experienced marked housing growth between 2000 and 2010. About 29,600 housing units were added over this period, a 9 percent increase, for a total of 376,200 housing units in 2010; the estimated vacancy rate in 2010 was 8.3 percent.[3] The number of households (occupied housing units) increased over this period from 329,700 in 2000 to 345,811 in 2010, a 5 percent increase.[4] The California Department of Finance estimates that about 8,500 housing units were added in San Francisco between 2010 and 2015 (a 2 percent increase during this time period) while about

1 U.S. Census Bureau, American FactFinder, DP-1 Profile of General Population and Housing Characteristics: 2010, 2010 Demographic Profile Data, San Francisco County, California, 2010; U.S. Census Bureau, American FactFinder, DP-1 Profile of General Demographic Characteristics: 2000, San Francisco County, California, 2000.

2 State of California, Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties, and the State, January 1, 2011-2015, with 2010 Benchmark*. Sacramento, California, May 1, 2015. This estimate is slightly lower than the 2015 population projected in 2013 by the regional planning agency, the Association of Bay Area Governments (ABAG); the Department of Finance estimate is used here for consistency with information on vacancy rates, which are tracked by the Department of Finance and also provided here. The difference between the population estimate and population projection (which may be attributable to more current data available for the Department of Finance estimate), is negligible (0.16 percent).

3 U.S. Census Bureau, American FactFinder, DP-1 Profile of General Population and Housing Characteristics: 2010, 2010 Demographic Profile Data, San Francisco County, California, 2010; U.S. Census Bureau, American FactFinder, DP-1 Profile of General Demographic Characteristics: 2000, San Francisco County, California, 2000.

4 *Ibid*.

18,600 households were added (a 5 percent increase), and that the vacancy rate as of January 2015 was 5.3 percent.[5]

Employment

According to the California Employment Development Department data, approximately 639,400 people worked in San Francisco in 2014, an increase of 27,800 jobs since 2013 and the city's peak annual average employment level to date.[6,7] This estimate measures workers by place of work and includes full-time and part-time wage and salary employment; it does not include self-employed people, unpaid family workers, or private household employees.[8] From 2010 to 2014, more than 100,000 jobs were added in San Francisco.[9]

Employment in San Francisco, as in the Bay Area region as whole, has fluctuated substantially since the mid-1990s. Both the San Francisco and Bay Area economies experienced strong growth through 2000, fueled by the "dot-com" boom in the high technology and internet sectors; 84,000 jobs were added between 1994 and 2000 for a total of almost 609,000 workers in San Francisco in 2000.[10] Following the dot-com crash, San Francisco lost 90,000 jobs between 2000 and 2004. The city regained almost 48,000 jobs between 2004 and 2008 and lost about 27,000 jobs between 2008 and 2010 during the global recession.[11]

Construction employment in San Francisco has generally followed the same cycle of job gains and losses, except that there was a much sharper decline in construction jobs in the city between 2008 and 2010 compared to jobs overall, and construction employment continued to decline in 2011, whereas employment as a whole in the city began to increase slowly in 2011. (From 2008 to 2010, 26 percent of construction jobs in the city – roughly 5,000 jobs – were lost, compared to a 5 percent decline in all city jobs, and construction jobs declined by another 3 percent in 2011.) Construction employment began to increase in 2012; in 2014 there were 16,800 construction jobs in San Francisco, a net loss of 2,400 construction jobs since 2008. In the five-county subregion of San Francisco, Alameda, Contra Costa, Marin, and San Mateo Counties, 37,000 construction jobs were lost between 2007 and 2010. Construction employment for the five-county region began to recover in 2011, and more than 20,000

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5 State of California, Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties, and the State, January 1, 2011-2015. with 2010 Benchmark.* Sacramento, California, May 1, 2015. The department's estimates of housing and vacancy rates are based on annual housing unit change data supplied by local jurisdictions and the U.S. Census Bureau.

6 California Employment Development Department, LMI [Labor Market Information] for San Francisco County, California, Industry Employment Data, Annual Average Estimates 1990-2014, July 17, 2015.

7 These estimates of employment by place of work count part-time and full-time jobs equally. People who hold more than one job may be counted more than once.

8 California Employment Development Department (EDD), Labor Market Information Frequently Asked Questions, 2015. Available online at http://www.labormarketinfo.edd.ca.gov/FAQs.html. Accessed on August 7, 2015.

9 California Employment Development Department, LMI [Labor Market Information] for San Francisco County, California, Industry Employment Data, Annual Average Estimates 1990-2014, July 17, 2015.

10 This estimate is about 6 percent less than ABAG's estimate for 2000; ABAG's data include classes of workers that the Employment Development Department does not (self-employed workers, unpaid family workers, or private household employees).

11 California Employment Development Department, LMI [Labor Market Information] for San Francisco County, California, Industry Employment Data, Annual Average Estimates 1990-2014, July 17, 2015.

construction jobs were added in the region between 2010 and 2014; there were 101,400 construction jobs in the five-county region in 2014, a net loss of almost 17,000 construction jobs compared to 2007.[12]

4.4.1.2 Local Setting

Project Site

The project site contains no housing; consequently, there is no on-site population. The existing Southeast Water Pollution Control Plant (Southeast Plant or SEP) property contains no active uses other than wastewater treatment facilities, which has about 280 employees. The former Asphalt Plant has been decommissioned and the site is currently used as a City and County of San Francisco (CCSF or City) vehicle dispatch center and for parking; the site will be demolished prior to project construction as part of the Land Reuse - 1801 Jerrold Avenue project. The Central Shops facility provides vehicle and equipment maintenance services for multiple City agencies. The Central Shops operations will be relocated as part of the Central Shops Relocation and Land Reuse - 1800 Jerrold Avenue project prior to BDFP construction.

Off-Site Staging Areas

The proposed staging areas contain no housing and therefore no population. The Pier 96 staging area includes a pier administration building, which includes about six tenants, a steel fabrication facility beneath a metal canopy, and an unoccupied building that appears to have been part of a former weigh station. These uses are expected to remain during construction. Various tenants lease undeveloped areas for construction staging or equipment storage on both Piers 94 and 96. The Pier 94 Backlands is currently undeveloped and used for soil and aggregate storage. The site currently occupied by the Southeast Greenhouses may be used as a construction staging area, if available. Demolition of existing structures at this site would occur as a separate action prior to BDFP construction. The 1550 Evans Avenue staging area includes two vacant buildings and a parking lot.

4.4.2 Regulatory Framework

4.4.2.1 Federal Regulations

There are no federal regulations on population, housing, or employment that apply to the BDFP.

4.4.2.2 State Regulations

There are no state regulations on population, housing, or employment that apply to the BDFP.

[12] California EDD, Industry Employment Data for San Francisco County, California July 17, 2015a; California EDD, Industry Employment Data for Alameda County, California, July 17, 2015b; California EDD, Industry Employment Data for Contra Costa County, California, July 17, 2015c; California EDD, Industry Employment Data for Marin County, California, San Rafael Metropolitan Division, July 17, 2015d; and California EDD, Industry Employment Data for San Mateo County, California, July 17, 2015e. Data provided for San Francisco, Alameda, Contra Costa, and San Mateo Counties are for the industry title "Mining, Logging and Construction" and for Marin County data are provided for the industry title "Construction."

4.4.2.3 Local Regulations

The City adopted the 2014 Housing Element of the *San Francisco General Plan* in April 2015. It includes objectives and policies that address the city's growing housing demand while ensuring the integration of planning for housing, jobs, transportation, and infrastructure, among other Housing Element priorities. The Housing Element includes the following implementation programs relevant to the BDFP:

- **IP 91.** Planning shall ensure community plans for growth are accompanied by capital plans and programs to support both the "hard" and "soft" elements of infrastructure needed by new housing.
- **IP 94.** Planning shall update other elements of the City's General Plan, such as the Open Space, Transportation and Community Facilities Element to plan for infrastructure to support projected growth.

4.4.3 Impacts and Mitigation Measures

4.4.3.1 Significance Criteria

The project would have a significant impact related to population and housing if it were to:

- Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure);
- Displace substantial numbers of existing housing units or create demand for additional housing, necessitating the construction of replacement housing; or
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Due to the nature of the project, there would be no impact related to the following topics for the reasons described below:

- ***Displace substantial numbers of existing housing units, necessitating construction of replacement housing.*** The project would construct new treatment facilities at existing industrial sites; it would not displace any housing and therefore would not necessitate construction of replacement housing. Therefore, this criterion related to housing displacement does not apply and is not addressed further in this section.
- ***Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.*** The project would construct new treatment facilities at existing industrial sites; it would not displace any people and therefore would not necessitate construction of any replacement housing elsewhere. Therefore, this criterion related to displacement of people does not apply and is not addressed further in this section.

4.4.3.2 Approach to Analysis

Construction Impacts

The evaluation of the potential for project construction to induce substantial population growth or create demand for additional housing compares the number of construction jobs that would be generated to the size of the local and regional labor force as a means to assess whether project construction jobs are likely to be filled primarily by the local and regional labor force or to attract substantial numbers of construction workers from outside the region. For purposes of this analysis, the size of the local and regional labor force is based on the number of people working in construction jobs in San Francisco and the four surrounding counties: San Mateo, Marin, Alameda, and Contra Costa Counties. The attraction of a substantial number of construction workers from outside the area would be expected to create demand for additional housing for such workers, whereas workers from within the region would be expected to commute to BDFP construction jobs.

Operational Impacts

The evaluation of the potential for project operations to induce substantial population growth or create demand for additional housing considers the wastewater treatment capacity that would be provided by the BDFP in the context of growth anticipated by local and regional planning agencies. If the BDFP provided substantial wastewater treatment capacity beyond that needed to serve planned growth, the project could indirectly induce growth by removing wastewater treatment capacity as a constraint to unplanned growth – and thereby create demand for housing beyond that projected to occur. The analysis also considers whether jobs associated with project operations would attract workers from outside the area.

Cumulative Impacts

Section 4.1.3, Approach to Cumulative Impact Analysis and Cumulative Projects, describes the overall approach to the cumulative analysis for those topics using a list-based approach and summarizes past, present and reasonably foreseeable future projects in the vicinity of the BDFP that could contribute to a cumulative impact. The geographic scope of cumulative growth inducement impacts during construction includes all of San Francisco; for this reason, the analysis of construction-phase cumulative population and housing impacts also considers concurrent construction projects throughout San Francisco based on the San Francisco Planning Department's Development Pipeline.[13] The Development Pipeline describes development projects that would add residential units or commerical and other non-residential space, applications for which have been formally submitted to the Planning Department or the Department of Building Inspection. Pipeline projects encompass various stages of proposed development, from applications filed to entitlements secured and from buildng permits issued to projects under construction. The analysis considers whether or not there would be a significant, adverse cumulative impact associated with project implementation in combination with past, present, and probable future projects in the geographical

[13] San Francisco Planning Department, San Francisco Development Pipeline 2016 Quarter 1, 2016. Data set available via SF OpenData: https://data.sfgov.org/Housing-and-Buildings/San-Francisco-Development-Pipeline-2016-Quarter-1/dtz9-jkjt. Accessed on June 9, 2016.

area, and if so, whether or not the project's incremental contribution to the cumulative impact would be considerable. Both conditions must apply in order for a project's contribution to cumulative effects to be deemed cumulatively considerable (significant). If so, then mitigation measures are identified to reduce the project's contribution to the extent feasible. As noted above, the geographic scope for the analysis of cumulative growth inducement impacts during construction is San Francisco.

4.4.3.3 Impact Evaluation

Construction Impacts

Impact PH-1: Construction of the BDFP would not directly or indirectly induce substantial population growth in the area or create demand for additional housing. (Less than Significant)

Project construction would take approximately five years; the average and peak number of construction workers employed daily would be 333 and 550, respectively (refer to Table 2-10 in Chapter 2, *Project Description*). According to the California Employment Development Department, about 16,800 people worked in construction jobs in San Francisco in 2014 and 101,400 people worked in construction jobs in San Francisco and the four surrounding counties (San Mateo, Marin, Alameda and Contra Costa).[14] The project maximum – 550 jobs – would represent 3.3 percent of the construction jobs in San Francisco in 2014 and 0.5 percent of the construction jobs in the five-county region in 2014; in addition, 550 jobs would be substantially fewer than the 7,170 new construction jobs that the Association of Bay Area Governments (ABAG) projects will be added in San Francisco between 2010 and 2020,[15] a projection that is also cited in the *San Francisco General Plan* Housing Element.[16] Given the size of the regional construction work force compared to the number of workers that would be needed for project construction, even during peak construction periods, BDFP construction workers would likely be drawn primarily from the local and regional construction work force. Project construction workers who do not live in the Bayview-Hunters Point neighborhood would likely commute from elsewhere in the city or Bay Area rather than relocate from more distant cities or towns. Consequently, construction of the BDFP would not induce population growth by attracting a substantial number of workers from outside the region to relocate to the area, and therefore would not create demand for additional housing or other facilities and services associated with growth.

The project does not involve any housing construction and therefore would not induce growth directly by constructing housing that would attract people to the area. Project construction would not extend roads or other infrastructure that could indirectly induce growth; the project would be located at existing industrial sites in an area that is already well-served by roads and other infrastructure. Therefore, the growth-inducing impact of BDFP construction would be ***less than significant***.

[14] California EDD, Industry Employment Data for San Francisco County, California July 17, 2015a; California EDD, Industry Employment Data for Alameda County, California, July 17, 2015b; California EDD Industry Employment Data for Contra Costa County, California, July 17, 2015c; California EDD, Industry Employment Data for Marin County, California, San Rafael Metropolitan Division, July 17, 2015d; California EDD, Industry Employment Data for San Mateo County, California, July 17, 2015e.

[15] Association of Bay Area Governments, *Projections 2013*, December 2013.

[16] City and County of San Francisco, *San Francisco General Plan, 2014 Housing Element,* adopted April 27, 2015.

Mitigation: None required.

Operational Impacts

Impact PH-2: Operation of the BDFP would not directly or indirectly induce substantial population growth in the area or create demand for additional housing. (Less than Significant)

The project does not involve construction of new homes, nor does it involve the extension of roads or other infrastructure into areas lacking such services. Operation of the BDFP would not increase the number of workers employed at the SEP and therefore would not directly induce growth or create demand for additional housing by providing new employment opportunities that could attract new workers to the area.

The BDFP could indirectly induce growth if it resulted in wastewater treatment capacity substantially beyond that needed to support planned growth in the SEP service area over the BDFP planning period. Provision of such capacity would remove wastewater treatment capacity as an obstacle to unplanned growth**.** As indicated in Table 2-1 in Chapter 2, *Project Description*, the SEP currently has the capacity to treat up to 85 million gallons per day (mgd) of average dry weather wastewater flows and up to 250 mgd of wet weather combined wastewater and stormwater flows, which would not change under the project. The Biosolids Digester facilities at the SEP would not increase existing overall SEP wastewater treatment capacity.

As described below, solids treatment capacity that would be provided by the BDFP is based on current growth projections prepared by the regional planning agency (ABAG), consistent with growth anticipated by the San Francisco Planning Department and growth identified in the *San Francisco General Plan*. The growth assumptions underlying the BDFP design capacity and the methodology used to project future flows and loads are presented in the San Francisco Public Utilities Commission's (SFPUC's) 2014 *Wastewater Flow and Load Projections Technical Memorandum*.[17] To project future flows and loads, the SFPUC developed a wastewater projection model that incorporated the most recent source data available at that time, including SEP operating data, projections of household population and employment, and water demand projections. The San Francisco Planning Department provided projections of household population and employment based on July 2013 projections prepared by ABAG. Because ABAG's projections only extend to 2040, the SFPUC extrapolated the 2040 projections to 2045, the project's planning horizon. ABAG is the official regional planning agency of the San Francisco Bay Area, and the San Francisco Planning Department routinely uses ABAG's projections for the department's land use allocations to depict the distribution of projected growth. San Francisco's most recently adopted General Plan element, the 2014 Housing Element, also cites ABAG's *Projections 2013* forecasts.[18] Use of ABAG's *Projections 2013* to develop projections of future flows and loads ensures that treatment capacity provided by the

[17] SFPUC, *Wastewater Flow and Load Projections Technical Memorandum*, prepared for San Francisco Public Utilities Commission Sewer System Improvement Program, updated February 2014.

[18] City and County of San Francisco, *San Francisco General Plan* 2014 Housing Element, adopted April 27, 2015, pages I.4, I.12, and I.13.

BDFP would be consistent with planned growth and would not provide excess capacity (i.e., beyond that needed to support planned growth) and thus would not remove a potential obstacle to unplanned growth.

Given that the BDFP would not include new homes or increase the number of workers employed at the SEP, operation of the BDFP would not directly induce substantial population growth. Because the BDFP would not extend roads or other infrastructure into areas lacking such services, would not increase existing overall SEP wastewater treatment capacity, and would provide treatment capacity that is consistent with ABAG's growth forecasts, the project would not indirectly induce population growth. Therefore, the impact of BDFP operations on population growth and housing would be ***less than significant.***

Mitigation: None required.

Cumulative Impacts

Impact C-PH-1: The project, in combination with past, present, and probable future projects, would not directly or indirectly induce substantial population growth or create demand for additional housing. (Less than Significant)

Project Construction

The analysis is based on projects identified in Table 4.1-1 and construction projects throughout the city identified in the San Francisco Planning Department's Development Pipeline. As discussed under Impact PH-1, project construction is expected to generate an average of 333 – and up to as many as 550 – daily construction jobs during the five-year construction period. Project construction could occur concurrent with a considerable amount of other construction activity within San Francisco. Development Pipeline data for the first quarter of 2016 indicates that development proposals for a total of 21,016,300 square feet of non-residential development and residential development totaling 63,440 units have been filed with the City, are under review, or are under construction. Some of these projects would be under construction at the same time as the project. Despite the current robust level of construction activity in the city, however, and considering the size of the regional construction work force and the substantial job losses in the region experienced by the construction industry until the last few years, the construction labor force in San Francisco and the surrounding region is expected to accommodate demand for construction labor. Therefore, the cumulative growth-inducing impact of project construction in combination with other concurrent construction projects within the city would be ***less than significant***.

Project Operation

As described in Impact PH-2, operation of the BDFP would have no impact associated with direct inducement of population growth because the BDFP would not create housing nor increase the number of workers employed at the SEP; therefore, operation of the BDFP would not contribute to a direct cumulative growth inducement impact. Moreover, the BDFP would not indirectly contribute to population growth through the extension of roads or other infrastructure into areas lacking such

services. The SFPUC is the only provider of wastewater treatment in the area served by the project. There are no cumulative projects that would combine with the project to create more wastewater treatment capacity than currently planned. Therefore, the cumulative growth-inducing impact of project operation in combination with other cumulative projects would be considered ***less than significant***.

Mitigation: None required.

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4.5 Cultural Resources

Cultural resources include architectural resources, prehistoric and historical archeological resources, and human remains.[1] This section describes the known and suspected cultural resources in the project area and vicinity and the potential for implementation of the Biosolids Digester Facilities Project (BDFP or project) to affect those resources. Mitigation measures are identified to avoid or reduce significant adverse impacts, as appropriate. Regarding noise and vibration effects on cultural resources, refer to Section 4.7, Noise and Vibration. Paleontological resources and the potential for the project to affect those resources are discussed in Section 4.15, Geology, Soils, and Paleontological Resources.

4.5.1 Setting

4.5.1.1 Definitions

Historical Resources

Based on CEQA Guidelines Section 15064.5(a), historical resources include, but are not limited to, any object, building, structure, site, area, place, record, or manuscript that is historically or archeologically significant or that is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. Generally, a resource is considered by a lead agency to be "historically significant" if the resource meets the criteria for listing in the California Register of Historical Resources (California Register) (Public Resources Code Section 5024.1), or qualifies as a "unique archeological resource" (PRC 21083.2). For projects with federal involvement, such as federal loan funding, significant resources (termed "historic properties") are defined as those that meet the eligibility criteria of the National Register of Historic Places (National Register). Historical resources and "historic properties" refer to both significant architectural resources and to significant archeological resources.

Architectural resources include buildings, structures, objects, and historic districts. Residences, cabins, barns, lighthouses, military-related features, industrial buildings, and bridges are examples of historic architectural resources.

[1] Assembly Bill (AB) 52, codified in the Public Resources Code (Sections 21074, 21080.3, 21082.3, 21083 *et seq*) requires lead agencies to analyze the impacts of a project on "tribal cultural resources" separately from archeological resources. AB 52 also requires lead agencies to engage in additional consultation with California Native American tribes, and requires the Office of Planning and Research to update Appendix G of the California Environmental Quality Act (CEQA) Guidelines to specifically address tribal cultural resources. AB 52's provisions only apply to projects that have a notice of preparation (NOP) filed on or after July 1, 2015. As the NOP for the BDFP was released June 24, 2015, the project is not subject to separate tribal cultural resources analyses. Tribal cultural resources are addressed herein under archeological resources.

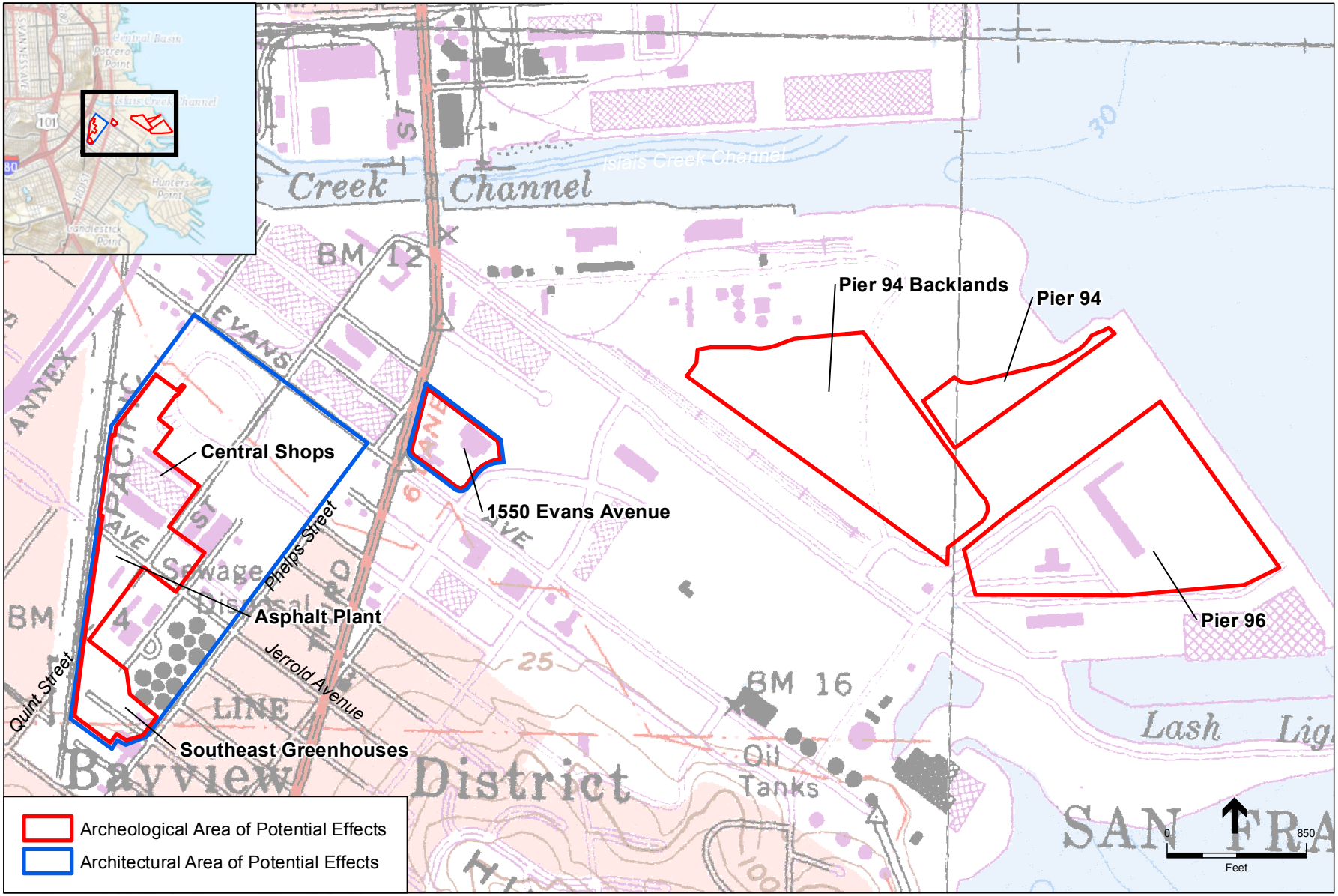
Archeological resources consist of prehistoric and historical archeological deposits and features. Prehistoric archeological resources include village sites, temporary camps, lithic scatters, roasting pits/hearths, milling features, petroglyphs, rock features, and burials. Associated artifacts include flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, dietary remains such as shellfish shell, animal bones and burnt seed shells; stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and other evidence of human activity prior to the advent of written documentation. Historical archeological resources may include deposits, features or structural ruins indicative of human activities during the historic periods. Examples include townsites, privy pits or trash dumps at homesteads, agricultural or ranching features, mining-related features, refuse concentrations, and features or artifacts associated with historic-period military or industrial land uses. Associated artifacts may include structural debris (such as nails and window glass; metal, glass, and/or ceramic refuse such as bottles and bottle fragments, dishware, or buttons. Under CEQA, archeological resources can be significant as either historical resources or as unique archeological resources (defined in detail in Section 4.5.2, Regulatory Framework).

CEQA Area of Potential Effects

The definition of the CEQA Area of Potential Effects (C-APE) is modeled after the federal Area of Potential Effects (APE), as defined in the Code of Federal Regulations (CFR) Title 36, Section 800.16(d). The C-APE is the geographic area or areas within which a project may directly or indirectly cause alterations in the character or use of historical resources (i.e., resources that meet the criteria for listing in the California Register), if any such resources are present. The C-APE is influenced by the scale and nature of an undertaking and may be delineated differently for direct physical effects and for indirect effects (such as changes in the historical setting or introduction of intrusive noise) that may result from the undertaking. For the BDFP, separate archeological and architectural C-APEs have been defined. The archeological APE covers the area in which direct project effects (such as damage to archeological sites from project excavations) may occur, while the historic architectural APE covers the larger area in which significant historic architectural resources could be affected by the introduction of visually intrusive features, vibration from construction, as well as the project footprint, where demolition of historic buildings could occur. **Figure 4.5-1** shows the archeological and architectural C-APEs.

Archeological C-APE

The archeological C-APE comprises 84.8 acres and is inclusive of all proposed construction areas and staging areas. The C-APE includes the Central Shops and Asphalt Plant properties, portions of the Southeast Water Pollution Control Plant (Southeast Plant or SEP), and all construction staging areas. The project site, including areas within the SEP, Central Shops, Asphalt Plant, and staging areas within Quint Street and Jerrold Avenue covers 12.9 acres; the 1550 Evans Avenue staging area covers 4.2 acres, the Pier 94 staging area covers 4.8 acres; the Pier 94 Backlands staging area covers 27.0 acres; the Pier 96 staging area covers 30.9 acres; and the Southeast Greenhouses staging area covers 4.0 acres.



SOURCE: USGS San Francisco South 7.5-minute topographic quadrangle

SFPUC Biosolids Digester Facilities

Figure 4.5-1

CEQA Archeological Area of Potential Effects
and CEQA Architectural Area of Potential Effects

The construction staging areas at Quint Street and Jerrold Avenue (within the main project site), 1550 Evans Avenue, and Piers 94 and 96 would require grading and/or other subsurface ground disturbance. Ground disturbance at the Southeast Greenhouses construction staging area is not planned as part of this project. The aboveground portions of the Southeast Greenhouses would be demolished as part of a separate project, which would have minimal subsurface disturbance (i.e., related to the installation of fencing around the site).

The vertical extent of the archeological C-APE varies by project component, but includes the deepest extent of planned ground disturbance for each project component. The vertical archeological C-APE includes ground disturbance from both excavation for new construction and demolition of existing structures. Construction would require substantial excavation, particularly for the digesters. Excavation would range from 10 feet to up to 41 feet below ground surface depending on the location; for purposes of this analysis, it is assumed that excavation would extend up to 45 feet below ground surface. In addition, pilings at some locations could extend to 75 feet below ground surface. Ground disturbance at Quint Street and Jerrold Avenue may be up to 7 feet below ground surface for tree planting, utilities, and street improvements, in addition to the 32-foot deep pipe chase excavation beneath Jerrold Avenue.

Construction would require temporary use of several construction staging areas that have been included in the archeological C-APE. These include portions of Piers 94 and 96, Quint Street and Jerrold Avenue, 1550 Evans Avenue, and the Southeast Greenhouses site. At Piers 94 and 96 and 1550 Evans Avenue, the vertical archeological C-APE includes ground disturbance associated with preparing the locations for staging, and is limited to 3 feet below ground surface.

Architectural C-APE

The architectural C-APE includes all proposed construction areas on the project site to account for potential direct effects to historic architectural ("built environment") resources, as well as the remainder of the SEP to account for potential indirect effects on built environment resources. The architectural C-APE is bounded by Evans Avenue to the north, Phelps Street to the east, the southern boundary of the Southeast Greenhouses site to the south, and Rankin Street and the rail spur to the west. The parcel at 1550 Evans Avenue is included in the architectural C-APE because the buildings would be demolished as part of the project. The architectural C-APE includes a total area of 58.3 acres.

The proposed construction staging areas at Piers 94 and 96 are included in the archeological C-APE to account for the subsurface construction that may occur at these sites; they are not included in the architectural C-APE because there would be no new aboveground construction at these sites that potentially could result in either direct or indirect effects to built environment resources. In addition, construction staging would only have the potential for temporary and short term changes in the appearance of the staging sites, and would not produce substantial construction vibrations—and thus have no potential for effects, regardless of the historic status of any buildings that could exist nearby.

Another consideration for establishing an appropriate architectural C-APE includes the construction methods and equipment to be used that could potentially affect historical resources. For example, use of certain equipment or construction methods (e.g., impact or vibratory pile drivers, and large truck-mounted vibratory rollers or compactors) have the potential to generate vibration levels of 0.2 inch per second peak particle velocity, which can affect historical resources depending on the distance.[2] Construction-related vibration can damage historical resources if impact or vibratory pile drivers or vibratory rollers or compactors are operated nearby. Thus, the horizontal extent of the C-APE accounts for the potential for significant vibration to adversely affect historical resources.

4.5.1.2 Research Methods

The information in this section was collected from multiple sources, including existing environmental and cultural resources documentation, historic maps and photographs, and site surveys. ESA cultural resources staff completed a records search at the Northwest Information Center of the California Historical Resources Information System on May 27, 2015 (File No. 14-1659). The purpose of the records search was to (1) determine whether known historical or archeological resources have been recorded previously within or near the architectural and archeological C-APE, (2) assess the likelihood for unrecorded historical or archeological resources to be present based on historical sources, geomorphological data, and the distribution of nearby resources, and (3) develop prehistoric and historic background information as context for assessment of historical significance.

For historical archeological resources, ESA prepared a list of primary sources (in particular, historical maps) and secondary source material to prepare historical context and the land use history for the architectural and archeological C-APE. Primary sources of information come from the San Francisco History Center at the San Francisco Public Library and the San Francisco Planning Department. Historical maps were an important source of information used to identify the changing landscape over time, especially Sanborn Fire Insurance maps.[3] Topographical sheets prepared by the U.S. Coast Survey (later the U.S. Coast and Geodetic Survey) and topographic maps from the U.S. Geological Survey were used to plot the changing Islais Creek and San Francisco Bay shorelines over the decades. Sanborn Fire Insurance maps and high-resolution 1938 aerial photographs by Harrison Ryker were critical sources of information for tracing the expansion of the industrial complexes and residential neighborhood at or adjacent to the C-APE. Other relevant references include (but are not limited to) historical photographs and aerial images, city directories, U.S. Census data, municipal reports, and the City and County of San Francisco (City or CCSF) Environmental Planning geographic information system archeological data base, which contains information about known and potential archeological sites and features within the City.

[2] Refer to Section 4.7, Noise and Vibration, Impact NO-2, for a description of construction-related vibration effects.
[3] Sanborn Maps is an American publisher of maps of U.S. cities and towns. The maps were initially created to estimate fire insurance risks, and now present a record of roads and structures extant at the time of map production.

Background research for prehistoric archeological sensitivity included review of several geoarcheological investigations that have recently been conducted within and adjacent to the C-APE. These include Extended Phase I explorations for the Jerrold Avenue and Quint Street Caltrain bridge replacement projects,[4] data recovery excavations at prehistoric site CA-SFR-171 near the Quint Street Caltrain bridge,[5] Extended Phase I investigations for relocation of several chemical storage tanks within the northern SEP,[6] and a similar investigation for the Building 521 replacement project in the northeast corner of the SEP.[7] Lastly, during the summer of 2015 widespread coring was conducted throughout the SEP, Asphalt Plant, and Central Shops for Phase I of the San Francisco Public Utilities Commission's (SFPUC's) Sewer System Improvement Program.[8]

On behalf of the San Francisco Planning Department, Far Western Anthropological Research Group (Far Western) contacted the Native American Heritage Commission (NAHC) on November 25, 2015, and requested a search of their Sacred Lands File to determine if there were known cultural sites within or near the C-APE. Far Western also requested a list of Native American groups and individuals for the project area. On December 14, 2015, the NAHC responded stating that no Native American cultural resources were reported from the Sacred Lands file records search. Far Western sent letters to the eight contacts on the NAHC list on December 14, 2015, requesting input on the project. No responses were received. Follow-up phone calls were completed in February and March 2016, and two responses were received. Ramona Garibay and Ann Marie Sayers both expressed their concern regarding the known prehistoric archeological site in the C-APE (CA-SFR-171, described below in Section 4.5.1.9), and stated that a Native American monitor should be present during ground disturbance.

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4 Kaijankoski, Philip, Brian F. Byrd, and Jack Meyer, *Extended Phase I Archaeological Investigations for the Jerrold Avenue Bridge Replacement Project, Caltrain Peninsular Corridor, San Francisco, California.* Far Western Anthropological Research Group, Inc., Davis, California. Prepared for the Federal Transit Administration and the Peninsula Corridor Joint Powers Board, 2009a; *Extended Phase I Archaeological Investigations for the Quint Street Bridge Replacement Project, Caltrain Peninsular Corridor, San Francisco, California.* Far Western Anthropological Research Group, Inc., Davis, California. Prepared for the Federal Transit Administration and the Peninsula Corridor Joint Powers Board, 2009b.

5 Byrd, Brian F., and Philip Kaijankoski, *Archaeological Excavations of the Late Period Site CA-SFR-171, San Francisco County, California.* Far Western Anthropological Research Group, Inc., Davis, California. Prepared for Parsons on behalf of FTW and Peninsula Corridor Joint Powers Board, 2011.

6 Kaijankoski, Philip, and Jack Meyer, *Extended Phase I Geoarchaeological Investigation for the Southeast Water Pollution Control Plant, Chemical Plant Relocation Project, San Francisco, California.* Far Western Anthropological Research Group, Inc., Davis, California. Prepared for the San Francisco Public Utilities Commission, March 2014.

7 Kaijankoski, Philip, Brian F. Byrd, and Naomi Scher, *Extended Phase I Geoarchaeological Investigations for the Southeast Water Pollution Control Plant Building 521 Replacement and Disinfectants Upgrades Project, San Francisco, California.* Far Western Anthropological Research Group, Inc., Davis, California. Prepared for the San Francisco Public Utilities Commission, 2015.

8 Kaijankoski, Philip, Brian F. Byrd, and Jack Meyer, *FINAL A Geoarchaeological Study of the Islais Creek Estuary: A Framework for Future Project-Specific Archaeological Investigations at the Southeast Water Pollution Control Plant, San Francisco, California.* Far Western Anthropological Research Group, Inc., Davis, California. Prepared for the San Francisco Public Utilities Commission, September 2016.

4.5.1.3 Regional Setting[9]

The project site is within the San Francisco Bay region; specifically, it is located along the Bay's edge at the northern end of the San Francisco peninsula. The surface geology of this area is highly varied; sand dunes historically were widespread in the northernmost portion of the San Francisco peninsula. Even today, there are extensive dunes along the City's western ocean shoreline. They narrow to the east as they skirt the San Miguel Hills. These hills reach a maximum elevation of 925 feet above mean sea level at Mount Davidson and dominate the central portion of the northern peninsula. Alluvial deposits are widespread east and south of the San Miguel Hills, interspersed with bedrock outcrops, and freshwater marshes along major drainages. The modern urban landscape within San Francisco, including the alignment of the Bay shoreline, bears almost no similarity to its pre-1850 natural setting due to urban development and, significantly, to extensive bay fill from the 1850s through the 1960s.

San Francisco Bay is part of a large estuary that includes San Pablo and Suisun Bays and the Carquinez Strait. The area's climate is typically Mediterranean, with cool, wet winters and warm, dry summers. Annual precipitation within the region varies widely from fewer than 15 inches to more than 70 inches per year. In the project vicinity, rainfall is relatively low, averaging less than 21 inches annually. The region has warmer temperatures than more northern coastal regions and is relatively frost-free. The majority of rainfall occurs December through March, decreasing from north to south. Along the immediate coast, the climate is cool and without extreme fluctuations.

The project area's pre-1850 natural setting was typified by estuaries, coastal marsh lands, coastal prairie, and willow groves. Various-sized water courses drained into the Bay, and on the northeast San Francisco peninsula these included Yosemite, Islais, and Mission Creeks. The area contained varied animal resources such as fish, shellfish, and terrestrial and marine mammals, and a range of plant resources. Historically, the project vicinity was the interface of the northern seashore communities (typical of sandy dunes) and the coastal prairie-scrub mosaic to the north.

4.5.1.4 Geological Context

The Bay Area has undergone a series of significant large-scale environmental changes since the end of the Late Pleistocene (11,500 years ago), when Native Americans may have first inhabited the region.[10] These changes included rising sea levels resulting in the rapid growth of San Francisco Bay and the inundation of old shorelines causing widespread sediment deposition, and corresponding fluctuations in the distribution and availability of important natural resources. As a result, the archeological record — and the potential for archeological deposits in the project vicinity and environs — is better understood when viewed within the history of Bay Area environmental and landscape changes.

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[9] The regional setting, geological context, prehistoric context, ethnohistorical context, and historic period setting below have been adapted from Byrd, Brian F., Philip Kaijankoski, Rebecca Allen, and Matthew Russell, Archaeological Research Design and Treatment Plan for the Biosolids Digester Facility Project, Southeast Water Pollution Control Plant, San Francisco, California. Prepared for San Francisco Public Utilities Commission, October, 2016.

[10] Meyer, Jack, and Jeffrey Rosenthal, *Geoarcheological Overview of the Nine Bay Area Counties in Caltrans District 4.* Prepared for Caltrans District 4, 2007.

Several studies confirm that many of the Late Pleistocene and Early Holocene land surfaces around the Bay are overlain by deposits of younger alluvium that are generally fewer than 6,000 years old.[11] Stratigraphic and radiocarbon evidence indicates that the Holocene-age alluvial deposits average 6 to 10 feet in thickness, with deposits exceeding 33 feet in a few areas. These older land surfaces usually exhibit well-developed buried soils (paleosols) that represent a significant stratigraphic boundary in the region where archeological deposits might have formed as humans began to inhabit the region. Based on the geomorphological history of the bay shore, the earliest evidences of human occupation in the project area and other near-bay vicinities around the Bay likely were submerged and/or buried by sediment deposition as the bay formed and the shoreline changed over time.

The majority of the archeological C-APE is within what was historically (ca. 1850) a large estuary at the mouth of Islais Creek. This estuary was characterized by the wide sinuous channel of Islais Creek, in addition to numerous distributary channels, tidal sloughs, and small creeks flowing from the surrounding foothills. This appears to have been a dynamic estuarine environment subjected to daily tidal fluctuations and likely occasional relocations of the primary Islais Creek channel during flood events. When flooding occurred, estuarine sediments were reworked and minor channels repositioned. The estuary shorelines, including formerly terrestrial areas offshore that were submerged by rising sea levels as the Bay grew, would have provided immediate access to freshwater and wetland resources. Such environments would have been attractive for prehistoric human occupation as demonstrated by the presence of several known prehistoric archeological deposits along the former margins of this estuary. While large portions of the archeological C-APE are within areas that historically would have been under the waters of the estuary and Bay, a few thousand years ago (prior to inundation from rising sea levels) the entire archeological C-APE would have been a terrestrial setting adjacent to San Francisco Bay and estuary.

Historically, and likely for at least 8,000 years previously, Piers 94 and 96 were fully within the waters of San Francisco Bay. The land areas at these locations were formed by deep landfill in the bay in the 1960s. The majority of the remaining archeological C-APE historically was at the interface of tidal flats and, at slightly higher elevations, tidal marshes. Tidal flats are areas devoid of vegetation that are repeatedly submerged and exposed by the daily tides. They are conventionally defined on their bayward margin by the line of Mean Lower Low Water (the average of the lower of the two daily low tides) and on their landward margin by the lower limit of tidal marsh vegetation. The locations of SEP South and the Southeast Greenhouses were situated on terrestrial areas overlooking the estuary, above what were historically the tidal flats.

[11] Helley, Edward J., Kenneth R. LaJoie, W. E. Spangle, and Lynda M. Bair, *Flatland Deposits of the San Francisco Bay Region, California – Their Geology and Engineering Properties, Their Importance to Comprehensive Planning*. Professional Paper No. 943., 1979; McIlroy, Jack, Jack Meyer, and Adrian Praetzellis, *Geoarchaeological and Archaeological Investigations for the Central Freeway Seismic Retrofit Project.* Submitted to the California Department of Transportation, District 4, Oakland, California, 2001; Meyer, Jack, *A Geoarchaeological Study of the Guadalupe Parkway Corridor, State Route 87, San Jose, Santa Clara County, California.* Submitted to the California Department of Transportation, District 4, Oakland, and KEA Environmental, Inc., San Diego, California, 2000; Stewart, Suzanne, Jack Meyer, and Mike Newland, *Phase One Investigations for the Fort Baker Archaeological Survey, Golden Gate National Recreation Area, Marin County, California.* Prepared for Golden Gate National Recreation Area, National Park Service, San Francisco, 2002.

An ambitious plan to fill the Islais Creek estuary was undertaken in the early 1920s. Mapping of surface deposits indicates that the uppermost soils of the archeological C-APE consist entirely of fill associated with the infilling of the Islais Creek estuary.

4.5.1.5 Prehistoric Context

The following discussion outlines the prehistoric context of the project area, including the most recent chronology for prehistoric archeological sites on the San Francisco peninsula and the San Francisco Bay Area. This section has been adapted from the *Archeological Technical Memorandum for the San Francisco General Plan Housing Element EIR*.[12]

Since the late Pleistocene, when indigenous peoples may have first arrived in the Bay Area, the region has undergone significant environmental changes. The oldest evidence of human occupation in San Francisco includes two isolated human skeletons discovered 45 years apart deep below city streets in marine deposits. In October 1969, fragmentary human bones were encountered during construction of the Bay Area Rapid Transit Civic Center Station in downtown San Francisco. Those remains belonged to a female individual aged 24–26 years. Radiocarbon dating of associated organic material indicated the remains were nearly 5,000 years old. The skeleton was discovered 75 feet below ground surface (bgs) within a 40-foot-thick clayey silt stratum (bay deposits), approximately 26 feet below mean sea level (CA-SFR-28).[13] More recently, an intact human skeleton was found during construction of the Transbay Transit Center in February 2014. The human remains were encountered at a depth of 58 feet bgs with Bay mud deposits, and are estimated to be between 5,000 to 7,000 years old.[14]

These two finds are exceptional, as the majority of known prehistoric-era sites in San Francisco date to no more than 2,000 years before present (B.P.) and are found buried at depths of approximately 10 to 20 feet bgs. They were originally deposited within the dune sands that were blown eastward from the Pacific coast, across the peninsula over the last 6,000 years.

Prehistoric resources and sites that have survived to the present represent only a portion of the past. The early growth of San Francisco was characterized by filling the shallow Bay waters and other low-lying lands, removal of hills of sand and rock, and the obscuring of original ground surfaces by fill, roadways, buildings, and structures. Nels C. Nelson conducted a systematic survey around the perimeter of the entire San Francisco Bay between 1906 and 1909, focusing on shellmounds partially submerged by or adjacent to the Bay waters. Although Nelson recorded 425 shellmounds around the San Francisco Bay Area, his survey occurred well after San Francisco and other areas were heavily developed and covered by the built environment, potentially obscuring other sites that may have been present.[15]

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[12] William Self Associates and Randall Dean, *Archeological Technical Memorandum for the San Francisco General Plan Housing Element EIR*, prepared for San Francisco Planning Department, 2009. Available online at: http://www.sf-planning.org/ftp/files/MEA/2007.1275E_SFHE_DEIR_AppxC.pdf, Accessed January 11, 2017.

[13] Henn, Winfield, Tom Jackson, and Julius Schlocker, Buried Human Bones at the 'BART' Site San Francisco, California Geology, Vol. 25, No. 9, 208-209. 1972.

[14] Jack Meyer, personal communication with ESA archaeologist Matthew Russell, Ph.D., April 2014.

[15] Nelson, Nels C., Shellmounds of the San Francisco Bay Area. *University of California Publications in American Archaeology and Ethnology* 7 (4):310-356. Berkeley, 1909.

Periods of prehistory and discovered sites dating from these periods are discussed below.

Terminal Pleistocene (13,450–11,550 B.P.)

No prehistoric archeological sites dating from this period have yet been discovered in the San Francisco Bay Area. The nearest Terminal Pleistocene site is the Borax Lake site (CA-LAK-36), in Lake County. Populations at this time were small and highly mobile. The archeological signature of highly mobile hunter-gatherers would be faint and geographically sparse, and would be easily disturbed by geological processes such as erosion, rising sea level, and alluvial burial.

Early Holocene (11,550–7,650 B.P.)

Early Holocene human populations are known from several Bay Area sites, such as those at the Los Vaqueros Reservoir (CA-CCO-696) and the Santa Clara Valley (CA-SCL-178). Communities from this period were semi-mobile hunter-gatherers who used flaked stone tools and ground stone implement such as manos and milling slabs. Human burials from this period have also been investigated. There are no recorded Early Holocene sites in San Francisco.

Middle Holocene (7,650–3,750 B.P.)

Middle Holocene sites are more widespread in the San Francisco Bay Area and are evidenced by substantial settlements, isolated burials, distinct cemeteries, milling slabs, mortars and pestles, and the fabrication and use of shell beads and other ornaments. Differences in burial treatment such as differential distribution of shell beads and ornaments are interpreted as evidence of possible social stratification. The expansion of San Francisco Bay's estuaries and tidal wetlands seems to have resulted in a shift toward coastal and maritime resource exploitation. Two Middle Holocene sites have been recorded in San Francisco: the two sets of deeply buried human remains discussed above.

Late Holocene (3,750–170 B.P.)

The Late Holocene has left the most comprehensive archeological record of prehistoric populations in San Francisco. This period is marked by the establishment of large shellmounds. Artifact assemblages are characterized by bone awls (indicating appearance of coiled basketry); net sinkers; mortars (probably indicating greater consumption of acorns and other plant resources); *Olivella* shell beads; the appearance of the bow and arrow; and diverse beads and ornaments, such as incised bird bone tubes. There is some indication of a greater exploitation of deer, sea otter, mussels, and clams. There is growing indication of shellmounds as planned, constructed landscapes on sites of ancestral, or at least mortuary, importance.[16]

[16] Lightfoot, Kent G., Cultural Construction of Coastal Landscapes: A Middle Holocene Perspective from San Francisco Bay. In *Archaeology of the California Coast during the Middle Holocene*, Jon M. Erlandson and Michael A. Glassow, editors, pp.129-141. Perspectives in California Archaeology Vol. 6, Cotsen Institute of Archaeology, University of California, Los Angeles, 1997; Lightfoot, Kent G. and Edward M. Luby, Late Holocene in the Greater San Francisco Bay Area: Temporal Trends in the Use and Abandonment of Shell Mounds in the East Bay. In *Catalysts to Complexity: The Late Holocene on the California Coast*. Jon M. Erlandson and Terry Jones, editors, pp. 263-281. Cotsen Institute of Archaeology, University of California, Los Angeles, 2002.

4.5.1.6 Prehistoric Archeological Investigations in San Francisco

Systematic investigation of prehistoric sites on the northern San Francisco peninsula began with Nelson's shellmound survey conducted between 1906 and 1909.[17] Nelson pursued his interest in San Francisco prehistory with excavations at CA-SFR-7 (the Crocker Mound) on the Bay's southeastern shoreline,[18] among other investigations. Nelson found that CA-SFR-7 contained a variety of flaked stone, worked bone, faunal remains, and 23 human burials. The constituents of this mound indicated long-term residential occupation. Two years later, L. L. Loud excavated another shellmound (CA-SFR-6), approximately 3 feet thick, near the Palace of Fine Arts.[19] While interest in the prehistory of the northern San Francisco peninsula began in the early 1900s, the area generally received little attention until more recent times. This was partially a result of the destruction and/or burial of sites due to historic settlement and development.

Within the past 30 years, the body of work focusing on the prehistoric archeology of the northern San Francisco peninsula has expanded, as archeological sites have been uncovered during construction or development activities within the City. Approximately 50 prehistoric archeological sites have been documented within the northern San Francisco peninsula and Yerba Buena Island; the majority of these were within one-half mile or less from the historic margins of San Francisco Bay. Most of the prehistoric sites are shell midden sites, which have their greatest concentrations in the South of Market neighborhood and the Hunters Point-Bayview-Candlestick Point-Visitacion Valley area. Although midden sites in the latter area have been known since the 1870s and include some of the largest shellmound sites in San Francisco, they have not been thoroughly investigated and their dating is not well understood. The South of Market sites have, on the other hand, largely only come to light since the 1980s and have been subject to various analyses and absolute dating techniques. These shell midden sites are also remarkable within Bay Area shellmound studies because many of them possess good physical integrity as a result of having been buried beneath natural sand dune deposits for hundreds of years following their abandonment.

The Anthropological Studies Center at Sonoma State University defined a National Register of Historic Places (National Register)-eligible district that incorporates several prehistoric sites within sand dunes formed along the north side of Mission Bay in the South of Market neighborhood.[20] These sites are considered to represent elements of a large multi-village community. The State Historic Preservation Officer (SHPO) has recently determined that at least seven previously recorded prehistoric habitation sites are part of this district. The district is eligible under National Register Criterion A and California Register Criterion 1, association with events that made a significant contribution to the broad patterns of our history, as well as Criteria D/4, for its ability to yield important new insights into regional prehistory in the vicinity of Mission Bay.

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17 Nelson, Nels C., Shellmounds of the San Francisco Bay Area. *University of California Publications in American Archaeology and Ethnology* 7 (4):310-356. Berkeley, 1909.

18 Moratto, M. J., *California Archaeology*. Academic Press, Orlando, FL, 1984.

19 Ziesing, Grace H., Replacement of the West Approach to the San Francisco-Oakland Bay Bridge: Archaeological Research Design and Treatment Plan. Prepared for the Office of Environmental Planning, District 4, California Department of Transportation, Oakland, CA, 2000.

20 Anthropological Studies Center, Site Specific Archaeological Research Design, Evaluation, and Data Recovery and Treatment Plan for Prehistoric Midden Deposits at Fourth and Howard Streets, San Francisco. Prepared for the San Francisco Municipal Transportation Agency, September 15, 2010.

In addition to the South of Market neighborhood and the Hunters Point-Bayview-Candlestick Point-Visitacion Valley area, a third area of intense prehistoric occupation was on the terraces of the former Islais and Precita Creeks, just above their broad tidal estuary. Several notable sites have been investigated in this area, including CA-SFR-17, which was originally designated as Nelson 430, then CA-SFR-3, and now subsumes both CA-SFR-16 and CA-SFR-18. The site was a shellmound or series of shellmounds on the south bank of the upstream portion of Islais Creek. Material recovered from the site includes ground stone artifacts and a number of burials that date over a broad time span from the Late Holocene (approximately 2500 B.P.) into the ethnographic period.

4.5.1.7 Ethnohistorical Context

Based on a compilation of ethnographic, historic, and archeological data, Milliken describes a group known as the Ohlone, who occupied the general vicinity of the project.[21] While traditional anthropological literature portrayed the Ohlone peoples as having a static culture, today it is better understood that many variations of culture and ideology existed within and between villages. While these "static" descriptions of separations between native cultures of California make it an easier task for ethnographers to describe past behaviors, this masks Native adaptability and self-identity. California's Native Americans never saw themselves as members of larger "cultural groups," as described by anthropologists. Instead, they saw themselves as members of specific villages, perhaps related to others by marriage or kinship ties, but viewing the village as the primary identifier of their origins.

Levy describes the language group spoken by the Ohlone, also known as "Costanoan."[22] This term is originally derived from a Spanish word designating the coastal peoples of Central California. Today Costanoan is used as a linguistic term that references a larger language family that included at least eight distinct languages (as different as Spanish is from French) of the same Penutian language group. The Ohlone once occupied a large territory from San Francisco Bay in the north to the Big Sur and Salinas Rivers in the south. The C-APE is within the *Ramaytush Ohlone* linguistic territory, in the areas of present-day San Francisco and San Mateo Counties. The northern portion of the San Francisco peninsula (including San Francisco) was the tribal/regional community area of the *Yelamu*, one of seven tribal areas on the San Francisco peninsula (north of San Francisquito Creek). The *Yelamu* are estimated to have had a population of 160 and population density of one person per square kilometer (2.7 per square mile) at the time of Euroamerican contact.[23]

Economically, Ohlone engaged in hunting and gathering. Their territory encompassed both coastal and open valley environments that contained a wide variety of resources, including grass seeds, acorns, bulbs and tubers, bear, deer, elk, antelope, a variety of bird species, and rabbit and other

[21] Milliken, Randall T., *A Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area, 1769-1810.* Ballena Press, Menlo Park, 1995.
[22] Levy, Richard, Costanoan In *California*, edited by Robert F. Heizer, pp. 485–495. Handbook of North American Indians, vol. 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C., 1978.
[23] Milliken, Randall, Laurence H. Shoup, and Beverley R. Ortiz, *Ohlone/Costanoan Indians of the San Francisco Peninsula and their Neighbors, Yesterday and Today.* Prepared for National Park Service, Golden Gate National Recreation Area. June 2009.

small mammals. The Ohlone acknowledged private ownership of goods and songs, and village ownership of rights to land and/or natural resources; they appear to have aggressively protected their village territories, requiring monetary payment for access rights in the form of clamshell beads. After European contact, Ohlone society was severely disrupted by missionization, disease, and displacement. Today, people of Ohlone descent still have a strong presence in the San Francisco Bay Area and many are highly interested in their historic and prehistoric past.

4.5.1.8 Historic Period Setting

This section provides a general historical overview of the southeastern part of San Francisco, focusing on the region south of Islais Creek in the Bayview-Hunters Point district. It also highlights specific land use history for the project area, detailing information found in documents, maps, and aerial photographs.

Spanish, Mexican, and Early American Periods

Initial European exploration of the San Francisco area began in 1769. During this period, a number of Spanish expeditions penetrated the territory occupied by the Ohlone peoples. Between 1769 and 1776, forays led by Portola, Ortega, Fages, Fages and Crespi, Anza (two expeditions), Rivera, and Moraga were carried out. Favorable reports led to the founding of seven missions in the region between 1770 and 1797.

In the spring of 1776, the site of San Francisco was chosen by Juan Batista Anza for the establishment of a mission and military post. Later that same year, the Mission San Francisco de Asís (also known as Mission Dolores) and Presidio de San Francisco were officially dedicated and Jose Joaquin Moraga (Anza's lieutenant) took formal possession in the name of King Carlos III.

The Spanish colonization of Alta California, as manifested in the religious-military mission system, produced profound changes in the cultures of the indigenous population. The missions resettled and concentrated the aboriginal hunter-gatherer population into agricultural communities. The concentration of population, coupled with the indigenous people's lack of immunity to European diseases, caused the tribes to be decimated by common diseases that were generally not fatal to Europeans. It has been estimated that the Ohlone population overall declined from 10,000 or more in 1770 to fewer than 2,000 in 1832.

After gaining independence from Spain, Mexico established jurisdiction over Alta California in April 1822. During the Mexican Period (1822–1848), control over this remote area by the central and local Mexican authorities was never strong. The project vicinity was part of Rancho Rincon de las Salinas y Potrero Viejo, which occupied much of southeastern San Francisco. Don José Cornelio Bernal submitted a petition for Rancho Ríncon Salinas y Potrero Viejo in 1834, although Mexican Governor Figueroa rejected the claim, indicating the area was part of the common lands of the Pueblo of Yerba Buena. By October 10, 1839, Governor Figueroa reversed his earlier decision and granted the tract to Bernal, who may have been running cattle on the land since at least the mid-1830s. The rancho included most of southeastern San Francisco, including the Islais Creek watershed and all of what is

presently the Bayview-Hunters Point district, including the project area.[24] California became part of the United States as a consequence of the U.S. victory over Mexico in the Mexican War. The territory was formally ceded in the treaty of Guadalupe Hidalgo in 1848 and was admitted as a state in 1850.

Prior to the discovery of gold at Sutter's Mill on January 24, 1848, development in San Francisco consisted of the Spanish/Mexican facilities (i.e., the Presidio and Mission) and a small settlement known as Yerba Buena situated on the shores of the cove by the same name. The inhabitants of Yerba Buena were predominantly non-Spanish, English-speaking immigrants (e.g., U.S. or British citizens). Sometime before the Gold Rush, the inhabitants of Yerba Buena officially changed the name of their settlement to San Francisco. Following the discovery of gold, San Francisco transformed quickly from an isolated hamlet into a bustling center of commerce. After the discovery of gold, the population of San Francisco grew from 375 people in 1847 to 2,000 by February 1849, and by the end of 1849, there may have been as many as 20,000 people living in the City.[25] However, the immediate project area remained essentially undeveloped for several more decades.

Late 19th Century (1860–1906)

The growing City downtown had increasing conflicts with malodorous industrial uses, which pushed them further and further south along the bay shore. In 1862, the South San Francisco Homestead & Railroad Association attempted to subdivide and market a portion of the neighborhood north of the C-APE. The impetus was construction of a Long Bridge completed in 1867 that spanned Mission Bay and Islais Creek and connected downtown San Francisco to the southern part of the city at Hunters Point. The Long Bridge, which aligned with Railroad Avenue (Third Street), eased transportation to this developing area and made industrial development and transport feasible for this area, with extensive development of piers and elevated structures both to elevate them above the wetlands and to allow disposal of refuse that could be flushed by the tides.[26]

Ordinances in the early 1850s pushed slaughterhouses from South of Market to the Bayview-Hunters Point district in the vicinity of the project, and by the late 1860s the area was part of an 80-acre Butchers' Reservation known as "Butchertown."[27]

Developers began to promote the area south of Islais Creek but the immediate project area still did not see much use. By 1869, the southern part of the C-APE was an open, flat area above the southern margin of the Islais Estuary, with a network of roads and numerous structures dotting the area. The location of the staging area at the Southeast Greenhouses site was bisected by two dirt tracks, possibly including structures at the southern end, but with no streets or additional indications of development.[28] The northern portions of the C-APE were still within the Islais Estuary, and the

[24] Kelley, Tim, and Christopher VerPlanck, *Bayview-Hunters Point Area B Survey, San Francisco, California, Historic Context Statement*. Prepared for the San Francisco Redevelopment Agency, 2010:15.
[25] Hupman, J.M., and D. Chavez, *Archaeological Resources Investigations for the Waterfront Plan EIR, San Francisco.* On file (S-16882), Northwest Information Center, Sonoma State University, 1995.
[26] Kelley, Tim, and Christopher VerPlanck, *Bayview-Hunters Point Area B Survey, San Francisco, California, Historic Context Statement.* Prepared for the San Francisco Redevelopment Agency, 2010:31–33.
[27] Ibid:42–44.
[28] U.S. Coast Survey, San Francisco Peninsula, 1869.

1550 Evans Avenue and Pier 94 and 96 staging areas were still within San Francisco Bay, although the Long Bridge ran adjacent to what was to become 1550 Evans Avenue.[29]

U.S. Coast and Geodetic Survey charts from 1884 show the same limited development in the C-APE as in 1869, indicating the slow rate of urban development in the vicinity throughout the late 19th century. Exceptions included a pier extending west from the Long Bridge (Railroad Avenue/Third Street) immediately north of the C-APE along the future alignment of Fairfax Avenue,[30] which supported the Legallet-Hellwig Tanning Company and associated industries; and a series of wooden piers that extended northward into the Bay adjacent to the Long Bridge within the 1550 Evans Avenue staging area.[31]

Among the industries affiliated with the slaughterhouses was a tannery operated by A.B. Patrick and Co., established on the north side of 6th (Fairfax) Avenue between Q (Quint) and R (Rankin) Streets, between 1888 and 1889. The northern end of the C-APE terminates just south of the location of this tannery. A core group of Butchertown workers were Overseas Chinese laborers, who likely occupied lodging at or in the vicinity of the livestock yards, slaughterhouses, and tanning mills. Olmsted et al. note that the Overseas Chinese workers may have lived on the tannery premises, as they did at laundry facilities in San Francisco.[32] The 1900 Sanborn map indicates the facility included "sleeping rooms," which seems to support the idea that workers lived at the tannery. Historical maps and 1880 census data indicate that Chinese laundry sites in San Francisco served as both living quarters and work places for Chinese laundry workers, indicating there is precedent for industrial work places to house Overseas Chinese workers. That was certainly the case with European (primarily French and German) workers at the Legallet-Hellwig Tannery nearby, many of whom lived on site, as noted on the Sanborn map.

By the close of the 19th century, additional development had been completed in the southern portion and along the eastern margin of the C-APE, but the majority of the project area was still within the Islais Estuary. As shown on the 1900 Sanborn Fire Insurance map for the location of the Southeast Greenhouses staging area, city streets had been established and several buildings were present at the Southeast Greenhouses location, including residences on 12th Avenue South, 13th Avenue South, and 14th Avenue South (later La Salle, McKinnon, and Newcomb Avenues, respectively), as well as P Street South (later Phelps Street). The remainder of the Southeast Greenhouses location was dominated by corrals and feeding sheds operated by Miller & Lux, a long-standing San Francisco livestock dealer and butcher.[33] The 1900 Sanborn map also indicates that Railroad Avenue (the former Long Bridge and later Third Street) ran adjacent to the west side of the 1550 Evans Avenue staging area, and a number of wooden piers extended northward over San Francisco Bay and the

[29] Ibid.
[30] Fairfax Avenue, also previously known as 6th Avenue, ran immediately north of the archaeological C-APE parallel to Evans Avenue.
[31] U.S. Coast and Geodetic Survey (USCGS), San Francisco Entrance, 1884.
[32] Olmsted, Roger R., Nancy L. Olmsted, Allen Pastron, and Jack Prichett, *Rincon de las Salinas Y Potrero Viejo – The Vanished Corner, Historical Archaeological Program, Southeast Treatment Plan, 1978–1979*. Prepared for the San Francisco Clean Water Management Program, 1981.
[33] Langley, Henry G. The San Francisco Directory for the Year Commencing March, 1900. Henry G. Langley, San Francisco, California. Available online at http://www.archive.org. Accessed October 2015; Sanborn Map Company (Sanborn), Insurance Maps of San Francisco, California, 1900.

mudflats form the Long Bridge. The piers housed numerous structures associated with slaughterhouses and other related industries.[34]

Early 20th Century (1906–1950)

Historical maps indicate that little changed in the C-APE during the first decades of the 20th century.[35] Maps show the area remained low and poorly drained, a condition that likely explains its continued lack of development. Railroad tracks of the Atchison, Topeka and Santa Fe Railroad ran up the middle of Quint Street, and spur lines extended into portions of the northern part of the C-APE. Other than these few industrial improvements between Quint Street and the rail spur, the only development in the area remained in the current location of the Southeast Greenhouses. The same residences shown in 1900 were still present, with the exception of the dwelling at 1200 P Street South (later Phelps Street) that had been replaced by a stable. The dwelling at 1804-1806 Newcomb Avenue is labeled as "old and dilapidated" on the 1914 Sanborn map,[36] suggesting it may no longer have been inhabited.

The 1550 Evans Avenue staging area was also largely the same in 1914 as it was in 1900.[37] Additional fill had been placed around the piers, but mud flats still remained between some of the piers, as well as to the east.

Although few details are evident on the 1926 U.S. Coast Survey chart, it documents in general that little changed in the C-APE through the 1920s. The project to fill the Islais Estuary, which had stalled in the early part of the century, started moving again in 1930 and work to reclaim much of the estuary began. Although reclamation of the Islais Estuary was officially completed in 1936, the reclamation project stopped west of the Southern Pacific railroad tracks (Caltrain tracks) on the western edge of the project site and did not include the C-APE. As reclamation opened the way for development nearby, the project vicinity remained swampy and sparsely developed with a few scattered buildings.[38]

The 1938 Ryker aerial photographs show only minimal changes had taken place in the C-APE by the end of the 1930s. Industrial uses continued, but the majority of the C-APE was still undeveloped, and standing water was still evident. At the location of the Southeast Greenhouses, the residential neighborhood remained largely the same as it had been in 1914. At the 1550 Evans Avenue staging area, structures built on piles or posts over mud flats were still present, with areas of undeveloped mud flats between and around them. The northern part of the potential construction staging area includes a series of hog pens and corrals associated with the slaughterhouses.

After World War II, the future locations of Piers 94 and 96 were still within San Francisco Bay. By 1950, almost the entire C-APE had been cleared of buildings, including the residences that had formerly been between La Salle and McKinnon Avenues in the vicinity of the Southeast Greenhouses

34 Sanborn, 1900.
35 Sanborn, Insurance Maps of San Francisco, California, 1914; USCGS, San Francisco Entrance, 1915.
36 Sanborn, 1914.
37 Ibid.
38 Kelley and VerPlanck, 2010:83, 110.

site. The only residence left remaining in the C-APE was at 1811 McKinnon Avenue.[39] This final residence was demolished and removed by 1956.[40] By 1950, little had changed at the 1550 Evans Avenue staging area. Slaughterhouses and associated industries still dominated the area, although by 1950 most of the land had been filled around the structures. By 1968, Piers 94 and 96 had been constructed of reclaimed earthen fill, and the terminal structures at the ends of the earthen piers were completed between 1973 and 1975. At 1550 Evans Avenue, a school building and parking lot was constructed in 1978.

Brief History of the Southeast Water Pollution Control Plant[41]

City Sewer System Plans

Rapid development as a result of the California Gold Rush transformed San Francisco into the largest city on the West Coast by the late 19th century. To support the growing population, the original sewer system was designed to carry combined wastewater and stormwater flows to the shoreline. By 1899, over 300 miles of combined sewers had been completed. In that year, the City's first coordinated sewerage plan—the 1899 Sewer System Master Plan— was developed. The main accomplishments of the 1899 plan were (1) development of a standardized, coordinated sewer design to provide effective drainage, (2) construction of four pump stations, (3) consolidation to eliminate on-land discharges, and (4) construction of 700 miles of combined sewers.

Although many improvements to the City's sewer system occurred as a result of the 1899 plan, untreated sewage was still discharged directly into the Bay and Pacific Ocean, eventually resulting in unsanitary conditions along the coastlines. These conditions were recognized by the public early on, but could not be sufficiently addressed due to lack of financial resources. A sewer bond in 1933 made funds available for a board of consulting sanitary engineers to prepare studies and recommendations to remedy this situation, resulting in the 1935 Sewer System Master Plan. The plan proposed the following major improvements to the City's sewer system: (1) sewage generated in the North Point and Marina districts to be treated at a plant at North Point; (2) sewage generated in the Baker's Beach or East Richmond district, West Richmond, and Sunset districts to be treated at the Richmond-Sunset Sewage Treatment Plant; and (3) sewage generated in the southeast quadrant of the city be treated at a treatment plant at Bayview-Hunters Point.

The priority was given to improve sewerage in the areas along San Francisco's north shore and Great Highway, the main recreational areas of the city, as the completion of all three plants under this one bond issue was not possible. The Marina Pumping Plant and discharge sewer, as well as the Richmond-Sunset Plant in Golden Gate Park with its connecting tunnel and sewers, were built in 1939. The Seacliff Pump Station No. 2, completed in 1940, was built to pump effluent from the Seacliff neighborhood to the Richmond-Sunset Plant. The Richmond-Sunset Plant was enlarged and

[39] Sanborn, Insurance Maps of San Francisco, California, 1950.
[40] Historic aerials. Available online at www.historicaerials.com. Accessed on October 2015.
[41] Adapted from Brewster, Brad, Department of Parks and Recreation (DPR) form, Southeast Treatment Plant. Prepared for San Francisco Public Utilities Commission, May 2016. On file with the San Francisco Planning Department.

improved from 1948 to 1950. The North Point Facility in the North Beach neighborhood was constructed in 1951, and the SEP in the Bayview neighborhood was constructed in 1952.

Planning for the SEP

Although the purpose and need for the SEP was articulated in the 1935 Sewer System Master Plan, described above, the bond funding available for its construction was delayed until after World War II. As a result, the start of construction was delayed until 1950. Construction of the SEP began on March 13, 1950, and was completed by mid-1952, with 18 buildings and 10 digester tanks, in two groupings of five.

The SEP was designed by the San Francisco Bureau of Engineering, Department of Public Works, with the advice of Clyde C. Kennedy, Consulting Sanitary Engineer, and the assistance of Ambrose and Spencer, Consulting Architects, and Harold B. Hamill, Consulting Structural Engineer. The construction contract for the SEP was awarded to Walsh Construction Co., Bates & Rogers Construction Corp., and J. H. Pomeroy & Co. Inc., Joint Ventures. The original contract award for the plant was $2,132,118; however, construction delays put the final costs closer to $4,500,000.

Architectural Style

The original 18 buildings at the SEP were designed in the Streamline Moderne architectural style, which was an expression of the speed and sleekness of the Machine Age. The style referenced the aerodynamic forms of airplanes, ships, and automobiles of the period with sleek, streamline rounded corners and curves, and evoked a machine-made quality. It evolved from the Art Deco movement and incorporated design elements associated with the International Style. In San Francisco, construction in this style began in the mid-1930s and continued through the early 1950s.

The 18 buildings at the SEP completed in 1952 reflected a later and more rectilinear iteration of the Streamline Moderne style. The buildings are horizontally oriented and have character-defining features of the Streamline Moderne style including glass block windows, cast concrete double moldings around all windows and doors, flat roofs with tile coping at the roofline with a speedline motif, and smooth, board-formed concrete wall surfaces. The ten digester tanks, also completed in 1952, are utilitarian industrial facilities that cannot be ascribed to this particular style, but were designed and built as functional units directly associated with buildings that are representative of this style.

Site Layout

The SEP was constructed on both sides of Jerrold Avenue, and original layout plans indicate that the plant was designed to be expanded on both the north and south sides of this street. The plant could be expanded to the south to accommodate ten additional digester tanks (in two groupings of five), and the north side could be expanded to accommodate two additional sedimentation buildings, immediately east of existing Buildings 040 and 041. None of these expansions occurred as planned; however, greenhouses currently exist where the additional digester tanks would have been constructed, and internal parking lots currently exist where the additional sedimentation buildings

would have been constructed. The existing Southeast Greenhouses were constructed in the early 1980s to address social and economic effects of expansion of the SEP (discussed below).[42]

The physical layout of the SEP remained essentially unchanged from 1952 to 1979. During this time, however, the passage of the 1972 Federal Water Pollution Control Amendments, later known as the Clean Water Act, prompted the City to create the 1974 Sewer System Master Plan. That plan led to numerous construction projects that were implemented over an approximately 25-year period.

Modernization and Expansion

Compliance with the Clean Water Act necessitated a modernization and expansion program at the SEP primarily to provide secondary treatment for dry weather flows. This program resulted in the construction of many new buildings on the north side of the plant related to secondary treatment, as well as many new buildings on the south side of the plant related primarily to solids treatment.

Plant modernization and expansion projects at the SEP from 1952 to 2005 eliminated six of the original 18 buildings constructed in 1952. Buildings removed from SEP North included a headworks building, a chlorination building, and an electrical substation that existed to the north of Buildings 040 and 041, as well as a sludge control building that existed to the south of these buildings. Buildings removed from SEP South included a receiving and thickening building north of Building 750, and a gas holding tank between the two digester tank groups.

During this same period, 21 new buildings or groupings of identical structures were constructed throughout SEP North and South. Fifteen of the new buildings at the SEP were designed in 1977 by the San Francisco Bureau of Engineering, Department of Public Works to address the Clean Water Act requirements and reflected the Brutalist style of Modern architecture.[43] The modernization and expansion effort at the SEP began in 1979 and was largely completed by 1981. Six other buildings that were added to the SEP between the late 1980s and the mid-2000s were also designed by the San Francisco Bureau of Engineering, Department of Public Works, reflecting the Post Modern and Modern/Industrial styles of architecture. These later buildings were primarily related to enhanced biosolids production and storage, as well as energy generation through digester gas recapture.

Brief History of the Central Shops[44]

The CCSF Central Shops facility at 1800 Jerrold Avenue is immediately south and west of the SEP and within the C-APE. The Central Shops is a City bureau responsible for the maintenance of City-owned vehicles as well as mechanical apparatus, fire apparatus, and a variety of other mechanical

[42] State Water Resources Control Board (SWRCB), Order No. WQG 81-1, January 22, 1981. Available online at http://www.swrcb.ca.gov/board_decisions/adopted_orders/water_quality/1981/wq1981_01.pdf, January 22, 1981.

[43] The Brutalist architectural style derives its meaning from the French béton brut, or raw concrete. The style is characterized by exposed concrete construction and expressionistic massing, whereby the interior disposition of spaces is articulated on the exterior facade. Brutalist structures tend to be geometric in massing and are usually constructed of large amounts of poured concrete with a rough, blocky appearance. This style was prevalent in San Francisco between 1960 and 1980 and is often found within civic, institutional, or industrial settings.

[44] Adapted from JRP Historical Consulting, LLC, Department of Parks and Recreation (DPR) form, 1800 Jerrold Avenue. Prepared for San Francisco Public Utilities Commission, November, 2014. On file with the San Francisco Planning Department.

and machines works and equipment. In the 1950s, the Bureau of Central Shops operated under the CCSF Purchasing Department and was responsible for approximately 1,200 City vehicles at three major shops and 11 subshops and garages. By the mid-1950s, these multiple facilities had become inadequate and inefficient. In 1956, planning began for a new facility that would consolidate all three major shops together at the 1800 Jerrold Avenue site, which at the time was undeveloped surplus land that had been previously acquired by the City for construction of the SEP. Construction of the new Central Shops facility began in 1958 at an estimated cost of $1 million and was completed in 1959. The Jerrold Avenue facility contained two fully enclosed shop buildings, and a smaller shed structure. These are referred to in the historic resources documentation of the Central Shops as Building A, Building B, and Building C. The facility was divided into three main areas— automobile, truck, and fire apparatus—as well as several auxiliary shops such as machine shop, blacksmith shop, upholstery shop, paint shop, fire hose shop, ladder shop, tire shop, and wood working shop. The facility also housed Central Shops administration offices.

Buildings A and B at the Central Shops were designed in the Industrial Modern style of architecture, which combines a 20th-century Modern architectural aesthetic with the design qualities of engineering, manufacturing, and industrial facilities that were built for utility and functionality. The Central Shops' straight-forward design shared qualities with industrial design and Modern architecture of its period, including the simple cubic forms, walls of glass on steel frames, open interior floor plans, and lack of applied ornamentation. The design included highly functional expansive glazing that brought extensive natural light into the facility and wide clear spans to maximize flexibility in which to maneuver vehicles and operations. Assimilation of the Modern architectural aesthetic into industrial facilities such as the Central Shops marks an integration of design objectives that merged utilitarian construction with refined architectural concepts of International Style Modernism.

The function of the Central Shops Jerrold Avenue facility continued virtually unchanged in the following decades. The Central Shops continued in its primary function as the main repair and maintenance facility for the City's vehicle fleet, as well as maintaining other City equipment and machines. The number of vehicles in the City fleet maintained by Central Shops steadily grew in subsequent years to over 4,000 vehicles by 1985. The Central Shops is now under the General Services Administration and has five maintenance and repair facilities that provide fleet services to over 6,000 vehicles from 70 City departments. Currently, the Central Shops facilities are in active use, but the City plans to relocate the Central Shops operations to a site at Galvez Avenue and Selby Street and to transfer jurisdiction of the current site to the SFPUC for SEP use.[45]

Brief History of the Asphalt Plant[46]

Also located south and west of the SEP, and within the C-APE, is the Asphalt Plant at 1801 Jerrold Avenue. The first bituminous mixtures of sand, gravel, and tar produced in the United States were used for sidewalks and roads starting in the late 1860s, and a City-owned asphalt plant had been

[45] San Francisco Planning Department, CEQA Categorical Exemption for Central Shops Relocation and Land Transfer Project. Case Number 2015-004781ENV, October 28, 2015.

[46] Adapted from Brewster, Brad, Department of Parks and Recreation (DPR) form, San Francisco Department of Public Works Asphalt Plant. Prepared for San Francisco Public Utilities Commission, May 2015. On file with the San Francisco Planning Department.

operating in San Francisco since 1909. However, the asphalt plant on the project site was built in 1954 on previously undeveloped surplus land that had been acquired by the City for construction of the SEP. The plant site was also adjacent to other City-run industrial operations (e.g., the SEP and Central Shops) and located along a railroad right-of-way.

Operated and maintained by San Francisco Public Works (SFPW's) Bureau of Street and Sewer Repair, the plant produced a hot-mix asphalt provided in batches[47] for SFPW crews to pave, patch, and repair potholes in City streets from 1954 to 2009. The plant also provided asphalt for private contractors that pave City streets. In 1954, the plant consisted of industrial asphalt mixing machinery, an electrical power room, a dispatch office and bathroom/locker room building, a separate restroom and locker room, and a storage shed, all of which were designed in a simplified and utilitarian industrial style.

In 1989, the San Francisco Board of Supervisors approved a major rehabilitation of the plant using $1.5 million of the 1987 Proposition B road improvement bond funds. The approval came in the aftermath of the Loma Prieta earthquake, which demonstrated the value of the plant's ability to supply asphalt on demand. The plant was closed from 1990 to 1993 to accomplish the seismic rehabilitation work. All of the asphalt mixing machinery was replaced or installed in 1992, and a control room building was added to the site. In 2004, SFPW installed two hot asphalt storage silos with the intent of allowing the plant to operate continuously to produce all of the asphalt required for a day's paving operations in addition to storing excess asphalt material for private sale, or emergency and weekend work without the need to activate the entire plant.

In 2006, it was determined that the plant was no longer financially feasible, as private producers could supply asphalt to the City more inexpensively. In 2009, the plant ceased producing asphalt, and since this time the property has been used for the dispatch of asphalt resurfacing crews, for crew offices, and as a corporation yard for street maintenance vehicles and other equipment. As part of a separate project, SFPUC acquired jurisdiction over the asphalt site and will remove aboveground structures prior to implementation of the BDFP.[48]

4.5.1.9 Local Research Results

Prehistoric Archeological Resources

One previously recorded National Register-eligible prehistoric archeological site, CA-SFR-171, is situated within the eastern portion of the project C-APE. Based on previous and current investigations, CA-SFR-171 includes four main elements: a thin Late Period (685 to 180 years ago) midden in the southern portion of the SEP; a thick Middle Period (2,150 to 685 years ago) midden in the central portion of the SEP; probable naturally reworked midden material in the northern portion of the SEP; and artificially redeposited midden material in the historic/modern fill that is widely

[47] There are two types of asphalt plants: batch plants and continuous drum plants. The SFDPW Asphalt Plant is a batch plant type, which has the advantage of flexibility over continuous drum plants, because the operator could individually select each load that came out of the hopper and customers could receive the mix they required on demand. However, batch plants are not as productive as drum plants because they do not operate continuously. Each load must go through its own cycle, after which the pugmill is reloaded for another round.

[48] Refer to Land Reuse – 1801 Jerrold Avenue (SFPUC and DPW) in Table 4.1-1, Section 4.1, for a description of this project.

dispersed across the SEP. Archeological coring has documented that artificially redeposited site material and potential naturally reworked site material is present within the C-APE.[49]

Additionally, geoarcheological coring conducted at 50-meter intervals in much of the western portion of the project C-APE revealed the presence of a well-preserved, Holocene-age submerged soil underlying the thick bay mud and estuary deposits. The presence of a deep, well-preserved pre-bay stable landform makes this area sensitive in regard to the potential for Early Period (4,200 to 2,150 years ago) or older archeological material to be present.[50]

CA-SFR-171

Intact Shell Midden deposit

A thin Late Period component of the CA-SFR-171 shell midden was identified at the southern end of the SEP. This site component occurred at variable depths ranging from 7.5 to 12.5 feet below surface. However, farther to the east, the study identified the truncated Pleistocene Colma formation at shallow depth below the artificial fill that comprises the modern ground surface in this area, and therefore this site deposit is unlikely to extend to the southeast. No cores have been drilled immediately northwest of the thin Late Period deposit or where the midden is absent, so the extent of the midden to the northwest of the recorded site boundary is uncertain. As a result, the Late Period component of the CA-SFR-171 shell midden has the potential to extend into the C-APE within or adjacent to Quint Street.

In contrast, the thick, mainly Middle Period intact midden deposit from CA-SFR-171 was identified in the central portion of the C-APE, and south of Jerrold Avenue. This midden (varying in thickness from 50 to 67 inches) was initially encountered at depths from 10.0 to 11.2 feet below surface. Given that thick midden was present in a core only 785 feet from the C-APE margin, there is the potential that this thick archeological midden could extend northward into the C-APE.

Potential Naturally Reworked Shell Midden

A shellfish concentration potentially indicative of a naturally reworked shell midden was identified within the C-APE north of Jerrold Avenue. This may represent an "off shore" signature of the large newly discovered Middle Period shell midden identified to the southeast; that is, material carried downslope away from the deposit and into the bay by erosion from wind and water. This concentration was situated within the lower portion of the bay and estuary deposits at a depth of 20 to 23 feet below surface. Potential project activity in this portion of the C-APE may include excavation to 45 feet and pile installation to greater depths for building construction. As such, project activity has the potential to encounter this potential cultural deposit.

[49] Kaijankoski, Philip, Brian F. Byrd, and Jack Meyer, *FINAL A Geoarchaeological Study of the Islais Creek Estuary: A Framework for Future Project-Specific Archaeological Investigations at the Southeast Water Pollution Control Plant, San Francisco, California.* Far Western Anthropological Research Group, Inc., Davis, California. Prepared for the San Francisco Public Utilities Commission, September 2016.

[50] Ibid.

Redeposited Shell Midden

Shell midden, exclusively within a redeposited historic/modern context, was documented in the C-APE, or adjacent to the C-APE at depths of two to eight feet below surface. These cores correspond with the proposed locations of the Maintenance Shops 1 and 2 and the No. 2 water pump station. It is assumed that construction of each of these buildings and structures would require excavation extending to depths deep enough to encounter this redeposited material if it is present.

The upper portion of several cores drilled at the Central Shops parcel could not be recovered as unknown materials blocked sediment from entering the core liners. For this reason, the outer barrel of eight cores drilled in this area was plugged and pushed to 20 feet below surface, after which standard sampling began. Furthermore, sampling at one core was not successful in retrieving material until 8 feet below surface. Because these cores could not provide adequate samples of the material at the relevant depth within the Central Shops parcel, the northwestern extent of redeposited midden in the C-APE is poorly defined, and it cannot be determined, based on coring results, whether the redeposited midden extends into this area.

Potential for Previously Undocumented, Submerged Prehistoric Deposits

As discussed in the Geological Context and Prehistoric Context (Sections 4.5.1.4 and 4.5.1.5, above), during the time period when human occupation may have been occurring in the project vicinity, the majority of the C-APE was in the process of being submerged by the rising waters of San Francisco Bay. Large portions of the C-APE within the SEP are underlain by a "pre-bay" former terrestrial surface that could potentially contain archeological remains that were submerged and buried in sediments associated with the rising bay. While in some areas of the SEP the pre-bay landform is marked by an erosional unconformity[51] (indicating that any cultural deposits that might have been present were destroyed by natural forces), throughout virtually the entire C-APE the upper surface of the pre-bay landform is well-preserved under a layer of peat. This represents wetland habitat at the bay margin which would have been attractive to human occupation. This deeply buried surface has an elevated potential to harbor such materials and preserve archeological deposits associated with early occupation of the bay shore.

While not part of CA-SFR-171 and situated almost 100 meters north of the C-APE, an isolated submerged flake (P-38-005445) was recovered from a beach deposit in a core at a depth of 48 to 52 feet below surface. The elevation of this beach deposit indicates that it was at the shoreline of the rising waters of San Francisco Bay approximately 7,000 years ago. Beaches are dynamic, high-energy, landforms that are reworked and/or migrate on a regular basis, and therefore unlikely to harbor an intact archeological site. They may, however, contain isolated artifacts in either primary or secondary context. Based on the fact that other samples of this beach deposit from several cores in the immediate vicinity were wet screened with negative results, this flake (P-38-005445) is likely an isolated find. However, overall, the results of coring attest to Middle Holocene prehistoric use of the Islais Creek Valley and the potential for additional prehistoric archeological materials to be present on the pre-bay landform underlying the project C-APE.

[51] An erosional unconformity is a gap in the geologic record representing a time when sediment deposition stopped.

The depth to this pre-bay surface increases from south to north and ranges from roughly 10 feet below surface in the south to about 50 feet in the north. The depth of project excavation within the C-APE ranges from 3 to 45 feet below surface; piles would be installed at depths up to 75 feet below surface. As such, if a submerged archeological site is present within the C-APE, it would likely be encountered during project construction.

Historical Archeological Resources

The portions of the current project site and off-site staging areas with sensitivity for the presence of historical archeological resources are locations that: (1) have historically documented use and occupation; and (2) did not experience deep excavation or fill during twentieth-century construction of the SEP as described above, and therefore may contain subsurface archeological deposits associated with the historically documented use. The only areas in the immediate project vicinity that meet these criteria are in the former location of Fairfax Avenue and the potential construction staging area at 1550 Evans Avenue.

The former alignment of Fairfax Avenue and the block on the north side that was the location of the A.B. Patrick and Co, tannery from the 1880s to 1930s are immediately north of the current C-APE. Based on historical research summarized above, as well as results of archeological testing and monitoring conducted in 1978–1979 during construction of the SEP,[52] this area would have a moderate to high sensitivity for containing buried historical archeological resources associated with both the early development of 6th (Fairfax) Avenue and the operation of the A.B. Patrick and Co, tannery. The latter resources may include remains associated with the industrial operation of the tannery itself, as well as potential deposits associated with workers (including Overseas Chinese) that may have been housed at the facility. This area is outside the BDFP C-APE.[53]

The 1550 Evans Avenue parcel may contain subsurface remains of the pile-supported industrial structures associated with the meat packing industry that were present on the parcel from the late-nineteenth century until the late-1970s. Archeological studies undertaken near the northern extent of the C-APE in the late-1970s, which investigated the remains of the Legallet and Patrick tanneries between Fairfax and Evans Avenues, west of Phelps Street, as described above, investigated pile-supported tannery structures in a similar environment as 1550 Evans Avenue. Researchers found that remains associated with the tanneries were generally encountered 5 to 6 feet below street level.[54] They also observed that all remains associated with the tanneries had been disturbed by subsequent construction, and no significant deposits remained.[55] The researchers observed that only scant deposits associated with the industrial activities remained below the ground surface: "[t]he most significant archeological finding, indeed, was that a tannery site in such a location is not apt to be

[52] Olmstead et al., 1981.
[53] The C-APE as shown in the ARDTP extends into the location of these historic facilities, but was subsequently amended as described in this EIR because there would be no ground disturbance in this area.
[54] Olmsted et al., 1981.
[55] Ibid.

associated with the existence of significant or revealing artifacts. The scouring actions of the tide that the butchers had counted on to carry away the offal was indeed effective."[56]

Historical maps and aerial images described above indicate that the C-APE in the current location of SEP south of Fairfax Avenue remained sparsely developed throughout the first half of the twentieth century until construction of the SEP in the early 1950s. The historical maps and especially the 1938 Ryker aerial image indicate there are no historically-documented residences in the C-APE; the area was mostly occupied by undeveloped swampland and stock pens. Historical maps and aerial images indicate a few isolated structures were present in this portion of the C-APE, and there may have been undocumented residences not depicted on historical maps.

As described above, the potential staging areas at Piers 94 and 96 are on artificial fill from land reclaimed during the 1960s. There is the potential that historical structures, such as shipwrecks or wharf remains that were present within San Francisco Bay when land reclamation began, could still be extant on the original bay floor. Remains of these historical structures could be preserved beneath the artificial fill on or beneath the original San Francisco Bay floor.

Architectural Resources

Built environmental structures and buildings more than 45 years old are present in the C-APE at the Asphalt Plant, Central Shops and the SEP. Brad Brewster, ESA architectural historian and preservation planner, completed an intensive-level survey of the SEP and Asphalt Plant in May 2015 and March 2016 to document these facilities and to assess their California Register and National Register eligibility.[57] JRP Historical Consulting, LLC (JRP architectural historians) surveyed and evaluated the Central Shops facility within the C-APE in 2014 for the same purposes.[58] The results of the records search and survey efforts are provided below. Historical information regarding the built environment at Piers 94 and 96 and 1550 Evans Avenue is also provided below.

Southeast Water Pollution Control Plant

The records search indicated that the southern block of the SEP was previously evaluated in 2002 as part of a survey and evaluation under Section 106 of the National Historic Preservation Act for the proposed installation of a cellular telephone antenna at the plant.[59] This evaluation recommended that the surveyed part of the plant was eligible for listing in the National Register under Criteria A and C; however, the SEP was not determined to be eligible at that time. (See Section 4.5.2., Regulatory Framework, below for a full definition of the California Register and National Register criteria.) The prior evaluation did not indicate which particular buildings or structures at the SEP contributed to the significance of the historic district, nor did it evaluate the district under CEQA. Therefore, all

56 Ibid., 144.

57 Brewster, *Department of Parks and Recreation (DPR) form,* Southeast Treatment Plant Streamline Moderne Industrial Historic District, Prepared for San Francisco Public Utilities Commission, April, 2016 and Brewster, *Department of Parks and Recreation (DPR) form,* San Francisco Department of Public Works Asphalt Plant, Prepared for San Francisco Public Utilities Commission, May, 2015.

58 JRP, *Department of Parks and Recreation (DPR) form, 1800 Jerrold Avenue*, Prepared for San Francisco Public Utilities Commission, November, 2014.

59 Kelley, T.J. *Department of Parks and Recreation (DPR) form for the Southeast Treatment Plant (P-43-004274).* Prepared for San Francisco Public Utilities Commission, June 2002.

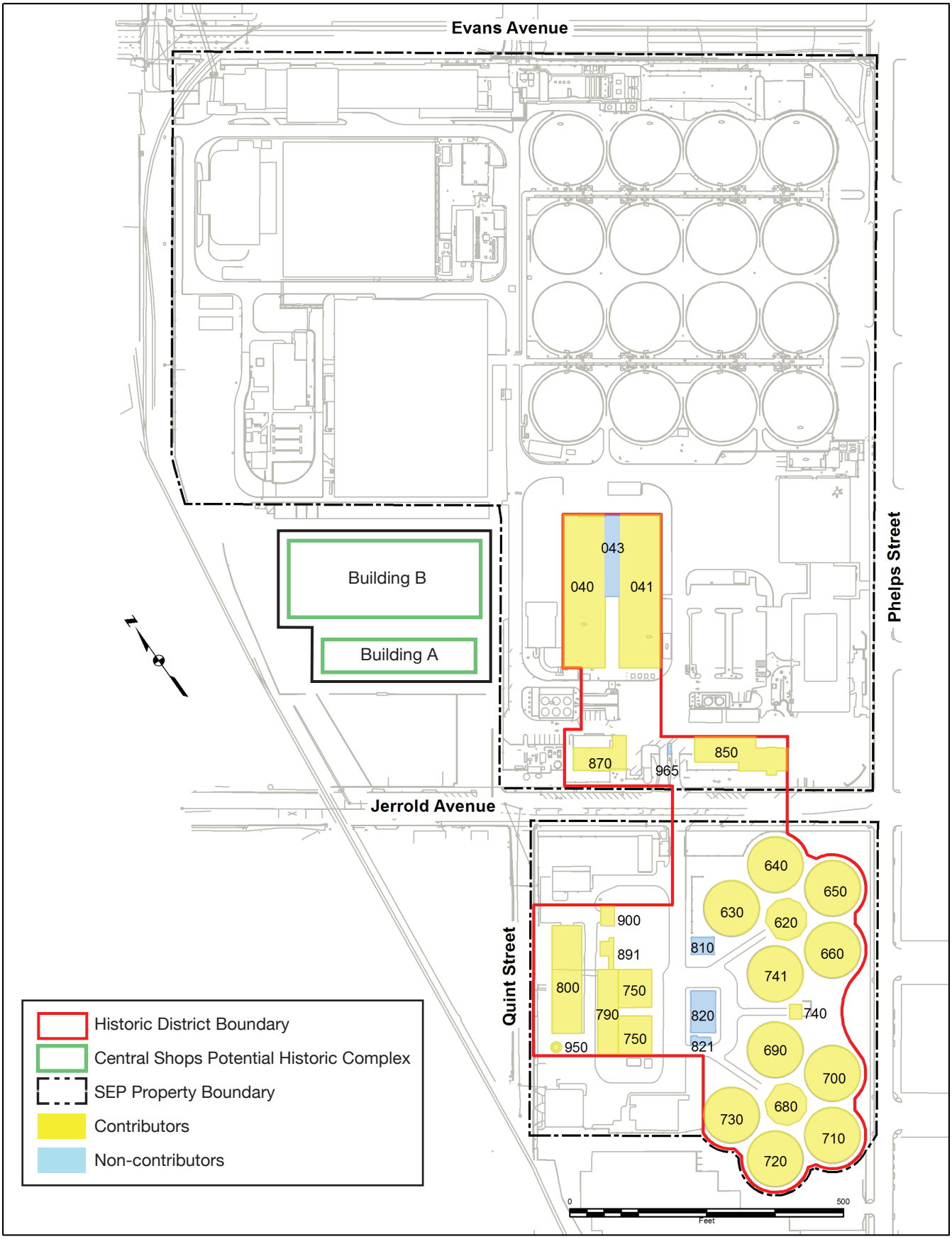
buildings and structures throughout the SEP were re-evaluated by ESA in 2015 and 2016 under both National Register and California Register criteria.[60]

All aboveground buildings and structures at the SEP were surveyed and evaluated for eligibility to the National Register and California Register. A portion of the SEP, including 26 buildings and structures (or combinations of buildings and structures) that comprise most of the southernmost block of the SEP and a portion of the block adjacent to the north, qualifies as a California Register- and National Register-eligible historic district, named the *Southeast Treatment Plant Streamline Moderne Industrial Historic District* (district). The SHPO concurred with this recommendation in a letter dated October 6, 2016.[61] This district was determined to be eligible for the National Register under criteria A/1 for its historical associations with the implementation of the 1935 Sewer System Master Plan; and under criteria C/3 as representative of the use of Streamline Moderne architecture. As a result of this formal determination of eligibility for the National Register, the district is listed in the California Register. **Figure 4.5-2** shows the boundary of the district, along with the contributing and non-contributing elements of the district. **Figure 4.5-3** shows a selection of contributors to the district.

The district includes 22 buildings and structures assessed as contributors to its significance, listed in **Table 4.5-1**, and four buildings and structures (Buildings 043, 965, 810, and Building 820/821) assessed to be non-contributing to its significance because they are less than 45 years old and because they do not share in the district's architectural style.[62] The majority of the contributors to the district are within the south side of the SEP, while a few are within the north side of the SEP.

All of the buildings and structures within the district were completed in 1952 during the initial phase of construction of the plant, which represented the final phase of the implementation of the 1935 Sewer System Master Plan. As was common for public and institutional buildings of the Streamline Moderne style, the majority of the contributory buildings represent a more rectilinear interpretation of the style, and they feature horizontal orientation, glass block windows, tile coping at the roofline with a speedline motif, and cast concrete double moldings at the windows and doors, all of which are their character-defining features. The district contains 10 digester tank structures (in two groupings of five) completed in 1952 (Buildings 630–730 [Digester Tanks 1–10]). Although these are utilitarian concrete tanks of no particular architectural style, they are historically, spatially and directly functionally associated with their two central control buildings (Buildings 620 and 680), which are important examples of the Streamline Moderne style. As such, the digester tanks are identified as contributors to the significance of the historic district. None of the buildings or structures within the eligible historic district were identified as individually significant because no single building appears to meet any of the criteria for individual listing in the National and California Registers.

60 Brewster, *Department of Parks and Recreation (DPR) form,* Southeast Treatment Plant Streamline Moderne Industrial Historic District, Prepared for San Francisco Public Utilities Commission, April, 2016.
61 Julianne Polanco, Determination of Eligibility for Southeast Treatment Plant Streamline Moderne Industrial Historic District, 750 Phelps Street, San Francisco. October 6, 2016.
62 Ibid.



SFPUC Biosolids Digester Facilities

SOURCE: Brewster, B., Department of Parks and Recreation (DPR) form, Southeast Treatment Plant Streamline Moderne Industrial Historic District, Prepared for San Francisco Public Utilities Commission, April 2016

Figure 4.5-2
Southeast Treatment Plant Streamline Moderne Industrial Historic District

TABLE 4.5-1
CONTRIBUTORS TO A NATIONAL REGISTER/
CALIFORNIA REGISTER HISTORIC DISTRICT AT THE SEP

Building Number[a]	Building Name	Date of Construction	Location (SEP North or South)
040	Sedimentation Building No. 1	1952	North
041	Sedimentation Building No. 2	1952	North
620	Digestion Control Building No.1	1952	South
630	Anaerobic Digester Tank No. 1	1952	South
640	Anaerobic Digester Tanks No. 2	1952	South
650	Anaerobic Digester Tanks No. 3	1952	South
660	Anaerobic Digester Tanks No. 4	1952	South
680	Digestion Control Building No. 2	1952	South
690	Anaerobic Digester Tank No. 6	1952	South
700	Anaerobic Digester Tanks No. 7	1952	South
710	Anaerobic Digester Tanks No. 8	1952	South
720	Anaerobic Digester Tanks No. 9	1952	South
730	Anaerobic Digester Tanks No. 10	1952	South
740	Gas Booster Station	1952	South
741	Gas Storage Facility (formerly Tank No. 5)	1952	South
750	Digested Sludge Thickening (formerly Filtration Building)	1952	South
790	Sludge Filtration Building (formerly Filtration Building)	1952	South
800/950	Dryer Building/Chimney	1952	South
850	Operator's Building (formerly Administration)/North Side/192	1952	North
870	Service Building (formerly Machine Shop & Garage)	1952	North
891	Southside Substation	1952	South
900	Maintenance Shop (formerly Cake Receiver Bin)	1952	South

NOTE:
[a] Location of buildings shown on Figure 4.5-2; contributors are highlighted in yellow.

SOURCE: Brewster, B., Department of Parks and Recreation (DPR) form, *Southeast Treatment Plant Streamline Moderne Industrial Historic District*, Prepared for San Francisco Public Utilities Commission, April, 2016.

Building 41

Digester Tanks

Building 790

Building 800

Building 850

Building 870

SOURCE: Brewster, B., Department of Parks and Recreation (DPR) form, Southeast Treatment Plant Streamline Moderne Industrial Historic District, Prepared for San Francisco Public Utilities Commission, April 2016

SFPUC Biosolids Digester Facilities

Figure 4.5-3

Selection of Contributors to the SEP Historic District

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While nearly all of these contributing buildings and structures in the district have had varying degrees of physical alterations over the years, both the individual buildings and the historic district retain sufficient historic integrity to convey their association with the implementation of the 1935 Sewer System Master Plan, as well as the Streamline Moderne architectural style. For these reasons, the *Southeast Treatment Plant Streamline Moderne Industrial Historic District* with its 22 contributory buildings and structures and four non-contributors is considered a historical resource as defined by CEQA Guidelines Section 15064.5 and a historic property for purposes of Section 106 under Title 36 CFR Part 800.

The remaining 21 buildings and structures at the SEP were constructed between 1981 and 2005, which is less than 45 years ago, and as such they would not meet the age threshold for eligibility generally considered for listing in the California Register; nor do any of the buildings, designed in utilitarian versions of the Brutalist, Post Modern, and Modern-Industrial architectural styles, possess exceptional characteristics or associations that would warrant consideration of eligibility for a property that is less than 50 years old. These later buildings and structures also do not have association with the 1935 Sewer System Master Plan.[63]

Central Shops

JRP surveyed and evaluated the Central Shops complex in 2014. The Central Shops complex was evaluated against National Register and California Register criteria. Building C was found to not exhibit the architectural qualities of Buildings A and B; therefore, it was identified as not significant under Criterion C/3. However, the two fully enclosed shop buildings at the facility—Buildings A and B—were found to be significant as a single resource under Criterion C/3, at the local level, for distinctive characteristics of a type, period, and method of construction as an important example of Industrial Modern architecture in San Francisco.[64] This is illustrated in the two fully enclosed shop buildings at the facility, Buildings A and B. **Figure 4.5-4** presents photos of Central Shops Buildings A and B**.** The property's period of significance is 1959, when the buildings were constructed. As an important example of Industrial Modern architecture for their type, period, and method of construction, the Central Shops Buildings A and B have the distinctive characteristics of International Style Modernism, as articulated in industrial-type buildings. They are a full expression of the pattern of features of this style and have an individuality of this property type not present in other vehicle repair/maintenance facilities in San Francisco. The property also illustrates the evolution of architectural design for support facilities in the City, presenting the contemporary style of its period when it was constructed, just as the International Style (and other iterations of Modern architecture) was coming into full prominence in San Francisco. Despite some minor physical alterations over the years, these buildings retain sufficient historic integrity to convey their associations with the Industrial Modern architectural style. For these reasons, the Central Shops (Buildings A and B) is considered a historical resource as defined by CEQA Guidelines Section 15064.5 and an historic property under Section 106 of the National Historic Preservation Act.

63 Brewster, *Department of Parks and Recreation (DPR) form,* Southeast Treatment Plant Streamline Moderne Industrial Historic District, Prepared for San Francisco Public Utilities Commission, April, 2016.

64 JRP, *Department of Parks and Recreation (DPR) form, 1800 Jerrold Avenue*, Prepared for San Francisco Public Utilities Commission, November, 2014.

The character-defining features of Central Shops Buildings A and B are their original design and materials, including their exposed steel frame structures on concrete apron walls with steel sash exterior glazing, flat metal deck roofs supported on trusses exposed to the interior, wide interior open spaces that are divided into bays of varying function, and the various glazed metal doors (personnel doors, top-hung sliding doors, and large hinged doors). The design also includes recessed personnel entrances to the office and locker room. While they are located on a six-acre portion of the City-owned parcel, the boundary of these historical resources is limited to the immediate surroundings of Buildings A and B that are used for vehicle parking and maneuvering, roughly 40 to 100 feet around the buildings, including the space between the buildings.[65]

The Central Shops do not meet National Register/California Register criteria A/1, B/2, or D/4 due to a lack of associations with important historic events, important persons, and information potential. In addition, Building C, the open sided shed roof building on the north end of the facility, does not exhibit the architectural qualities of the other buildings and is not significant under any California Register or National Register criteria.[66]

Non-Historic Resources within the Architectural C-APE

Asphalt Plant

The records search indicated that the Asphalt Plant had not been previously surveyed or evaluated as a potential historical resource. In 2015, ESA surveyed and evaluated the Asphalt Plant against National Register and the California Register eligibility criteria, and found it to be ineligible for listing under all of the criteria due to a lack of significant associations with important historical events, important persons, architectural significance, and information potential.[67] In addition, the majority of plant facilities, replaced in between 1990 and 2004, are substantially less than 45 years old. For these reasons, the property is not considered a historical resource for the purposes of CEQA or a historic property under the National Historic Preservation Act.

1550 Evans Avenue

The existing office building and warehouse building at 1550 Evans Avenue would be demolished to make the area available for project construction staging. According to information provided on the San Francisco's Property Information System Map, the two-story, 45,000-square-foot building at 1550 Evans Avenue was constructed in 1978, and thus is less than 45 years old. The building was purchased by the SFPUC in 2012. This building has not been evaluated for its potential historical significance; however, given the relatively recent construction date of this building (1978), it would not meet the minimum age threshold generally used for consideration for listing in the California Register or National Register. For these reasons, the property at 1550 Evans Avenue is not considered a historical resource for the purposes of CEQA.

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65 Ibid.

66 JRP, *Department of Parks and Recreation (DPR) form, 1800 Jerrold Avenue*. Prepared for San Francisco Public Utilities Commission, November, 2014. On file with the San Francisco Planning Department.

67 Brewster, Department of Parks and Recreation (DPR) form, San Francisco Department of Public Works Asphalt Plant, Prepared for San Francisco Public Utilities Commission, May, 2015.

Building A facing southeast

Building A facing west

Building A facing southwest

Building B facing northeast

Building B facing southeast

Building B facing northeast with car port

SOURCE: JRP, Department of Parks and Recreation (DPR) form, 1800 Jerrold Avenue, Prepared for San Francisco Public Utilities Commission, November 2014

SFPUC Biosolids Digester Facilities

Figure 4.5-4

Central Shops Buildings A and B

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Both the Asphalt Plant (subsurface components only) and the buildings at 1550 Evans Avenue are included in the Architectural APE because they are within the vicinity of historic resources and could be removed or altered for the project. Neither property is considered a historical resource nor are they included in the historic district boundary.

Piers 94 and 96 are not included in the Architectural APE because they are a distance away from historic resources and no structures would be affected. Piers 94 and 96 are included in the archeological C-APE to account for the subsurface construction that may occur at these sites.

4.5.2 Regulatory Framework

4.5.2.1 Federal Regulations

Historical and archeological resources are considered through the National Historic Preservation Act (NHPA) of 1966, as amended (54 U.S.C. 306108), and its implementing regulations. Before an "undertaking" (e.g., federal funding or issuance of a federal permit) is implemented, Section 106 of the NHPA requires federal agencies to consider the effects of the undertaking on historic properties (i.e., properties listed in or eligible for listing in the National Register) and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the National Register. Under the NHPA, a property is considered significant if it meets the National Register listing criteria A through D, at 36 CFR 60.4, as follows:

> The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and that:
>
> a) Are associated with events that have made a significant contribution to the broad patterns of our history, or
>
> b) Are associated with the lives of persons significant in our past, or
>
> c) Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction, or
>
> d) Have yielded, or may be likely to yield, information important in prehistory or history

For a resource to be eligible for the National Register, it must also retain enough integrity to be recognizable as a historical resource and to convey its significance. Resources that are less than 50 years old are generally not considered eligible for the National Register.

Federal review of the effects of undertakings on significant cultural resources is carried out under Section 106 of the NHPA and is often referred to as "Section 106 review". This process is the responsibility of the federal lead agency. The Section 106 review typically involves a five-step procedure, which is described in detail in the implementing regulations of the NHPA (36 CFR 800):

- Define the Area of Potential Effects in which an undertaking could directly or indirectly affect historic properties.
- Identify historic properties in consultation with the SHPO and interested parties;
- Assess the significance of effects of the undertaking on historic properties;
- Consult with the SHPO, other agencies, and interested parties to develop an agreement that addresses the treatment of historic properties and notify the Advisory Council on Historic Preservation; and
- Proceed with the project according to the conditions of the agreement.

As indicated in Section 2.7 of Chapter 2, *Project Description*, the SFPUC intends to seek State Revolving Fund (SRF) funding and the project needs to comply with the California State Water Resources Control Board (SWRCB) CEQA Plus requirements. The SRF Program is partially funded by the U.S. Environmental Protection Agency and administered by the SWRCB. Consultation with the SHPO and other consulting parties required under Section 106 of the NHPA will be completed through the SRF process.

4.5.2.2 State Regulations

The State of California implements the NHPA of 1966, as amended, through its statewide comprehensive cultural resource surveys and preservation programs. The California Office of Historic Preservation (OHP), as an office of the California Department of Parks and Recreation (DPR), implements the policies of the NHPA on a statewide level. The OHP also maintains the California Historical Resources Inventory. The SHPO is an appointed official who implements historic preservation programs within the state's jurisdictions.

California Register of Historical Resources

The California Register is "an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (Public Resources Code Section 5024.1[a]). Certain resources are determined by the statute to be automatically included in the California Register, including those formally determined eligible for or listed in the National Register (Public Resources Code 5024.1[d][1]).

Based on Section 15064.5(a) of the California Environmental Quality Act (CEQA) Guidelines, historical resources include, but are not limited to, any object, building, structure, site, area, place, record, or manuscript that is historically or archeologically significant or that is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. Generally, a resource is considered by a lead agency to be "historically significant" if the resource meets the criteria for listing in the California Register (Public Resources Code [PRC] Section 5024.1), or qualifies as a "unique historical resource" (PRC 21083.2).

To be eligible for the California Register, a cultural resource must meet one or more of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

For a resource to be eligible for the California Register, it must also retain enough integrity of location, design, setting, materials, workmanship, feeling, and association to be recognizable as a historical resource and to convey its significance. Resources that are less than 45 years old are generally not considered eligible for the California Register.

Impact assessment under CEQA considers only historically significant cultural resources; that is, resources that meet CEQA criteria for eligibility to the California Register (historical resources) or as unique archeological resources, as detailed below. Impacts to resources that do not meet these criteria are not considered in impact assessment under CEQA. Similarly, for projects with federal involvement, only resources that meet the criteria of eligibility for the National Register receive further consideration in impact analysis.

Archeological Resources and the California Environmental Quality Act

CEQA considers archeological resources as an intrinsic part of the physical environment and thus requires that, for any project, the potential of the project to adversely affect archeological resources be analyzed (CEQA Section 21083.2). For a project that may have an adverse effect on a significant archeological resource, CEQA requires preparation of an environmental impact report (CEQA Section 21083.2 and CEQA Guidelines Section 15065). CEQA recognizes two different categories of significant archeological resources: "unique" archeological resource (CEQA Section 21083.2) and an archeological resource that qualifies as a "historical resource" under CEQA (CEQA Section 21084.1 and CEQA Guidelines Section 15064.5).

Significance of Archeological Resources

An archeological resource can be significant as both or either a "unique" archeological resource and/or a "historical resource," but the process by which the resource is identified, under CEQA, as either one or the other is distinct (CEQA Section 21083.2[g] and CEQA Guidelines Section 15064.5[a][2]).

An archeological resource is a "historical resource" under CEQA if the resource is:

- Listed on or determined eligible for listing on the California Register (CEQA Guidelines Section 15064.5). This includes National Register-listed or -eligible archeological properties.

- Listed in a "local register of historical resources."[68]
- Listed in a "historical resource survey" (CEQA Guidelines Section 15064.5[a][2]).

Generally, an archeological resource is determined to be an "historical resource" due to its eligibility for listing on the California Register because of the potential scientific value of the resource; that is, it "has yielded, or may be likely to yield, information important in prehistory or history" (CEQA Guidelines Section 15064.5 [a][3]). An archeological resource may be California Register-eligible under other evaluation criteria, such as Criterion 1, association with events that have made a significant contribution to the broad patterns of history; Criterion 2, association with the lives of historically important persons; or Criterion 3, association with the distinctive characteristics of a type, period, region, or method of construction. Appropriate treatment for archeological properties that are California Register-eligible under criteria other than Criterion 4 may be different from that for a resource that is significant exclusively for its scientific value.

Failure of an archeological resource to be listed in any of these historical inventories is not sufficient to conclude that the archeological resource is not a "historical resource." When the lead agency believes there may be grounds for a determination that an archeological resource is a "historical resource," then the lead agency should evaluate the resource for eligibility for listing to the California Register (CEQA Guidelines Section 15064.5[a][4]).

A "unique archeological resource" is a category of archeological resources created by the CEQA statutes (CEQA Guidelines Section 21083.2[g]). An archeological resource is a unique archeological resource if it meets any of one of three criteria:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Under CEQA, evaluation of an archeological resource as a "historical resource" is privileged over the evaluation of the resource as a "unique archeological resource," in that CEQA requires that "when a project will impact an archeological site, a lead agency shall first determine whether the site is an historical resource" (CEQA Guidelines Section 15064.5 [c][1]).

Evaluation of an Archeological Resource as Scientifically Significant

In requiring that a potentially affected archeological resource be evaluated as a historical resource, that is as an archeological site of sufficient scientific value to be California Register-eligible, CEQA presupposes that the published guidance of the OHP for CEQA providers is to serve as the methodological standard by which the scientific value, and thus, the California Register eligibility, of

[68] A "local register of historical resources" is a list of historical or archeological properties officially adopted by ordinance or resolution by a local government. (Public Resources Code 5020.1 [k]).

an archeological resource is to be evaluated. As guidance for the evaluation of the scientific value of an archeological resource, the OHP has issued two guidelines: *Archeological Resource Management Reports* (1989) and the *Guidelines for Archeological Research Designs* (1991).

Integrity of Archeological Resource

Integrity is an essential criterion in determining if a potential resource, including an archeological resource, is a historical resource. For CEQA purposes, "integrity" can in part be expressed in the requirement that a historical resource must retain "the physical characteristics that convey its historical significance" (CEQA Guidelines Section 15064.5 [b]).

For an archeological resource that is evaluated for California Register eligibility under Criterion 4 ("has yielded or may be likely to yield information important to prehistory or history"), the definition of integrity is conceptually different from the definition usually applied to the built environment. For a historic building, possessing integrity means that the building retains the defining characteristics from the period of significance of the building. In archeology, an archeological deposit or feature may have undergone substantial physical change from the time of its deposition but it may yet have sufficient integrity to qualify as a historical resource. The integrity test for an archeological resource is whether the resource can yield sufficient data (in type, quantity, quality, or diagnosticity) to address significant research questions. Thus, in archeology "integrity" is often closely associated with the development of a research design that identifies the types of physical characteristics ("data needs") that must be present in the archeological resource and its physical context to adequately address research questions appropriate to the archeological resource.

Other Provisions of California Public Resources Code

Section 7050.5 of the Health and Safety Code protects human remains by prohibiting the disinterring, disturbing, or removing of human remains from any location other than a dedicated cemetery. Section 5097.98 of the Public Resources Code (and reiterated in CEQA Guidelines Section 15064.59 [e]) also identifies steps to follow in the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery.

4.5.2.3 Local Regulations

San Francisco General Plan

The *San Francisco General Plan* contains policies governing the preservation of historic architectural resources that are considered to be locally significant. In the Introduction of the *San Francisco General Plan*, Priority Policy 7 states that landmarks and historic buildings should be preserved. In addition, the General Plan Urban Design Element addresses (1) preservation of landmarks designated by the City, (2) enhancement of the original character of older buildings when remodeling, and (3) respecting the character of older nearby development in the design of new buildings.

San Francisco Historic Preservation Commission and Planning Code Articles 10 and 11

Created in 2008, the Historic Preservation Commission is a seven-member body that makes recommendations to the Board of Supervisors on the designation of landmark buildings, historic districts, and significant buildings. The Historic Preservation Commission reviews and approves Certificates of Appropriateness for building permit applications that involve construction, alteration, or demolition of landmark sites and resources within historic districts. The Historic Preservation Commission may also review and comment on projects affecting historical resources that are subject to environmental review under the CEQA.

Article 10 of the Planning Code describes procedures regarding the preservation of sites and areas of special character or special historic, architectural, or aesthetic interest or value, such as officially designated city landmarks and buildings included within locally designated historic districts. Article 11 of the Planning Code designated six downtown conservation districts. There are no landmark buildings or historic districts listed under either Article 10 or 11 in the SEP.

4.5.3 Impacts and Mitigation Measures

4.5.3.1 Significance Criteria

The project would have a significant effect on cultural resources if it were to:

- Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco Planning Code;
- Cause a substantial adverse change in the significance of an archeological resource pursuant to Section 15064.5; or
- Disturb any human remains, including those interred outside of formal cemeteries.

4.5.3.2 Approach to Analysis

Construction and Operational Impacts

Because most impacts to cultural resources occur during the construction activities of a project, while there is less potential for project operations to affect such resources, consideration of construction and operational impacts are combined in this analysis.

Architectural Resources

Potential impacts on architectural resources are assessed by identifying any activities (either during construction or operations) that could affect resources that have been identified as historical resources for the purposes of CEQA.

Once a resource has been identified as a CEQA historical resource, it then must be determined whether the impacts of the project would "cause a substantial adverse change in the significance" of the resource (CEQA Guidelines Section 15064.5[b]). A substantial adverse change in the significance

of a historical resource means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historic resource would be materially impaired" (CEQA Guidelines Section 15064[b][1]). A historical resource is materially impaired through the demolition or alteration of the resource's physical characteristics that convey its historical significance and that justify its inclusion in the California Register (CEQA Guidelines Section 15064.5[b][2][A]).

Archeological Resources

Archeological resources can include historical resources according to Section 15064.5 as well as unique archeological resources as defined in Section 21083.2(g). The significance of most prehistoric and historical archeological sites is usually assessed under National Register and California Register Criterion D/4. This criterion stresses the importance of the information potential contained within the site, rather than its significance as a surviving example of a type or its association with an important person or event. Although it is less common, archeological resources may also be assessed under California Register Criteria 1, 2, and/or 3. Archeological resources may also be assessed under CEQA as unique archeological resources, defined as archeological artifacts, objects, or sites that contain information needed to answer important scientific research questions.

Impacts to unique archeological resources or archeological resources that qualify as historical resources are assessed pursuant to Section 21083.2 which states that the lead agency shall determine whether the project may have a significant effect on archeological resources. As with historical resources above, whether the impacts of the project would "cause a substantial adverse change in the significance" of the resource must be determined (CEQA Guidelines Section 15064.5[b]).

Human Remains

Human remains, including those buried outside of formal cemeteries, are protected under several state laws, including Public Resources Code Section 5097.98 and Health and Safety Code Section 7050.5. These laws are identified above in Section 4.5.2, Regulatory Framework. This analysis considers impacts on human remains including intentional disturbance, mutilation, or removal of interred human remains.

Cumulative Impacts

Section 4.1.3, Approach to Cumulative Impact Analysis and Cumulative Projects, describes the overall approach to the cumulative analysis for those topics using a list-based approach and summarizes reasonably foreseeable future projects in the vicinity of the project that could contribute to a cumulative impact; please refer to Table 4.1-1 and Figure 4.1-1 for a description and location of potential cumulative projects in the vicinity of the BDFP. The cumulative analysis for cultural resources uses a list-based approach to analyze the effects of the project on historical resources and unique archeological resources in combination with other past, present, and probable future projects. The analysis then considers whether or not there would be a significant, adverse cumulative impact associated with project implementation in combination with past, present, and probable future projects in the geographical area, and if so, whether or not the project's incremental contribution to the cumulative impact would be considerable. Both conditions must apply in order for a project's

contribution to cumulative effects to be deemed cumulatively considerable (significant). If so, then mitigation measures are identified to reduce the project's contribution to the cumulative impact.

4.5.3.3 Impact Evaluation

Construction and Operational Impacts

Impact CR-1: The project would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco Planning Code. (Significant and Unavoidable with Mitigation)

CEQA Guidelines Section 15064.5 requires the lead agency to consider the effects of a project on historical resources. A historical resource is defined as a building, structure, site, object, or district (including landscapes) listed in or determined to be eligible for listing in the California Register, or determined by a lead agency to be significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, or cultural annals of California. This impact analysis focuses on built environment historical resources. Archeological resources, including archeological resources that are potentially historical resources according to Section 15064.5, are addressed under Impact CR-2 below.

Impacts on SEP Southeast Treatment Plant Streamline Moderne Industrial Historic District

The project would result in the demolition of Building 870 to accommodate a new Maintenance Shop. Completed in 1952, Building 870 is a contributor to the *Southeast Treatment Plant Streamline Moderne Industrial Historic District* (district), as listed in Table 4.5-1 above. The district is eligible for listing in the National Register, and listed in the California Register, as described in Section 4.5.1.9, Local Research Results, and is considered a historical resource as defined by CEQA.

The project's removal of Building 870, however, would have a less-than-significant impact on the overall significance and historic integrity of the district for multiple reasons. Building 870 is a single contributor to the significance of the district, but is not individually eligible for listing in the California and National Registers. The remaining buildings and structures that contribute to the district (refer to Table 4.5-1, above) would be unaffected by the project and would retain their ability to convey their associations with implementation of the 1935 Sewer System Master Plan and continue to provide a good representation of the Streamline Moderne architectural style that characterized the SFPUC's original wastewater facilities. The loss of Building 870 would represent a reduction of approximately 4.5 percent of the district contributors, while 95.5 percent of the district contributors would remain intact. In addition, Building 870 is in the north side of the district and is separated from the majority of the other contributing facilities by a public street (Jerrold Avenue) and the southside perimeter wall. Building 870 is a smaller facility that provided support to the wastewater treatment process and was not central to the overall treatment process. Finally, among the buildings within the historic district, Building 870 is a relatively modest and utilitarian example of Streamline Moderne architecture, with much better examples represented in the remaining SEP South facilities. As such, the loss of Building 870 would have a less-than-significant impact on the integrity of the district.

In place of Building 870, the project would introduce two new non-contributing buildings within the boundaries of the district; the proposed Maintenance Shops 1 and the No. 2 Water Pump Station. Construction of these new facilities would have a less-than-significant impact on the district, as the vast majority of the district would remain intact. Although the number of non-contributors to the district would increase from four to six after completion of the project, the district would retain a relatively high ratio of 21 contributors to six non-contributors, or approximately 71 percent. In addition, introduction of these new elements to the district would be a less-than-significant impact because, after 1952, the original master plan was abandoned and buildings of different architectural types were introduced over time and were sited based on individual project objectives, rather than on the original master plan. Further, the new building would be of similar scale to the existing buildings, would be inside the wall on the north side of Jerrold Avenue away from and minimally visible from the main SEP South complex where the majority of the contributory buildings are located, and would be constructed on the northwestern edge of the district boundary as opposed to its center. Therefore, the historic integrity of the district would not be significantly affected by new construction. No mitigation measures would be required.

Other new construction associated with the project would occur outside of the district, and at least 50 feet from the other district contributors. This distance would provide a sufficient physical and visual buffer between the new buildings and the historical resource to ensure that no other significant, indirect impacts would occur.

Impacts on Individual Historic Resources

The project would also result in the removal of the Central Shops (including Buildings A and B), which comprise a complex that is eligible for listing in the California and National Registers. The removal of Buildings A and B at the Central Shops would cause a substantial adverse change in the significance of the historical resource because the project would demolish the physical characteristics that convey the resource's historical significance and that justify its individual eligibility for inclusion in the California and National Registers, resulting in a significant impact under CEQA Guidelines Section 15064.5. Implementing **Mitigation Measure M-CR-1** (**Documentation of Historic Resources and Interpretive Display)** would reduce the severity of the impact. However, implementation of Mitigation Measure M-CR-1 would not reduce the severity of the impact to a less-than-significant level, and the impact would be ***significant and unavoidable with mitigation.***

Impacts of Other Project Components

The project would also result in the removal of other buildings and structures, including Buildings 855 and 925 on the north side of the SEP (not within the historic district boundary), Building C at the Central Shops site, subsurface structures at the Asphalt Plant site, and the two structures at 1550 Evans Avenue. As none of these buildings or structures has been identified as an historical resource as defined by CEQA, either individually or as a contributor to a district, their proposed removal would have no effect on historical resources.

The project would also use portions of Piers 94 and 96 for construction staging purposes. No buildings or structures are within these areas, and as such, construction staging activities would have no effect on historical resources.

Summary

The project would require demolition and removal of numerous structures, including Building 870 and Buildings A and B of the Central Shops (historical resources under CEQA), as well as new construction in the vicinity of a historic district.

Building 870 is a contributor to a historic district, which is a historical resource under CEQA, but does not individually qualify as an historical resource. Removal of Building 870 would have a less-than-significant impact on the overall significance and historic integrity of the district, because it is not individually eligible for listing; remaining buildings and structures that contribute to the district would be unaffected by the project, and the removal of this one building would not substantially degrade the historic integrity of the district; it represents a small percentage of the district contributors; its location is separated from the majority of the other contributing facilities; and it is a modest and utilitarian example of architectural style for which the district is significant.

The removal of Buildings A and B at the Central Shops would cause a substantial adverse change in the significance of the historical resource because the project would demolish the resource's physical characteristics that convey its historical significance and that justify its individual eligibility for inclusion in the California and National Registers. Implementation of Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display), including photographic recordation, would reduce the severity of this impact, but not to a less-than-significant level. This impact would be significant and unavoidable even with implementation of feasible mitigation measures.

The proposed removal of other buildings and structures outside the historic district would have no impact on historical resources, and proposed construction of new buildings and structures in the vicinity of a historic district would be at a sufficient distance that this impact would be less than significant.

Overall, the project would cause a substantial adverse change in the significance of a historical resource, and this impact would be ***significant and unavoidable with mitigation.***

Mitigation Measure M-CR-1. Documentation of Historic Resources and Interpretive Display

Prior to demolition, the SFPUC shall retain a professional who meets the Secretary of the Interior's Professional Qualifications Standards for Architectural History to prepare written and photographic documentation of the Central Shops. The documentation effort shall be based on the National Park Service (NPS) Historic American Building Survey (HABS)/ Historic American Engineering Record (HAER) Historical Report Level II Guidelines, and NPS's policy for photographic documentation as outlined in the National Register of Historic Places and National Historic Landmarks Survey Photo Policy Expansion.

The written historical data for this documentation shall follow HABS/HAER standards. Efforts shall be made to locate original construction drawings or plans of the Central Shops. If located, these drawings shall be reproduced and included in the dataset. Historical information, as well as copies of building plans gathered from the prior evaluations of the SEP and Central Shops, can be reused and reformatted for this effort.

Digital photography shall be used. The ink and paper combinations for printing photographs shall be in compliance with National Register-National Historic Landmark (NR-NHL) Photo Policy Expansion[69] and have a permanency rating of approximately 115 years. Digital photographs shall be taken as uncompressed, Tagged Image File Format (TIFF) files. Each image shall be 1,600 by 1,200 pixels at 330 pixels per inch (ppi) or larger in size, color format, and printed in black and white. The file name for each electronic image shall correspond with the index of photographs and photograph label. Photograph views for the dataset shall include (a) contextual views; (b) views of each side of each building and interior views, where possible; (c) oblique views of buildings; and (d) detail views of character-defining features. All views shall be referenced on a photographic key. This photographic key shall be on a map of the property and shall show the photograph number with an arrow to indicate the direction of the view. Historic photographs shall also be collected, reproduced, and included in the dataset.

The SFPUC shall transmit the datasets as hardcopies on archival paper and in electronic PDF format to the History Room of the San Francisco Public Library, the San Francisco Planning Department, the archives of the San Francisco Public Utilities Commission, and to the Northwest Information Center of the California Historical Information Resource System. The SFPUC shall scope the documentation measures with San Francisco Planning Department Preservation staff. Preservation staff shall also review and approve the submitted documentation for adequacy.

In addition, the SFPUC shall provide a permanent display of interpretive materials (which may include, but are not limited to, a display of photographs, a brochure, educational website, or an exhibitive display) concerning the history and architectural features of the Central Shops. Development of the interpretive materials shall be supervised by an architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards. The interpretative materials shall be placed in a prominent, public setting. A proposal describing the general parameters of the interpretive materials shall be approved by Planning Department Preservation staff prior to construction completion. The substance, media and other elements of such interpretive display shall be approved by Planning Department Preservation staff prior to completion of the project.

Impact CR-2: The project could cause a substantial adverse change in the significance of an archeological resource. (Less than Significant with Mitigation)

This impact discusses whether the project could cause a substantial adverse change to the significance of a legally, or potentially legally-significant, archeological resource. Archeological resources can be considered both as historical resources according to CEQA Guidelines Section 15064.5 as well as unique archeological resources as defined in CEQA Section 21083.2(g). Both prehistoric and historical archeological resources are addressed.

[69] National Park Service, *National Register Photo Policy Factsheet*, Updated May 15, 2013.

Impacts on Prehistoric Archeological Resources

Archeological investigations[70] have identified a National Register-eligible prehistoric archeological site, CA-SFR-171, in the C-APE. Based on previous and current investigations, CA-SFR-171 includes four main elements: a thin Late Period midden; a thick Middle Period midden; probable naturally reworked midden material; and artificially redeposited midden material in the historic/modern fill. Coring has documented that artificially redeposited site material and potential naturally reworked site material extend into the C-APE.[71] There is also the potential for intact shell midden to extend into the C-APE within/adjacent to Quint Street, while redeposited midden may extend into the Central Shops parcel of the C-APE. Artificially redeposited midden material in the historic/modern fill associated with CA-SFR-171 were identified from 2 to 8 feet below ground surface in the C-APE, while naturally re-worked midden materials were identified from 20 to 23 feet below ground surface. Intact midden (both Middle and Late Period) were identified outside the C-APE from 7.5 to 12.5 feet below ground surface. Mass excavation for project components varies from 10 to 45 feet below ground surface, and most project components would be supported by piles driven to a depth of 75 feet below ground surface. Material associated with CA-SFR-171 could be affected by mass excavation activities, and/or by pile installation to support project components.

Resources potentially associated with the pre-bay surface similarly could be affected by mass excavation and/or the installation of piles. Geoarcheological coring conducted in much of the western portion of the project C-APE revealed the presence of a well-preserved, Holocene-age submerged soil underlying the thick bay mud and estuary deposits. The depth to this pre-bay surface increases from south to north, and ranges from roughly 10 feet below ground surface in the south to 50 feet below ground surface in the north. The presence of a deep, well-preserved pre-bay stable landform makes this area sensitive in regard to the potential for Late Holocene Early Period or older archeological material to be present.[72]

Given the presence of a documented archeological site in the eastern portion of the C-APE and the potential for older archeological material to be preserved elsewhere within project C-APE, additional archeological coring at a tighter sampling interval is warranted and would be carried out (see **Mitigation Measure M-CR-2a. Archeological Testing, Monitoring, and/or Data Recovery**, below). This additional coring will have two objectives: (1) refining our understanding of contexts in which CA-SFR-171 site deposits are present within the C-APE and which contexts contribute to the site's eligibility and which if any do not; and (2) assessing if a deeply buried, submerged site is present elsewhere in the C-APE.

The coring would be conducted in two parts. Part 1 would involve coring at approximately 50-foot intervals within/adjacent to the boundary of CA-SFR-171 in the project C-APE using large three-inch diameter core liners to recover samples for site constituent analysis. Part 2 would involve coring at

70 Kaijankoski, Philip, Brian F. Byrd, and Jack Meyer, *FINAL A Geoarchaeological Study of the Islais Creek Estuary: A Framework for Future Project-Specific Archaeological Investigations at the Southeast Water Pollution Control Plant, San Francisco, California.* Far Western Anthropological Research Group, Inc., Davis, California. Prepared for the San Francisco Public Utilities Commission, September 2016.

71 Kaijankoski, Philip, Brian F. Byrd, and Jack Meyer, *FINAL A Geoarchaeological Study of the Islais Creek Estuary: A Framework for Future Project-Specific Archaeological Investigations at the Southeast Water Pollution Control Plant, San Francisco, California.* Far Western Anthropological Research Group, Inc., Davis, California. Prepared for the San Francisco Public Utilities Commission, September 2016.

72 Ibid.

82-foot intervals utilizing 2-inch-diameter core liners, and two backhoe trenches in the remainder of the project C-APE to assess whether additional materials are present. A total of 73 cores (28 within/adjacent to the CA-SFR-171) and two backhoe trenches are recommended based on presence/absence information provided by prior coring in and immediately adjacent to the C-APE, and on remaining information gaps—that is, remaining areas where information from prior coring is insufficient to determine the potential for additional prehistoric material to be encountered. Methods for completing the necessary archeological identification for each identified or potential prehistoric deposit would be outlined and, where prehistoric material is recovered, to determine if that material contributes to the eligibility of the site as a whole.

Impacts on Historical Archeological Resources

Based on a review of the historical land use and archeological sensitivity analysis presented above, there is a moderate to high potential to encounter historical archeological remains in the area just north of the archeological C-APE within the SEP. The C-APE does not extend into the former Fairfax Avenue alignment or former location of the A.B. Patrick and Co. tannery. Resources in that area could include features associated with both the early development of the original plank road that comprised 6th (Fairfax) Avenue and the operation of the A.B. Patrick and Co. tannery, including the industrial operation of the tannery itself, as well as potential deposits associated with workers (including Overseas Chinese) that may have been housed at the facility. No ground disturbance in the areas that are sensitive for historical archeological remains is proposed as part of the BDFP Project. However, if future design refinement should entail ground disturbance in this archeologically sensitive area, then pre-construction archeological testing would be required to assess whether potential historical resources are present there (see Mitigation Measure M-CR-2a. Archeological Testing, Monitoring, and/or Data Recovery, below). Archeological testing would occur before construction begins, although the exact timing would depend on whether the testing would affect SEP operations. Proposed locations of test trenches would be based on specific historic facility locations depicted on the 1900 and 1914 Sanborn maps.

Overall, the archeological sensitivity of the C-APE within the 1550 Evans Avenue staging area is considered low because ground disturbance associated with construction staging there would not exceed 3 feet in depth, and intact archeological deposits are not likely to be present within the 3-foot vertical C-APE, which consists entirely of modern bay fill. Because the 1550 Evans Avenue C-APE is shallow, such that excavations would not penetrate the fill and encounter the historic bay bottom, there is also a low potential for encountering intact historical archeological resources. Ground disturbance associated with the Piers 94 and 96 staging areas also would not exceed 3 feet in depth, and it is unlikely that intact archeological deposits would be present within the 3-foot vertical C-APE. Therefore, there is a low sensitivity for encountering historical archeological resources during project implementation in the Piers 94 and 96 staging areas.

Summary

A significant impact could result if ground-disturbing activities during project construction were to affect previously-identified significant prehistoric archeological resources (i.e., CA-SFR-171), unidentified deeply submerged/buried prehistoric deposits, or historical archeological resources. The significant impact could be an adverse effect to the scientific significance of the resource and/or an

adverse effect to its significance to associated Native American tribal groups. Implementation of Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) and **Mitigation Measure M-CR-2b (Procedures for Accidental Discovery of Archeological Resources)** would reduce this impact to a less-than-significant level. Mitigation Measure M-CR-2a would formalize the SFPUC's commitment to conduct archeological testing and monitoring (as well as data recovery, if warranted) consistent with the project's Archeological Research Design and Treatment Program, amended as appropriate, in consultation with the City's Environmental Review Officer, to reflect both the findings of archeological testing previously approved, planned and/or currently underway, and future project design changes. The measure also would require that the archeological testing and monitoring program be consistent with the City's standard protocols. Mitigation Measure M-CR-2b would ensure that work would halt if archeological resources are inadvertently discovered during project implementation and that proper procedures are followed to ensure appropriate treatment of significant archeological resources. Therefore, impacts on archeological resources would be ***less than significant with mitigation.***

Mitigation Measure M-CR-2a. Archeological Testing, Monitoring, and/or Data Recovery

Based on the results of the project Archeological Research Design and Treatment Plan[73] (ARDTP), legally-significant prehistoric archeological resources are present within the archeological C-APE. The following measures shall be undertaken to avoid any potentially significant adverse effects from the project on an historical resource under CEQA. The SFPUC shall retain the services of a qualified archeological consultant(s), based on standards developed by the City and County of San Francisco Environmental Review Officer (ERO). The archeological consultant(s) shall have demonstrated experience in geoarcheology and historical archeology. The archeological consultant shall implement archeological testing and other treatment as specified in the project ARDTP, as detailed below, which shall include archeological monitoring and data recovery as required pursuant to findings of ongoing testing and this measure. The archeological consultant's work shall be conducted in accordance with this measure and with the requirements of the project ARDTP at the direction of ERO or its designated representative and in coordination with the SFPUC. In instances of inconsistency between the requirement of the project ARDTP and of this archeological mitigation measure, the requirements of this archeological mitigation measure shall prevail. Project design changes after finalizing the ARDTP eliminated the portion of the C-APE that was identified in the ARDTP as sensitive for historical archeological resources. Testing as discussed below for historical archeological resources shall only be required if future design changes call for excavation in that location. If future project design changes further revise other parts of the C-APE, then testing shall only be required in archeologically sensitive areas that potentially would be adversely affected by project implementation. All plans and reports prepared by the consultant as specified herein shall be submitted directly to the ERO for review and comment and concurrently to the SFPUC for review and comment, and shall be considered draft reports, subject to revision until final approval by the ERO. Archeological monitoring and/or data recovery programs required by this measure could suspend construction of the affected area of the project for up to a maximum of four weeks. At the direction of the ERO, the suspension of construction can be extended beyond

[73] Byrd, Brian F., Philip Kaijankoski, Rebecca Allen, and Matthew Russell, Archaeological Research Design and Treatment Plan for the Biosolids Digester Facility Project, Southeast Water Pollution Control Plant, San Francisco, California. Prepared for San Francisco Public Utilities Commission, October, 2016.

four weeks only if such a suspension is the only feasible means to reduce to a less-than-significant level potential effects on a significant archeological resource as defined in CEQA Guidelines Section 15064.5 (a) and (c).

Consultation with Descendant Communities. On discovery of an archeological site[74] associated with descendant Native Americans, the Overseas Chinese, or other potentially interested descendant group, an appropriate representative[75] of the descendant group, the ERO, and the SFPUC shall be contacted. The representative of the descendant group shall be given the opportunity to monitor archeological field investigations of the site and to offer recommendations to the ERO and SFPUC regarding appropriate archeological treatment of the site, of recovered data from the site, and, if applicable, any interpretative treatment of the associated archeological site. A copy of the Final Archeological Resources Report shall be provided to the representative of the descendant group.

Archeological Testing Program–Prehistoric Archeology. Depending on the results of on-going prehistoric archeological testing outlined in the project ARDTP, additional testing may be required to define site boundaries of CA-SFR-171 or other prehistoric deposits at the SEP, and to assess whether redeposited and/or reworked prehistoric archeological material identified in the project ARDTP within the C-APE has sufficient integrity to contribute to the significance of known resources at SEP. At the direction of the ERO and in coordination with SFPUC, additional testing may be rolled into a subsequent data recovery program (see below).

Archeological Testing Program–Historical Archeology. If future design changes would affect the area identified as sensitive for historical archeological resources, the archeological consultant shall implement the historical archeological testing plan outlined in the project ARDTP for potential historical archeological resources that could be adversely affected by the project. The archeological testing program shall be conducted in accordance with the approved ARDTP. The project ARDTP identifies the property types of the expected archeological resource(s) that could be adversely affected by the project, the testing method to be used, and the locations recommended for testing. The purpose of the archeological testing program will be to determine to the extent possible the presence or absence of historical archeological resources and to identify and to evaluate whether any archeological resource encountered on the site constitutes an historical resource under CEQA.

If future project design changes further alter the C-APE from what is identified in the ARDTP, then the archeological consultant shall prepare and submit to the ERO for review and approval an archeological testing plan (ATP) for both prehistoric and historical archeological resources to address any area added to the C-APE to accommodate the project design changes. The archeological testing program shall be conducted in accordance with the approved ATP. The ATP shall identify the property types of the expected archeological resource(s) that potentially could be adversely affected by the project, the testing method to be used, and the locations

74 By the term "archeological site" is intended here to minimally include any archeological deposit, feature, burial, or evidence of burial.

75 An "appropriate representative" of the descendant group is here defined to mean, in the case of Native Americans, any individual listed in the current Native American Contact List for the City and County of San Francisco maintained by the California Native American Heritage Commission and in the case of the Overseas Chinese, the Chinese Historical Society of America. An appropriate representative of other descendant groups should be determined in consultation with the Department archeologist.

recommended for testing. The purpose of the archeological testing program will be to determine to the extent possible the presence or absence of archeological resources and to identify and to evaluate whether any archeological resource encountered on the site constitutes an historical resource under CEQA.

At the completion of the archeological testing program, as required, the archeological consultant shall submit a written report of the findings to the ERO and the SFPUC. If based on the archeological testing program the archeological consultant finds that significant archeological resources may be present, the ERO in consultation with the archeological consultant and coordination with the SFPUC shall determine if additional measures are warranted. Additional measures that may be undertaken include additional archeological testing, archeological monitoring, and/or an archeological data recovery program. No archeological data recovery shall be undertaken without the prior approval of the ERO or the Planning Department archeologist. If the ERO determines that a significant archeological resource is present and that the resource could be adversely affected by the project, at the discretion of the SFPUC either:

A) The project shall be re-designed so as to avoid any adverse effect on the significant archeological resource; or

B) An archeological data recovery program shall be implemented, unless the ERO determines that the archeological resource is of greater interpretive than research significance and that interpretive use of the resource is feasible.

Archeological Monitoring Program. Preparation of an archeological monitoring program (AMP) may be required prior to project construction depending on the results of the prehistoric and historical archeological testing programs outlined above. If the ERO in consultation with the archeological consultant determines that an archeological monitoring program shall be implemented, the archeological monitoring program shall minimally include the following provisions:

- The archeological consultant, SFPUC, and ERO shall meet and consult on the scope of the AMP reasonably prior to commencement of any project-related soils disturbing activities. The ERO in consultation with the archeological consultant shall determine what project activities shall be archeologically monitored based on the results of pre-construction archeological testing currently approved and underway or planned, and archeological sensitivity assessment based on the results of that testing;

- The archeological consultant shall advise all project contractors to be on the alert for evidence of the presence of the expected resource(s), of how to identify the evidence of the expected resource(s), and of the appropriate protocol in the event of discovery of a potential archeological resource;

- The archeological monitor(s) shall be present on the project site according to a schedule agreed upon by the archeological consultant and the ERO or until the ERO has, in consultation with project archeological consultant, otherwise determined that project construction activities could have no effects on significant archeological deposits and monitoring can conclude;

- The archeological monitor shall record and be authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis;

- If an intact archeological deposit is encountered, all soils-disturbing activities in the vicinity of the deposit shall cease. The archeological monitor shall be empowered to temporarily redirect demolition/excavation/construction activities and equipment until the deposit is evaluated. The archeological consultant shall immediately notify the ERO and the SFPUC of the encountered archeological deposit. The archeological consultant shall make a reasonable effort to assess the identity, integrity, and significance of the encountered archeological deposit, and present the findings of this assessment to the ERO and the SFPUC.

Whether or not significant archeological resources are encountered, the archeological consultant shall submit a written report of the findings of the monitoring program to the ERO and the SFPUC.

Archeological Data Recovery Program. An archeological data recovery program shall be implemented in accord with an archeological data recovery plan (ADRP). The ADRP shall incorporate (1) programmatic-level procedures for deeply buried prehistoric archeological deposits; (2) site-specific procedures for identified prehistoric archeological deposits; (2) and site-specific procedures for historical archeological deposits (as warranted).

The archeological consultant, SFPUC, and ERO shall meet and consult on the scope of the ADRP prior to preparation of a draft ADRP. The archeological consultant shall submit a draft ADRP to the ERO and SFPUC. The ADRP shall identify how the proposed data recovery program will preserve the significant information the archeological resource is expected to contain. That is, the ADRP shall identify what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, should be limited to the portions of the historical resource that could be adversely affected by the project. Destructive data recovery methods shall not be applied to portions of the archeological resources if non-destructive methods are practical.

The scope of the ADRP shall include the following elements:

- *Field Methods and Procedures*. Descriptions of proposed field strategies, procedures, and operations for the following elements:

    1) Programmatic-level procedures for deeply buried prehistoric archeological deposits potentially uncovered during excavation for deep foundations (e.g., driven, drilled, or augured piles).

    2) Site-specific procedures for known/identified prehistoric archeological deposits potentially affected by project excavation activities (e.g. CA-SFR-171).

    3) Site-specific procedures for historical archeological deposits (as warranted) potentially affected by project excavation activities.

- *Cataloguing and Laboratory Analysis*. Description of selected cataloguing system and artifact analysis procedures.

- *Discard and Deaccession Policy*. Description of and rationale for field and post-field discard and deaccession policies.

- *Interpretive Program*. Consideration of an on-site/off-site public interpretive program during the course of the archeological data recovery program.
- *Security Measures*. Recommended security measures to protect the archeological resource from vandalism, looting, and non-intentionally damaging activities.
- *Final Report*. Description of proposed report format and distribution of results.
- *Curation*. Description of the procedures and recommendations for the curation of any recovered data having potential research value, identification of appropriate curation facilities, and a summary of the accession policies of the curation facilities.

Human Remains and Associated or Unassociated Funerary Objects. The treatment of human remains and of associated or unassociated funerary objects discovered during any soils disturbing activity, in the context of an archeological deposit or in isolation, shall comply with applicable state and federal laws. This shall include immediate notification of the Coroner of the City and County of San Francisco and in the event of the Coroner's determination that the human remains are Native American remains, notification of the California State Native American Heritage Commission (NAHC) who shall appoint a Most Likely Descendant (MLD) (PRC Section 5097.98). PRC 5097.98 indicates that " The descendants shall complete their inspection and make their recommendation within 48 hours of their notification by the Native American Heritage Commission." The archeological consultant, SFPUC, ERO, and MLD shall have up to but not beyond six days of discovery to make all reasonable efforts to develop an agreement for the treatment of human remains and associated or unassociated funerary objects with appropriate dignity (CEQA Guidelines Section 15064.5[d]). The agreement should take into consideration the appropriate excavation, removal, recordation, analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects. Nothing in existing State regulations or in this mitigation measure compels the SFPUC and the ERO to accept recommendations of an MLD. The archeological consultant shall retain possession of any Native American human remains and associated or unassociated burial objects until completion of any scientific analyses of the human remains or objects as specified in the treatment agreement if such as agreement has been made or, otherwise, as determined by the archeological consultant and the ERO.

Final Archeological Resources Report. The archeological consultant shall submit a Draft Final Archeological Resources Report (FARR) to the ERO and SFPUC that evaluates the historical significance of any discovered archeological resource and describes the archeological and historical research methods employed in the archeological testing/monitoring/data recovery program(s) undertaken. The FARR shall include new updated DPR forms, as applicable. Information that may put at risk any archeological resource shall be provided in a separate removable insert within the final report.

Once approved by the ERO, copies of the FARR shall be distributed as follows: Northwest Information Center (NWIC) of the California Historical Resources Information System shall receive one (1) copy and the ERO shall receive a copy of the transmittal of the FARR to the NWIC. The Environmental Planning division of the Planning Department shall receive one bound, one unbound and one unlocked, searchable PDF copy on CD of the FARR along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical

Resources. In instances of high public interest in or the high interpretive value of the resource, the ERO may require a different final report content, format, and distribution than that presented above.

Mitigation Measure M-CR-2b. Accidental Discovery of Archeological Resources

The following mitigation measure is required to avoid any potential adverse effect from the project on accidentally discovered buried or submerged historical resources as defined in CEQA Guidelines Section 15064.5(a) and (c). The project sponsor shall distribute the Planning Department archeological resource "ALERT" sheet to the project prime contractor; to any project subcontractor (including demolition, excavation, grading, foundation, pile installation, etc. firms); or utilities firm involved in soils disturbing activities within the project site. Prior to any soils disturbing activities being undertaken each contractor is responsible for ensuring that the "ALERT" sheet is circulated to all field personnel including, machine operators, field crew, pile drivers, supervisory personnel, etc.

A preconstruction training shall be provided to all construction personnel by a qualified archeologist prior to their starting work on the project. The training may be provided in person or using a video and include a handout prepared by the qualified archeologist. The video and materials shall be reviewed and approved by the ERO and the SFPUC. The purpose of the training is to enable personnel to identify archeological resources that may be encountered and to instruct them on what to do if a potential discovery occurs. Images or video of expected archeological resource types and archeological testing and data recovery methods should be included in the training. As possible, video or images should utilize archeological investigations that have occurred at the project site. The training should also include general information about the known archeological resources identified within the project site.

The project sponsor shall provide the Environmental Review Officer (ERO) with a signed affidavit from the responsible parties (prime contractor, subcontractor[s], and utilities firm) to the ERO confirming that all field personnel have received copies of the Alert Sheet and have taken the preconstruction training.

Should any indication of an archeological resource be encountered during any soils disturbing activity of the project, the project Head Foreman and/or project sponsor shall immediately notify the ERO and the SFPUC and shall immediately suspend any soils disturbing activities in the vicinity of the discovery until the ERO, in coordination with the SFPUC, has determined what additional measures should be undertaken.

If the ERO determines that the find may represent an archeological resource, the project sponsor shall retain the services of an archeological consultant. The archeological consultant shall advise the ERO and the SFPUC as to whether the discovery is an archeological resource, retains sufficient integrity, and is of potential scientific/historical/cultural significance. If an archeological resource is present, the archeological consultant shall identify and evaluate the archeological resource. The archeological consultant shall make a recommendation as to what action, if any, is warranted. Based on this information, the ERO may require, if warranted, specific additional measures to be implemented by the project sponsor.

Measures might include: preservation in situ of the archeological resource; an archeological monitoring program; or an archeological testing program. If an archeological monitoring program or archeological testing program is required, it shall be consistent with the

Environmental Planning (EP) division guidelines for such programs. The ERO may also require that the project sponsor immediately implement a site security program if the archeological resource is at risk from vandalism, looting, or other damaging actions.

The project archeological consultant shall submit a Final Archeological Resources Report (FARR) to the ERO and the SFPUC that evaluates the historical significance of any discovered archeological resource and describing the archeological and historical research methods employed in the archeological monitoring/data recovery program(s) undertaken. Information that may put at risk any archeological resource shall be provided in a separate removable insert within the final report.

Copies of the Draft FARR shall be sent to the ERO for review and approval and concurrently to the SFPUC for review and comment. Once approved by the ERO, copies of the FARR shall be distributed as follows: California Archaeological Site Survey Northwest Information Center (NWIC) shall receive one (1) copy and the ERO shall receive a copy of the transmittal of the FARR to the NWIC. The Environmental Planning division of the Planning Department shall receive one bound copy, one unbound copy and one unlocked, searchable PDF copy on CD three copies of the FARR along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of high public interest or interpretive value, the ERO may require a different final report content, format, and distribution than that presented above.

Impact CR-3: The project could disturb human remains, including those interred outside of formal cemeteries. (Less than Significant with Mitigation)

To date, no known human burial locations have been identified within the archeological C-APE, though the possibility of such a discovery cannot be discounted. Project construction could result in direct impacts on previously undiscovered human remains during earthmoving activities.

Under state law, human remains and associated burial items may be significant resources in two ways: they may be significant to descendant communities for patrimonial, cultural, lineage, and religious reasons; and human remains may also be important to the scientific community, such as prehistorians, epidemiologists, and physical anthropologists. The specific stake of some descendant groups in ancestral burials is a matter of law for some groups, such as Native Americans (CEQA Guidelines Section 15064.5[d], Public Resources Code Section 5097.98). In other cases, the concerns of the associated descendent group regarding appropriate treatment and disposition of discovered human burials may become known only through outreach. As described in Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery), if human remains or associated or unassociated funerary objects are discovered during any soils-disturbing activity, their treatment shall comply with applicable state and federal laws, including immediate notification of the Coroner of the City and County of San Francisco and in the event of the Coroner's determination that the human remains are Native American remains, notification of the California State NAHC who shall appoint a Most Likely Descendant (MLD) (Public Resources Code Section 5097.98).

The SFPUC shall be required to retain a qualified archeological consultant, in conjunction with the SFPUC, the ERO (or its designated representative) and the MLD, shall make all reasonable efforts to develop an agreement for the treatment of, with appropriate dignity, human remains and associated or unassociated funerary objects (CEQA Guidelines Section 15064.5[d]). The agreement shall take into consideration the appropriate excavation, removal, recordation, analysis, curation, possession, and final disposition of the human remains and associated or unassociated funerary objects.

Because the project would be required to comply with the regulations described above and to implement the measures specified under those regulations, impacts related to disturbance of human remains would be ***less than significant with mitigation.***

> **Mitigation Measure M-CR-2a. Archeological Testing, Monitoring, and/or Data Recovery** (see Impact CR-2)

Cumulative Impacts

Impact C-CR-1: The project, in combination with past, present, and probable future projects, would substantially contribute to cumulative adverse historic architectural resources impacts. (Significant and Unavoidable with Mitigation)

Cumulative Effects on Historic District

The geographic scope for cumulative effects on the historic district includes the SEP and the boundaries of the *Southeast Treatment Plant Streamline Moderne Industrial Historic District*. Cumulative projects at the SEP with the potential to result in cumulative impacts on the district in combination with the impacts of the project include: the Existing Digester Roof Repairs and Gas Handling Improvements (affecting Buildings 630-730, Anaerobic Digester Tanks 1-10); and the foreseeable demolition of all existing digesters and their central control buildings (Buildings 620 and 680), as part of the Demolition of the Existing SEP Digesters and Southside Renovation Project (see Section 4.1, Table 4.1-1, for description of cumulative projects). These cumulative projects are all within the *Southeast Treatment Plant Streamline Moderne Industrial Historic District*. The cumulative impact of the BDFP with two of the projects (roof repairs and gas handling improvements to the existing digesters) is discussed first, since this impact would occur approximately between 2013 and 2018, the scheduled period for the construction of these two projects and demolition phase of the BDFP. Repairs to two existing digester covers and replacement of three covers with new floating covers have been completed. The cumulative impact of the BDFP and the future demolition of all existing digesters is discussed separately, because demolition would occur at some future date after 2025.

The impacts associated with the loss of Building 870, as a contributor to the historic district, in combination with the proposed roof repairs and gas handling improvements to the existing digesters could potentially result in a cumulative impact on the district, but the cumulative impact would be less-than-significant. Based on the nature of the roof repairs and gas handling improvements, these projects would not substantially affect the character-defining features of the utilitarian concrete tanks, but rather would prolong the useful life and functionality of the digesters. These improvements would be similar to past physical alterations to the digesters, and the digesters would

be expected to retain sufficient integrity to convey their association with the implementation of the 1935 Sewer System Master Plan, as well as the Streamline Moderne architectural style. The loss of Building 870, as discussed above in Impact CR-1, would have a less-than-significant impact on the overall significance and historic integrity of the district. Therefore, the cumulative impact of the loss of Building 870 under the project in combination with the proposed roof repairs and gas handling improvements to the existing digesters would have a less-than-significant impact on the overall significance and historic integrity of the district.

However, the impacts associated with the loss of Building 870 in combination with the impact associated with the proposed future demolition of all existing digesters (Buildings 630-730) and their control buildings (Buildings 620 and 680), as part of the Demolition of the Existing SEP Digesters and Southside Renovation Project, would result in a significant, adverse cumulative impact on historic architectural resources. With these two projects combined, the district would lose approximately 13 of its 22 contributors, or 59 percent of the district's contributory buildings as part of a future cumulative scenario. The material impairment of over 50 percent of the district's contributory buildings would no longer retain sufficient integrity to convey its associations under National Register/California Register criteria A/1 or C/3, which would be considered a significant impact. Implementation of Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display) would reduce the severity of the cumulative impact but would not reduce the impacts to the district to a less-than-significant level. As such, the cumulative impact of the project in combination with the future demolition of the existing digesters and control buildings would be a significant and unavoidable cumulative impact on historic resources, even with mitigation. The proposed future demolition of the existing digesters will be subject to CEQA environmental review.

Although the BDFP would result in the loss of Building 870, only one of the district's 22 contributory buildings, the overall implementation of the BDFP would replace the function of the existing digesters and associated control buildings, thereby allowing for demolition of the existing digesters and control buildings. Therefore, the project's contribution to this cumulative impact would be cumulatively considerable (i.e., significant), and the cumulative impact on historic districts would be ***significant and unavoidable with mitigation.***

Other projects on the cumulative list at the SEP, such as the proposed Southeast Plant Headworks Replacement project and the SEP Primary/Secondary Clarifier Upgrades project, are not anticipated to contribute to cumulative impacts on historic resources. The Southeast Plant Headworks Replacement project would demolish Buildings 011 and 012 on the north side of the plant. Built in 1981 and 1996, respectively, neither building was identified as a historical resource, either individually or as potential contributors to the district. The proposed SEP Primary/Secondary Clarifier Upgrades project would construct a ventilation system to exhaust and dilute the head space in seven primary clarifier tanks at Building 042. Constructed in 1981, Building 042 was not identified as a historical resource, either individually or as potential contributors to the district. As such, the demolition or alteration of these buildings at the SEP would not contribute to a cumulative impact on historic architectural resources.

Cumulative Effects on Individual Historic Resources

The geographic scope for cumulative effects on the historic district includes the SEP and the boundaries of the *Southeast Treatment Plant Streamline Moderne Industrial Historic District*. As described above in Impact CR-1, the loss of Central Shops (including Buildings A and B), as an individually eligible historical resource, would be considered a significant and unavoidable impact even with mitigation. Cumulative projects in the vicinity of the SEP with the potential to combine with this impact of the project include the Pier 70 Waterfront Site Project, located in the Dogpatch neighborhood, which would demolish multiple historic industrial buildings that contribute to the Pier 70 Union Iron Works National Register Historic District and would introduce substantial new construction within that district. The Pier 70 Waterfront Site project is currently undergoing a separate environmental review process that identified potentially significant impacts on historic architectural resources, as well as mitigation measures to reduce impacts to a less-than-significant level. Even though significant impacts on historical resources have been identified as a result of the Pier 70 Waterfront Site Project, such impacts involve buildings that are substantially different in age, scale, and use from those at the BDFP site. For example, historic buildings that would be affected by the Pier 70 Waterfront Site Project were constructed prior to, or during, World War II for ship building and repair purposes, and are industrial-utilitarian in nature. The buildings and structures affected by the BDFP project are post-war industrial water treatment buildings designed in the Streamline Moderne style of architecture and International Style industrial shop buildings. As the projects are nearly a mile apart, the changes at both sites could not be viewed simultaneously, given the substantial amount of intervening development. As such, the potential loss or alteration of buildings within the Pier 70 Historic District would not combine with the potential loss of buildings at the SEP to result in a significant cumulative impact.

Other projects identified in the cumulative projects list, including the San Francisco Wholesale Produce Market Expansion project and the Central Shops Relocation and Land Reuse project, are not anticipated to affect historic architectural resources as none have been identified on these sites, and therefore they would not combine with the impacts of the project to result in a significant cumulative impact.

Mitigation Measure M-CR-1. Documentation of Historic Resources and Interpretive Display (see Impact CR-1)

Impact C-CR-2: The project, in combination with past, present, and probable future projects, could result in cumulative adverse impacts on archeological resources and human remains. (Less than Significant with Mitigation)

The geographic scope for cumulative effects on archeological resources and human remains includes the immediate vicinity of locations where the project would cause ground disturbance. Similar to the proposed project as described under Impacts CR-2 and CR-3, cumulative projects in the project vicinity as listed in Table 4.1-1 could have a significant impact on both recorded and unrecorded archeological resources (including the older stratified part of CA-SFR-171), including human remains interred outside of formal cemeteries, given the substantial amount of construction-related ground disturbance that could occur for many of the cumulative projects. The potential impacts of the project when considered together with similar impacts from other probable future projects in the vicinity

could result in a significant cumulative impact on buried archeological resources. The BDFP contribution to this impact could be cumulatively considerable, as documented above under Impacts CR-2 and CR-3. However, implementation of Mitigation Measures M-CR-2a and M-CR-2b would require implementation of legally-required appropriate treatment of human remains as well as archeological testing, monitoring and/or data recovery programs. Therefore, with implementation of Mitigation Measures M-CR-2a and M-CR-2b, the proposed project's contribution to cumulative impacts would not be considerable, and the impact would be ***less than significant with mitigation***.

> **Mitigation Measure M-CR-2a. Archeological Testing, Monitoring, and/or Data Recovery and Mitigation Measure M-CR-2b. Accidental Discovery of Archeological Resources** (see Impact CR-2)

4.6 Transportation and Circulation

This section describes existing transportation and circulation in the vicinity of the Biosolids Digester Facilities Project (BDFP or project), the existing regulatory framework governing transportation, and the potential for implementation of the project to adversely affect the circulation system. This impact analysis evaluates the potential transportation and circulation impacts of the project and identifies mitigation measures to avoid or reduce adverse impacts, as appropriate. **Appendix TR** presents supporting information for the transportation analysis.

4.6.1 Setting

4.6.1.1 Regional and Local Road Network and Travel Patterns

Travel to and from the project site and off-site staging areas involves the use of regional highway transportation facilities that link San Francisco with other parts of the Bay Area, as well as Northern and Southern California. The project site and off-site staging areas are accessible by local streets with connections to and from regional freeways and highways in the state system. Please refer to Figure 2-1 in Chapter 2, *Project Description,* for the location of these regional transportation facilities and local streets, which are discussed further below.

Regional Freeways

U.S. Highway 101

U.S. Highway 101 (Highway 101) is generally a north-south freeway, connecting San Francisco with the Peninsula and beyond to the south and Marin County and beyond to the north. It connects with Interstate 80 (I-80), which is located approximately two miles north of the project site and provides access to the East Bay and points farther east via the San Francisco-Oakland Bay Bridge. Between I-80 and the City and County of San Francisco (CCSF or City) line approximately 2.5 miles south of the project site, Highway 101 is an eight- to ten-lane limited-access freeway. In the project site vicinity, Highway 101 has both northbound and southbound on- and off-ramps near Silver Avenue and at Industrial Street/Bayshore Boulevard/Alemany Boulevard and Bayshore Boulevard/Jerrold Avenue/Cesar Chavez Street. No southbound on-ramp is provided from westbound Cesar Chavez Street. Highway 101 is one of the most heavily used freeway corridors in the Bay Area. Highway 101 and Interstate 280 (I-280) merge approximately one mile southwest of the project site, a common location of congestion during weekday a.m. and p.m. commute periods.

Interstate 280

I-280 is a generally north-south freeway that connects San Francisco with the Peninsula and the South Bay. I-280 has an interchange with Highway 101 approximately one mile southwest of the project site and terminates in San Francisco at surface streets in the South of Market/Mission Bay areas. Near the project site, I-280 is a six- to eight-lane facility. The closest access to I-280 is provided at Pennsylvania Street/Cesar Chavez Street (from the south), at Pennsylvania Street/25th Street (from the north and to the south), and at Indiana Street/25th Street (to the north).

Local Streets

Amador Street

Amador Street is an east-west roadway that extends east from Cargo Way to Pier 92 in the Port of San Francisco Intermodal Container Transfer Facility (ICTF) and has one travel lane in each direction. On-street parking is prohibited on the north side of the street, and angled parking is permitted on the south side of the street. Amador Street is a private road, owned by the Port of San Francisco, but access is not restricted.

Bayshore Boulevard

Bayshore Boulevard is a north-south arterial that generally parallels Highway 101 with three travel lanes each way, separated by a median. The *San Francisco General Plan* (General Plan) designates Bayshore Boulevard as a Major Arterial[1] in the Congestion Management Program (CMP) Network, part of the San Francisco Bay Region's nine-county Metropolitan Transportation System (MTS) Network, a Transit Preferential Street (Secondary, between Cesar Chavez Street and Silver Avenue), and a Neighborhood Commercial Street. The T Third light rail line runs on Bayshore Boulevard between Hester and Sunnydale Avenues. Bayshore Boulevard is part of Bicycle Route 25 between Cesar Chavez Street and Paul Avenue, and part of Bicycle Route 5 south of San Bruno Avenue. Striped bicycle lanes are provided on Bicycle Route 5 between San Bruno and Geneva Avenues.

Cesar Chavez Street

Cesar Chavez Street is a major east-west arterial that runs between Douglass Street to the west and the Port of San Francisco North Container Terminal at Pier 80, east of Third Street. In the vicinity of the project site, Cesar Chavez Street has one to two travel lanes each way, with a center median at some locations. The General Plan designates Cesar Chavez Street as a Major Arterial in the CMP Network from San Jose Avenue to Third Street, as a Secondary Arterial east of Third Street, and as part of the MTS Network. It is identified in the General Plan as a Freight Traffic Route[2] east of Highway 101. Cesar Chavez Street is part of Bicycle Route 60 between Sanchez and Third Streets, and striped bicycle lanes are generally provided between Guerrero and Third Streets.

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1 City roadway designations include Freeways, Major Arterials, Transit Conflict Streets, Secondary Arterials, Recreational Streets, Collector Streets, and Local Streets. Each of these roadways has a different potential capacity for mixed-flow traffic and for changes that might alter traffic patterns on the given roadway. The General Plan also identifies certain Transit Preferential Streets from among the City's roadways, each of which is identified as a Primary Transit Street-Transit Oriented, Primary Transit Street-Transit Important, or Secondary Transit Street. The Pedestrian Network is a classification of streets used to identify streets developed to be primarily oriented to pedestrian use, and includes Citywide Pedestrian Network Streets and Neighborhood Pedestrian Streets. (City and County of San Francisco, *San Francisco General Plan*, 2007 Transportation Element. Available online at http://www.sf-planning.org/ftp/General_Plan/I4_Transportation.htm.)

2 San Francisco does not have a network of signed truck routes, although the San Francisco Municipal Transportation Agency (SFMTA) has identified major Freight Traffic Routes in the Transportation Element of the General Plan that are not designed or signed truck routes. (See General Plan Transportation Element Map 15, attached in Appendix TR and available online at: http://www.sf-planning.org/ftp/General_Plan/images/I4.transportation/tra_map15.pdf.) Nevertheless, a number of streets in San Francisco, and in the Southeast Water Pollution Control Plant (SEP or Southeast Plant) vicinity have "Truck Route" signage. More commonly, streets are designated with truck weight restrictions to discourage through truck traffic from using these streets. Streets with truck weight restrictions are identified in the San Francisco Transportation Plan, Section 501, available online on the SFMTA website at https://www.sfmta.com/sites/default/files/pdfs/2016/Restricted%20Traffic%20Streets_2016-05-06.pdf.

Cargo Way

Cargo Way is a northwest-southeast roadway that extends between Jennings and Third Streets. (Arthur Avenue continues west of Third Street.) Cargo Way provides direct access to the Port of San Francisco ICTF and the South Container Terminal (SCT) on Piers 92, 94, and 96. Cargo Way is a two-way street with two travel lanes in each direction separated by a landscaped median and has non-metered on-street parking on both sides of the street. Active railroad tracks serving the ICTF and SCT run parallel and north of the street from its intersection with Third Street. In the General Plan, Cargo Way is designated as a Freight Traffic Route.

Evans Avenue

Evans Avenue is an east-west arterial, with two travel lanes each way, extending between Cesar Chavez and Jennings Streets. The General Plan identifies Evans Avenue as a Major Arterial in the CMP Network between Cesar Chavez and Third Streets, as a Secondary Arterial east of Third Street, and as part of the MTS Network. In the General Plan, Evans Avenue is also identified as a Freight Traffic Route between Cesar Chavez and Jennings Streets. Evans Avenue is part of Bicycle Route 68 between Cesar Chavez Street and Hunters Point Boulevard. Striped bicycle lanes are provided between Third Street and Hunters Point Boulevard.

Industrial Street

Industrial Street is an east-west street with two travel lanes each way and a raised center median, extending between Bayshore Boulevard and Oakdale Avenue. The General Plan identifies Industrial Street as a Secondary Arterial. The segment of Industrial Street between Loomis Street and Bayshore Boulevard is part of southbound Bicycle Route 25.

Innes Avenue

Innes Avenue is an east-west discontinuous street extending from Milton Ross Lane, east of Toland Street, to Coleman Street, at the Hunters Point Shipyard. The General Plan identifies Innes Avenue east of Hunters Point Boulevard as a Secondary Arterial, part of the MTS Network, and a street with significant truck traffic. To the west of the project site, adjacent to the San Francisco Wholesale Produce Market, Innes Avenue is a paved but unimproved (no curbs, sidewalks, trees or other pedestrian amenities) roadway extending between Milton Ross Lane, near Toland Street, and Rankin Street. To the east of the project site, Innes Avenue is a paved roadway extending between Phelps Street and south of Mendell Street. The main pedestrian access to the Southeast Water Pollution Control Plant (SEP or Southeast Plant) is located at the intersection of Innes Avenue and Phelps Street.

As described in Table 4.1-1 in Section 4.1, Overview, the San Francisco Wholesale Produce Market has developed a plan to vacate the segment of Jerrold Avenue between Toland and Rankin Streets (i.e., to the west of the SEP), which would then be closed to vehicles not related to the produce market. Those vehicles would instead be, for the most part, directed to an improved Innes Avenue from Rankin Street to Toland Street.

Jerrold Avenue

Jerrold Avenue is an east-west street with one travel lane each way, extending from Bayshore Boulevard to Coleman Street, at the Hunters Point Shipyard. Jerrold Avenue, while not an arterial, is one of four east-west streets that cross the Caltrain tracks near the project site, the other three being Evans, Oakdale, and Palou Avenues. Palou and Oakdale Avenues cross over the Caltrain tracks, while Jerrold and Evans Avenues cross under the Caltrain tracks. Jerrold Avenue bisects the SEP between the Caltrain tracks and Phelps Street.

Multiple entrances to the SEP are located on the north and south sides of Jerrold Avenue between Phelps and Quint Streets. SEP staff and City vehicles parking inside the SEP use the vehicle entrances on the north side of Jerrold Avenue. Trucks delivering various chemical products (bisulfite, hypochlorite, and oxygen) to the SEP also use the vehicle entrance on the north side of Jerrold Avenue. Trucks delivering ferric chloride and polymer to the SEP use the vehicle entrance on the south side of Jerrold Avenue, while trucks carrying the plant biosolids to the landfill use the access on the south side of Jerrold Avenue only as an exit.

Jerrold Avenue also bisects the San Francisco Wholesale Produce Market between Rankin and Toland Streets, to the west of the SEP. When the San Francisco Wholesale Produce Market project is implemented, this portion of the street would be vacated and then be enclosed so that only authorized and inspected vehicles could have access to the produce market. Vehicular traffic not related to the San Francisco Wholesale Produce Market would be directed to parallel streets to the north or south on improved segments of Innes and Kirkwood Avenues.

Oakdale Avenue

Oakdale Avenue is an east-west arterial extending from Bayshore Boulevard to Griffith Street, at the Hunters Point Shipyard. The General Plan identifies Oakdale Avenue as a Secondary Arterial between Bayshore Boulevard and Third Street, and as a Freight Traffic Route between Bayshore Boulevard and Industrial Street. Oakdale Avenue is part of Bicycle Route 170 between Bayshore Boulevard and Phelps Street, where striped bicycle lanes are provided on both sides of the street.

Phelps Street

Phelps Street is a north-south discontinuous street between Third Street and Palou Avenue and between Vest and Williams Streets and Bayshore Boulevard and has one travel lane each way. Bicycle Route 7 runs the length of Phelps Street. The main pedestrian entrance to the SEP is located on Phelps Street, at the intersection with Innes Avenue.

Quint Street

Quint Street is a north-south discontinuous street between the Islais Creek Channel and Thomas Avenue and has one travel lane each way. Under the Caltrain tracks between this location and Jerrold Avenue, Quint Street was permanently closed in October 2015 as part of Caltrain's replacement of the Quint Street Bridge with a berm, preventing through vehicular and pedestrian traffic from traveling between Newcomb and Jerrold Avenues. Quint Street is discontinued within the SEP between Jerrold and Evans Avenues. Trucks removing yellow grease and recycled water use

the Quint Street vehicle access point, while trucks carrying the plant biosolids to the landfill use the Quint Street access to reenter the SEP.

Rankin Street

Rankin Street is a north-south discontinuous street between the Islais Creek Channel and Revere Avenue. In the vicinity of the project site, Rankin Street runs along the northwest side of the SEP with a vehicular entrance to the SEP on Rankin Street, south of Evans Avenue. On the other side of the railroad tracks along the southern edge of the San Francisco Wholesale Produce Market, Rankin Street is a paved but unimproved roadway extending between Innes and McKinnon Avenues. The existing SEP vehicle access on Rankin Street is used as an exit on an as-needed basis by trucks carrying grit to the landfill.

Third Street

Third Street is the principal north-south arterial in the southeast part of San Francisco, extending from its interchange with Highway 101 at Bayshore Boulevard to its intersection with Market Street in downtown San Francisco, and serving as a through street and an access way to the industrial areas north and east of Highway 101. In the project vicinity, Third Street has two travel lanes each way, with the T Third Line light rail operating in an exclusive median right-of-way, with the exception of the segment between Kirkwood and Thomas Avenues, where the light rail shares the travel lane with vehicles. The General Plan identifies Third Street as a Major Arterial in the CMP Network and as a Transit Preferential Street. Third Street between Jerrold Avenue and the Mission Bay area is identified as a Freight Traffic Route. Third Street is part of Bicycle Route 5 between Custer Avenue and Bayshore Boulevard, and Bicycle Route 7 between Cesar Chavez Street and Custer Avenue.

Toland Street

Toland Street is a north-south street with one travel lane each way, extending between Evans and Oakdale Avenues. Toland Street is located across the railroad tracks from the project site, along the northern boundary of the San Francisco Wholesale Produce Market. The General Plan identifies Toland Avenue between Oakdale and Evans Avenues as a Freight Traffic Route.

Traffic Volumes for Select Streets

Table 4.6-1 shows a summary of the existing a.m. and p.m. peak hour volumes on streets near the project site and off-site staging areas. The traffic data were collected on May 28 and May 29, 2015. Appendix TR includes the detailed vehicle count information.

As shown in Table 4.6-1, peak hour traffic volumes are highest on Third Street (the primary north-south arterial in the SEP vicinity), and Oakdale and Evans Avenues (the primary east-west arterials in the SEP vicinity). On Jerrold Avenue, traffic volumes are highest (i.e., about double) west of, versus east of, Phelps Street. Traffic volumes on Cargo Way are low, generally fewer than 210 vehicles per hour.

TABLE 4.6-1
EXISTING AM AND PM PEAK HOUR TRAFFIC VOLUMES

Street	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
	West of Phelps Street		**East of Phelps Street**	
Evans Avenue	754	763	699	725
Jerrold Avenue	585	531	274	221
Oakdale Avenue	636	745	463	519
Phelps Street	**Between Oakdale and Jerrold Avenues**		**Between Jerrold and Evans Avenues**	
	288	384	419	532
Third Street	**South of Evans Avenue**		**Between Evans Avenue and Cargo Way**	
	1,099	992	1,340	1,369
Cargo Way	**West of Third Street**		**East of Third Street**	
	83	94	165	209

NOTE: Volumes shown are two-way traffic volumes on identified street segments.
SOURCE: Adavant Consulting/LCW Consulting Data Collection May 2015.

Background on Vehicle Miles Traveled (VMT) in San Francisco and Bay Area

Many factors affect travel behavior. These factors include density, diversity of land uses, design of the transportation network, access to regional destinations, distance to high-quality transit, development scale, demographics, and transportation demand management. Typically, low-density development at great distance from other land uses, located in areas with poor access to non-private vehicular modes of travel, generate more automobile travel compared to development located in urban areas, where a higher density, mix of land uses, and travel options other than private vehicles are available.

Given these travel behavior factors, San Francisco has a lower vehicle miles traveled (VMT) ratio than the nine-county San Francisco Bay Area region. In addition, some areas of the city have lower VMT ratios than other areas of the city. These areas of the city can be expressed geographically through traffic analysis zones. Traffic analysis zones are used in transportation planning models for transportation analysis and other planning purposes. The zones vary in size from single city blocks in the downtown core, multiple blocks in outer neighborhoods, to even larger zones in historically industrial areas like the Hunters Point Shipyard.

The San Francisco County Transportation Authority (SFCTA) uses the San Francisco Chained Activity Modeling Process (SF-CHAMP) to estimate VMT by private automobiles and taxis for different land use types. Travel behavior in SF-CHAMP is calibrated based on observed behavior from the California Household Travel Survey 2010-2012, Census data regarding automobile ownership rates and county-to-county worker flows, and observed vehicle counts and transit boardings. SF-CHAMP uses a synthetic population, which is a set of individual actors that represents the Bay Area's actual population, who make simulated travel decisions for a complete day. The SFCTA uses tour-based analysis for office and residential uses, which examines the entire chain of trips over the course of a day, not just trips to and from the project. For retail uses, the SFCTA uses

trip-based analysis, which counts VMT from individual trips to and from the project (as opposed to entire chain of trips). A trip-based approach, as opposed to a tour-based approach, is necessary for retail projects because a tour is likely to consist of trips stopping in multiple locations, and the summarizing of tour VMT for each location would over-estimate VMT.[3,4]

The SF-CHAMP model was used to estimate existing average daily VMT per capita for Traffic Analysis Zone (TAZ) 489, which includes the project site. VMT per capita is used to measure the amount and distance that a resident, employee, or visitor drives, accounting for the number of passengers within a vehicle. As shown in **Table 4.6-2,** the current average daily VMT per capita for residents, employees, and visitors in TAZ 489 is less than the regional Bay Area average for the nine-county San Francisco Bay Area.

TABLE 4.6-2
DAILY VEHICLE MILES TRAVELED (VMT) PER CAPITA—EXISTING CONDITIONS

Trip Type (Land Use)	Bay Area Regional Average	Traffic Analysis Zone 489[a]
Households (residential)	17.2	7.8
Employment (office)	19.1	14.0
Visitors (retail)	14.9	8.8

NOTE:
[a] The Traffic Analysis Zone in which the project site is located.

SOURCES: San Francisco Planning Department Resolution Modifying Transportation Impact Analysis, Attachment E: Screening Criteria for Circulation Analysis and Methodology for Travel Demand Analysis (March 2016), and San Francisco Planning Department Transportation Information Map (TIM). Available online at http://www.sftransportationmap.org.

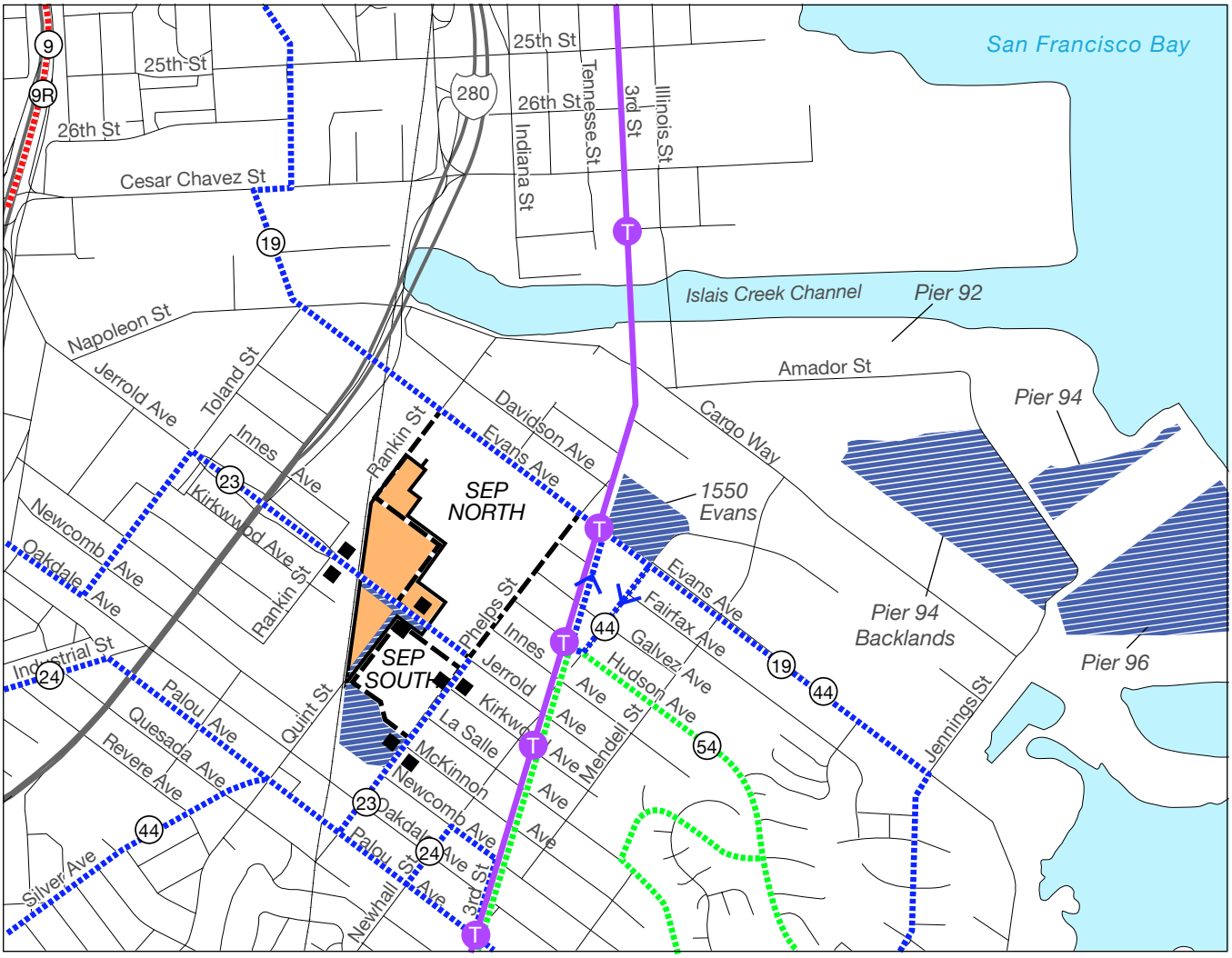
4.6.1.2 Transit Service

The SEP vicinity is served by public transit. Local service is provided by San Francisco Municipal Railway (Muni) bus routes (9 San Bruno, 9R San Bruno Rapid, 19 Polk, 23 Monterey, 24 Divisadero, 44 O'Shaughnessy, 54 Felton) and a light rail line (T Third). **Figure 4.6-1** presents the Muni transit routes in the project vicinity. **Table 4.6-3** presents the service headways[5] for the a.m. and p.m. peak periods for the Muni lines that operate within the transit study area bounded by Cesar Chavez Street, Palou Avenue, Bayshore Boulevard, and the Hunters Point Shipyard. Access to regional transit service providers (such as the 22nd Street Caltrain station) is via Muni service. Service to and from the East Bay is provided by Bay Area Rapid Transit (BART) along Mission and Market Streets, AC Transit buses from the Transbay Terminal, and ferry service from the Ferry Building. Transit service to and from the North Bay is provided by Golden Gate Transit along Van Ness Avenue and at the Transbay Terminal and ferry service from the Ferry Building. Service to and from the Peninsula

3 To state this another way, a tour-based assessment of VMT at a retail site would consider the VMT for all trips in the tour, for any tour with a stop at the retail site. If a single tour stops at two retail locations—for example, a coffee shop on the way to work and a restaurant on the way back home—then both retail locations would be allotted the total tour VMT. A trip-based approach allows apportioning of all retail-related VMT to retail sites without double-counting.

4 San Francisco Planning Department, Executive Summary: Resolution Modifying Transportation Impact Analysis, Appendix F, Attachment A, March 3, 2016.

5 The service headway is the number of minutes between buses or trains on a particular bus or rail route or line.



SFPUC Southeast Plant (SEP) Boundary

Project Site (Limited work at SEP North is also proposed to integrate liquid treatment facilities with BDFP facilities. In addition, street improvements would occur along Jerrold Avenue west of Phelps Street)

Potential Construction Staging Areas
(Staging may also occur within the existing SEP boundary)

T Third Metro Line and Stations

Citywide Muni Bus Route

Community Muni Bus Route

Limited Stop Muni Bus Route

Muni Bus Stops near Project Site

Muni Bus Route Number

SOURCE: San Francisco Municpal Transportation Agency, *San Francisco Transit Map,* May 2016.

SFPUC Biosolids Digester Facilities

Figure 4.6-1

Muni Transit Network and Stop Locations

TABLE 4.6-3
AM AND PM PEAK PERIOD HEADWAYS ON SAN FRANCISCO MUNICIPAL RAILWAY (MUNI) ROUTES SERVING PROJECT VICINITY

	Scheduled Service Headway (minutes)	
Route	**AM Peak Period (7:00 a.m. to 9:00 a.m.)**	**PM Peak Period (4:00 p.m. to 6:00 p.m.)**
9 San Bruno	12	12
9R San Bruno Rapid	8	8
19 Polk	15	15
23 Monterey	20	20
24 Divisadero	9	9
44 O'Shaughnessy	9	8
54 Felton	20	20
T Third (K/T)	8	8

SOURCE: 511.org. Available online at http://transit.511.org/schedules/index.aspx?#m1=S&m2=bus&routeid=43865&cid=SF. Accessed on April 7, 2015.

and South Bay is provided by Caltrain from its terminal located at Fourth and Townsend Streets and a station at 22nd Street at Pennsylvania Street, and by the San Mateo County Transit District (SamTrans) at the Transbay Terminal and at locations along Mission Street.

In addition, the San Francisco Public Utilities Commission (SFPUC) provides an employee shuttle van service on weekdays between BART's 24th Street Mission station and the SEP. Four shuttle trips run from the 24th Street Mission station and the SEP between 5:40 and 7:30 a.m., and four trips run between the SEP and the 24th Street Mission station between 2:35 and 4:35 p.m. In the vicinity of the SEP, the shuttle van runs eastbound on Evans Avenue, southbound on Phelps Street, westbound on Jerrold Avenue, and northbound on Toland Street.

Capacity Utilization

Capacity utilization relates the number of passengers per transit vehicle to the design capacity of the vehicle. The capacity per vehicle includes both seated and standing capacity, where standing capacity is somewhere between 30 to 80 percent of seated capacity (depending upon the specific transit vehicle configuration). For example, the capacity of a single light rail vehicle is 119 passengers, the capacity of a historic streetcar is 70 passengers, and the capacity of a standard bus is 63 passengers.

Table 4.6-4 presents the ridership and capacity utilization at the maximum load point (MLP) for the nearby routes within the transit study area during the weekday a.m. and p.m. peak hours for both the inbound and outbound directions. Muni has established a capacity utilization standard of 85 percent (i.e., that Muni transit lines should operate at or below 85 percent capacity utilization), which is applied for assessment of peak hour conditions.

TABLE 4.6-4
SAN FRANCISCO MUNICIPAL RAILWAY (MUNI) TRANSIT ROUTE ANALYSIS AT MAXIMUM LOAD POINT (MLP) EXISTING CONDITIONS – WEEKDAY AM AND PM PEAK HOUR

	Inbound (toward downtown)			Outbound (away from downtown)		
Peak Hour/Route[a]	**Ridership**	**Capacity**	**Capacity Utilization**	**Ridership**	**Capacity**	**Capacity Utilization**
AM Peak Hour						
9 San Bruno	235	315	74.6%	185	315	58.0%
9R San Bruno Rapid	230	315	73.0%	160	315	50.0%
19 Polk	188	252	74.6%	160	252	63.0%
23 Monterey	93	189	49.2%	105	189	55.0%
24 Divisadero	270	378	71.4%	144	378	38.0%
44 O'Shaughnessy	294	378	77.8%	240	378	63.0%
54 Felton	129	189	68.3%	114	189	60.0%
T Third (K/T)[b]	350	793	44.0%	833	793	**105.0%**
PM Peak Hour						
9 San Bruno	180	315	57.0%	215	315	68.0%
9R San Bruno Rapid	175	315	55.0%	225	315	71.0%
19 Polk	180	252	71.0%	168	252	66.0%
23 Monterey	99	189	52.0%	90	189	47.0%
24 Divisadero	180	378	47.0%	240	378	63.0%
44 O'Shaughnessy	216	378	57.0%	324	378	**85.0%**
54 Felton	117	189	61.0%	123	189	65.0%
T Third (K/T)[c]	782	793	**98.0%**	585	793	73.0%

NOTES:
[a] Capacity utilizations that equal or exceed Muni's 85 percent capacity utilization standard are highlighted in **bold**.
[b] For the T Third during the a.m. peak hour, the inbound direction is from the Bayview and the outbound direction is toward the Bayview. The MLP is at the Embarcadero/Folsom station in the inbound direction and at the Van Ness station in the outbound direction.
[c] For the T Third during the p.m. peak hour, the inbound direction is toward the Bayview and the outbound direction is from the Bayview. The MLP in both directions is at the Embarcadero/Harrison station.

SOURCE: San Francisco Planning Department, Memorandum, Transit Data for Transportation Impact Studies, May 2015.

All bus routes presented in Table 4.6-4 operate at less than the 85 percent capacity utilization standard, except for the 44 O'Shaughnessy, which operates at 85 percent during the p.m. peak hour in the outbound direction at the MLP of Silver Avenue and Mission Street. In addition, the T Third light rail line operates at more than 85 percent capacity utilization during the a.m. peak hour (traveling toward the Bayview at the Van Ness station) and p.m. peak hour (traveling toward the Bayview at The Embarcadero and Harrison Street). In the immediate vicinity of the project site, all bus routes and the T Third light rail line have available capacity to accommodate additional passengers.

Table 4.6-5 presents the daily ridership for the 23 Monterey for the segment of the route that would be affected by the proposed project construction activities. The number of transit riders per stop for the one-mile segment of the route is fewer than 500 passengers exiting and boarding the bus on a daily basis. The closest stop to the project site is located at Jerrold Avenue at Phelps Street. The bus stops with the greatest number of "ons and offs" (i.e., riders boarding and exiting buses) are at Phelps Street and McKinnon Avenue (traveling toward the Bayview) and at Toland Street and Jerrold Avenue (traveling

toward San Francisco Zoo). In general, most riders exit the bus in the eastbound direction at Phelps Street and McKinnon Avenue, at Jerrold Avenue and Toland Street (the San Francisco Wholesale Produce Market), and at Jerrold Avenue and Phelps Street (the SEP), and board the bus in the westbound direction at the same locations but across the street from the stops in the eastbound direction.

TABLE 4.6-5
DAILY RIDERSHIP BY BUS STOP FOR 23 MONTEREY FOR SEGMENT BETWEEN TOLAND STREET/OAKDALE AVENUE AND PHELPS STREET/PALOU AVENUE

To Bayview (eastbound on Jerrold Avenue)				To San Francisco Zoo (westbound on Jerrold Avenue)			
Bus Stop	**On**	**Off**	**Total**	**Bus Stop**	**On**	**Off**	**Total**
Toland & Newcomb	5	24	29	Phelps & Oakdale	17	16	33
Toland & Jerrold	6	41	47	Phelps & McKinnon	32	4	36
Jerrold & Selby	1	24	25	Phelps & Jerrold	35	2	37
Jerrold & Rankin	1	7	8	Jerrold & Quint	4	0	4
Jerrold & Quint	0	2	2	Jerrold & Rankin	12	0	12
Jerrold & Phelps	3	37	40	Jerrold & Selby	16	1	17
Phelps & McKinnon	1	42	43	Toland & Jerrold	45	9	54
Phelps & Oakdale	8	15	23	Toland & McKinnon	6	2	8
Phelps & Palou	7	21	28	Toland & Oakdale	27	1	28
Segment Total	**32**	**213**	**245**	**Segment Total**	**194**	**35**	**229**

SOURCE: San Francisco Municipal Transportation Agency (SFMTA), Passenger Activity Report, data collected Fall 2006 – Spring 2007. Available online at https://www.sfmta.com/sites/default/files/projects/PassengerActivity_ByTimePeriod_RT_23.pdf. Accessed September 1, 2016.

Muni Forward

In January 2015, the San Francisco Municipal Transportation Agency (SFMTA) initiated implementation of the Muni Forward projects. The Muni Forward projects, which are informed by the Transit Effectiveness Project, will improve reliability, reduce travel times, provide more frequent service, and update Muni bus routes and rail lines to better match current travel patterns. They include new routes and route extension, more service on busy routes, and elimination or consolidation of certain routes or route segments with low ridership. For routes in the project vicinity, route alignment and increased peak hour frequencies have been implemented on the 9 San Bruno and 9R San Bruno Rapid, and increased peak hour frequencies have been implemented on the T Third, 24 Divisadero, and 44 O'Shaughnessy. The following improvements have not yet been implemented:

- The 19 Polk route will be realigned; it will continue to operate between Van Ness Avenue and North Point Street, but service to the south will be shortened to San Francisco General Hospital at 23rd Street and Potrero Avenue. The route segment south of 24th Street will be replaced with the rerouted 48 Quintara-24th route. With this change, passengers will be required to transfer to reach the Civic Center but will have a more direct connection to Potrero Avenue, the Mission (including the 24th Street BART Station), Noe Valley, and the Sunset District. In addition, the route will be modified in the Civic Center area to simplify route structure and

reduce travel times in both directions. Changes to the service frequency are not proposed, and the 19 Polk will continue to run with 15-minute headways between buses. The proposed realignment has been approved, but the timeline for implementation is currently unknown.

- The 23 Monterey would be realigned. The route segment on Toland Street, Jerrold Avenue, and Phelps Street is proposed to be eliminated to provide a more direct path of travel. The route would operate on Oakdale Avenue, Industrial Way, and Palou Avenue. Transit service would be added to Palou Avenue between Barneveld Avenue and Industrial Way, and Barneveld Avenue between Oakdale and Palou Avenues. Changes to the service frequency are not proposed, and the 23 Monterey would continue to run with 20-minute headways between buses. The timeline to implement the proposed realignment has not yet been approved and is currently unknown pending further community outreach.
- The 54 Felton route would be modified in several segments to make service quicker, more direct, and less circuitous for passengers. In the Bayview, two-way service would be provided on Hunters Point hilltop beginning at Third Street and Palou Avenue, running two-way on Hudson Avenue, North Ridge Road, Jerrold Avenue, Kirkwood Street, Kiska Road, Ingalls Street, and Van Dyke Avenue, and then continuing through Silver Terrace. The proposed route realignment has not yet been approved, pending further community outreach. The service frequency on the 54 Felton will be increased from 20 to 15 minutes during the a.m. and p.m. peak periods, and this service improvement has been approved, although the timeline to implement the service frequency increases is unknown pending funding.

4.6.1.3 Bicycle Circulation

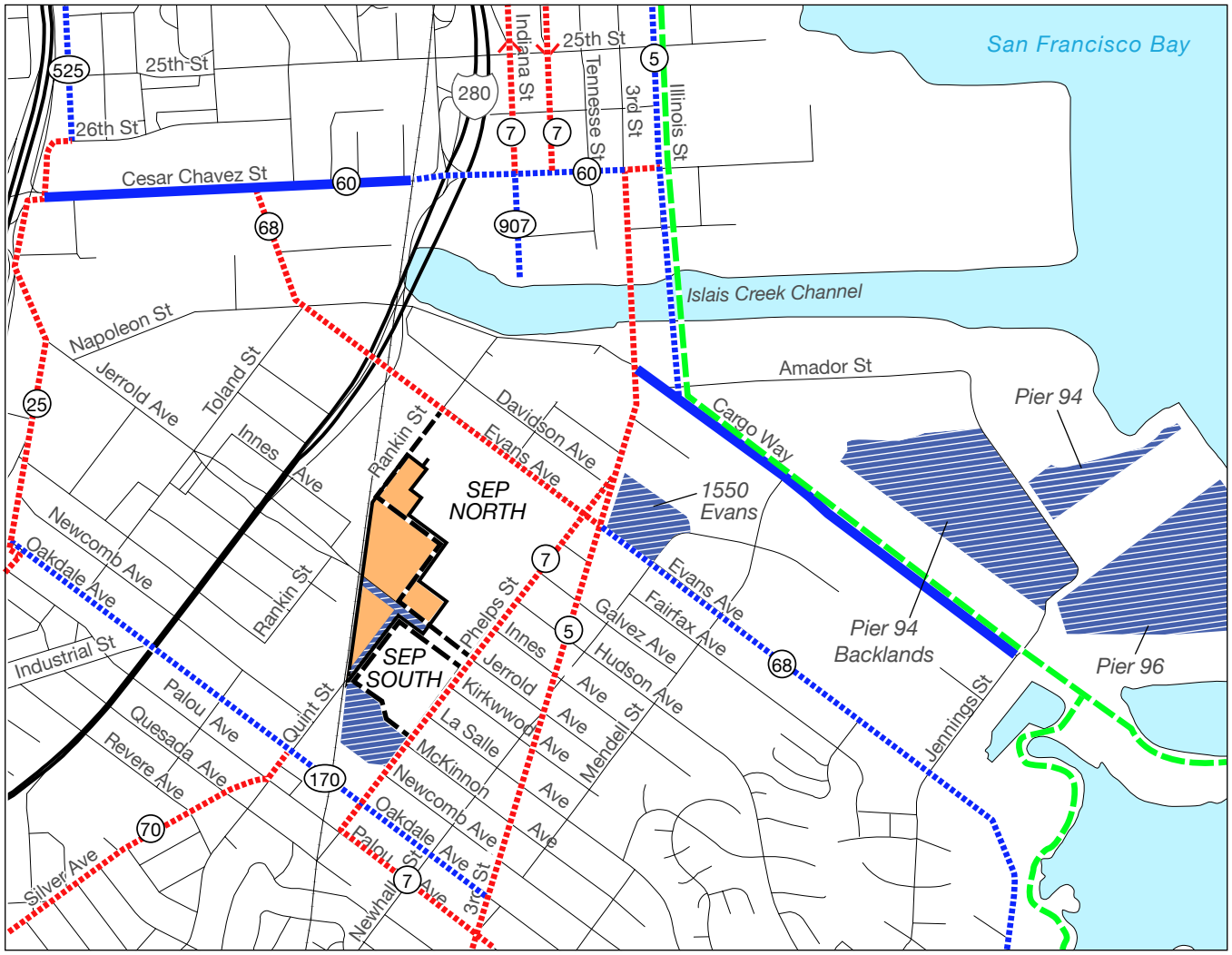
Bicycle Routes

Figure 4.6-2 presents the bicycle route network in the vicinity of the project site and the off-site staging areas. Bikeways are typically classified as Class I, Class II, Class III or Class IV facilities.[6] Class I bikeways are bike paths with exclusive right-of-way for use by bicyclists or pedestrians. Class II bikeways are bike lanes striped within the paved areas of roadways and established for the preferential use of bicycles, while Class III bikeways are signed bike routes that allow bicycles to share streets with vehicles. A Class IV bikeway is an exclusive bicycle facility that is separated from vehicular traffic and parked cars by a buffer zone.

As shown on Figure 4.6-2, there are seven bicycle routes in the vicinity of the project site and the off-site staging areas, as follows:[7]

- Bicycle Route 5 is the easternmost north-south bicycle route. This route runs between Visitacion Valley and North Beach, primarily as a Class III facility along Third Street and primarily as a Class II facility along Illinois Street, Bayshore Boulevard, The Embarcadero, and San Bruno Avenue.

[6] Bicycle facilities are defined by the State of California in California Streets and Highway Code Section 890.4.
[7] Rufus Graphics, *San Francisco Bike Map & Walking Guide, 14th Edition, 2014*. Available online at https://www.sfbike.org/wp-content/uploads/2014/03/SF_Bike_Map_and_Walking_Guide_2014.pdf.



SFPUC Southeast Plant (SEP) Boundary

Project Site (Limited work at SEP North is also proposed to integrate liquid treatment facilities with BDFP facilities. In addition, street improvements would occur along Jerrold Avenue west of Phelps Street))

Potential Construction Staging Areas
(Staging may also occur within the existing SEP boundary)

Class II (Bicycle Lane)

Class III (Shared Travel Lane)

Class IV (Separated Bicycle Lane)

San Francisco Bay Trail

(7) Bicycle Route Number

SOURCE: San Francisco Municipal Transportation Agency, San Francisco Bike Map and Walking Guide, 14th Edition, 2014, LCW Consulting, data developed in 2016 for BDFP

SFPUC Biosolids Digester Facilities

Figure 4.6-2

Bicycle Routes in Project Site Vicinity

- Bicycle Route 7 is a Class III bike route that runs between Mariposa Street and Carroll Avenue, via Indiana Street, Minnesota Street, Third Street, Phelps Street (along the east edge of the SEP), Palou Avenue, and Keith Street.
- Bicycle Route 25 runs between the southeastern part of San Francisco and the Marina District. It extends along San Bruno Avenue and Bayshore Boulevard in the Bayview-Hunters Point area. Approximately one mile south of the project site, Bicycle Route 25 runs along Bayshore Boulevard primarily as a Class IV facility. North of Oakdale Avenue, Bicycle Route 25 runs as both a Class II facility (e.g., along Potrero Avenue, Harrison Street, and 11th Street) and a Class III facility (e.g., along 10th Street, Loomis Street, Barneveld Avenue, and Jerrold Avenue).
- Bicycle Route 60 runs east-west between the Great Highway and Illinois Street. In the vicinity of the project site (approximately one mile away), Bicycle Route 60 is a Class II facility along Cesar Chavez Street between the Caltrain tracks and Third Streets, and a Class III facility between Third and Illinois Streets. Between Kansas and Mississippi Streets, a buffered bicycle lane (Class IV facility) is provided; the bicycle lane is painted green and safety bollards are located between the bicycle lane and the adjacent mixed-flow travel lanes.
- Bicycle Route 68 runs between the Innes Avenue north gate of the Hunters Point Shipyard and the intersection of Evans Avenue/Cesar Chavez Street via Innes Avenue, Hunters Point Boulevard, and Evans Avenue. On Evans Avenue between Cesar Chavez and Third Streets, along the north edge of the SEP, this route is a Class III facility. On Evans Avenue/Hunters Point Boulevard between Third Street and Innes Avenue, it becomes a Class II facility with dedicated bicycle lanes on both sides of the street, and on Innes Avenue between Hunters Point Boulevard and the Hunters Point Shipyard gate, this route is a Class III facility.
- Connector Route 170 runs along Oakdale Avenue between Third Street and Bayshore Boulevard and is a Class II facility with bicycle lanes on both sides of the street.
- Connector Route 907 is a two-block Class II facility along Indiana Street between Cesar Chavez Street (Bicycle Route 60) and Tulare Street.

In addition to these designated routes, there is a Class IV bicycle facility on Cargo Way between Jennings and Third Streets. It is a two-way facility, separated from the adjacent travel lane with a raised curb and fence, and is part of the San Francisco Bay Trail.

Figure 4.6-2 also shows the San Francisco Bay Trail in the project vicinity. The San Francisco Bay Trail is designed to create recreational pathway links to the various commercial, industrial, and residential neighborhoods that surround San Francisco Bay. In addition, the trail connects points of historic, natural, and cultural interest, and recreational areas such as beaches, marinas, fishing piers, boat launches, and numerous parks and wildlife preserves. At various locations, the Bay Trail consists of paved multi-use paths, dirt trails, bike lanes, sidewalks, or City streets signed as bicycle routes. In the vicinity of Piers 94 and 96, the Bay Trail path follows the shoreline of San Francisco Bay and runs east-west on Cargo Way and north on Illinois Street.

Bicycle Parking

There are no on-street bicycle parking racks (i.e., Class 2 bicycle parking spaces[8]) on streets adjacent to the project site or the off-site staging areas, and there are no Bay Area Bike Share stations in the vicinity. However, there currently are five bicycle racks and three bike lockers within the SEP, providing 30 bike spaces. In addition, there are about 27 bicycles for employee travel within the SEP.

Existing Bicycle Traffic

During field surveys conducted on May 27, 2015, between 20 and 30 bicyclists were observed at the intersections of Phelps Street/Jerrold Avenue and Phelps Street/Oakdale Avenue during the a.m. and p.m. peak hours, with a greater number during the p.m. peak hour (see Appendix TR). **Table 4.6-6** summarizes bicycle volumes by approach for the a.m. and p.m. peak hours. The predominant direction of bicycle travel is north-south at the intersection of Phelps Street/Jerrold Avenue (Bicycle Route 7 on Phelps Street), and east-west at the intersection of Phelps Street/Oakdale Avenue (Connector Route 170 on Oakdale Avenue). No substantial safety or right-of-way conflicts between bicycles, pedestrians, or vehicles were observed in the vicinity of the project site.

TABLE 4.6-6
AM AND PM PEAK HOUR BICYCLE VOLUMES

Intersection/Peak Hour	Intersection Approach				
	Northbound	Southbound	Eastbound	Westbound	Total
Phelps Street/Jerrold Avenue					
AM Peak Hour	5	5	7	1	18
PM Peak Hour	9	8	5	4	26
Phelps Street/Oakdale Avenue					
AM Peak Hour	1	1	14	5	21
PM Peak Hour	2	2	13	14	31

NOTE: Bicycle volume counts conducted on May 27, 2015, for the 6:00 a.m. to 9:00 a.m. and 3:00 p.m. to 6:00 p.m. peak periods. Bicycle volumes presented for the peak hour of the peak period.

SOURCE: Adavant Consulting/LCW Consulting Data Collection, May 2015, presented in Appendix TR.

4.6.1.4 Pedestrian Circulation

A qualitative evaluation of existing pedestrian circulation conditions was conducted during field visits to the project site in March and April 2016 (see Appendix TR). Adjacent to the SEP, sidewalks are provided on Evans Avenue, Jerrold Avenue, and Phelps Street and range in width between 8 and 15 feet. The fence surrounding the SEP facilities is set back from the sidewalk along Phelps Street and Evans Avenue, providing an additional 30 to 50 feet of landscaped buffer. In the vicinity of Rankin

[8] In San Francisco, Class 2 bicycle parking refers to short-term bicycle parking, such as sidewalk bicycle racks and on-street bicycle corrals (SFMTA, *Bicycle Parking: Standards, Guidelines, Recommendations*, updated December 3, 2015).

Street, the sidewalk adjacent to the site is discontinuous at the location of the rail tracks. There are no sidewalks on Rankin Street south of Evans Avenue.

Quint Street sidewalks are discontinuous, and at-grade rail tracks intersect Quint Street north of Newcomb Avenue. Quint Street has been permanently closed to vehicular and pedestrian traffic between the Caltrain tracks and Jerrold Avenue as part of the Caltrain Quint Street Bridge Replacement Project. The sidewalks adjacent to the SEP on Evans Avenue, Phelps Street, and Jerrold Avenue currently meet the minimum requirements of the *San Francisco Better Streets Plan*, which specifies a minimum sidewalk width of 8 feet and a recommended width of 10 feet for industrial streets.[9] In the vicinity of Piers 94 and 96, an 8-foot-wide sidewalk is provided on the north side of Cargo Way, and the sidewalk is discontinuous at a few locations to accommodate the adjacent rail tracks. There are no sidewalks on Amador Street.

Most intersections along arterial streets such as Bayshore Boulevard, Cesar Chavez Street, Evans Avenue, and Third Street are signalized, and crosswalks and pedestrian signals are generally provided. Remaining intersections are either two-way or all-way stop-sign controlled, and pedestrian crosswalks are generally not provided.

In the vicinity of the project site, pedestrian volumes are very low throughout the day. **Table 4.6-7** presents the number of pedestrians crossing at the crosswalks at the intersections of Phelps Street/Jerrold Avenue and Phelps Street/Oakdale Avenue during the a.m. and p.m. peak hours. At the intersection of Phelps Street/Jerrold Avenue, the total number crossing all four crosswalks during the a.m. and p.m. peak hours was about 30 pedestrians, most of whom were probably workers traveling between the SEP and the 23 Monterey bus stop at Jerrold Avenue/Phelps Street or the T Third light rail stops at Third Street (i.e., at Innes Avenue in the southbound direction and at Kirkwood Avenue in the northbound direction). Along Third Street to the east, pedestrian volumes are higher than on streets adjacent to the project site and SEP, due primarily to the transit stops for the T Third light rail line. Regarding the Piers 94 and 96 and 1550 Evans Avenue staging areas, pedestrian volumes are very low in the vicinity of Piers 94 and 96, and higher on Evans Avenue, due to the institutional land uses to the east (e.g., City College, U.S. Post Office), the T Third light rail stop at the intersection of Third Street/Evans Avenue, and the 19 Polk bus stop at the intersection of Evans Avenue/Newhall Street. During field surveys, no conflicts between pedestrians and vehicles, buses, or bicycles were observed at the intersections adjacent to the project site.

4.6.1.5 Freight Rail

A freight rail spur known as the Quint Street Lead runs at street level parallel to the Caltrain mainline alignment, crossing Jerrold Avenue at grade and continuing on Rankin Street along the western edge of the SEP until it crosses Evans Avenue at grade (refer to Figure 2-2 in Chapter 2, *Project Description*). It is approximately one mile long and connects the Peninsula rail corridor with the Port of San Francisco cargo terminals and rail yards at Piers 80, 92, 94, and 96; it is the only rail

[9] San Francisco Planning Department, *San Francisco Better Streets Plan,* 2010. Available online at www.sf-planning.org/ftp/BetterStreets/proposals.htm#Final_Plan.

TABLE 4.6-7
AM AND PM PEAK HOUR PEDESTRIAN VOLUMES

Intersection/Peak Hour	Intersection Leg				
	North	South	East	West	Total
Phelps Street/Jerrold Avenue					
AM Peak Hour	4	9	9	9	31
PM Peak Hour	5	8	8	13	34
Phelps Street/Oakdale Avenue					
AM Peak Hour	14	13	42	28	97
PM Peak Hour	27	25	23	44	119

NOTE: Pedestrian volume counts conducted on May 27, 2015, for the 6:00 a.m. to 9:00 a.m. and 3:00 p.m. to 6:00 p.m. peak periods. Pedestrian volumes presented for the peak hour of the peak period.

SOURCE: Adavant Consulting/LCW Consulting Data Collection, May 2015, presented in Appendix TR.

line servicing the Port of San Francisco. The Quint Street Lead is jointly owned by Burlington Northern Santa Fe (BNSF) Railway and Union Pacific Railroad and is used intermittently on weekdays to carry bulk materials.

4.6.1.6 Emergency Vehicle Access

Emergency vehicles could have access to the SEP from all five vehicular entrances, as well as the pedestrian entrance on Phelps Street. The SEP has frontages on Rankin Street, Evans Avenue, Phelps Street, Jerrold Avenue, and Quint Street. Vehicular access to the SEP is provided on Rankin Street (east side), Jerrold Avenue (two entrances on the north side and one on the south side), and Quint Street (east side). Pedestrian-only access is provided on Phelps Street through the main office building. As described above, SEP staff and City vehicles parking inside the SEP use the vehicle entrances on the north side of Jerrold Avenue. Trucks delivering various chemical products (bisulfite, hypochlorite, and oxygen) to the SEP, as well as trucks removing grit, screenings, trash, recycle, and compost, also use the vehicle entrance on the north side of Jerrold Avenue. The Rankin Street access is used as an exit on an as-needed basis by trucks carrying grit to the landfill. Trucks delivering ferric chloride and polymer to the SEP use the vehicle entrance on the south side of Jerrold Avenue, while trucks removing yellow grease and recycled water use the Quint Street entrance. Trucks carrying biosolids from the SEP use both the Quint Street access point (for inbound vehicles) and the access point on the south side of Jerrold Avenue (for outbound vehicles).

The two fire stations nearest to the project site are Station 9 located at 2245 Jerrold Avenue between Napoleon and Upton Streets (about 0.6 mile southwest of the project site) and Station 49 located at 1415 Evans Avenue at Mendell Street (about 0.4 mile southeast of the project site). In addition, Station 25 is located at 3305 Third Street north of Cargo Way (about 0.6 mile northeast of the project site), and Station 17 is located at 1295 Shafter Street at Ingalls Street (about 1.0 mile southeast of the project site).

4.6.1.7 Parking and Loading Conditions

The existing parking conditions in the vicinity of the project site were assessed qualitatively and quantitatively. On-street parking is generally provided on most streets in the project site vicinity and parking is unrestricted, except for street cleaning, with no maximum parking limits. The exception is Jerrold Avenue, where on-street parking between Quint and Phelps Streets is limited to an eight-hour period on weekdays between 7:00 a.m. and 6:00 p.m.

On-street parking supply and occupancy surveys were conducted on Thursday, June 4, 2015, for the area bounded by Davidson Avenue (one block north of Evans Avenue), Newhall Street, LaSalle Street, and Rankin Street. **Table 4.6-8** summarizes on-street parking supply and occupancy, with information provided separately for two segments of Jerrold Avenue (i.e., between Rankin and Phelps Streets, and between Phelps and Third Streets) and for the remainder of the study area.

TABLE 4.6-8
ON-STREET PARKING SUPPLY AND OCCUPANCY

Supply/Occupancy		Jerrold Avenue, Rankin Street to Phelps Street	Jerrold Avenue, Phelps Street to Third Street	Rest of Study Area	Total for Study Area[a]
Supply		104	87	1,119	1,310
Occupied Spaces					
AM Period	6:00 a.m.	36	35	396	467
	7:00 a.m.	63	55	476	594
	8:00 a.m.	62	51	516	629
PM Period	3:00 p.m.	60	65	645	770
	4:00 p.m.	9	68	589	666
	5:00 p.m.	5	48	486	539
Percent Occupied					
AM Period	6:00 a.m.	35%	40%	35%	36%
	7:00 a.m.	61%	63%	43%	45%
	8:00 a.m.	60%	59%	46%	48%
PM Period	3:00 p.m.	58%	75%	58%	59%
	4:00 p.m.	9%	78%	53%	51%
	5:00 p.m.	5%	55%	43%	41%

NOTE:
[a] The parking study area is bounded by Davidson Avenue, Newhall Street, LaSalle Avenue, and Rankin Street.

SOURCE: Adavant Consulting/LCW Consulting Data Collection, June 2015.

The streets within the parking study area contain about 1,300 on-street parking spaces, of which 630 were occupied at 8:00 a.m. (48 percent occupied), 770 spaces were occupied at 3:00 p.m. (59 percent occupied), and 540 spaces were occupied at 5:00 p.m. (41 percent occupied). On Jerrold Avenue between Rankin and Phelps Streets, there are 104 on-street parking spaces, of which approximately 42 are angled parking spaces on the north side of the street. During field surveys, 62 spaces were occupied at 8:00 a.m. (60 percent occupied), 60 spaces were occupied at 3:00 p.m. (58 percent occupied), and 5 spaces were occupied at 5:00 p.m. (5 percent occupied). West of Phelps

Street, on-street parking is generally used by employees of the San Francisco Wholesale Produce Market, the SEP, and other light industrial uses, while east of Phelps Street the on-street parking serves the residential and commercial uses east of Phelps Street.

There are no off-street public parking facilities within the parking study area. There are multiple off-street private surface parking lots serving the primarily light industrial and manufacturing uses in the parking study area. The SEP contains multiple areas for vehicle parking, with approximately 150 parking spaces designated for use by SEP vehicles, other SFPUC vehicles, and City vehicles.

There are no on-street commercial loading spaces or passenger loading/unloading zones adjacent to the project site or off-site staging areas. Commercial loading and unloading activities in the project vicinity generally occur within the business sites.

4.6.2 Regulatory Framework

4.6.2.1 Federal Regulations

There are no federal regulations that address transportation impacts associated with the project.

4.6.2.2 State Regulations

Caltrans Responsibilities

The California Department of Transportation (Caltrans) manages interregional transportation, including management and construction of the California highway system. In addition, Caltrans is responsible for permitting and regulating the use of state roadways. Caltrans facilities that are likely to be used by construction workers and construction vehicles as access routes to the proposed worksites include I-280 and I-80.

Caltrans construction practices require temporary traffic control planning "during any time the normal function of a roadway is suspended."[10] Caltrans also requires that permits be obtained for transportation of oversized loads and transportation of certain materials, and for construction-related traffic disturbance. BDFP-related construction and maintenance vehicles would use state roadways solely as access routes for construction workers, and project construction would not occur on state highways or highway rights-of-way; therefore, Caltrans encroachment permits would not be required. The SFPUC or its contractor would acquire permits from Caltrans to allow oversized vehicles (by weight, height, length, or width) needed to transfer certain construction equipment (e.g., cranes) to the project site via state highways.

Public Resources Code Section 21099(b)(1) (Senate Bill 743)

Changes to the California Environmental Quality Act (CEQA) contained in Public Resources Code (Section 21099(b)(1)) require that the State Office of Planning and Research (OPR) develop revisions to the CEQA Guidelines establishing criteria for determining the significance of transportation

[10] Caltrans, *California Manual on Uniform Traffic Control Devices*, amended January 13, 2012.

impacts of projects that "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." Public Resources Code Section 21099(b)(2) states that upon certification of the revised guidelines for determining transportation impacts, automobile delay, as described solely by level of service (LOS) or similar measures of vehicular capacity or traffic congestion, shall not be considered a significant impact on the environment under CEQA.

In January 2016, OPR published for public review and comment a Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA, recommending that transportation impacts for projects be measured using a VMT metric, as described above.[11] On March 3, 2016, based on compelling evidence in that document and on the City's independent review of the literature on LOS and VMT, the San Francisco Planning Commission adopted OPR's recommendation to use the VMT metric instead of automobile delay to evaluate the transportation impacts of projects (Resolution 19579), as described under *Transportation Sustainability Program* below. (Note: The VMT metric does not apply to the analysis of impacts on non-automobile modes of travel such as riding transit, walking, and bicycling.)

4.6.2.3 Regional Regulations and Plans

San Francisco Bay Trail Plan

The Association of Bay Area Governments (ABAG) administers the San Francisco Bay Trail Plan. The Bay Trail is a multi-purpose recreational trail that, when complete, would encircle San Francisco Bay and San Pablo Bay with a continuous 500-mile network of bicycling and hiking trails. To date, 341 miles of the alignment have been completed. The 2005 Gap Analysis Study, prepared by ABAG for the entire Bay Trail area, attempted to identify the remaining gaps in the Bay Trail system; classify the gaps by phase, county, and benefit ranking; develop cost estimates for individual gap completion; identify strategies and actions to overcome gaps; and present an overall cost and timeframe for completion of the Bay Trail system.[12]

Water Emergency Transportation Authority's Water Transportation System Management Plan

The Water Emergency Transportation Authority (WETA) is a regional agency authorized by the state to operate a comprehensive San Francisco Bay Area public water transit system. In 2009, the WETA adopted the Emergency Water Transportation System Management Plan, which complements and reinforces other transportation emergency plans that will enable the Bay Area to restore mobility after a regional disaster.

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11 OPR, *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA, Implementing Senate Bill 743 (Steinberg, 2013)*, January 20, 2016.

12 Alta Planning +Design, Inc., Questa Engineering, Inc., GreenInfo Network, *The San Francisco Bay Trail Project Gap Analysis Study: A Report on Closing the Gaps in the 500-Mile Regional Trail System Encircling San Francisco Bay*. August 2005.

4.6.2.4 Local Regulations and Plans

San Francisco General Plan

The Transportation Element of the *San Francisco General Plan* contains objectives and policies that relate to eight aspects of the citywide transportation system: general regional transportation, congestion management, vehicle circulation, transit, pedestrians, bicycles, citywide parking, and goods management.[13] The Transportation Element references the City's Transit-First Policy in its introduction and contains objectives and policies that are pertinent to travel in the project area.

Transit-First Policy

In 1998, the San Francisco voters amended the City Charter (Charter Article 8A, Section 8A.115) to include a Transit-First Policy, which was first articulated as a City priority policy by the Board of Supervisors in 1973. The Transit-First Policy is a set of principles that underscore the City's commitment that travel by transit, bicycle, and foot be given priority over the private automobile. These principles are embodied in the policies and objectives of the Transportation Element of the *San Francisco General Plan*. All City boards, commissions, and departments are required, by law, to implement transit-first principles in conducting City affairs.

San Francisco Public Works Code

Under Public Works Code Article 2.4, San Francisco Public Works (SFPW) regulates work involving excavations in City streets. The City coordinates all street activities through the SFMTA's Interdepartmental Staff Committee on Traffic and Transportation (ISCOTT), which includes representatives from SFPW, the SFMTA, the San Francisco Fire Department, the San Francisco Planning Department, the San Francisco Police Department, the Port of San Francisco, and the San Francisco Department of Public Health. The SFPUC, as part of its adopted Standard Construction Measures, would abide by the SFMTA's *Regulations for Working in San Francisco Streets* (Blue Book)[14] and coordinate its construction work through the Committee for Utility Liaison on Construction and Other Projects of SFPW and ISCOTT.[15] The Blue Book regulations generally pertain to permits required to work in City streets, work performed in streets with special restrictions, lane closure requirements, parking removal, sidewalk closures, construction zone standards, transit operations, school zones, bicycle routes, use of police officers, detectors in City streets, and emergency procedures.

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[13] CCSF, *San Francisco General Plan, Transportation Element*, Adopted July 1995. Available online at http://www.sf-planning.org/ftp/General_Plan/I4_Transportation.htm. Accessed on February 11, 2015.

[14] SFMTA, *Regulations for Working in San Francisco Streets, 8th Edition*, January 2012. Available online at http://www.sfmta.com/sites/default/files/pdfs/BlueBook8thEd_Accessible.pdf.

[15] In general, travel lane and sidewalk closures are subject to review and approval by the SFMTA's Transportation Advisory Staff Committee (TASC) for permanent travel lane and sidewalk closures, and the ISCOTT for temporary sidewalk and travel lane closures (e.g., special events, construction activities). Both TASC and ISCOTT are interdepartmental committees that include representatives from SFPW, the SFMTA, the San Francisco Police Department, the San Francisco Fire Department, the San Francisco Planning Department, the San Francisco Department of Public Health, and the Port of San Francisco.

San Francisco Bicycle Plan

The *San Francisco Bicycle Plan* describes a City program to provide the safe and attractive environment needed to promote bicycling as a transportation mode.[16] The *San Francisco Bicycle Plan* identifies the citywide bicycle route network, and establishes the level of treatment (i.e., Class I, Class II, Class III or Class IV facility) on each route. The *San Francisco Bicycle Plan* also identifies near-term improvements, many of which have been implemented, to address deficiencies in the bicycle route network, as well as policy goals, objectives, and actions to support these improvements. It also includes long-term improvements to address gaps in the bicycle route network, and minor improvements that would be implemented to facilitate bicycling in San Francisco.

Better Streets Plan

The *San Francisco Better Streets Plan* (Better Streets Plan) focuses on creating a positive pedestrian environment through measures such as careful streetscape design and traffic calming measures to increase pedestrian safety. The Better Streets Plan includes guidelines for the pedestrian environment, which it defines as the areas of the street where people walk, sit, shop, play, or interact. Generally speaking, the guidelines are for design of sidewalks and crosswalks; in some cases, however, the Better Streets Plan includes guidelines for certain areas of the roadway, particularly at intersections.

Transportation Sustainability Program

The Transportation Sustainability Program is an initiative aimed at improving and expanding the transportation system to help accommodate new growth, and create a policy framework for private development to contribute to minimizing its impact on the transportation system, including helping to pay for the system's enhancement and expansion. The Transportation Sustainability Program is a joint effort by the Mayor's Office, the San Francisco Planning Department, the SFMTA, and the SFCTA, comprised of the following three objectives:

- **Fund Transportation Improvements to Support Growth**—The Transportation Sustainability Fee is assessed on new development, including residential development, to help fund improvements to transit capacity and reliability as well as bicycle and pedestrian improvements. The Transportation Sustainability Fee was passed by the Board of Supervisors and signed into law by the Mayor on November 25, 2015 (Board of Supervisors File No. 150790). The new Transportation Sustainability Fee replaces the Transit Impact Development Fee that was levied on most new non-residential development citywide to offset new development's impacts on the transit system.
- **Modernize Environmental Review**—This component of the Transportation Sustainability Program changes how the City analyzes impacts of new development on the transportation system under CEQA. This reform has been helped by California Senate Bill 743, which requires that the existing transportation review standard, which focuses on automobile delay (vehicular level of service), be replaced with VMT. VMT is a measure of the amount and distance that a project causes potential residents, tenants, employees, and visitors of a project to drive; it includes the number of passengers within a vehicle. Resolution 19579 regarding this reform was adopted at the Planning Commission hearing on March 3, 2016.

[16] SFMTA, *San Francisco Bicycle Plan*, June 2009.

- **Encourage Sustainable Travel**—This component of the Transportation Sustainability Program would help manage demand on the transportation network through a Transportation Demand Management (TDM) program, making sure new developments are designed to make it easier for new residents, tenants, employees, and visitors to get around by sustainable travel modes such as transit, walking, and biking. Each measure that would be included in the TDM program is intended to reduce VMT traveled from new development. On February 7, 2017, the Board of Supervisors approved legislation for the TDM Ordinance, and the BDFP would be subject to its requirements.

San Francisco Public Utilities Commission Standard Construction Measures

The SFPUC would implement standard construction measures for the BDFP (described in **Appendix SCM**), including the following measure applicable to traffic:

- 4. TRAFFIC: All projects will implement traffic control measures sufficient to maintain traffic and pedestrian circulation on streets affected by construction of the project. Traffic control measures may include, but not be limited to, flaggers and/or construction warning signage of work ahead; scheduling truck trips during non-peak hours to the extent feasible; maintaining access to driveways, private roads, and off-street commercial loading facilities by using steel trench plates or other such method; and coordination with local emergency responders to maintain emergency access. For projects in San Francisco, the measures will also, at a minimum, be consistent with the requirements of San Francisco Municipal Transportation Agency (SFMTA)'s Blue Book. Any temporary rerouting of transit vehicles or relocation of transit facilities would be coordinated with the applicable transit agency, such as SFMTA Muni Operations in San Francisco. All Projects will obtain encroachment permits from the applicable jurisdiction for work in public roadways.

Section 2.6.1.3 in Chapter 2, *Project Description*, summarizes the contents of the Traffic Control Plan that the SFPUC would prepare for the BDFP.

4.6.3 Impacts and Mitigation Measures

4.6.3.1 Significance Criteria

The project would have a significant impact related to transportation and circulation if the project were to:

- Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit, non-motorized travel, and relevant components of the circulation system (including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit);
- Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;
- Result in a change in air traffic patterns, including either an increase in traffic levels, obstructions to flight, or a change in location, that results in substantial safety risks;
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);

- Result in inadequate emergency access; or
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Due to the nature of the project, there would be no impact related to the following topics for the reasons described below:

- ***Result in a Change in Air Traffic Patterns.*** Due to the nature and scope of the BDFP, implementation of the project would not have the potential to change air traffic patterns. In addition, the project would not involve the installation of structures that could interfere with air space. Therefore, this significance criterion is not discussed further in this environmental impact report (EIR).

- ***Conflict with an Applicable Congestion Management Program.*** A congestion management program that establishes measures of effectiveness for the performance of the vehicular circulation system (i.e., roadways and highways) is intended to address potential long-term and permanent project effects on the circulation system. Due to the nature of the BDFP (replacement of the outdated existing solids treatment facilities with more reliable, efficient, modern technologies and facilities), the project would not permanently affect any roadways or highways included in the San Francisco Congestion Management Program. Therefore, this significance criterion is not discussed further in this EIR.

As noted above, the San Francisco Planning Commission adopted OPR's recommendation to use the VMT metric instead of automobile delay to evaluate the transportation impacts of projects (Resolution 19579). Therefore, intersection LOS and vehicle delay are not discussed in this EIR.

As part of implementing CEQA requirements within San Francisco, the City has established additional significance criteria, organized by mode of travel to facilitate analysis. The City's criteria are similar to those in Appendix G of the CEQA Guidelines as listed above, except for the criteria related to traffic hazards and VMT as described above. The City's criteria are as follows:

- The project would have a significant adverse impact if it would cause major traffic hazards.
- The project would have a significant effect on the environment if it would cause substantial additional vehicle miles traveled.
- The project would have a significant effect on the environment if it would substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-flow travel lanes) or by adding new roadways to the network.
- The project would have a significant effect on the environment if it would cause a substantial increase in transit demand that could not be accommodated by adjacent transit capacity, resulting in unacceptable levels of transit service, or cause a substantial increase in delays or operating costs such that significant adverse impacts in transit service levels could result. With the Muni and regional transit screenlines[17] analyses, the project would have a significant effect on the transit provider if project-related transit trips would cause the capacity utilization standard to be exceeded during the evening peak hour.

[17] Screenlines are identified corridors served by a grouping of transit lines.

- The project would have a significant effect on the environment if it would result in substantial overcrowding on public sidewalks, create potentially hazardous conditions for pedestrians, or otherwise interfere with pedestrian accessibility to the site and adjoining areas.
- The project would have a significant effect on the environment if it would create potentially hazardous conditions for bicyclists or otherwise substantially interfere with bicycle accessibility to the site and adjoining areas.
- The project would have a significant effect on the environment if it would result in a loading demand during the peak hour for loading activities that could not be accommodated within proposed on-site loading facilities or within convenient on-street loading zones, and would create potentially hazardous conditions or significant delays affecting traffic, transit, bicycles, or pedestrians.
- The project would have a significant effect on the environment if it would result in inadequate emergency access.
- The project would have a significant effect on the environment if it would result in a substantial parking deficit that could create hazardous conditions or significant delays affecting traffic, transit, bicycles or pedestrians and where particular characteristics of the project or its site demonstrably render use of other modes infeasible.
- Construction of the project would have a significant effect on the environment if, in consideration of the project site location and other relevant project characteristics, the temporary construction activities' duration and magnitude would result in substantial interference with pedestrian, bicycle, or vehicle circulation and accessibility to adjoining areas, thereby resulting in potentially hazardous conditions.

As described above in Section 4.6.1.7, there are no on-street commercial loading spaces or passenger loading/unloading zones that would be affected by either project construction or operations. Therefore, the significance criterion related to loading conditions is not discussed further in this EIR.

4.6.3.2 Approach to Analysis and Travel Demand Assumptions

Construction Impacts

As indicated in the significance criteria above, construction-related transportation impacts are not generally considered significant, because the impacts are temporary in duration and limited in scope. Nevertheless, the analysis considers the potential short-term effects of BDFP construction—including those on traffic hazards, transit, pedestrian facilities, bicycle facilities, freight rail facilities, parking, and emergency vehicle access. The potential effects of construction on existing plant operations (e.g., changes to vehicular entrances, delivery truck rerouting, etc.) are also considered in the analysis.

The construction-related information used for the analysis is based on current project specifications, including construction durations. Construction of the project elements would generate vehicle traffic (i.e., construction workers' vehicles, equipment, and trucks) traveling to and from the worksites and staging areas on area roads. All project elements would generate daily commute trips by construction workers. Truck traffic would include vehicle trips to deliver materials/equipment to the site and to haul excavated materials, building debris from demolition, trees, and other vegetation away from the site.

Operational Impacts

The analysis also considers the potential long-term effects of project operations and maintenance activities, including effects on VMT, transit, pedestrian facilities, bicycle facilities, freight rail facilities, parking, and emergency vehicle access.

Cumulative Impacts

Section 4.1.3, Approach to Cumulative Impact Analysis and Cumulative Projects, describes the overall approach to the cumulative analysis for those topics using a list-based approach and summarizes reasonably foreseeable future projects in the vicinity of the project that could contribute to a cumulative impact; please refer to Section 4.1, Table 4.1-1 and Figure 4.1-1 for a description and location of potential cumulative projects in the vicinity of the BDFP. The cumulative analysis for transportation and circulation analyzes the effects of the project in combination with other past, present, and probable future projects in the immediate vicinity. Cumulative construction and operations impacts are analyzed separately because construction of the BDFP would temporarily close a segment of Jerrold Avenue, thereby affecting the various travel modes. The cumulative impact analysis assumes that construction and operations of other projects in the geographical area, listed in Table 4.1-1, would be required to comply with the same regulatory requirements as the project, which would serve to avoid and reduce many impacts to less-than-significant levels on a project-by-project basis. The analysis then considers whether or not there would be a significant, adverse cumulative impact associated with project implementation in combination with past, present, and probable future projects in the geographical area, and if so, whether or not the project's incremental contribution to the cumulative impact would be considerable. Both conditions must apply in order for a project's contribution to cumulative effects to be deemed cumulatively considerable (significant). If so, then mitigation measures are identified to reduce the project's contribution to the extent feasible.

Travel Demand Assumptions

The transportation impact assessments for construction-related, operational, and cumulative impacts were based on the temporary and permanent changes to the transportation circulation network that would occur under existing and cumulative conditions, as well as the additional travel demand generated by the construction and operations and maintenance activities. The methodology and results of estimating the travel demand associated with BDFP construction activities, as well as operations and maintenance activities, are detailed below.

Construction-Related Travel Demand

Construction-related travel demand was estimated on a daily basis and for the a.m. and p.m. peak hours. The a.m. peak hour was defined as the 60-minute period with the highest traffic volume between 6:00 a.m. and 9:00 a.m., while the p.m. peak hour was defined as the 60-minute period with the highest traffic volume between 3:00 p.m. and 6:00 p.m. These two periods are one hour longer than those generally used in the evaluation of transportation impacts (i.e., the a.m. peak period is typically from 7:00 a.m. to 9:00 a.m., and the p.m. peak period is generally from 4:00 p.m. to 6:00 p.m.). The longer peak periods were used to account for the expected earlier arrival and departure of construction workers.

Each of the project construction activities would generate various types of vehicle trips: construction workers traveling to and from the worksites, haul trucks associated with the transfer and disposal of excavated materials, haul trucks importing backfill materials, and delivery trucks bringing materials and equipment to the worksites. Construction activities are expected to generally occur on a single shift primarily during daytime hours (7:00 a.m. to 3:30 p.m.), five days a week, on normal (non-holiday) weekdays (Monday through Friday) and Saturdays and Sundays as needed during these same hours. For approximately one year (mid-2021 to mid-2022) of the approximately 60 months of project construction, and other times during critical functions, there could be two work shifts, from 7:00 a.m. to 3:30 p.m. and from 2:30 p.m. to 11:00 p.m. Monday through Saturday. (Work shifts are 8.5 hours long, and include one half hour for lunch.) Work after 8:00 p.m. would be limited to interior facility work (e.g., electrical work) and outside work that would not result in noise exceeding 5 dBA (A-weighted decibels) over ambient levels pursuant to the City's Noise Ordinance.

The number of construction-related trips would vary each day depending on the project component, construction phase, planned activity, and material needs. Two prototypical dates of analysis were selected based on the construction worker and truck data provided by the SFPUC (see Appendix TR): (1) a typical weekday in October 2018, representing a day when the maximum construction trucks trips are expected to occur (approximately 70 trucks per day, which would occur during the soil excavation and disposal phase for a period of about five months between August and December 2018, as well as 212 daily workers); and (2) a typical weekday in May 2022, representing a day when the maximum number of construction and project office workers (approximately 550 workers per day, which would occur during facilities construction for approximately one year, from mid-2021 to mid-2022) are expected to be present at the SEP. For purposes of the transportation analysis, the two scenarios assume a BDFP construction start date of February 2018, although the SFPUC has indicated that construction could start anytime between February and August 2018. If construction is initiated after February 2018, the maximum travel demand presented below would shift accordingly. The scenario with the maximum number of workers represents the most conservative conditions of person-trips and vehicle-trips generated by construction, while the maximum construction trucks scenario represents above-average vehicle trips on area roadways. **Table 4.6-9** summarizes the daily numbers of construction workers and trucks for the two peak construction months.

Once the number of construction workers was identified (212 daily workers in October 2018 and 550 daily workers in May 2022), the mode split analysis determined the portion of these trips that would be made via automobile, transit, or any other mode of transportation, based upon the expected origin/destination of the trips and the availability of various modes of travel.

Table 4.6-10 presents the weekday daily, a.m. peak hour, and p.m. peak hour person and vehicle trips associated with construction worker travel to and from the site. The trips were calculated using a daily trip generation rate of two person trips per worker, one inbound and one outbound. The a.m. and p.m. peak hour trip generation represents the number of construction workers arriving and departing during those periods. Worker trips to the construction site would occur prior to the a.m. peak traffic hour, but trips from the work sites would likely occur during the p.m. peak traffic hour. While one work shift has been assumed to estimate the project travel demand, a conservative assumption, it is possible that two work shifts could occur during the mid-2021 to mid-2022 period.

TABLE 4.6-9
BDFP DAILY CONSTRUCTION WORKER AND CONSTRUCTION TRUCKS FOR PEAK MONTHS

Peak Construction Months[a]	Daily Construction Workers	Daily Construction Trucks	Major Construction Phase
October 2018 (maximum construction trucks)[b]	212[c]	71	Site Preparation
May 2022 (maximum construction workers)	550[d]	28[e]	Foundations and Facilities Construction

NOTES:

BDFP = Biosolids Digester Facilities Project

[a] Other construction-period combinations are not expected to have a greater number of construction workers or construction trucks on a daily basis.

[b] This analysis assumes construction would begin in February 2018 and last until approximately January 2023. However, as noted in Chapter 2, *Project Description*, construction could start anytime between February and August 2018, causing the maximum construction truck trips and the maximum construction workers scenarios to shift accordingly.

[c] 90 project office staff workers plus 122 construction workers.

[d] 215 project office staff workers plus 335 construction workers.

[e] Although there would be more workers in this phase, there would be fewer truck trips as there would be fewer delivery and off-haul trips in this phase.

SOURCES: San Francisco Public Utilities Commission (SFPUC), spreadsheets entitled "Construction Trucks – Daily" and "Construction Workers and Shuttle Bus" in Appendix TR, August 26, 2016; Adavant Consulting/LCW Consulting analysis for BDFP.

TABLE 4.6-10
BDFP CONSTRUCTION WORKER TRIPS BY MODE FOR PEAK MONTHS[a]

Peak Construction Months and Mode of Travel	Daily Person Trips		AM Peak Hour Person Trips		PM Peak Hour Person Trips	
October 2018 (maximum construction trucks)						
Auto	338	80%	169	80%	169	80%
Transit and other modes	86	20%	43	20%	43	20%
Total construction worker person trips	424	**100%**	212	**100%**	212	**100%**
May 2022 (maximum construction workers)						
Auto	878	80%	439	80%	439	80%
Transit and other modes	222	20%	111	20%	111	20%
Total construction worker person trips	1,100	**100%**	550	**100%**	550	**100%**

NOTES:

BDFP = Biosolids Digester Facilities Project
Due to rounding, numbers in columns may not add to totals.

[a] The modal split for construction workers was obtained from the San Francisco Transportation Impact Analysis Guidelines, for work trips in Superdistrict 3, where the project is located, except that those identified within the "other" mode (i.e., trips by bicycle, walk, taxi, etc.,) were shifted to auto person trips to reflect the industrial character of the area and the expected hours of construction.

SOURCES: San Francisco Public Utilities Commission (SFPUC), spreadsheets entitled "Construction Trucks – Daily" and "Construction Workers and Shuttle Bus" in Appendix TR, August 26, 2016; Adavant Consulting/LCW Consulting analysis for BDFP.

The a.m. and p.m. peak hour trip rates are the same on those days when there is a single work shift, while the a.m. peak hour rate is lower than the p.m. peak hour rate on those days when there are two work shifts (evening shift workers arrive at the project site around 2:30 p.m. and are assumed to overlap with the morning workers departing around 3:30 p.m.).[18] The modal split and origin/destination trip distribution percentages for the construction workers were obtained from the San Francisco Transportation Impact Analysis Guidelines (SF Guidelines)[19] for work trips in Superdistrict 3 (SD3),[20] where the project is located, except that those identified within the "other" category person trips in the SF Guidelines (those occurring by bicycle, walk, taxi, etc.) were shifted to auto person trips to reflect the industrial character of the area and the expected hours of construction. In addition, it was assumed that a portion of the transit percentage could include trips by bicycle and walk modes.

Overall, approximately 80 percent of the construction worker trips are expected to occur by automobile and 20 percent by transit and other modes (i.e., bicycling and walking). Automobile occupancy rates were then developed based on information from the SF Guidelines,[21] to determine the average number of construction workers in a vehicle and thus determine the number of construction worker vehicles that would be traveling to and from the project site and adjacent construction staging areas. The SF Guidelines[22] were also used to determine the trip distribution patterns for the construction workers. About 51 percent of the construction workers are anticipated to be from San Francisco, about 30 percent from the South Bay, and the remaining 19 percent from the rest of the Bay Area.

The number of construction-related haul truck trips per day would vary depending on the type of construction technique, the volume of spoils and fill, and the pace of work. The highest number of construction trucks (71 daily trucks) would occur in October 2018, during the site preparation phase.

As shown in **Table 4.6-11**, the majority of construction truck travel would occur between the project site and the Altamont Landfill in Livermore, particularly in October 2018 when the largest number of construction trucks is expected to occur. Figure 2-15 in Chapter 2, *Project Description*, graphically presents the truck routes for construction trucks entering and leaving the project site.

[18] Construction project office staff would work a single shift (7:00 a.m. to 3:30 p.m.) in October 2018 and May 2022, while construction workers would work a single shift (7:00 a.m. to 3:30 p.m.) in October 2018 and could work one shift (7:00 a.m. to 3:30 p.m.) or two shifts (7:00 a.m. to 3:30 p.m. and 2:30 p.m. to 11:00 p.m.) in May 2022.

[19] San Francisco Planning Department, San Francisco Transportation Impact Analysis Guidelines (SF Guidelines), October 2002. Available online at http://sf-planning.org/sites/default/files/FileCenter/Documents/5370-SF%20Transportation%20Impact%20Analysis%20Guidelines%20Oct%202002.pdf.

[20] Superdistricts are travel analysis zones established by the Metropolitan Transportation Commission (MTC). These Superdistricts provide geographic subareas for planning purposes in San Francisco; a map with the Superdistrict boundaries is included in Appendix TR.

[21] SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All).

[22] Ibid.

TABLE 4.6-11
BDFP DAILY CONSTRUCTION TRUCK DELIVERIES HAULING TO/FROM PROJECT SITE

Type of Construction Truck Delivery or Haul Truck	Origin/Destination Location	October 2018 (maximum construction trucks)	May 2022 (maximum construction workers)
Concrete trucks	400 and 500 blocks of Amador Street in San Francisco	14	0
Dump trucks			
Contaminated excavated soil	Port facility at Cargo Way	12	2
Unsuitable excavated soil	Altamont Landfill in Livermore	37	6
Flatbed trucks			
Equipment deliveries to Piers 94/96	Various sites in Bay Area	2	5
Equipment deliveries to Southeast Greenhouses site	Various sites in Bay Area	2	5
Small delivery trucks[a]	From Piers 94/96 to construction site	4	10
	Total Daily Trucks	**71**	**28**

NOTES:
BDFP = Biosolids Digester Facilities Project

[a] Assumes two small delivery trucks for every flatbed truck delivering construction materials to Piers 94 and 96.

SOURCES: San Francisco Public Utilities Commission (SFPUC), spreadsheets entitled "Construction Trucks – Daily" and "Construction Workers and Shuttle Bus" in Appendix TR, August 26, 2016; Adavant Consulting/LCW Consulting analysis for BDFP.

The number of truck trips was estimated by multiplying the number of construction trucks by a factor of two, to account for one inbound and one outbound trip per vehicle. Since haul truck trips would be spread over the course of the day, the total number of daily truck trips was divided by eight hours to yield the average number of truck trips per hour. These trips were then split into inbound and outbound trips; **Table 4.6-12** summarizes these results.

As presented in Chapter 2, *Project Description*, project construction could include multiple locations for construction worker parking, including the Piers 94 and 96 staging areas, in combination with the 1550 Evans Avenue site or the Southeast Greenhouses site. When construction workers park at the Piers 94 and 96 staging areas, a worker shuttle bus service would be provided from the piers to the project site. The SFPUC has identified the main pedestrian entrance to the SEP North on Phelps Street as the location for the construction shuttle bus stop location. The shuttle would run from approximately one hour before and one hour after the project construction worker arrival and departure hours.

The project travel demand presented in the previous tables would not change based on the location of the staging areas, except under those scenarios that rely on the worker staging areas at Piers 94 and 96 (e.g., at the project site, Southeast Greenhouses, and Piers 94 and 96 under the maximum construction worker scenario). The trips generated by the worker shuttle bus service would then be added to the overall demand. In those instances, the worker shuttle bus service trips represent a minimal (less than 2 percent) increase in the number of project-generated vehicle trips.

TABLE 4.6-12
BDFP CONSTRUCTION VEHICLE TRIPS BY TYPE FOR PEAK MONTHS[a,b]

Peak Construction Months and Vehicles Trips	Daily Vehicle Trips		AM Peak Hour Vehicle Trips[c]		PM Peak Hour Vehicle Trips[c]	
October 2018 (maximum construction trucks)						
Inbound construction worker vehicle trips	132	50%	132	100%	0	0%
Outbound construction worker vehicle trips	132	50%	0	0%	132	100%
Total construction worker vehicle trips	264	**100%**	132	**100%**	132	**100%**
Inbound construction truck trips	71	50%	9	50%	9	50%
Outbound construction truck trips	71	50%	9	50%	9	50%
Total construction truck trips	142	**100%**	18	**100%**	18	**100%**
Total all construction vehicle trips – inbound	203	50%	141	94%	9	6%
Total all construction vehicle trips – outbound	203	50%	9	6%	141	94%
Total all construction vehicle trips[d]	406	**100%**	150	**100%**	150	**100%**
May 2022 (maximum construction workers)						
Inbound construction worker vehicle trips	343	50%	343	100%	0	0%
Outbound construction worker vehicle trips	343	50%	0	0%	343	100%
Total construction worker vehicle trips	686	**100%**	343	**100%**	343	**100%**
Inbound construction truck trips	28	50%	4	50%	4	50%
Outbound construction truck trips	28	50%	4	50%	4	50%
Total construction truck trips	56	**100%**	8	**100%**	8	**100%**
Total all construction vehicle trips – inbound	371	50%	347	99%	4	1%
Total all construction vehicle trips – outbound	371	50%	4	1%	347	99%
Total all construction vehicle trips[d]	742	**100%**	351	**100%**	351	**100%**

NOTES:
BDFP = Biosolids Digester Facilities Project

[a] Due to rounding, numbers in columns may not add to totals. Construction project office staff would work a single shift (7:00 a.m. to 3:30 p.m.) in October 2018 and May 2022, while construction workers would work a single shift (7:00 a.m. to 3:30 p.m.) in October 2018 and could work one shift (7:00 a.m. to 3:30 p.m.) or two shifts (7:00 a.m. to 3:30 p.m. and 2:30 p.m. to 11:00 p.m.) in May 2022.

[b] The number of construction worker vehicle trips has been calculated using an average vehicle occupancy of 1.28 passengers per vehicles, based on San Francisco Transportation Impact Analysis Guidelines (SF Guidelines) Appendix E - Table E-5 Work Trips to SD3 (All).

[c] It has been conservatively assumed that construction workers would arrive at the site during the AM peak hour and depart during the PM peak hour.

[d] Construction vehicle trips represent the sum of construction worker vehicle trips and construction truck trips.

SOURCES: San Francisco Public Utilities Commission (SFPUC), spreadsheets entitled "Construction Trucks – Daily" and "Construction Workers and Shuttle Bus" in Appendix TR, August 26, 2016; Adavant Consulting/LCW Consulting analysis for BDFP.

Table 4.6-13 summarizes the general allocation of construction worker auto trips to the site by parking location. The two construction worker staging scenarios include the Southeast Greenhouses and 1550 Evans Avenue sites used alone or in combination with the Piers 94 and 96 sites. Whenever possible due to capacity constraints, workers have been allocated to the staging location nearest to the construction site, since doing so would create the highest concentrated congested conditions and thus allow for a conservative, worst-case analysis.

TABLE 4.6-13
BDFP DAILY CONSTRUCTION WORKER AUTO PERSON TRIPS BY PARKING LOCATION FOR PEAK MONTHS

Parking Staging Location	Construction Worker Auto Person Trips in October 2018 (maximum construction trucks)	Construction Worker Auto Person Trips in May 2022 (maximum construction workers)
Project Site, Southeast Greenhouses, and Piers 94/96		
Project Site	64	64
Southeast Greenhouses site	274	495
Piers 94/96[a]	0	319
Total daily construction worker auto person trips	**338**	**878**
Project Site, 1550 Evans Avenue, and Piers 94/96		
Project Site	64	64
1550 Evans Avenue	274	814
Piers 94/96[a]	0	0
Total daily construction worker auto person trips	**338**	**878**

NOTES:
BDFP = Biosolids Digester Facilities Project
Due to rounding, numbers in columns may not add to totals.

[a] Value is zero in those instances when construction worker parking demand can be fully accommodated on-site, at the 1550 Evans Avenue site, or the Southeast Greenhouses site.

SOURCES: San Francisco Public Utilities Commission (SFPUC), spreadsheets entitled "Construction Trucks – Daily" and "Construction Workers and Shuttle Bus" in Appendix TR, August 26, 2016; Adavant Consulting/LCW Consulting analysis for BDFP.

The potential off-site construction staging areas include portions of Piers 94 and 96, the Southeast Greenhouses site, and the 1550 Evans Avenue site. For traffic analysis purposes, it has been assumed that either the Southeast Greenhouses site or the 1550 Evans Avenue site would be used, in both cases supplemented with Piers 94 and 96, as needed, for construction materials storage and construction worker parking. As shown in Table 4.6-13, the Piers 94 and 96 site would not be necessary for construction worker parking in October 2018, due to the lower expected number of construction employees during that period, compared to June 2022. As also shown in Table 4.6-13, if the Piers 94 and 96 site was not available as an off-site location, the use of both the Southeast Greenhouses and 1550 Evans Avenue sites would also provide sufficient space to accommodate construction worker parking during the highest demand periods (e.g., May 2022).

Table 4.6-14 summarizes the weekday daily, a.m. peak hour, and p.m. peak hour construction vehicle trips, including trucks, by expected construction staging location. The number of truck trips is somewhat higher than those previously presented in Table 4.6-12 because the delivery truck trips traveling between the project site or the Southeast Greenhouses site and Piers 94 and 96 are also accounted for in these totals (see Table 4.6-12). The expected number of shuttle bus trips between the project site and Piers 94 and 96 is presented in Table 4.6-14 as well.

TABLE 4.6-14
BDFP CONSTRUCTION VEHICLE TRIPS BY STAGING LOCATION FOR PEAK MONTHS

Location of Staging Area		October 2018 (peak construction trucks)[a,b,c,d] Daily	October 2018 (peak construction trucks)[a,b,c,d] AM Peak Hour	October 2018 (peak construction trucks)[a,b,c,d] PM Peak Hour	May 2022 (peak construction workers)[a,b,c] Daily	May 2022 (peak construction workers)[a,b,c] AM Peak Hour	May 2022 (peak construction workers)[a,b,c] PM Peak Hour
Project Site, Southeast Greenhouses, Piers 94/96							
Project Site	Workers	50	25	25	50	25	25
	Trucks	134	17	17	36	5	5
	Shuttle bus	0	0	0	8	4	4
	Subtotal	184	42	42	94	34	34
Southeast Greenhouses	Workers	214	107	107	386	193	193
	Trucks	4	1	1	10	2	2
	Subtotal	218	108	108	396	195	195
Piers 94 and 96	Workers	0	0	0	249	125	125
	Trucks	12	2	2	30	4	4
	Shuttle bus	0	0	0	8	4	4
	Subtotal	12	2	2	287	133	133
All locations	***Workers***	264	132	132	686	343	343
	Trucks	150	20	20	76	11	11
	Shuttle bus	0	0	0	16	8	8
	Total	414	152	152	778	362	362
Project Site, 1550 Evans Avenue, Piers 94/96							
Project Site	Workers	50	25	25	50	25	25
	Trucks	134	17	17	36	5	5
	Shuttle bus	0	0	0	0	0	0
	Subtotal	184	42	42	86	30	30
1550 Evans Avenue	Workers	214	107	107	636	318	318
	Trucks	4	1	1	10	2	2
	Subtotal	218	108	108	646	320	320
Piers 94 and 96	Workers	0	0	0	0	0	0
	Trucks	12	2	2	30	4	4
	Shuttle bus	0	0	0	0	0	0
	Subtotal	12	2	2	30	4	4
All locations	***Workers***	264	132	132	686	343	343
	Trucks	150	20	20	76	11	11
	Shuttle bus	0	0	0	0	0	0
	Total	414	152	152	762	354	354

NOTES:
BDFP = Biosolids Digester Facilities Project

[a] Due to rounding, numbers in columns may not add to totals.
[b] The number of construction worker vehicle trips was calculated using an average vehicle occupancy of 1.28 passengers per vehicles, based on San Francisco Transportation Impact Analysis Guidelines (SF Guidelines) Appendix E - Table E-5 Work Trips to SD3 (All).
[c] Truck and shuttle bus trips traveling between the project site or the Southeast Greenhouses and Piers 94 and 96 are also included in the trip totals.
[d] Value is zero in those instances when construction worker parking demand can be fully accommodated at the project site, at the 1550 Evans Avenue site, or the Southeast Greenhouses site.

SOURCES: San Francisco Public Utilities Commission (SFPUC), spreadsheets entitled "Construction Trucks – Daily" and "Construction Workers and Shuttle Bus" in Appendix TR, August 26, 2016; Adavant Consulting/LCW Consulting analysis for BDFP.

The highest concentration of construction worker vehicle trips to and from the work site would be on the roads that provide direct access to the sites (e.g., on Oakdale Avenue, Third Street, and Cargo Way). However, as it is assumed that workers' residences would be spread among various Bay Area cities, project trips would also be dispersed on multiple streets providing access to the project site and off-site staging areas. Similarly, local and regional roadways such as I-280 and Highway 101 would be used to haul construction materials and deliveries, as would other streets that provide the most direct route to the work site and minimize the use of local streets. As noted above, the expected construction truck routes are presented in Figure 2-15 in Chapter 2, *Project Description*, and the majority of construction truck trips would travel to and from the SEP entrance on Evans Avenue at Rankin Street.

Construction worker parking demand was determined based on the number of expected worker vehicle trips at each staging location. **Table 4.6-15** summarizes the estimated weekday peak parking demand for construction worker vehicles. The peak parking demand would likely occur around 3:00 p.m. on days with two work shifts, as workers from the first shift are getting ready to leave and workers from the second shift start arriving. It is estimated that the project would generate a peak parking demand of about 130 parking spaces in October 2018 and 340 parking spaces in May 2022.

TABLE 4.6-15
BDFP CONSTRUCTION WORKER PARKING DEMAND

Location of Staging Area	October 2018 (peak construction trucks)[a]	May 2022 (peak construction workers)[b]
Project Site, Southeast Greenhouses, Pier 94		
Project Site	25	25
Southeast Greenhouses	107	193
Pier 94	0	125
Total	***132***	***343***
Project Site, 1550 Evans Avenue, Pier 94		
Project Site	25	25
1550 Evans Avenue	107	318
Pier 94	0	0
Total	***132***	***343***

NOTES:
BDFP = Biosolids Digester Facilities Project

[a] Based on a total number of 212 daily construction workers, accounting for an 80 percent auto use and an average occupancy of 1.28 persons per vehicle.

[b] Based on a total number of 550 daily construction workers, accounting for an 80 percent auto use and an average occupancy of 1.28 persons per vehicle.

SOURCES: San Francisco Public Utilities Commission (SFPUC), spreadsheets entitled "Construction Trucks – Daily" and "Construction Workers and Shuttle Bus" in Appendix TR, August 26, 2016; Adavant Consulting/LCW Consulting analysis for BDFP.

Operations Travel Demand

The proposed solids treatment facilities would operate in a similar manner to existing conditions, with no expected increase in the existing operations staff levels of about 280 people. The number of daily hauling and delivery truck trips is also anticipated to be similar to existing conditions; **Table 4.6-16** summarizes the number of daily truck deliveries by type of delivery for existing conditions and future conditions upon implementation of the BDFP. As indicated in Table 4.6-16, the number of daily trucks delivering or hauling materials under future-with-project conditions would be a slight increase over the existing condition, from about 33 to 36 trucks per day. The increase in biosolids haul trips would be due to the increase in solids load associated with projected population growth by 2045.

TABLE 4.6-16
EXISTING AND FUTURE (WITH BDFP) DAILY TRUCK DELIVERIES TO/FROM SEP

Type of Deliveries/Hauling	Existing Average Daily Truck Trips	Future (with BDFP) Average Daily Truck Trips[a]	Typical Delivery/Hauling Hours
Chemical deliveries	< 6	< 6	Daytime
Grit hauling	< 1	< 1	Before noon
Coarse and fine screenings hauling	< 2	< 1	Coarse screenings in a.m., fine screenings in p.m.
Trash, recycle, compost hauling	1	1	Morning
Yellow grease loadout	< 1	< 1	Before 7:00 a.m.
Yellow grease dropoff	4	4	Leave early morning, return mid-afternoon
Biosolids hauling	10	14	Very early morning
Recycled water pickup	4	4	Any time throughout the day
Other miscellaneous deliveries	4	4	Daytime
Total Daily Trucks	< 33	< 36	

NOTES:
BDFP = Biosolids Digester Facilities Project; SEP = Southeast Water Pollution Control Plant

[a] At project completion. As noted in Table 2-1 in Chapter 2, *Project Description*, the increase in biosolids hauling in the future is due to the increase in solids load associated with projected population growth by 2045, and not to the BDFP.

SOURCE: San Francisco Public Utilities Commission (SFPUC), *BDFP Conceptual Engineering Report*, 2016.

4.6.3.3 Impact Evaluation

Construction Impacts

Impact TR-1: Project construction would not result in substantial interference with pedestrian, bicycle, or vehicle circulation and accessibility to adjoining areas, and would not result in potentially hazardous transportation conditions. (Less than Significant)

Traffic Circulation Effects

As shown in Table 4.6-14, during the peak months of construction activity, the BDFP would result in a temporary increase in vehicular traffic traveling to and from the project site and off-site staging areas. For the period of maximum construction trucks (October 2018), BDFP construction would

generate about 420 daily construction worker vehicle and truck trips, while for the period of maximum construction worker trips (May 2022), BDFP construction would generate about 780 daily construction worker vehicle, shuttle, and truck trips. These vehicle trips would travel to and from the various staging areas, and between staging areas and the project site. Figure 2-15 in Chapter 2, *Project Description*, depicts the anticipated construction haul and delivery truck routes. Trucks delivering materials to the Piers 94 and 96 staging areas would likely travel from Highway 101 and I-280 via Cesar Chavez Street, Illinois Street, and Amador Street. Deliveries from the Piers 94 and 96 staging areas would travel to the Rankin Street entrance via Evans Avenue, Third Street, and Cargo Way. Figure 2-16 shows interim truck deliveries and off-haul routes for SEP operations, including the existing solids treatment processes, that would be used temporarily during the five-year construction period.

As described in Chapter 2, *Project Description*, project construction activities would require the temporary closure of approximately two blocks of Jerrold Avenue to public through traffic (starting at the Caltrain right-of-way and up to the SEP entrance west of Phelps Street) for approximately five years. The closure would affect approximately 6,800 daily vehicles currently traveling on Jerrold Avenue between Phelps and Rankin Streets, about 510 of which (7.5 percent of the total) travel in the a.m. peak hour and 400 of which (6 percent of the total) travel in the p.m. peak hour. Approximately 60 percent of the total daily traffic travels westbound, from Phelps Street toward Rankin Street.[23]

Single-unit and multi-unit truck traffic on Jerrold Avenue near Rankin Street represents approximately 8 percent of the total daily traffic, or 545 trucks per day. About 55 percent of the total daily truck traffic occurs between 10:00 a.m. and 4:00 p.m., and 16 percent occurs between 6:00 p.m. and 7:00 a.m. the following day.

The temporary closure of Jerrold Avenue to public through traffic between the Caltrain bridge to the SEP entrance west of Phelps Street would remove the 6,800 daily vehicles currently traveling through this section, and instead between 35 and 50 daily eastbound (inbound) construction truck trips during the period of maximum construction truck traffic (August to December 2018) and 5 to 10 daily eastbound (inbound) truck trips during the period of maximum construction worker traffic (May to October 2022) would travel on this section of Jerrold Avenue. No outbound construction trucks or construction workers are expected to travel on Jerrold Avenue west of the Caltrain tracks.

Two nearby parallel east-west routes, Oakdale Avenue and Evans Avenue, would offer alternative travel paths for the vehicles currently traveling on the section of Jerrold Avenue that would be closed during BDFP construction. While the detour would be an inconvenience for motorists, both streets are located approximately one-quarter mile north and south of Jerrold Avenue and would represent minimal out-of-way travel for affected vehicles. Based on the traffic analysis conducted for this project,[24] both Oakdale and Evans Avenues have sufficient capacity to accommodate diverted traffic

[23] Vehicle classification counts conducted on Jerrold Avenue near Rankin Street in August 2016. The detailed count information is included in Appendix TR.

[24] Technical Memorandum Biosolids Digester Facilities Project – Case No. 2015.000644ENV, Intersection Level of Service Analysis Documentation, prepared by Adavant Consulting and LCW Consulting for Debra Dwyer (San Francisco Planning Department) and Karen Frye (San Francisco Public Utilities Commission), December 29, 2016.

without a substantial effect on local vehicle circulation. In addition, the SFPUC would implement a Traffic Control Plan as part of the project that would be consistent with the SFMTA's Blue Book regulations that would be applicable at the time of project construction. Traffic control measures would include installation of warning and detour signs advising motorists to follow appropriate detour routes well in advance of the Jerrold Avenue closure. Section 2.6.1.3, Construction Coordination, presents an outline of the SFPUC's proposed Traffic Control Plan.

The closure of Jerrold Avenue would also affect access to the existing San Francisco Wholesale Produce Market, located on Jerrold Avenue between Toland and Rankin Streets. Most of the wholesale activity at the market takes place after 8:00 p.m. when mostly semi-trailer trucks start arriving, and is largely completed by 9:00 a.m.[25] Approximately 7 percent (about 25 truck trips) of all daily truck traffic bound for the market enters and leaves the site from Jerrold Avenue east of Rankin Street, while 93 percent enters and leaves the market using the Jerrold Avenue/Toland Street intersection entrance.

The closure of Jerrold Avenue east of the Caltrain tracks would represent an inconvenience for those vehicles currently entering or exiting the market from the east and traveling to or from Third Street. The east side entrance to the San Francisco Wholesale Produce Market at Rankin Street would remain operational, and vehicles could still travel to and from the south via Toland Street, turning into McKinnon or Kirkwood Avenues to reach Rankin Street, but this would represent four blocks of out-of-the-way travel. Therefore, it is likely that those trucks and other vehicles currently using the east side entrance would instead use the Jerrold Avenue/Toland Street intersection entrance/exit and maneuver within the market area to make a U turn. The median of Jerrold Avenue within the San Francisco Wholesale Produce Market site is occupied by surface parking lots and small structures in between, where vehicle turns, including U turns, are currently allowed.

As previously described, the San Francisco Wholesale Produce Market would experience a reduction of up to 6,000 daily vehicles of existing through traffic traveling on Jerrold Avenue through the site, in combination with an increase of up to 50 daily construction truck trips.

During project construction, traffic volumes on Jerrold Avenue east of Phelps Street would also be reduced by approximately 50 percent as a result of the temporary street closure. Overall traffic volumes on Phelps Street would be similar to existing conditions, as the potential reductions in through traffic turning left or right onto Jerrold Avenue would be offset by the addition of BDFP construction-related traffic, as described above.

Traffic volumes during the peak commute hours on Evans and Oakdale Avenues west of Phelps Street would increase as a result of project construction activities (including existing traffic reroutes due to the temporary street closure and project construction-related traffic) by approximately 20 to 25 percent and 15 to 20 percent, respectively, compared to existing conditions. Traffic volumes on Oakdale Avenue east of Phelps Street could increase by as much as 30 to 35 percent, as a result of construction truck traffic, construction workers, and deliveries to the project

[25] Adavant Consulting, San Francisco Wholesale Produce Market Retention and Expansion Project Transportation Study Final Report, Case Number 2009.1153E, March 23, 2011. This report is available for public review at the San Francisco Planning Department, 1660 Mission Street, Suite 400, San Francisco, California 94103.

site and the Southeast Greenhouses staging site. Traffic volumes on Third Street during the peak commute hours would increase between 2 and 4 percent, while traffic on Cargo Way could increase by as much as 65 percent under those scenarios when Piers 94 and 96 are used for construction staging and parking. None of these increases would substantially affect traffic circulation along these streets since the larger percent increases correspond to those streets with low traffic volumes and maximum available capacity. Existing vehicular and truck access to the SEP would be modified during the construction period. The temporary closure of Jerrold Avenue to public through traffic would start to the west of the three vehicle entrances on the north and south sides of Jerrold Avenue, which would remain fully operational. Chemical delivery trucks that approach the Jerrold Avenue entrance from the west (fewer than six trucks per day) would continue to do so, entering the SEP through the secondary construction gate located near the Caltrain right-of-way (refer to Figure 2-16 in Chapter 2, *Project Description*).

During BDFP construction, the Quint Street entrance to the SEP would be closed. It is currently used by trucks removing yellow grease and recycled water (fewer than nine trucks per day), as well as biosolids (10 trucks per day, inbound only); these trucks would be redirected to use the south entrance on Jerrold Avenue via Phelps Street. The Rankin Street access point, which is currently used as an exit only on an as-needed basis, would be used during the construction period for both entering and exiting by trucks carrying grit and screenings to the landfill (fewer than three trucks per day). These changes to existing SEP gate operations would represent minimal changes to the current truck paths.

As presented in Table 4.6-14, on a daily basis and during the a.m. and p.m. peak hours, the construction worker trips represent the greatest proportion of BDFP construction traffic, and the maximum number of construction truck trips during the a.m. and p.m. peak hours would be about 20 truck trips. BDFP construction vehicle trips would be dispersed among a number of destinations (e.g., SEP site, Southeast Greenhouses, Piers 94 and 96) depending on the activity. Construction vehicles would travel through intersections and on roadways that experience higher vehicle delays (e.g., the intersection of Evans Avenue/Toland Street/Napoleon Street), but the overall contribution to total traffic volumes and to increased vehicle delay would be minimal.

Therefore, for the reasons described above, construction-related project impacts on traffic circulation would be less than significant.

Impacts on Public Transit

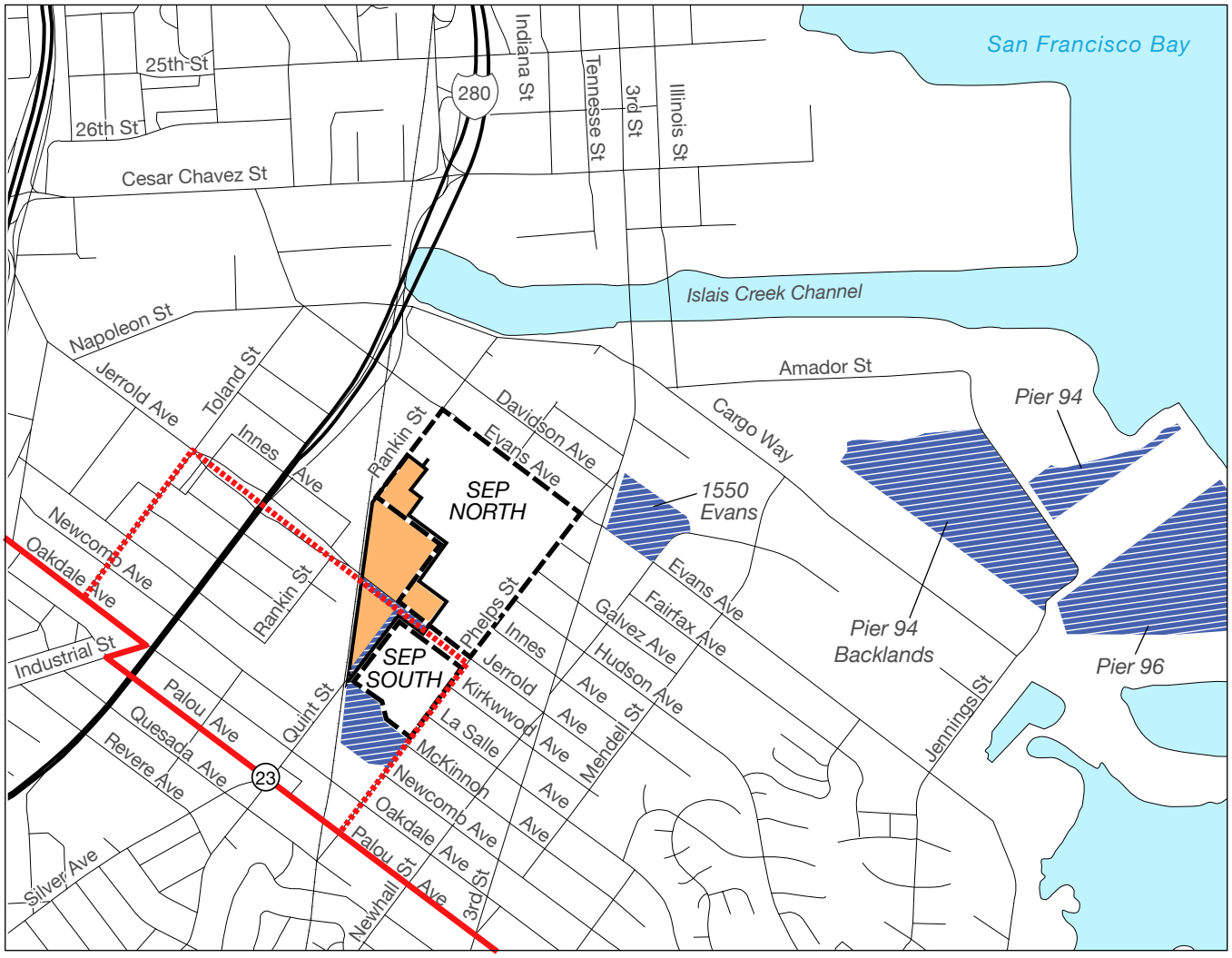
As described above, some of the construction workers at the project site would take transit, which would increase the capacity utilization of the transit routes serving the site. The increase in transit trips would vary depending on the construction phase and would be greatest during the third year of construction when the number of construction workers at the project site would range from about 400 to 550 workers per day. At other times during the construction period, the number of construction workers would range from 120 to 440 workers per day. Approximately 20 percent of construction workers are anticipated to take transit to and from the project site. The additional transit riders would be accommodated on the bus routes serving the project site, which operate at less than Muni's 85 percent capacity utilization standard (see Table 4.6-4). The T Third light rail, which operates at or above the 85 percent capacity utilization standard at the maximum load point (i.e., traveling toward the Bayview at the Van Ness station during the a.m. peak period and traveling

toward the Bayview at The Embarcadero and Harrison Street during the p.m. peak period), has had recent service increases in 2015 to provide additional capacity. In addition, with initiation of the Central Subway project in 2019, capacity on the T Third will further increase as two-car trains (rather than one-car trains) will serve the Third Street corridor.

The five-year closure of Jerrold Avenue between the Caltrain tracks and Phelps Street would require the temporary rerouting of the 23 Monterey bus route (see **Figure 4.6-3**). The route segment on Toland Street between Oakdale and Jerrold Avenues, Jerrold Avenue between Toland and Phelps Streets, and Phelps Street between Jerrold and Palou Avenues would be temporarily discontinued, and the 23 Monterey would be routed on Oakdale Avenue between Toland and Industrial Streets, on Industrial Street between Oakdale and Palou Avenues, and on Palou Avenue between Industrial and Phelps Streets. With the reroute, the 18 existing bus stops on Toland Street, Jerrold Avenue, and Phelps Street (see Table 4.6-5) would be temporarily discontinued, and new temporary bus stops may be required on Oakdale Avenue and/or Industrial Street, as determined by the SFMTA. The 24 Divisadero route runs on Palou Avenue between Industrial and Phelps Streets and the 44 O'Shaughnessy route runs on Palou Avenue between Silver Avenue and Phelps Street; the rerouted 23 Monterey would likely use the existing bus stops serving the 24 Divisadero and 44 O'Shaughnessy routes in this segment. Transit operations on the affected streets would be similar to existing conditions, as the three additional buses along the temporary route (i.e., peak period frequency of three buses per hour or every 20 minutes on the 23 Monterey during the peak periods) would not substantially affect bus stop operations or bus delay at intersections along the reroute. Consistent with the SFMTA's Blue Book, the SFPUC or its contractors would be required to ensure that appropriate signage indicating temporarily discontinued stops and temporary new stops would be posted, and appropriate notification of the 23 Monterey reroute would occur prior to initiation of BDFP construction. Prior to construction, the project contractor would coordinate with Muni's Street Operations and Special Events Office to coordinate construction activities and avoid impacts on transit operations. The reroute of the 23 Monterey would increase the distance required (by up to 1,400 feet or about one-quarter mile) for riders with origins or destinations along Toland Street, Jerrold Avenue, and Phelps Street to reach the 23 Monterey (approximately 500 riders exiting and boarding the 23 Monterey at these stops on a daily basis – see Table 4.6-5). However, the reroute would decrease the distance for riders along Palou Avenue, and it would not substantially affect accessibility to transit or transit operations.

During BDFP construction, the SFPUC SEP employee shuttle, which currently travels between the BART 24th Street Mission station and the SEP site and travels on Jerrold Avenue between Phelps and Toland Streets, would also need to be rerouted. While the rerouted path for the SFPUC SEP employee shuttle has not yet been determined, it may slightly increase the distance required for employee access to the shuttle (e.g., stop on Phelps Street near the intersection with Jerrold Avenue, instead of on Jerrold Avenue near the intersection with Rankin Street). Nonetheless, shuttle service would be maintained and would not be substantially affected.

As shown on Figure 4.6-1, in the vicinity of the SEP, the 19 Polk runs on Evans Avenue south of Cesar Chavez Street with a peak period frequency of four buses per hour (i.e., every 15 minutes). Adjacent to the SEP, bus stops for the 19 Polk running in the eastbound direction (i.e., toward the Hunters Point Shipyard) are located at Quint Street and at Phelps Street. BDFP construction would



SOURCE: San Francisco Municipal Transportation Agency, Muni Forward, 23 Monterey- On Hold, December 27, 2014

SFPUC Biosolids Digester Facilities

Figure 4.6-3

Proposed Route Realignment for 23 Monterey

not affect the four travel lanes (two lanes in each direction) or the parking lane on Evans Avenue adjacent to the SEP. The additional construction truck and construction worker trips traveling on Evans Avenue would not substantially change traffic volumes on Evans Avenue, and travel times for buses would remain similar to existing conditions. Because there are two westbound travel lanes, 19 Polk buses traveling westbound on Evans Avenue would be able to bypass construction trucks waiting for a gap in the eastbound traffic flow to turn left onto southbound Rankin Street (i.e., into the project site).

Therefore, for the reasons described above, construction-related project impacts on transit service would be less than significant.

Impacts on Bicycle Facilities

As described in Section 4.6.1.3, there are a number of bicycle routes in the project vicinity, including on Phelps Street, Oakdale Avenue, Third Street, Evans Avenue, and Cesar Chavez Street. During the BDFP construction period, Oakdale Avenue and Phelps Street would be used as access routes for construction workers parking within the Southeast Greenhouses site (if available for use as staging), and if Pier 94 is used for parking for construction workers, the construction worker shuttle bus would be routed on Phelps Street southbound between Third Street and Jerrold Avenue with a stop on Phelps Street north of the intersection with Jerrold Avenue. The short segment of Phelps Street between Third Street and Evans Avenue would also be used by equipment deliveries and concrete trucks (traveling to and from the Piers 94 and 96 staging areas), trucks carrying recyclable and unrecyclable demolition materials (traveling from I-280), and trucks transferring unsuitable excavated soils to the Piers 94 and 96 staging areas. (Refer to Figure 2-15 in Chapter 2, *Project Description*, for construction haul and worker shuttle routes.) Similarly, Evans Avenue between Third and Cesar Chavez Streets (Bicycle Route 68, Class III facility) and Cesar Chavez Street between Highway 101 and Third Street (Bicycle Route 60, Class II facility between Third Street and Caltrain tracks and Class III facility from west of Caltrain tracks to Sanchez Street) would be used for construction truck access to and from Highway 101, I-280, and Pier 94, as well as by construction workers.

This increased construction truck traffic would result in temporary increased potential for vehicle-bicycle conflicts at locations where bicycle lanes are not provided, particularly on the segment of Phelps Street between Third Street and Evans Avenue, and along Evans Avenue—both Class III bicycle facilities. However, the potential for vehicle-bicycle conflicts would not increase to a level that would adversely affect bicycle travel in the area. The period of greatest project-generated truck traffic on area roadways would be for a limited period during the soil excavation and disposal phase, a period of about five months between August and December 2018 when there would be about 70 construction trucks per day, although not all of the additional vehicles would travel on Evans Avenue. Following soil excavation and disposal, the number of construction trucks would decrease substantially to an average of about 25 and a maximum of 40 trucks per day. As described in Section 2.6.1.3, Construction Coordination, the project's Traffic Control Plan would include measures to maintain bicycle access and circulation during project construction. As part of the project's Traffic Control Plan, bicyclists could be detoured to other roadways such as Third Street or Newhall Street, and/or advance warning signs stating "Share the Road" would be posted for the safety of bicyclists on Phelps Street and Evans Avenue. Overall, while project construction would result in increased

potential for vehicle-bicycle conflicts, it would not substantially affect bicycle travel in the area or result in potentially hazardous conditions for bicyclists, and construction-related project impacts on bicyclists would be less than significant.

Impacts on Pedestrian Travel

BDFP construction would result in a temporary increase in the number of pedestrians on sidewalks in the vicinity of the SEP and the 1550 Evans Avenue staging area. As discussed above, the size of the construction work force would vary over time, ranging up to 550 construction workers per day. Construction workers who drive would travel primarily in the area of the Piers 94 and 96 staging areas, but also in the vicinity of the SEP, and/or 1550 Evans Avenue and the Southeast Greenhouses site, if available. A BDFP shuttle would be provided to transport workers between the parking areas at the Piers 94 and 96 staging areas and the project site with a shuttle stop anticipated on Phelps Street at Jerrold Avenue; however, construction workers parking at 1550 Evans Avenue would walk to and from the project site. Construction workers would use Evans Avenue, Phelps Street, Jerrold Avenue, and Third Street to walk between the project site and the 1550 Evans Avenue parking area. As noted in Section 4.6.1.4, in the vicinity of the SEP, pedestrian volumes are very low throughout the day. At the intersection of Phelps Street/Jerrold Avenue, during both the a.m. and p.m. peak hours, the total number of pedestrians crossing all four crosswalks was about 30 pedestrians during each peak hour; most of these pedestrians were probably workers traveling between the SEP and the SEP shuttle stop on Jerrold Avenue, the 23 Monterey bus stop at Jerrold Avenue/Phelps Street, or the T Third light rail stops at Third Street (i.e., at Innes Avenue in the southbound direction, and at Kirkwood Avenue in the northbound direction). The additional pedestrians would be accommodated on area sidewalks without substantially affecting pedestrian conditions.

During the BDFP construction period, Jerrold Avenue would be closed between the Caltrain tracks and the SEP entrance (just north of Phelps Street), and pedestrian access to this segment would be restricted, except for existing SEP employee and construction worker access to the SEP. Because pedestrian access to the SEP would be maintained for both existing employees and construction workers, pedestrian impacts due to the Jerrold Avenue roadway closure would be minimal.

In addition, in the case of public streets under SFMTA and SFPW jurisdiction, the SFMTA Blue Book regulations require the implementation of construction safety measures with respect to pedestrians. Construction activities that require use of any portion of the adjacent sidewalk are required to maintain pedestrian access for all users, and where complete sidewalk closures are required, alternative pedestrian access routes and detours are required to be implemented with adequate signage. Thus, pedestrians using this segment of Jerrold Avenue as a route to other locations along Jerrold Avenue (e.g., the San Francisco Wholesale Produce Market) would be detoured to Evans Avenue or Oakdale Avenue about 1,400 feet to the north or south of Jerrold Avenue, as other east-west streets (i.e., Innes, Hudson, Galvez, Fairfax, Kirkwood, LaSalle, McKinnon, and Newcomb Avenues) are discontinuous in this area. This detour may be an inconvenience to some pedestrians, but it would not result in potentially hazardous conditions for pedestrians. As part of the pedestrian detours, appropriate pedestrian signs, including but not limited to "Sidewalk Closed," would be posted.

Overall, while construction of the BDFP would temporarily increase the travel distance for some pedestrians who currently use the segment of Jerrold Avenue between the Caltrain tracks and Phelps Street, it would not result in substantial overcrowding on public sidewalks, create potentially hazardous conditions for pedestrians, or otherwise interfere with pedestrian accessibility. Construction-related project impacts on pedestrians would therefore be less than significant.

Impacts on Freight Rail

A portion of the excavated soils that would be unsuitable for reuse on-site as backfill due to geotechnical or environmental considerations would be hauled off-site. The contaminated soil would be trucked to the Port of San Francisco transfer facility on Cargo Way adjacent to Pier 94 Backlands (a maximum of about 20 round trips per day between the project site and Pier 94 Backlands for a three-month period, and about five round trips per day at other times), from which it would be shipped by rail to the ECDC Landfill in Utah.

The San Francisco Bay Railroad would be the rail operator responsible for transferring the contaminated soils via rail. The disposal would be conducted by adding rail cars to already scheduled trains, or alternately, but less likely, by creating new trains consisting solely of the BDFP excavated materials. New trains would leave the rail yard between 11:00 a.m. and 2:00 p.m., or during the overnight hours, to avoid conflicts with Caltrain peak commuter passenger rail service. As noted in Section 4.6.1.5, both freight trains and Caltrain passenger trains share tracks south of the Quint Street Lead in San Francisco, and freight and passenger rail operations are regulated to ensure that Caltrain commuter rail schedules are not affected.

BDFP construction would generate a demand for two rail cars per day during the peak five months (approximately from August to December 2018) of excavation for the anaerobic digesters at the project site, and up to one rail car per day for the remainder of the five-year construction period. The additional up to two rail cars per day would not substantially affect operations of the Caltrain commuter rail service.

Union Pacific Railroad (UPRR) has a series of safety requirements for construction work being conducted near active railroad tracks. The requirements specify minimum clearance distances, necessary safety training for construction personnel, vehicle operations near the tracks, and other safety regulations. BDFP construction protocols would adhere to these requirements when performing construction activities near UPRR's Quint Street Lead on the western boundary of the project site. The mandatory implementation of these requirements by BDFP contractors would maintain construction safety and avoid affecting operations of the UPRR rail service.

Thus, for the reasons stated above, the construction-related project impacts on freight rail operations would be less than significant.

Impacts on Parking

As presented in Table 2-10 in Chapter 2, *Project Description*, BDFP construction activities would entail an on-site work force of up to 550 construction workers during peak activities during the five-year construction period. The maximum number of parking spaces required to accommodate construction worker vehicles would be up to about 340 parking spaces and would vary, depending on the

construction phase and construction activity. The construction period when the parking demand would be greatest and would exceed 300 spaces would occur between approximately May 2021 and July 2022 (15 months). Temporary surface parking lots would be provided to accommodate the construction worker parking demand, including within the SEP (up to 40 spaces), within the Piers 94 and 96 staging areas (up to 385 spaces), and, if available, within the Southeast Greenhouses site (up to 215 spaces) or 1550 Evans Avenue (up to 340 spaces). For construction workers parking at the Piers 94 and 96 staging areas, shuttle buses with seating for up to 50 passengers would transport workers between the parking area and the proposed shuttle stop for the project site on southbound Phelps Street north of Jerrold Avenue at the beginning and end of each shift (refer to Figure 2-14 in Chapter 2).

Table 4.6-17 presents the parking supply and maximum demand for the two peak analysis months (i.e., October 2018 when the number of construction truck trips would be greatest, and May 2022 when the number of construction workers at the project site would be greatest) for the two construction staging area combinations (depending on availability of either the Southeast Greenhouses or 1550 Evans Avenue staging areas). As shown in Table 4.6-17, the construction-related parking demand would be accommodated within the identified staging areas, and construction workers would not be expected to seek on-street parking in the vicinity of the SEP.

TABLE 4.6-17
BDFP PARKING SUPPLY AND DAILY PEAK PARKING DEMAND DURING CONSTRUCTION AT PROJECT SITE AND OFF-SITE STAGING AREAS

Location of Staging	October 2018			May 2022		
	Supply (spaces)	Demand (spaces)	Percent Utilization	Supply (spaces)	Demand (spaces)	Percent Utilization
Project Site, Southeast Greenhouses, Piers 94/96						
Project Site	40	25	62%	40	25	62%
Southeast Greenhouses site	215	107	50%	215	193	90%
Piers 94/96	0	0	--	385	125	32%
Total	***255***	***132***	***52%***	***640***	***343***	***54%***
Project Site, 1550 Evans Avenue, Piers 94/96						
Project Site	40	25	62%	40	25	62%
1550 Evans Avenue	340	107	31%	340	318	93%
Piers 94/96	0	0	--	260	0	--
Total	***380***	***132***	***35%***	***640***	***343***	***54%***

NOTE:
BDFP = Biosolids Digester Facilities Project

SOURCES: San Francisco Public Utilities Commission (SFPUC), spreadsheets entitled "Construction Trucks – Daily" and "Construction Workers and Shuttle Bus" in Appendix TR, August 26, 2016; Adavant Consulting/LCW Consulting analysis for BDFP.

During the five-year construction period, on-street parking on Jerrold Avenue between the Caltrain tracks and Phelps Street would be temporarily restricted and the parking demand associated with these spaces would be accommodated on other nearby streets. As discussed in Section 4.6.1.7, on-street parking is available on nearby streets throughout the day, and with the temporary reduction of about 85 parking spaces on Jerrold Avenue, the overall parking study area occupancy would increase

minimally (i.e., from 48 to 51 percent during the a.m. period and from 59 to 63 percent during the p.m. period). Construction-related impacts on parking would be less than significant.

Impacts Related to Traffic Safety Hazards

Construction-related vehicles traveling to and from the project site and off-site staging areas would share the roadways with other vehicles, as well as with bicyclists and pedestrians. In general, increased construction traffic could increase traffic safety hazards due to potential conflicts between construction trucks, which have slower speeds and wider turning radii than automobiles, and automobiles, bicyclists, and pedestrians. The greatest increase in the number of project-related construction trucks would occur in October 2018 when the number of construction trucks transporting excavated soils would be greatest.

For most of the project construction period, construction activities at the project site would generally occur Monday through Friday from 7:00 a.m. to 3:30 p.m., with work on Saturday and Sundays as needed. Work would occur on holidays, and 24 hours per day only if needed and for critical facility connections. For approximately one year (mid-2021 to mid-2022) of the approximately 60 months of project construction, there could be two work shifts, from 7:00 a.m. to 3:30 p.m. and from 2:30 p.m. to 11:00 p.m. Monday through Saturday. (Work shifts are 8.5 hours long, and include one half hour for lunch.) Work after 8:00 p.m. would be limited to interior facility work (e.g., electrical work) and some outside work (refer to Section 2.6.1.1 in Chapter 2).

As described in Section 2.6.1.3, Construction Coordination, the SFPUC or its contractor would prepare and implement a Traffic Control Plan that conforms to the SFMTA's Blue Book (which also requires a Special Traffic Permit for the Jerrold Avenue closure). The elements of the Traffic Control Plan, which would be prepared in consultation with the SFMTA, would include circulation and detour routes, bus stop relocation, advance warning signage, construction truck routes, maintenance of pedestrian and bicycle access and circulation (including detour routes, as appropriate), designation of sufficient staging areas, scheduling of and monitoring of construction vehicle movement, and coordination with public service providers such as fire, police schools, hospitals, and transit. The Traffic Control Plan would serve to inform City agencies of project construction and to minimize temporary traffic effects in the vicinity of the construction areas. Prior to implementation, the Traffic Control Plan, including its procedures to minimize localized construction impacts on the transportation network, would be reviewed by the SFMTA and multi-agency ISCOTT.

Because the project includes implementation of a Traffic Control Plan, construction-related project impacts on transportation safety would be less than significant.

Summary of Impact TR-1

Overall, construction of the BDFP would occur over five years, with varying levels of construction work force and construction truck deliveries and disposal of excavated materials. The period of greatest project-generated construction truck trips would be limited to a period of five months out of the overall five-year period. The existing transportation network in the vicinity of the SEP would be adequate to accommodate the temporary vehicle, transit, bicycle, and pedestrian travel demand associated with construction activities. BDFP construction would require closure of Jerrold Avenue between the Caltrain tracks and the SEP entrance (just north of Phelps Street) throughout the construction period,

and would require temporary rerouting of vehicles and bicyclists using this segment, the 23 Monterey bus route, and the SFPUC SEP shuttle serving the BART 24th Street Mission station; however, the closure would not result in potentially hazardous transportation conditions or substantially affect accessibility to transit or interfere with pedestrian or vehicle accessibility to nearby land uses because alternate routes exist to accommodate these temporary changes. The BDFP would include implementation of a site-specific Traffic Control Plan that would establish measures to reduce traffic congestion and temporarily discontinue and relocate bus stops, along with other measures to reduce potential traffic, bicycle, pedestrian, transit, and emergency vehicle access disruptions and safety hazards in conformance with the SFMTA's Blue Book, which establishes regulations for working in City streets to ensure the activities are conducted safely and with the least possible interference with pedestrians, bicyclists, transit, and vehicles. For these reasons, construction-related project impacts on traffic circulation, transit, pedestrians, bicyclists, parking, and freight rail would be ***less than significant.***

Mitigation: None required.

Impact TR-2: Project construction would not result in inadequate emergency vehicle access. (Less than Significant)

Construction activities associated with the project would be conducted within the project site and within identified off-site staging areas, including the currently closed segment of Quint Street, SFPUC property at 1550 Evans Avenue, Port of San Francisco properties at Piers 94 and 96, and/or adjacent to the SEP at the Southeast Greenhouses site. In addition, as part of the BDFP, Jerrold Avenue between the Caltrain right-of-way and the SEP entrance just north of Phelps Street would be temporarily closed during the five-year construction period for use as a staging and parking area; however, emergency vehicles would be allowed access through Jerrold Avenue or a detour route would be provided as determined through coordination with emergency service providers (see Section 2.6.2 in Chapter 2, *Project Description*). The temporary closure of Jerrold Avenue for the two-block segment would be reviewed by ISCOTT, which includes review by the Fire Department to ensure that emergency vehicle access is not impaired. Three fire stations are located within 0.6 mile to the west (Station 9 at 2245 Jerrold Avenue) and east (Station 49 at 1415 Evans Avenue and Station 25 at 3305 Third Street) of the project site, and emergency vehicles from these stations would be able to use other east-west arterials (e.g., Evans Avenue to the north of Jerrold Avenue, and Oakdale Avenue to the south of Jerrold Avenue) to reach their destination. In addition, pursuant to the requirements of the SFMTA's Blue Book, the SFPUC or its contractor would be required to work with the SFMTA to identify detour routes and locations where detour signs would be implemented, and incorporate the detour plans into the project's Traffic Control Plan. The project would not include any other roadway or travel lane closures that would affect emergency vehicle access.

The temporary increases in construction-related vehicles, including construction worker vehicles and construction trucks, on streets in the vicinity of the SEP and off-site staging areas would not substantially affect emergency vehicle access. California law requires that drivers yield the right-of-way to emergency vehicles and remain stopped until the emergency vehicle passes.

Therefore, because emergency vehicle access in the project vicinity would not be substantially affected by the temporary closure of a two-block segment of Jerrold Avenue or by the addition of construction-related vehicles to the local roadway network, construction-related project impacts on emergency vehicle access would be ***less than significant.***

Mitigation: None required.

Operational Impacts

Impact TR-3: Project operations and maintenance activities would not cause substantial additional vehicle miles traveled (VMT), substantially induce automobile travel, or cause or worsen traffic safety hazards. (Less than Significant)

Vehicle Miles Traveled

After completion of project construction activities, the proposed solids treatment facilities would operate as needed, 24 hours per day, seven days per week, and would require operations and maintenance, similar to existing conditions. No increase in the existing operations staff of about 280 people for the entire SEP is anticipated.

As described in Section 4.6.3.2, once the project is in operation, the number of daily haul and delivery truck trips is also anticipated to remain largely unchanged from existing conditions. In 2045, however, the number of biosolids hauling truck trips would increase from the current 7 to 10 trips per day to approximately 10 to 14 haul trips per day due to projected increases in solids loads associated with anticipated population growth. In addition, an estimated two truck trips per week would be required for off-hauling debris from the screening bins. This minimal increase in trips would not substantially increase total VMT associated with BDFP operations.[26]

The project includes a new second vehicle entrance and exit to the SEP site via Rankin Street to facilitate the movement of truck traffic to and from proposed facilities. Two entrances (as well as emergency access gates) on either side of Jerrold Avenue and one on Quint Street are also proposed (refer to Section 2.4.2 and Figure 2-5 in Chapter 2, *Project Description*). The project would include redesign of on-site vehicular circulation within the SEP boundaries to accommodate the new entrances, exits, and facility layout. The improvements to entrances, new entrances, and on-site circulation improvements would not substantially affect traffic circulation in the SEP vicinity. As depicted on Figure 2-12 in Chapter 2, upon implementation of the BDFP, truck trips associated with chemical deliveries and yellow grease loadout and biosolids disposal (about 21 trucks per day – see Table 4.6-16) would change their access routes to and from the SEP; the trucks, which currently travel from Highway 101 to Jerrold Avenue, would instead use Highway 101 to Cesar Chavez Street and

[26] As described in Chapter 2, *Project Description*, existing solids processing produces Class B biosolids; the BDFP would produce Exceptional Quality Class A biosolids, which have fewer restrictions on use compared to Class B biosolids. Consequently, there are more market reuse options for Class A biosolids, and some of the options could be located closer to the SEP. Thus, the production of Class A biosolids by the BDFP could result in decreased haul distances (and VMT).

Evans Avenue to the new Rankin Street entrance. This reroute in truck trips would not substantially alter existing traffic circulation associated with facility operations and would reroute operational truck trips to Evans Avenue, identified as a Freight Truck Route in the *San Francisco General Plan*.

The BDFP would include features that would alter the transportation network. The project would redesign and reconstruct the segment of Jerrold Avenue between Phelps Street and the Caltrain tracks in accordance with *San Francisco Better Streets Plan* guidelines, which would be expected to result in traffic calming effects. The redesign would provide a wider landscaped buffer zone with street trees between the parking lane and the sidewalk. To accommodate this green buffer zone, the width of the existing center two-way turn lane and the two travel lanes would be reduced, and the angled parking would be replaced with parallel parking on the north side of the street. Figure 2-9 in Chapter 2, *Project Description*, depicts a typical section of the proposed Jerrold Avenue improvements. The proposed roadway and sidewalk changes would be reviewed by the SFMTA's Transportation Advisory Staff Committee (TASC), which reviews permanent changes to the roadway and sidewalk network.

As noted above, the project would also include a new second gate to the SEP via Rankin Street to facilitate the movement of truck traffic to and from proposed facilities. Two entrances (as well as emergency access gates) on either side of Jerrold Avenue and one on Quint Street are also proposed (refer Section 2.4.2 and to Figure 2-5 in Chapter 2, *Project Description*). The project features that would alter the transportation network would be consistent with the general types of projects identified by the San Francisco Planning Department that do not substantially induce automobile travel (e.g., wastewater treatment systems). Therefore, as a part of the wastewater treatment system, project operations would not result in a substantial increase in automobile travel, and overall, operational impacts related to VMT would be less than significant.

Impacts on Public Transit

As noted above, following completion of project construction, Jerrold Avenue between Phelps Street and the Caltrain tracks would be reopened. As noted in Section 4.6.1.2, as part of Muni Forward, the SFMTA anticipates rerouting the 23 Monterey bus route onto Oakdale Avenue, Industrial Street, and Palou Avenue (i.e., the anticipated route alignment of the 23 Monterey during BDFP construction). This Muni Forward service improvement for the 23 Monterey is currently on hold, subject to additional neighborhood outreach, and if the SFMTA decides not to implement this service improvement following completion of the BDFP, the 23 Monterey route would return to Toland Street, Jerrold Avenue, and Phelps Street, and service would continue as under existing conditions. In addition, the SFPUC SEP employee shuttle route between the BART 24th Street Mission station and the SEP would be rerouted back to Jerrold Avenue. As part of the Jerrold Avenue redesign, the bus stops in the westbound direction at Quint Street and in the eastbound direction at Phelps Street may be reconfigured from pole stops to curbside bus stops.[27] In addition, improved sidewalks and a

[27] A pole stop (also referred to as a flag stop) is defined as a transit stop without a designated curbside zone and where parking is not restricted. Some pole stops are located on streets without parking, in which case the bus can either stop in the mixed-flow travel lane or pull over to the curb. At pole stops adjacent to on-street parking, all passengers must board and exit the bus in the street since the bus cannot pull to the curb.

wider landscaped buffer zone would enhance the transit rider experience at bus stops on this segment of Jerrold Avenue.

With implementation of the project, the existing operations staff of about 280 people for the entire SEP would not change, and therefore the project would not result in a need for additional transit routes or substantially increase ridership on nearby Muni bus routes (e.g., 23 Monterey, 19 Polk, 24 Divisadero) or the T Third light rail line in the project vicinity. Because project operation would not substantially affect the capacity utilization of nearby Muni routes and would not affect the operations of the nearby Muni routes, the project's operational impact on transit would be less than significant.

Impacts on Bicycle and Pedestrian Travel

With implementation of the project, pedestrian and bicycle circulation in the project vicinity would be the same as under existing conditions. Proposed improvements to Jerrold Avenue between Phelps Street and the Caltrain tracks (i.e., new sidewalks, landscaped buffers, corner bulb-outs, crosswalks at the intersection of Phelps Street/Jerrold Avenue and at two midblock locations, and bicycle sharrows within the travel lane) would enhance conditions for pedestrians and bicyclists. (Refer to Figure 2-9 in Chapter 2, *Project Description*, for the proposed cross-section of Jerrold Avenue and to Figure 2-11 for the proposed extent and location of landscaping and crosswalks.) Project operations would not result in a substantial increase in pedestrian or bicycle trips, as the number of operations staff is expected to remain the same as existing conditions. Thus, project operations would not result in overcrowding or an increased demand for pedestrian and bicycle facilities, and the project's operational impacts on bicycles and pedestrians would be less than significant.

Impacts on Emergency Vehicle Access

Implementation of the project would not introduce unusual design features nor substantially change the street network, and therefore emergency vehicle access would remain similar to existing conditions. Upon completion of the project, Jerrold Avenue between Phelps Street and the Caltrain tracks would be reopened and redesigned in accordance with *San Francisco Better Streets Plan* guidelines. As part of the redesign, a center turn lane and one mixed-flow travel lane in each direction would be maintained, similar to existing conditions. The detail design of the reconfiguration would be reviewed by the SFMTA and the San Francisco Fire Department as part of TASC review to ensure that it meets all applicable standards. With implementation of the project, emergency vehicle access in the project vicinity would not be affected, and therefore the project's operational impacts on emergency vehicle access would be less than significant.

Impacts on Freight Rail

Similar to existing conditions, operations and maintenance of the solids treatment facility would not affect rail service on the Quint Street spur tracks. Disposal of grit, screening, yellow grease loadout, and biosolids and chemical deliveries would continue to occur by trucks, similar to existing conditions. (Refer to Figure 2-12 in Chapter 2, *Project Description*.) Therefore, the impact of project operations and maintenance on freight rail operations would be less than significant.

Impacts on Parking

Implementation of the project would not increase the number of operations staff at the SEP, and therefore the project would not increase parking demand. With project implementation, the number of parking spaces within the SEP would remain similar to existing conditions. Proposed improvements to Jerrold Avenue between Phelps Street and the Caltrain tracks would include reconfiguration of the 40 angled parking spaces on the north side of the street with about 20 parallel spaces, resulting in the elimination of 20 on-street parking spaces.[28] As described in Section 4.6.1.7, there are currently about 104 parking spaces on Jerrold Avenue between Rankin and Phelps Streets, with a maximum occupancy of about 60 percent. With the elimination of 20 on-street parking spaces due to the reconfiguration from angled to parallel spaces, the parking utilization on this segment of Jerrold Avenue would increase from 60 to 75 percent (indicating that there would continue to be available on-street parking spaces), and/or some nearby streets may experience an increase in the on-street parking utilization. Thus, the reconfiguration of on-street parking on Jerrold Avenue resulting in the removal of approximately 20 parking spaces would not substantially affect area-wide parking conditions or create hazardous transportation conditions or significant delays affecting traffic, transit, bicycles, or pedestrians, and would not be considered a significant impact.

Summary of Impact TR-3

With respect to overall transportation conditions, operation of the BDFP would be generally similar to existing conditions, with no increase in the total number of employees at the SEP and a very minimal increase in the number of haul trucks required for disposal of biosolids and debris from the screening bins. Jerrold Avenue between Phelps Street and the Caltrain tracks would be improved in accordance with *San Francisco Better Streets Plan* guidelines and pedestrian and bicycle circulation on this segment would be enhanced. The Muni 23 Monterey bus route would be returned to pre-construction operations on Toland Street, Jerrold Avenue, and Phelps Street, unless the SFMTA, following additional neighborhood outreach, determines that the planned Muni Forward service improvements for the 23 Monterey along the rerouted segment would be made permanent. In addition, the SFPUC SEP employee shuttle to the BART 24th Street Mission station would return to pre-construction operations on Jerrold Avenue. Other proposed improvements, such as the new entrance on Rankin Street and new entrances on Jerrold Avenue and Quint Street, would enhance vehicle, pedestrian, and bicycle access to the site. Reconfiguration of on-street parking would not substantially affect area-wide parking conditions or create hazardous transportation conditions or significant delays affecting traffic, transit, bicycles, or pedestrians. For these reasons, impacts of project operations and maintenance on VMT, transit, pedestrians, bicyclists, freight rail, and emergency vehicle access would be ***less than significant.***

Mitigation: None required.

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[28] The angled parking spaces are about 9 feet wide, and a parallel space is about 20 feet wide. Thus, roughly dividing by two, the reconfiguration of 40 angled parking spaces to parallel parking would eliminate 20 spaces.

Cumulative Impacts

The geographic scope of cumulative impacts related to transportation and circulation includes the roadways adjacent to the project site and staging areas, and truck access routes to and from the regional roadway network.

Existing and probable future projects listed in Table 4.1-1 in Section 4.1, Overview, could contribute to cumulative impacts related to transportation and circulation. Project construction is expected to begin in February 2018 and end in January 2023, and construction of the project facilities would occur in the same time frame and vicinity as other planned and proposed projects that would use the same roadways for access to work sites.

On the basis of the schedule information presented in Table 4.1-1, the following cumulative projects are completed or would be completed prior to construction of the BDFP: SEP Chemical System Relocation and Facilities Upgrade, SEP Existing Digester Roof Repairs, SEP Primary/Secondary Clarifier Upgrades, SEP North Side Reliability Project, SEP Oxygen Generation Plant Replacement, Central Shops Relocation and Land Reuse, Land Reuse – 1801 Jerrold Avenue (Asphalt Plant site), Griffith Yard Improvements, Southeast Greenhouses Demolition, Jerrold Bridge North Span Replacement, Quint Street Bridge Replacement Project, and Quint Street Lead Track. Two SFPUC projects would start following completion of the BDFP: Demolition of Existing SEP Digesters and Southside Renovation Project, and Eastside Recycled Water Project. The project definition and/or anticipated construction period of the following projects is unknown: Southeast Community Center Rehabilitation, San Francisco Wholesale Produce Market, Blue Greenway Project and Heron's Head Improvements Project, Pier 90-94 Backlands Improvement Project, Asphalt and Concrete Recycling and Production Facility, Pier 96 Bulk Export Terminal, 2225 Jerrold Avenue Facility, and the San Francisco Gateway project.[29]

Of the projects included in Table 4.1-1 in Section 4.1, Overview, eight SFPUC projects at the SEP (Southeast Plant Headworks Replacement Project, Existing Digester Gas Handling Improvements, Building 521 Replacement/522 Disinfection Upgrade, Power Feed and Primary Switchgear Upgrades, Primary/Secondary Clarifier Upgrades, Seismic Reliability and Condition Assessment Improvements, Oxygen Generation Plant Replacement, and Repair and Replacement Projects) and 12 other projects (Central Bayside System Improvement Project, Kansas and Marin Streets Sewer Improvements, Southeast Outfall Islais Creek Crossing Replacement, 1995 Evans Avenue, Candlestick Point-Hunters Point Shipyard Development, Event Center and Mixed-Use Development at Mission Bay Blocks 29-32, Pier 70 Waterfront Site, Quint-Jerrold Connector Road, Griffith Pump Station, Marin Street Sewer Replacement, India Basin Mixed-Use Development, and Peninsula Corridor Electrification Project) would overlap with construction activities of the BDFP. Of these projects, SFPUC SEP Repair and

[29] Construction of the Southeast Community Center Rehabilitation, San Francisco Wholesale Produce Market, Blue Greenway Project and Heron's Head Improvements, Pier 96 Bulk Export Terminal, and the San Francisco Gateway projects may overlap with a portion of the BDFP construction period. These projects may result in increases in construction worker vehicles and construction trucks, may use the same or similar construction access routes to regional facilities, and may result in temporary travel lane closures. Construction Traffic Control Plans for these projects would take into account construction activities of other cumulative projects that may be underway during the overlap period.

Replacement Projects and Candlestick Point-Hunters Point Shipyard Development are ongoing projects, and construction activities are reflected in existing conditions.

Impact C-TR-1: Construction of the project, in combination with past, present, and probable future projects, would not result in significant transportation impacts. (Less than Significant)

The cumulative analysis considers the construction-phase traffic and other transportation system changes associated with the identified construction projects with overlapping construction schedules for the same two periods assessed for existing plus project conditions (in Impact TR-1): (1) October 2018, which represents the period with the greatest project construction truck traffic; and (2) May 2022, which represents the period with the greatest project construction worker traffic. In October 2018, BDFP construction would overlap with the Headworks project, SEP Power Feed and Primary Switchgear Upgrades, SEP Seismic Reliability and Condition Assessment Improvements, SEP Repair and Replacement Projects, Kansas and Marin Streets Sewer Improvements, 1995 Evans Avenue, Candlestick Point-Hunters Point Shipyard Development, Event Center and Mixed-Use Development at Mission Bay Blocks 29-32, Pier 70 Waterfront Site, Quint-Jerrold Connector Road, Griffith Pump Station, India Basin Mixed-Use Development, and the Peninsula Corridor Electrification Project.

Table 4.6-18 presents the available daily construction worker and construction trucks for the cumulative projects that would overlap with the BDFP. Information is presented for the peak construction activity for the BDFP (i.e., October 2018 and May 2022); at other times, the number of construction trucks and workers would be less, either because cumulative projects would be completed or because the number of BDFP trips would be less. As indicated in Table 4.6-18, in the vicinity of the project site, the BDFP and the Headworks project would generate the greatest number of temporary construction vehicle trips during the October 2018 BDFP peak construction period. In May 2022, when the number of construction workers associated with the BDFP would peak, there would be limited overlap with other projects in the vicinity of the project site.

Traffic Circulation Effects

As described in Impact TR-1, the construction of the BDFP, including temporary closure of Jerrold Avenue between the Caltrain tracks and Phelps Street, would not substantially affect traffic circulation in the area as alternative routes, including Evans and Oakdale Avenues, would be available. Existing operations of the San Francisco Wholesale Produce Market would not be substantially affected, as streets west of the Caltrain tracks would not be affected by the BDFP and adequate truck maneuvering area is provided within the portion of Jerrold Avenue between Toland and Rankin Streets. Vehicles currently traveling between the San Francisco Wholesale Produce Market and Third Street via Jerrold Avenue would need to use Toland Street for access to Oakdale Avenue or Evans Avenue. Construction access to the SEP (refer to Figure 2-15 in Chapter 2, *Project Description*) would be primarily via Evans Avenue (to the new entrance to the SEP located near the Caltrain right-of-way, about 650 feet south of Evans Avenue); the existing Rankin Street entrance to the SEP located near Evans Avenue would remain operational. Secondary access for construction and operational trucks would be permitted via Jerrold Avenue from the east and west. The SFPUC Land Reuse – 1801 Jerrold Avenue project, which will be completed prior to BDFP construction, includes closure of the adjacent dead-end block of Quint Street between the Caltrain tracks and Jerrold Avenue, however, this street closure would not affect vehicle circulation in the SEP vicinity.

TABLE 4.6-18
DAILY CONSTRUCTION WORKERS AND CONSTRUCTION TRUCKS FOR CUMULATIVE PROJECTS

Cumulative Project[a]	October 2018[b,c]		May 2022	
	Workers	Trucks	Workers	Trucks
BDFP (proposed project)	212	71	550	28
Southeast Headworks Replacement Project	172	80	--	--
Power Feed and Primary Switchgear Upgrades	20	1	--	--
Seismic Reliability and Conditions Assessment	30	100	--	--
Central Bayside Improvement Project	--	--	75	15
Kansas and Marin Streets Sewer Improvements	10	3	--	--
1995 Evans/Forensic Services Division and Traffic Control	45	100	--	--
Mission Bay Blocks 29-32[d]	350	0	--	--
Pier 70 Development[d]	17	0	404	0
India Basin Mixed-Use Development	50	85	250	85
Total	**906**	**440**	**1,279**	**128**

NOTES:

BDFP = Biosolids Digester Facilities Project; SFPUC = San Francisco Public Utilities Commission

[a] See Table 4.1-1 in Section 4.1, Overview, for construction schedules and descriptions of cumulative projects.

[b] Construction of the Quint-Jerrold Connector Road between Quint Street and Jerrold Avenue (late 2018-2019), the Peninsula Corridor Electrification Project (2017-2020), and the Griffith Pump Station (2017-2018) would partially overlap with BDFP construction. Construction worker vehicle and construction truck trips associated with construction of these projects are not known; however, during the October 2018 BDFP peak construction period, these trips would not be anticipated to be substantial and are therefore not included in this table.

[c] SEP Repair and Replacement Projects and Candlestick Point-Hunters Point Shipyard Development are currently ongoing and travel demand associated with these projects is part of existing conditions.

[d] Construction truck traffic routes for development at Mission Bay Blocks 29-32 and at Pier 70 would not substantially overlap with BDFP truck routes due to distance from project site (three miles away) and so are not shown. Construction worker parking would not overlap with the BDFP parking study area.

SOURCES: CHS Consulting Group, *SFPUC Southeast Treatment Plant New Headworks Project Transportation Impact Study*, October 2016;SFPUC, SE10 SEP Power Feed and Primary Switchgear Upgrades, provided to ESA+Orion on November 6, 2015; SFPUC, Biosolids Cumulative Impact Analysis Traffic and Air Emissions Data, Seismic Reliability and Condition Assessment- Phase 3, provided to ESA+Orion on November 6, 2015; SFPUC, Biosolids Cumulative Impact Analysis Traffic and Air Emission Data, Central Bayside System Improvement Project, provided to ESA+Orion on January 22, 2016; SFPUC, Biosolids Cumulative Impact Analysis Traffic and Air Emissions Data, Kansas & Marin Sewer Improvements, provided to ESA+Orion on November 6, 2015; San Francisco Planning Department, *Final Mitigated Negative Declaration, 1995 Evans Avenue/San Francisco Police Department (SFPD) Forensic Service Division (FSD) & Traffic Company (TC), Case No. 2013.0342E*, October 2, 2013, amended on November 15, 2013; Office of Community Investment and Infrastructure, *Subsequent Environmental Impact Report, Event Center and Mixed-Use Development at Mission Bay Blocks 29 to 32*, State Clearinghouse No. 2014112045, November 3, 2015; San Francisco Planning Department, *Notice of Preparation of an Environmental Impact Report and Notice of a Public Scoping Meeting, Pier 70 Mixed-Use District Project*, Case No. 2014-001272ENV, August 14, 2013; San Francisco Planning Department, *India Basin – 700 Innes Final Transportation Impact Study*, Case No. 2014-00254ENV, March 2017.

The Southeast Headworks Replacement Project would use the parking lane on the south side of Evans Avenue between Rankin and Quint Streets (about 670 feet) for construction staging for the duration of the Headworks project's 5.5-year construction period, and on-street parking on the north side would also be temporarily restricted in order to maintain two travel lanes in each direction on Evans Avenue. However, for an approximately five-month period during Headworks Replacement Project construction, two of the four travel lanes on Evans Avenue between Rankin and Quint Streets would be closed, and one travel lane would be provided in each direction. The Traffic Control Plan for the Headworks project would address the travel lane reduction, including using advance warning signs, identifying detours/alternative routes, and using flaggers, as appropriate to maintain vehicular traffic

flow on Evans Avenue and minimize potential for delays to transit vehicles and conflicts among construction traffic, other vehicular traffic, and bicyclists. In addition, as part of the Headworks project, the segment of Rankin Street between Evans and Davidson Avenues, and Davidson Avenue between Rankin and Quint Streets, would require travel lane closures, and vehicles currently using these roadways could be diverted. On Rankin Street, both travel lanes would be closed for up to nine months for sewer connection work, but local access on the west side of Rankin Street would be maintained throughout the nine-month construction period. On Davidson Avenue, the southern lane would be temporarily closed for sewer connection construction for up to five months, but one travel lane would remain open at all times. As described above, the Traffic Control Plan for the Headworks project would specify the use and location of flaggers, detour signs, and other measures that would be implemented as part of the temporary road and travel lane closures. The temporary travel lane closures on Rankin Street and Davidson Avenue would not affect traffic flow on Evans Avenue or access to the BDFP site. No other cumulative projects in the vicinity of the SEP would result in foreseeable roadway or travel lane closures during the BDFP construction period.

As indicated above and presented in Table 4.6-18, the BDFP would generate the greatest number of construction truck trips during the October 2018 peak construction period, and would overlap with a number of other cumulative projects. The greatest overlap of BDFP and other cumulative project vehicles trips would occur primarily on Evans Avenue, which serves as a primary access route between a number of the cumulative projects and the regional freeway facilities. The addition of cumulative construction vehicle trips, as well as vehicle reroutes due to the BDFP's temporary closure of Jerrold Avenue between the Caltrain tracks and Phelps Street, would result in a noticeable increase in traffic volumes on Evans Avenue, and vehicle delays at intersections along Evans Avenue would increase. The increase in vehicle delays would be greatest when, as part of the Headworks construction, two of the four travel lanes on Evans Avenue between Rankin and Quint Streets would be closed for an approximately five-month period, and only one travel lane would be provided in each direction. The Traffic Control Plan for the Headworks project would address the travel lane reduction, including using advance warning signs, identifying detours/alternative routes, and using flaggers, as appropriate to maintain vehicular traffic flow on Evans Avenue and minimize potential for delays to transit vehicles and conflicts among construction traffic, other vehicular traffic, and bicyclists.

Overall, BDFP construction, in combination with other cumulative projects, would not substantially affect traffic circulation in the area and would result in less-than-significant cumulative construction-related traffic circulation impacts.

Impacts on Traffic Safety

As described in Impact TR-1, during construction, the BDFP would implement a Traffic Control Plan that would help maintain the safety of public streets for vehicles, bicyclists, and pedestrians. In addition to the project-specific Traffic Control Plan, given the multitude of planned projects and ongoing operations at the SEP, the SFPUC has formed a Site Logistics Committee to coordinate future site construction and ongoing operations activity at the SEP (see Section 2.6.1.3 in Chapter 2, *Project Description*). This committee works with program managers, project managers, and SEP operations staff to establish and update pre-construction plans for coordinated construction staging, parking, project interfaces, and traffic control. The SFPUC would hire a Southeast Area Program Construction Manager prior to the start of construction of major SEP projects (i.e., the Headworks and BDFP) and would

manage implementation of pre-construction plans and lead coordination efforts between projects and SEP operations through construction. The Southeast Area Program Construction Manager would also be responsible for coordinating with the project teams to update the SFMTA as needed to address local traffic, transit, bicycle, and pedestrian issues. Therefore, for the above reasons, BDFP construction, in combination with construction of other cumulative projects, would result in less-than-significant cumulative construction-related traffic safety impacts.

Impacts on Public Transit

As described in Impact TR-1, construction of the BDFP would require temporary rerouting of the 23 Monterey bus route, as well as the SFPUC SEP employee shuttle that runs between the SEP site and the BART 24th Street Mission station during the morning and evening employee commute periods. Construction activities of other cumulative projects within and in the vicinity of the SEP would occur off-street, and not within travel lanes of streets in the SEP vicinity. Construction of the Headworks project would use the parking lane on the south side of Evans Avenue between Rankin and Quint Streets for construction staging, but on-street parking on the north side would also be temporarily restricted in order to maintain two travel lanes in each direction for most of the construction period, with the exception of a five-month period when one travel lane would be provided in each direction for construction of a sewer connection. The 19 Polk bus route operates on Evans Avenue; there are bus stops on both the north side and the south side of Evans Avenue at Quint Street, and the bus stop on the south side of Evans Avenue would likely be temporarily relocated as part of the Headworks project. In addition, during peak construction periods, both the BDFP and the Headworks project would add truck traffic along Evans Avenue and Rankin Street to the SEP gate accessed from Rankin Street. The intersection of Rankin Street/Evans Avenue is signalized and Evans Avenue has two travel lanes in each direction, which would facilitate trucks access into and out of the SEP at this location. However, as noted above, during a five-month period construction of the Headworks project would result in one travel lane in each direction of Evans Avenue between Rankin and Quint Streets, which could marginally increase travel times for the 19 Polk bus route. In addition, as noted above, a Southeast Area Program Construction Manager would be responsible for coordinating with the BDFP and Headworks project teams and the SFMTA to address local transit issues. Therefore, for the above reasons, BDFP construction, in combination with construction of other cumulative projects, would result in less-than-significant cumulative construction-related transit impacts.

Impacts on Bicycle and Pedestrian Travel

As described in Impact TR-1, BDFP construction would increase the number of construction trucks on Phelps Street and Evans Avenue during the peak construction period between August and December 2018 (i.e., by about 70 daily construction trucks), and both streets are Class III bicycle facilities directly adjacent to the project site (signed route only with sharrows, no separate bicycle lane). As indicated in Table 4.6-18, the Headworks project would generate up to 80 daily construction trucks, thereby increasing the potential for vehicle-bicycle conflicts on these same streets under cumulative conditions, although it would not create potentially hazardous conditions for bicyclists. The Traffic Control Plans for both the BDFP and the Headworks would include measures to ensure bicyclist safety on these streets, and may include temporary detours to other roadways such as Third, Newhall, or Cesar Chavez Streets. The Southeast Area Program Construction Manager would be responsible for coordinating with the BDFP and Headworks project teams and the SFMTA to

determine if additional measures would be necessary to address cumulative impacts of these projects on bicyclists during peak construction periods.

As part of construction of the Headworks project, the sidewalk on the south side of Evans Avenue between Rankin and Quint Streets would be temporarily closed, and a temporary traffic signal would be installed at the intersection of Evans Avenue/Quint Street. Due to the proposed sidewalk closure, pedestrians traveling on the south sidewalk would be required to cross Evans Avenue at either the intersection of Evans Avenue/Rankin Street (which is currently signalized) or at the temporary traffic signal at the intersection of Evans Avenue/Quint Street, and continue on the north sidewalk in this segment. Therefore, pedestrian access along Evans Avenue would be maintained. It is not anticipated that other cumulative construction projects at the SEP and in the vicinity would include any sidewalk closures, other than on Jerrold Avenue as part of BDFP construction. Overlap of construction projects at the SEP and in the vicinity would increase the number of pedestrians on sidewalks in the SEP vicinity. However, the additional pedestrians could be accommodated, and cumulative projects would not result in substantial overcrowding on public sidewalks, create potentially hazardous conditions for pedestrians, or otherwise interfere with pedestrian accessibility.

Therefore, for the above reasons, BDFP construction, in combination with construction of other cumulative projects, would result in less-than-significant cumulative construction-related pedestrian and bicycle impacts.

Impacts on Emergency Vehicle Access

As discussed in Impact TR-2, construction of the BDFP, including temporary closure of Jerrold Avenue between the Caltrain tracks and Phelps Street, would not substantially affect emergency vehicle access, as alternative routes, including Evans and Oakdale Avenues, would be available for emergency vehicles. In addition, the SFPUC would coordinate with emergency service providers, and emergency vehicles would be allowed access through the closed portion of Jerrold Avenue, if necessary. Furthermore, in the early stages of BDFP construction, the planned Quint-Jerrold Connector Road Project could be completed, if acquisition of the necessary right-of-way by the City from UPRR is finalized. This project will link Quint Street just north of Oakdale Avenue to Jerrold Avenue via a new roadway along the west side of the Caltrain tracks and will restore access eliminated by the Caltrain project.

Staging areas and construction activities associated with the cumulative projects in the vicinity of the SEP would primarily occur off-street and would not affect the travel lanes of adjacent streets, and therefore would not affect emergency vehicle access on these streets. The Headworks project would use the parking lane on the south side of Evans Avenue between Rankin and Quint Streets for construction staging, and on-street parking on the north side would also be temporarily restricted in order to maintain two travel lanes in each direction on Evans Avenue except during a five-month period. Therefore, emergency vehicle access along Evans Avenue would not be substantially affected.

The temporary increases in construction-related vehicles on streets in the vicinity of the SEP due to cumulative projects that share the same truck access routes as the BDFP (e.g., Headworks) would not substantially affect emergency vehicle access. On these streets, such as Evans Avenue and Cesar Chavez Street, there are multiple travel lanes that would allow vehicles to pull over to the side in

order to yield the right-of-way to emergency vehicles and remain stopped until the emergency vehicle passes.

Therefore, for the above reasons, BDFP construction, in combination with construction of other cumulative projects, would result in less-than-significant cumulative construction-related emergency vehicle access impacts.

Impacts on Freight Rail

In addition to the BDFP, other cumulative projects such as the Headworks project and the Event Center and Mixed-Use Development at Mission Bay Blocks 29-32 could also transport excavated soils via the San Francisco Bay Railroad freight rail from Pier 94. Because San Francisco Bay Railroad freight rail operations are regulated to eliminate potential conflicts with Caltrain commuter rail, and because the San Francisco Bay Railroad facility at Pier 94 has capacity to store 300 rail cars and load and unload more than 60 rail cars per day, the one to two rail cars per day associated with the BDFP construction activities would not substantially contribute to the operations of the San Francisco Bay Railroad under cumulative construction conditions. Therefore, for the above reasons, BDFP construction, in combination with construction of other cumulative projects, would result in less-than-significant cumulative construction-related freight rail impacts.

Impacts on Parking

Construction worker parking demand associated with other cumulative projects in the SEP vicinity would primarily be accommodated within off-street staging areas, although for projects with smaller construction work forces, construction worker parking may be accommodated on-street. As indicated in Table 4.6-18, the Headworks project would generate the greatest number of construction workers, and parking for these construction worker vehicles would be accommodated within the SFPUC Bruce Flynn Station site at the northeast corner of the intersection of Evans Avenue/Rankin Street, or at a Pier 94 staging area with a shuttle transporting employees between Pier 94 and the Headworks project site.

The Headworks project would require temporary displacement of about 50 on-street parking spaces on either side of Evans Avenue between Rankin and Quint Streets between January 2017 and December 2021. The parking lane on the south side of Evans Avenue would be used for construction staging, while the parking lane on the north side would be used as a travel lane in order to maintain two travel lanes in each direction on Evans Avenue. The temporary displacement of about 20 on-street parking spaces on Jerrold Avenue as part of the BDFP and 50 on-street parking spaces on Evans Avenue as part of the Headworks project would not substantially affect areawide parking conditions, as the parking demand associated with these temporarily displaced parking spaces could be accommodated on other nearby streets. Therefore, for the above reasons, BDFP construction, in combination with construction of other cumulative projects, would result in less-than-significant cumulative construction-related parking impacts.

Summary of Impact C-TR-1

Overall, impacts of cumulative construction projects in the vicinity of the SEP would be greatest during the peak BDFP construction period between August and December 2018, which would overlap with peak construction truck traffic for the Headworks project. Cumulative construction projects would not

result in temporary street closures, with the exception of the closure of Jerrold Avenue between the SEP entrance west of Phelps Street and the Caltrain right-of-way as part of the BDFP construction and travel lane closures on Evans Avenue as part of the Headworks project construction. Project-specific Traffic Control Plans would be prepared for each of the SFPUC-sponsored cumulative projects. In addition, a Southeast Area Program Construction Manager would be hired prior to the start of construction of the Headworks project and would manage implementation of the project-specific Traffic Control Plans and lead coordination efforts between projects and SEP operations throughout construction. For all cumulative projects, construction activities affecting City streets would be required to be conducted in accordance with City requirements to ensure that construction activities are conducted safely and with the least possible interference with pedestrians, bicyclists, transit, and vehicles. For these reasons, construction-related project impacts on traffic, transit, pedestrians, bicyclists, emergency vehicle access, freight rail, and parking, in combination with past, present and other cumulative projects, would be ***less than significant.***

Mitigation: None required.

Impact C-TR-2: Project operations and maintenance activities, in combination with past, present, and probable future projects, would not result in significant transportation impacts. (Less than Significant)

Impacts on Traffic and Circulation

As presented in Table 4.1-1 in Section 4.1, Overview, cumulative projects include infrastructure improvement projects as well as land use development projects such as those at Candlestick Point-Hunters Point Shipyard and Pier 70 that would result in increased travel demand. The infrastructure improvement projects such as the Quint-Jerrold Connector Road and the improvements associated with the San Francisco Wholesale Produce Market would replace and/or enhance existing facilities and would not be expected to result in a substantial increase in travel demand. Operations and maintenance of these facilities would remain similar to existing operations and would not result in a noticeable increase in VMT in the area.

When the San Francisco Wholesale Produce Market project is implemented, the City would vacate a portion of Jerrold Avenue between Toland and Rankin Streets (i.e., to the west of the SEP). This portion of Jerrold Avenue would then be enclosed so that only authorized and inspected vehicles could have access to the produce market. Vehicular traffic not related to the San Francisco Wholesale Produce Market would be directed to parallel streets to the north or south on segments of Innes and Kirkwood Avenues, which would be improved. In addition, the Wholesale Produce Market project would relocate a portion of Rankin Street between Jerrold Avenue and Innes Avenue to parallel the existing and adjacent Caltrain right-of-way, thereby allowing for rerouting of westbound traffic on Jerrold Avenue west of Rankin Street.[30] No tentative date has been identified for these roadway

[30] The closure of Jerrold Avenue between Toland and Rankin Streets was approved as part of the Wholesale Produce Market Project Mitigated Negative Declaration, Case No. 2009.1153E (San Francisco Planning Department, May 11, 2011, amended on July 5, 2011). Available online at http://sf-planning.org/sites/default/files/FileCenter/Documents/8783-2009.1153E_SFWholesaleProduceMarketFMND.pdf.

improvements, which would be built and operational prior to the construction of the San Francisco Wholesale Produce Market project. The recently proposed San Francisco Gateway project would redevelop two City blocks to the west and south of the SEP (the two blocks bounded by Kirkwood Avenue, McKinnon Avenue, Toland Street, and Rankin Street) as a multi-building Production, Distribution and Repair center, and would vacate and close Selby Street between Kirkwood and McKinnon Avenues. Selby Street is currently the unimproved right-of-way (i.e., no curbs, gutters, or sidewalks) under the I-280 freeway structure providing access to the adjacent uses, and its closure to through traffic would not substantially affect circulation in the SEP vicinity.

Quint Street was permanently closed to through traffic, pedestrians, and bicycles at the Caltrain tracks in October 2015 as part of Caltrain's Quint Street Bridge Replacement project. In parallel with Caltrain's bridge replacement project, the City is leading a project to construct a new Quint-Jerrold Connector Road along the west side of the Caltrain tracks that will replace the north-south access lost with the Quint Street closure. The roadway would be approximately 1,000 feet long between existing Quint Street and Jerrold Avenue, with one lane each way and a sidewalk on the west side. CEQA environmental review of the Quint-Jerrold Connector Road project has been completed,[31] and the project is currently under design; its construction is contingent on the acquisition of the necessary property from UPRR. Construction is expected to start late 2018 and would last approximately one year.

As noted in Impact TR-3, vehicle trips associated with BDFP operations and maintenance activities would remain similar to existing conditions (i.e., would increase from fewer than 33 per day under existing conditions to fewer than 36 per day by 2045 due to anticipated population growth). In addition, operation of the BDFP would not result in an increase in the total number of employees at the SEP. Therefore, the BDFP would not increase total VMT associated with SEP operations. In addition, the redesign and reconstruction of the segment of Jerrold Avenue between Phelps Street and the Caltrain tracks fit within the general types of projects identified by the San Francisco Planning Department that would not substantially induce automobile travel. Therefore, for the above reasons, the BDFP, in combination with past, present and probable future development projects and transportation network changes, would result in less-than-significant cumulative VMT impacts.

Impacts on Public Transit

As noted in Impact TR-3, following completion of BDFP construction, Jerrold Avenue between Phelps Street and the Caltrain tracks would be reopened, and the temporary construction-related reroute of the 23 Monterey bus route would be discontinued, unless the SFMTA implements the proposed Muni Forward service improvements for the 23 Monterey, in which case the temporary reroute would become permanent. If the Muni Forward service improvements for the 23 Monterey are not implemented, the closure of Jerrold Avenue to through traffic between Toland and Rankin Streets as part of the San Francisco Wholesale Produce Market project would require the relocation of the 23 Monterey to Innes Avenue between Toland and Rankin Streets and to the relocated Rankin Street between Innes and Jerrold Avenues. The Quint-Jerrold Connector Road project is being designed to

[31] San Francisco Planning Department, Quint-Jerrold Connector Road Project Mitigated Negative Declaration, Case No. 2013.0858E, August 5, 2015, amended on September 23, 2015. Available online at http://sfmea.sfplanning.org/2013.0858E_FMND.pdf.

accommodate a potential future Caltrain station at Oakdale Avenue (i.e., along the Caltrain tracks between Oakdale and Jerrold Avenues), and the BDFP would not conflict with or preclude the proposed new station. Operation of the BDFP would not cause or contribute to potential significant cumulative impacts on transit capacity utilization or transit operations in the SEP vicinity because operation of the BDFP would not result in an increase in the total number of employees at the SEP or the number of transit trips. In addition, operation of the BDFP would result in a very minimal increase in the number of haul trucks trips traveling to and from the SEP. Therefore, for the above reasons, the BDFP, in combination with past, present, and probable future development projects and transportation network changes, would result in less-than-significant cumulative transit impacts.

Impacts on Bicycle and Pedestrian Travel

Operation of the BDFP would not cause or contribute to potential significant cumulative impacts on pedestrians or bicycles because operation of the BDFP would not result in an increase in the total number of employees at the SEP or the number of pedestrian and bicycle trips in the area. In addition, operation of the BDFP would result in a very minimal increase in the number of haul truck trips traveling to and from the SEP. The BDFP would improve the sidewalk on Jerrold Avenue between the Caltrain tracks and Phelps Street. Other cumulative projects include improvements that would further enhance pedestrian conditions in the project site vicinity. For example, the Headworks project would install bulb-outs on Evans Avenue. The San Francisco Wholesale Produce Market project would create new sections of Innes and Kirkwood Avenues, relocate Rankin Street between Jerrold and Innes Avenues to parallel the existing and adjacent Caltrain tracks, and provide new curb, gutters, and sidewalks on the improved sections of Innes and Kirkwood Avenues and the new Rankin Street. In addition, the Headworks project would install sidewalk bulb-outs on the south side of Evans Avenue between Rankin and Quint Streets.

For the above reasons, the BDFP, in combination with past, present, and probable future development, would result in less-than-significant cumulative pedestrian and bicycle impacts.

Impacts on Freight Rail

Operation of the BDFP would not include activities using freight rail, and therefore the project would not contribute to cumulative freight rail impacts. Therefore, the BDFP, in combination with past, present, and probable future development, would result in less-than-significant cumulative freight rail impacts.

Impacts on Emergency Vehicle Access

With implementation of the cumulative projects, emergency vehicle access conditions in the project vicinity would remain similar to existing conditions, as the BDFP and other cumulative projects would not change the roadway network in the area. The exception is the San Francisco Wholesale Produce Market project, which, if implemented, would vacate the portion of Jerrold Avenue between Toland and Rankin Streets, improve and extend Innes and Kirkwood Avenues to connect with Toland Street, and relocate a portion of Rankin Street between Innes and Jerrold Avenues. These changes would not substantially affect emergency vehicle access in the SEP vicinity. Implementation of the BDFP would not cause or contribute to potentially significant cumulative impacts on emergency vehicle access because the BDFP would not close any streets and operation of the BDFP

would not substantially affect vehicle travel on adjacent roadways. Therefore, for the above reasons, the BDFP, in combination with past, present, and probable future development, would result in less-than-significant cumulative emergency vehicle access impacts.

Impacts on Parking

Operations and maintenance activities at the SEP following completion of the BDFP would not result in additional employees or increased parking demand. With implementation of cumulative projects at the SEP, including the BDFP, area-wide parking conditions would remain similar to existing conditions. The parking demand associated with the San Francisco Wholesale Produce Market would be accommodated on-site. There are limited cumulative land use development projects in the vicinity of the SEP, and it is not anticipated that area-wide parking demand would substantially increase. Parking demand associated with cumulative land use development projects located a mile or more east and north of the SEP, such as Candlestick Point-Hunters Point Shipyard, Pier 70 Waterfront Site, and development on Mission Bay Blocks 29-32, would not affect parking conditions in the vicinity of the SEP. The BDFP would not contribute considerably to cumulative parking impacts.

With implementation of all cumulative projects, area-wide on-street parking supply would increase over existing conditions. While the proposed reconfiguration of Jerrold Avenue between the Caltrain tracks and Phelps Street as part of the BDFP would result in a loss of about 20 on-street parking spaces, implementation of the San Francisco Wholesale Produce Market project would create new sections of Innes and Kirkwood Avenues (between Toland and Rankin Streets), which would add about 240 on-street parking spaces. Implementation of the City's Transit-First Policy, the City's Better Streets Plan, and related projects on area streets may reduce on-street parking supply to promote sustainable travel modes and sustainable street designs, and may lead to a mode shift from private passenger vehicles to transit or other modes of travel. Therefore, for the above reasons, the BDFP, in combination with past, present, and other cumulative projects, would result in less-than-significant cumulative parking impacts.

Summary of Impact C-TR-2

Overall, BDFP operations, in combination with past, present, and probable future projects, would not substantially contribute to adverse cumulative transportation conditions in the area. Operations and maintenance activities at the SEP would be similar to existing conditions, and BDFP operations would not contribute to cumulative increases in travel demand. The San Francisco Wholesale Produce Market project would close Jerrold Avenue between Toland and Rankin Streets and create new sections of Innes and Kirkwood Avenues, but these cumulative changes would not substantially affect circulation in the area or result in significant transportation impacts. For these reasons, the cumulative impacts on VMT, traffic hazards, transit, pedestrians, bicyclists, emergency vehicle access, parking, and freight rail resulting from BDFP operations, in combination with past, present, and probable future projects, would be ***less than significant***.

Mitigation: None required.

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4.7 Noise and Vibration

This section describes the existing noise and vibration environment in the project area, reviews the existing regulatory framework governing noise and vibration, evaluates potential construction-related and operational noise and vibration impacts associated with implementation of the Biosolids Digester Facilities Project (BDFP or project), and identifies mitigation measures to avoid or reduce significant adverse impacts. **Appendix NOI** presents supporting information for the noise analysis.

4.7.1 Setting

4.7.1.1 Sound Fundamentals

Sound is characterized by various parameters that describe the rate of oscillation (frequency) of sound waves, the distance between successive troughs or crests in the wave, the speed that it travels, and the pressure level or energy content of a given sound. The sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound, and the decibel (dB) scale is used to quantify sound intensity. Because sound can vary in intensity by over one million times within the range of human hearing, a logarithmic loudness scale is used to keep sound intensity numbers at a convenient and manageable level. Since the human ear is not equally sensitive to all sound frequencies within the entire spectrum, human response is reflected in the A-weighted decibel (expressed as "dBA"), which refers to a scale of noise measurement that approximates the range of sensitivity of the human ear to sounds of different frequencies. On this scale, the normal range of human hearing extends from about 0 dBA to about 140 dBA. Except in carefully controlled laboratory experiments, a change of only 1 dBA in sound level cannot be perceived. Outside of the laboratory, a 3-dBA change is considered a perceptible difference. A 10-dBA increase in the level of a continuous noise represents a perceived doubling of loudness.[1]

Noise Descriptors

Noise is generally defined as sound that is loud, disagreeable, unexpected, or unwanted. Sound is mechanical energy transmitted in the form of a wave by a disturbance or vibration that causes pressure variation in air the human ear can detect. Variations in noise exposure over time are typically expressed in terms of a steady−state energy level (called L_{eq}) that represents the acoustical energy of a given measurement, or alternatively as a statistical description of what sound level is exceeded over some fraction (10, 50, or 90 percent) of a given measurement period (i.e., L_{10}, L_{50}, L_{90}). $L_{eq(24)}$ is the steady−state acoustical energy level measured over a 24−hour period. L_{max} is the maximum, instantaneous noise level registered during a measurement period. Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law requires that, for planning purposes, an artificial dBA increment be added to evening and nighttime

[1] California Department of Transportation (Caltrans), *Technical Noise Supplement (TeNS) to the Traffic Noise Analysis Protocol* pp. 2-44 to 2-45, September 2013. Available online at http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013B.pdf. Accessed on April 14, 2015.

noise levels to form a 24–hour noise descriptor called the Community Noise Equivalent Level (CNEL). CNEL adds a 5-dBA penalty during the evening (7:00 p.m. to 10:00 p.m.) and a 10-dBA penalty at night (10:00 p.m. to 7:00 a.m.). Another 24 hour noise descriptor, called the day–night noise level (L_{dn}), is similar to CNEL. Both CNEL and L_{dn} add a 10-dBA penalty to all nighttime noise levels between 10:00 p.m. and 7:00 a.m., but L_{dn} does not add the evening 5-dBA penalty between 7:00 p.m. and 10:00 p.m. In practice, L_{dn} and CNEL usually differ by less than 1 dBA at any given location for transportation noise sources.[2] **Table 4.7-1** presents representative noise sources and their corresponding noise levels in dBA at varying distances from the noise sources.

TABLE 4.7-1
REPRESENTATIVE ENVIRONMENTAL NOISE LEVELS

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock Band
Jet Fly-Over at 100 feet		
	100	
Gas Lawnmower at 3 feet		
	90	
Diesel Truck going 50 mph at 50 feet		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noise Urban Area during Daytime		
Gas Lawnmower at 100 feet	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal Speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Area during Daytime	50	Dishwasher in Next Room
Quiet Urban Area during Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Area during Nighttime		
	30	Library
Quiet Rural Area during Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio
	10	
	0	

NOTES:
dBA = A-weighted decibel; mph = miles per hour

SOURCE: California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013, p. 2-20.

[2] Ibid. pp. 2-48.

Attenuation of Noise

A receptor's distance from a noise source affects how noise levels attenuate (decrease). Transportation noise sources tend to be arranged linearly, such that roadway traffic attenuates at a rate of 3.0 dBA to 4.5 dBA per doubling of distance from the source, depending on the intervening surface (paved or vegetated, respectively). Point sources of noise, such as stationary equipment or construction equipment, typically attenuate at a rate of 6.0 dBA to 7.5 dBA per doubling of distance from the source.[3] For example, a sound level of 80 dBA at 50 feet from the noise source will be reduced to 74 dBA at 100 feet, 68 dBA at 200 feet, and so on. Noise levels can also be attenuated by "shielding" or providing a barrier between the source and the receptor. With respect to interior noise levels, noise attenuation effectiveness depends on whether windows are closed or open. Based on the United States Environmental Protection Agency (USEPA) national average, closed windows reduce noise levels by approximately 25 dBA, while open windows reduce noise levels by about 15 dBA.[4]

Health Effects of Environmental Noise

The World Health Organization (WHO) is perhaps the best source of current knowledge regarding health impacts of noise. According to WHO, sleep disturbance can occur when continuous indoor noise levels exceed 30 dBA (L_{eq}) or when intermittent interior noise levels reach or exceed 45 dBA (L_{max}), particularly if background noise is low. With a bedroom window slightly open (a reduction from outside to inside of 15 dB), the WHO criteria for avoiding sleep disturbance would suggest exterior continuous (ambient) nighttime noise levels should be 45 dBA (L_{eq}) or below, and short-term events should not generate noise levels at the exterior of the residence in excess of 60 dBA (L_{max}). WHO also notes that maintaining noise levels within the recommended levels during the first part of the night is believed to be effective for the ability to fall asleep.[5]

Other potential health effects of noise identified by WHO include decreased performance for complex cognitive tasks, such as reading, attention span, problem solving, and memorization; physiological effects such as hypertension and heart disease (after many years of constant exposure, often by workers, to high noise levels); and hearing impairment (again, generally after long-term occupational exposure, although shorter-term exposure to very high noise levels, for example, exposure several times a year to concert noise at 100 dBA, can also damage hearing). Finally, noise can cause annoyance and can trigger emotional reactions like anger, depression, and anxiety. WHO reports that, during daytime hours, few people are seriously annoyed by activities with noise levels below 55 dBA or moderately annoyed with noise levels below 50 dBA.

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[3] The 1.5-dBA variation in attenuation rate (6 dBA vs. 7.5 dBA) can result from ground absorption effects, which occur as sound travels over soft surfaces such as soft earth or vegetation (7.5-dBA attenuation rate) vs. over hard ground such as pavement or very hard-packed earth (6-dBA rate). (U.S. Housing and Urban Development, *The Noise Guidebook*, 1985, p. 24. Available online at https://www.hudexchange.info/onecpd/assets/File/Noise-Guidebook-Chapter-4.pdf. Accessed on March 9, 2016.)

[4] United States Environmental Protection Agency (USEPA), *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*, March 1974, Appendix B, Table B-4, p. B-6.

[5] World Health Organization (WHO), *Guidelines for Community Noise*, April 1999, Chapter 3, p. 46. Available online at http://www.who.int/docstore/peh/noise/guidelines2.html. Accessed on March 10, 2016.

Vehicle traffic and continuous sources of machinery and mechanical noise contribute to ambient noise levels. Short-term noise sources, such as truck backup beepers, the crashing of material being loaded or unloaded, car doors slamming, and engines revving outside a nightclub, contribute very little to 24-hour noise levels but are capable of causing sleep disturbance and severe annoyance. The importance of noise to receptors depends on both time and context. For example, long-term high noise levels from large traffic volumes can make conversation at a normal voice level difficult or impossible, while short-term peak noise levels, if they occur at night, can disturb sleep.

Groundborne Vibration and Noise

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Vibration is typically measured by peak particle velocity (PPV) in inches per second (in/sec). With the exception of long-term occupational exposure, vibration levels rarely affect human health. Instead, most people consider vibration to be an annoyance that can affect concentration or disturb sleep. People may tolerate infrequent, short-duration vibration levels, but human annoyance from vibration becomes more pronounced if the vibration is continuous or occurs frequently. High levels of vibration can damage fragile buildings or interfere with sensitive equipment. Depending on the age of the structure and type of vibration (transient, continuous, or frequent intermittent sources), threshold vibration levels can range from 0.1 to 2.0 in/sec PPV for damage to a structure.[6]

Typical sources of groundborne vibration in San Francisco are large-scale construction projects that involve pile driving or underground tunneling, and transit operations of Caltrain and Muni Metro's light rail vehicles and historic streetcars. Vibration is also caused by transit vehicles in the subway system under Market Street, including Muni Metro light rail vehicles and Bay Area Rapid Transit (BART) trains. Because rubber tires provide vibration isolation, rubber tire vehicles such as Muni buses, trucks, and automobiles rarely create substantial groundborne vibration effects unless there is a discontinuity or bump in the road that causes the vibration.[7]

4.7.1.2 Local Setting

Sensitive Receptors

In general, people in residences, schools, daycare centers, libraries, churches, hospitals, and convalescent care facilities are more sensitive to noise than those at commercial and industrial establishments. Consequently, the noise standards for such land uses are more stringent than those for less sensitive uses (as reflected in the *San Francisco General Plan* Environmental Protection Element's noise compatibility guidelines). Workers are not typically considered noise-sensitive

[6] California Department of Transportation (Caltrans), *Transportation and Construction-Induced Vibration Guidance Manual*, 2004, Table 19, p. 27. Available online at http://www.dot.ca.gov/hq/env/noise/pub/vibrationman FINAL.pdf, Accessed on March 10, 2016.

[7] U.S. Department of Transportation Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment*, DTA-VA-90-1003-06, May 2006, p. 10-6. Available online at http://www.fta.dot.gov/ 12347_2233.html. Accessed on March 10, 2016.

receptors because employers are required to comply with regulations set forth by the Occupation Safety and Health Administration (OSHA) to ensure the health and well-being of their employees, which includes hearing protection.

Project Site

Noise

This noise analysis focuses on areas within 1,000 feet of the project site because the site is located in an urban environment where most typical construction and operation noise sources of concern attenuate to background or acceptable noise levels within this distance, even when no intervening structures are present. Since the project vicinity is developed and there are intervening structures located between the project site and nearby sensitive receptors, existing intervening structures would provide noise attenuation benefits.[8]

Sensitive receptors within 1,000 feet of the project site include residences, a school/educational facility, a daycare facility, and various churches. Of these nearby receptors, residences and schools are among the land uses generally considered to be the most sensitive to noise. The closest residential uses to the project site are located along the east side of Phelps Street directly across the street from the Southeast Water Pollution Control Plant (Southeast Plant or SEP) and along Jerrold Avenue on the block east of Phelps Street. These residences are located about 600 to 700 feet from the closest BDFP facilities. There are existing SEP facilities such as the existing digesters between proposed BDFP facility locations and these residences, interrupting the lines-of-sight (and, consequently, future noise) between the project site and these ground-level receptors. In addition, a masonry wall that extends along the SEP boundary adjacent to Phelps Street also interrupts the lines-of-sight between ground-level sources and ground-level receptors. However, there are more distant residences in higher elevations of the Silver Terrace neighborhood to the south (1,700 feet or more from the BDFP site) with direct or uninterrupted lines-of-sight.

The Southeast Community Facility (1800 Oakdale Avenue) is approximately 750 feet south of proposed BDFP facilities; services provided in this facility include an education/training center operated by the City College of San Francisco and a daycare facility, the Wu Yee South East Child Development Center at 1300 Phelps Street.[9] No other schools or daycare facilities are located within 1,000 feet of BDFP facilities.

No libraries, hospitals, or convalescent care facilities are located within 1,000 feet of project facilities.

[8] Because the noise attenuation benefits from intervening buildings would vary depending on the height of the receptor (ground floor versus second or third floor) and the varying heights and continuity of intervening structures (i.e., a continuous wall versus existing digester tanks), attenuation benefits were not included in this analysis. By not including attenuation benefits from intervening structures, this analysis is considered very conservative, with some receptors likely subject to lower than predicted noise levels where there are intervening structures. (See Section 4.7.3.2 for more discussion of noise attenuation factors.)

[9] A complete listing of services provided at this facility is available online at City and County of San Francisco, Southeast Community Facility Commission, Partners and Services. Available online at http://sfgov.org/sefacility/servicesofferings-and-locations. Accessed on February 8, 2017.

Religious facilities located within 1,000 feet of the project site include two churches located on the south side of Oakdale Avenue, approximately 850 to 900 feet southwest of the project site: Calvary Apostolic Church (1869 Oakdale Avenue) and Galilee Missionary Baptist Church (1901 Oakdale Avenue).

Active parks, recreation centers, and playgrounds are not as sensitive to noise as residences, schools, hospitals, or convalescent care facilities, because background noise levels at active parks and recreation centers and at playgrounds tend to be elevated. However, users of natural recreation areas may value an increased degree of quiet for passive recreational uses. There are no natural recreation areas within 1,000 feet of BDFP facilities. The closest park is the Palou & Phelps Mini-Park, located at the southeast corner of Palou Avenue and Phelps Street, approximately 1,000 feet south of the SEP boundary.

Vibration

The responses of human receptors and structures to vibration are influenced by a combination of factors, including soil/rock type, distance from the source, duration, the number of perceived vibration events, and time of day. Vibration-sensitive structures include old or fragile structures (some of which may be historic) or vibration-sensitive manufacturing, research, or laboratory activities. While energy transmitted through the ground as vibration can reach levels that can cause cosmetic damage or disrupt vibration-sensitive activities, humans are much more sensitive to vibration, and the vibration amplitudes that can be perceived by humans are well below the levels that cause cosmetic damage.

There are no known fragile structures or vibration-sensitive land uses in the immediate project vicinity. Although historic structures are often considered to be more fragile than modern structures, the adjacent and nearby SEP structures that are identified as historic (see Section 4.5, Cultural Resources) have been engineered for industrial use and lack fragile architectural features; therefore, they are not considered to be sensitive to vibration. Similar to noise-sensitive receptors, however, nearby residential uses to the east and south are considered to be sensitive to vibration if it occurs during the nighttime hours and causes sleep disturbance.

Potential Off-Site Staging Areas

Piers 94 and 96

There are no residences, schools, libraries, religious facilities, hospitals, or convalescent care facilities located within 1,000 feet of this staging area. The closest educational facility is the City College of San Francisco's Evans Campus located at 1400 Evans Avenue, as close as 1,150 feet southwest of the Pier 94 staging area (refer to Figure 4.2-2 in Section 4.2, Land Use). There are no active parks in the vicinity of this staging area, but the Bay Trail is located as close as 300 feet south of the Pier 96 staging area, while picnic facilities at the Heron's Head Park, a natural recreation area, are located as close as about 250 feet south of this staging area (refer to Figure 4.2-2).

Quint Street, Jerrold Avenue, and Southeast Greenhouses

These staging areas are located adjacent to each other and to the BDFP site, and therefore have many of the same sensitive receptors located nearby but at slightly closer distances, so that the residential neighborhood generally south of Jerrold Avenue, west of Third Street, and north of Quesada Avenue is within 1,000 feet of these staging areas. There are a few more residences on each street between Hudson Avenue and Kirkwood Avenue that are located within 1,000 feet of the east end of the Jerrold Avenue staging area. The closest residences are located on the east side of Phelps Street (near its intersection with McKinnon Avenue), as close as 50 feet east of the Southeast Greenhouses staging area.

Just south of the Southeast Greenhouses staging area is the Southeast Community Facility; which includes the Wu Yee daycare facility (inclusive of its outdoor play area) located as close as approximately 100 feet to the southernmost greenhouse. The main building of the Southeast Community Facility is located a minimum of 140 feet from the southernmost greenhouse. No other schools or daycare facilities are located within 1,000 feet of these staging areas. In addition to the two churches identified above for the project site, the Faith Temple Church of God in Christ (1758 Oakdale Avenue) and Metropolitan Baptist Church (1682 Newcomb Avenue) are also located within 1,000 feet of the Southeast Greenhouses staging area. As with the BDFP site, there are no libraries, hospitals, or convalescent care facilities located within 1,000 feet of these staging areas, but there is a small assisted living facility (Mae Bea Andrews Boarding Care, 1739 Newcomb Avenue) located in a residence about 600 feet southeast of the Southeast Greenhouses staging area.

1550 Evans Avenue

Residential uses on Hudson Avenue are located as close as approximately 850 feet south of this staging area. The closest educational facility is the City College of San Francisco's Evans Campus at 1400 Evans Avenue, as close as about 325 feet east of this staging area (refer to Figure 4.2-1 in Section 4.2, Land Use). There are no libraries, religious facilities, hospitals, or convalescent care facilities located within 1,000 feet of this staging area.

Existing Noise Environment

Project Site

The project site is located in an urban area where noise from nearby industrial uses such as a scrap metal recycling company (Circosta Iron & Metal Company) to the northwest of the site and vehicular traffic (automobiles, trucks, and buses on the Interstate 280 [I-280] freeway, which is located as close as 0.1 mile to the west, and other major thoroughfares in the vicinity) dominate the existing ambient noise environment. In addition, intermittent sources of noise that contribute to ambient noise levels include commuter train traffic (Caltrain) adjacent to the project site's western boundary, industrial freight train traffic adjacent to the project site's western boundary, and nearby light rail trains (Muni Third Street line), approximately 1,000 feet east of the project site's eastern boundary.

Ambient Noise Levels at Project Site and SEP

The noise environment surrounding the project site is influenced primarily by truck and automobile traffic on the I-280 freeway (elevated in the site vicinity) and local streets, railroad operations along the Caltrain right-of-way, on-site wastewater treatment facilities/operations, and various industrial uses in the site vicinity. Noise measurements collected along the project site western boundary (Locations A and B, respectively, on **Figure 4.7-1**) range from 61 to 73 dBA (Leq) during the daytime hours (7:00 a.m. to 8:00 p.m.) and 54 to 66 dBA (Leq) during the evening and nighttime hours (8:00 p.m. to 7:00 a.m.), with lower noise levels occurring at the Asphalt Plant (no longer in operation) and higher noise levels occurring to the north with increasing proximity to the adjacent scrap metal recycling facility, I-280 freeway, and Evans Avenue. Existing noise levels along the eastern SEP boundary (Locations C and D, respectively, on Figure 4.7-1) range from 63 to 69 dBA (Leq) during the daytime hours and 58 to 59 dBA (Leq) during the evening and nighttime hours; nighttime levels are 5 to 10 dBA lower than daytime levels.[10]

Ambient Noise Levels at Nearby Sensitive Receptors

The project site and areas to the north and east are relatively level, sloping gently down to the Bay; the topography rises to the south in the vicinity of the Silver Terrace neighborhood. Long-term noise measurements were collected in September to October 2015 at six locations (numbered 1 through 6 on Figure 4.7-1) that correspond to nearby sensitive receptors that reflect a representative range of noise environments in the SEP vicinity, from the closest receptors to more distant receptors with uninterrupted lines-of-sight to the project site (i.e., where existing buildings and topography do not block noise generated on-site). **Table 4.7-2** presents the noise measurement results collected at adjacent and nearby sensitive receptors. In general, daytime noise levels in residential neighborhoods to the east range from 60 to 67 dBA (Leq), and nighttime noise levels are about the same (58 to 64 dBA, Leq). Residential neighborhoods to the south are subject to slightly lower daytime and nighttime noise levels than the neighborhood east of the SEP.

Noise Incidents at the SEP

SEP incident report records from June 2009 through October 2015 indicate that only one noise complaint was received during that time. According to the incident report, the complaint was received during the testing of the oxygen generation plant, a facility that had just been installed and was in the startup/testing stage. In response to the complaint, SEP staff shut down the oxygen generation plant on the fourth day of the five-day test. The noise remediation work has been completed and now the plant is operating without any additional noise incidents.[11]

[10] Vibro-Acoustic Consultants, *Noise Data for EIR Team – SEP Fenceline,* September 2015. A copy of this document is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2015.000644ENV.

[11] SFPUC, *SEP Noise Complaints, 2009 – 2015.* Data provided via email on October 30, 2015.

SFPUC Biosolids Digester Facilities

Figure 4.7-1
Noise Measurement Locations

SOURCE: Vibro-Acoustic Consultants,
Noise Data for EIR Team - SEP Fenceline, September 2015.

Note: Locations indicated by letters are those where noise measurements were taken along the SEP and project site boundaries. Numbered noise measurement locations are nearby sensitive receptors reflecting a representative range of noise environments in the SEP vicinity and are evaluated in the impact analysis.

TABLE 4.7-2
SUMMARY OF NOISE MONITORING IN PROJECT VICINITY

Measurement/ Receptor Location	Location	Time Period	Noise Level (dBA)				
				Leq		L90	
			Ldn (24-hour)	Day (7:00 a.m. to 8:00 p.m.)	Night (8:00 p.m. to 7:00 a.m.)	Day (7:00 a.m. to 8:00 p.m.)	Night (8:00 p.m. to 7:00 a.m.)
Location 1	1796 La Salle Avenue (east side of Phelps Street) (representative of residential receptors on east side of Phelps Street)	9/25/15-9/30/15 (5 days)	71	67	64	57	55
Location 2	1663 Kirkwood Avenue (east of Phelps Street) (representative of residential receptors mid-block on streets such as Jerrold, Kirkwood, and La Salle on the east side of SEP)	9/25/15-9/28/15 (3 days)	64	61	58	54	51
Location 3	1200 Phelps Street (west side of Phelps Street) (representative of Wu Yee South East Child Development Center and Southeast Community Facility)	9/25/15-9/30/15 (5 days)	66	60	59	56	56
Location 4	1901 Palou Avenue (representative of Silver Terrace neighborhood located south of Oakdale Avenue, near lower elevations, about 0.2 to 0.25 mile south of BDFP site)		67	65	60	56	51
Location 5	2000 Revere Avenue (representative of Silver Terrace neighborhood near middle elevations, about 0.25 to 0.33 mile south of BDFP site)		65	63	57	54	51
Location 6	296 Bayview Circle (representative of Silver Terrace neighborhood near highest elevations with direct line-of-sight, about 0.33 mile or more south of BDFP site)		62	58	55	53	52
Location A	Southwestern Project Boundary - Asphalt Plant	9/14/15-9/20/15 (6 days)	64	62	57	54	50
Location B	Northwestern Project Boundary - Central Shops		75	70	68	58	61
Location C	Northeastern Project Boundary - Visitors Parking Lot	9/14/15-9/19/15 (5 days)	67	63	60	56	54
Location D	Southeastern Project Boundary - Anaerobic Digesters	9/14/15-9/20/15 (6 days)	71	66	62	65	61

NOTES:

dBA = A-weighted decibel; SEP = Southeast Water Pollution Control Plant; BDFP = Biosolids Digester Facilities Project

Average daytime, evening, and night L_{eq} noise levels were calculated by Orion Environmental Associates based on noise measurement data collected by Vibro-Acoustics in 2015. L_{dn} was calculated by Vibro-Acoustics and the lowest L_{90} measured is based on noise measurement data collected by Vibro-Acoustics. Noise levels were calculated based on three to six continuous days of measurement data.

SOURCE: Vibro-Acoustic Consultants, *Noise Data for EIR Team – Receptors and SEP Fenceline,* September 2015. A copy of this document is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2015.000644ENV

Potential Off-Site Staging Areas

Piers 94 and 96

The San Francisco Department of Public Health (SFDPH) has mapped noise levels along transportation corridors throughout the City and County of San Francisco (CCSF or "City"). SFDPH mapping indicates that traffic noise levels in the Piers 94 and 96 vicinity exceed 70 dBA (Ldn) on the east-west section of Amador Street (just east of Third Street) where there are industrial uses and high truck volumes. Noise levels along this street are estimated to decrease to less than 60 dBA (L_{dn}) where Amador Street turns south and extends in a southeasterly direction.

Quint Street and Jerrold Avenue

According to SFDPH traffic noise level mapping, traffic noise levels along Quint Street are estimated at 60 to 65 dBA (Ldn), while noise levels along Jerrold Avenue are slightly higher at 65 to 70 dBA (Ldn). Other sources of noise along these streets include existing SEP wastewater treatment facilities and Caltrain operations to the west.

Southeast Greenhouses

The Southeast Greenhouses are located along the east side of the Caltrain right-of-way. Quint Street is located near the northwest corner of this staging area and Phelps Street extends along the eastern boundary of this staging area. According to SFDPH traffic noise level mapping, traffic noise levels along this section of Phelps Street are as high as 65 to 70 dBA (L_{dn}). Existing SEP wastewater treatment facilities are located to the north of this staging area, and the Southeast Community Facility (including daycare facility) is located to the south of this staging area. Noise levels were measured at the daycare facility (see Table 4.7-2, Location 3, 1200 Phelps Street) to be 66 dBA (L_{dn}), with daytime (7:00 a.m. to 8:00 p.m.) noise levels of 60 dBA (L_{eq}) and evening (8:00 p.m. to 10:00 p.m.) levels of 59 dBA (L_{eq}).

1550 Evans Avenue

This staging area is located adjacent to Evans Avenue and Third Street (east of the SEP) and subject to relatively high traffic noise levels. SFDPH mapping indicates that traffic noise levels along both of these streets exceed 70 dBA (L_{dn}) and decrease to 60 to 70 dBA (L_{dn}) over most of this staging area with increasing distance from both streets.

Existing Groundborne Noise and Vibration

Groundborne noise is that which is experienced inside a building or structure from vibrations produced outside of the building and transmitted as ground vibration between the source and receiver. There are currently no major sources of groundborne noise or vibration on the project site.

Other sources of vibration in the project vicinity include Caltrain railroad operations, located as close as approximately 60 feet from the western project boundary, and railroad operations on the spur line between the Caltrain tracks and the western project boundary, located approximately 40 feet from the western project boundary. Locomotive passenger or freight trains generate a vibration level of

0.09 inches per second PPV at a distance of 40 feet[12] which is below the Federal Transit Administration's vibration damage criteria for all building types.[13]

4.7.2 Regulatory Framework

4.7.2.1 Federal Regulations

Motor Vehicle Noise Emissions Controls

Federal regulations establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under Title 40 (Protection of Environment) of the Code of Federal Regulations, Part 205, Subpart B. The federal truck pass-by noise standard is 80 dBA at 50 feet from the vehicle pathway center line, under specified test procedures. These controls are implemented through regulatory controls on truck manufacturers. There are no comparable standards for vibration, which tend to be influenced by roadway surface, the vehicle load, and other factors.

Occupational Safety and Health Act of 1970

OSHA is the main federal agency that adopts laws and regulations for ensuring safe and healthful work environment to prevent injuries and protect the health of workers. All employers must follow OSHA regulations to ensure the health and well-being of their employees. OSHA's noise standard (29 Code of Federal Regulations [CFR] 1910.95) has a permissible exposure limit of 90 dBA (time-weighted average over an eight-hour work shift) and has an action level that requires employers to have a hearing conservation program in place if workers are exposed to a time-weighted average noise level of 85 decibels (dBA) or higher over an eight-hour work shift.

4.7.2.2 State Regulations

California Vehicle Code

Section 27204 of the California Vehicle Code establishes a noise limit of 80 dBA for trucks over 5 tons (gross vehicle weight rating) at 50 feet from the vehicle pathway center line, under specified test procedures. These controls are implemented through regulatory controls on truck manufacturers.

California Noise Control Act of 1973

Health and Safety Code Sections 46000-46002 declare that excessive noise is a serious hazard to the public health and welfare and exposure to certain levels of noise can result in physiological, psychological, and economic damage. The Office of Noise Control does not have the authority or responsibility to adopt or enforce noise emissions standards. Instead, this regulation gave cities and communities the power to set noise ordinances and enforce them as necessary.

[12] U.S. Department of Transportation, Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment, May 2006, page 10-3.
[13] Ibid. Page 12-13.

California Occupational Safety and Health Standards

The California Division of Occupational Safety and Health, known as Cal/OSHA, is the state agency that sets and enforces standards intended to protect the health and safety of workers, which includes protection from excessive noise. Cal/OSHA has the same permissible exposure limit (90 dBA time-weighted average over an eight-hour work shift and action level of 85 dBA) as federal OSHA standards. General Industry Safety Orders, Article 105, requires employers to provide personal protective equipment to workers when noise levels exceed 90 dBA for 8 hours per day, which is also equivalent to 91 dBA for 6.96 hours per day, 92 dBA for 6.06 hours per day and so forth, with the highest limit of 115 dBA for 0.25 hour per day.[14]

4.7.2.3 Local Regulations

San Francisco General Plan

The Environmental Protection Element of the *San Francisco General Plan* contains a "Land Use Compatibility Guidelines for Community Noise" figure for determining the compatibility of various new uses with different noise levels. These guidelines, which are similar to state guidelines set forth by the Governor's Office of Planning and Research, indicate maximum acceptable noise levels for various land uses. Although this figure presents a range of noise levels that are considered compatible or incompatible with new uses, the maximum "satisfactory" noise level is 60 dBA (L_{dn}) for residential and hotel uses; 65 dBA (L_{dn}) for school classrooms, libraries, churches, and hospitals; 70 dBA (L_{dn}) for playgrounds, parks, office uses, retail commercial uses, and noise-sensitive manufacturing/ communications uses; and 77 dBA (L_{dn}) for other commercial uses such as wholesale, some retail, industrial/manufacturing, transportation, communications, and utilities.

San Francisco Noise Ordinance

The City regulates noise through Article 29 (Sections 2901, 2907 through 2909, *et seq*) of the Police Code, referred to herein as the Noise Ordinance, which states that the City's policy is to prohibit unnecessary, excessive, and offensive noises from all sources subject to police power. The City (including the San Francisco Public Utilities Commission [SFPUC]) is exempt from the noise limits as specified in Article 29;[15] however, the City generally conducts construction consistent with the restrictions of the noise standards expressed in Sections 2907 in order to prevent significant noise impacts. Under the SFPUC Standard Construction Measures (discussed below), the SFPUC requires its contractors to comply with noise ordinances regulating construction noise.

Construction Noise

Section 2907(a) limits noise from construction equipment to 80 dBA when measured at a distance of 100 feet from such equipment, or an equivalent sound level at some other convenient distance. Exemptions from this requirement include impact tools with approved mufflers, pavement breakers

[14] Department of Industrial Relations, *Subchapter 7, General Industry Safety Orders, Group 15, Occupational Noise, Article 105, Control of Noise Exposure, Table N-1, Permissible Noise Exposure.* Available online at https://www.dir.ca.gov/title8/5096.html. Accessed on July 30, 2016.

[15] Section 2901(h) of Article 29.

and jackhammers with approved acoustic shields, and construction equipment used in connection with emergency work. Section 2908 prohibits nighttime construction (between 8:00 p.m. and 7:00 a.m.) that generates noise exceeding the ambient[16] noise level by 5 dBA at the nearest property line unless a special permit has been issued by the City. In granting such special permit, the Director of Public Works or the Director of Building Inspection must consider:

- If construction noise in the vicinity of the proposed work site would be less objectionable at night than during daytime because of different population levels or different neighboring activities, or if obstruction and interference with traffic, particularly on streets of major importance, would be less objectionable at night than during daytime;
- If the kind of work to be performed emits noises at such a low level as to not cause significant disturbance in the vicinity of the work site, or if the neighborhood of the proposed work site is primarily residential in character wherein sleep could be disturbed;
- If great economic hardship would occur if the work were spread over longer time;
- If the work will abate or prevent hazard to life or property; and
- If the proposed night work is in the general public interest.

Operational Noise

Section 2909(a) generally prohibits a person[17] from producing, or allowing to be produced (by any machine, device, etc.), noise levels exceeding 5 dBA above the ambient at any point outside of the property plane.[18] Section 2909(b) prohibits noise levels exceeding 8 dBA above the ambient from industrial and commercial sources at any point outside of the property plane. Section 2909(c) prohibits noise levels exceeding 10 dBA above the ambient on public property at a distance of 25 feet or more unless the machine or device is operated to serve or maintain the property. Section 2909(d) establishes maximum noise levels for fixed sources (e.g., mechanical equipment) such that the noise from such sources does not cause the noise level measured inside any residential living room or bedroom to exceed 55 dBA (7:00 a.m. to 10:00 p.m.) or 45 dBA (10:00 p.m. to 7:00 a.m.) with windows open.

[16] Section 2901 clarifies the definition of "ambient" as the L_{90} (the level of noise exceeded 90 percent of the time), and under most conditions this noise descriptor is considered to be a conservative representation of the ambient noise level. Ordinance compliance is determined by measuring the L90 for 10 minutes, with and without the noise source at issue, and the ambient is the lowest sound level repeating itself during the measurement period. Use of the L_{90} descriptor is appropriate when determining code compliance of a fixed noise source (such as mechanical equipment) but is not appropriate for other aspects of a California Environmental Quality Act (CEQA) noise impact analysis, which determines noise compatibility based on L_{dn} or CNEL. Therefore, L_{eq} is a more appropriate descriptor for evaluating CEQA noise impacts in traffic-dominated environments or where variable noise levels such as construction noise are being assessed.

[17] Section 2901(h) of the Noise Ordinance defines a "person" as a "person, firm, association, copartnership, joint venture, corporation, or any entity, public or private in nature, but shall not include the City and County of San Francisco."

[18] Property plane means a vertical plane including the property line that determines the property boundaries in space.

San Francisco Public Utilities Commission Standard Construction Measures and Safe Design Guidelines

The SFPUC would implement standard construction measures for the BDFP (described in **Appendix SCM**), including the following measure applicable to noise:

> 5. *Noise*: All projects will comply with local noise ordinances regulating construction noise. The SFPUC shall undertake measures to minimize noise disruption to nearby neighbors and sensitive receptors during construction. These efforts could include using best available noise control technologies on equipment (i.e., mufflers, ducts, and acoustically attenuating shields), locating stationary noise sources (i.e., pumps and generators) away from sensitive receptors, erecting temporary noise barriers, and other such measures.

Regarding design and operation, the SFPUC implements Safe Design Guidelines on all of its projects, including a design noise goal of 80 dBA within work areas; this goal is lower than the OSHA and Cal/OSHA standards of 85 dBA (action level) and 90 dBA (permissible exposure limit). If equipment is expected to expose the operator or other workers in the area to sound pressure levels of 80 dBA or higher, the Safe Design Guidelines recommend that quieter equipment be specified or noise controls be considered when quieter equipment is not feasible.

4.7.3 Impacts and Mitigation Measures

4.7.3.1 Significance Criteria

The project would have a significant impact related to noise if the project were to:

- Result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Result in exposure of persons or structures to or generation of excessive groundborne vibration or groundborne noise levels;
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, expose people residing or working in the area to excessive noise levels;
- For a project located in the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels; or
- Be substantially affected by existing noise levels.

Due to the nature of the project, there would be no impact related to the following criteria for the reasons described below:

- ***Expose people residing or working in the area to excessive noise levels near airports or airstrips***. The project site is not within an airport land use plan area, nor is it in the vicinity of a

private airstrip. Therefore, the BDFP would not result in the long-term exposure of workers to excessive airport-related noise levels, and these criteria are not discussed further in this environmental impact report (EIR).

- ***Be substantially affected by existing noise levels***. The BDFP is a wastewater utility project and would not be affected by existing noise levels. Since the project is not a noise-sensitive land use, this criterion would not apply to this project and is not discussed further in this EIR. Further, recent case law has clarified that impacts of the environment on a project are not significant impacts under CEQA.[19]

4.7.3.2 Approach to Analysis

Noise

Construction Noise Impact Methodology

The determination of impact significance for noise takes into account combined construction noise from simultaneous on-site equipment, Noise Ordinance standards, proximity of noise-sensitive uses, and the duration of exposure to noise impacts.

General Considerations

To assess potential short-term construction noise impacts, the analysis identifies and describes sensitive receptors and their relative exposure to estimated construction noise. The analysis considers the attenuation of noise with distance; the analysis does not consider attenuation potentially provided by barriers (e.g., intervening walls, buildings and other structures) due to variations in the height of such barriers; nor does the analysis take into account future demolition of some SEP structures. Therefore, this analysis provides conservative results by excluding the noise attenuation benefits that intervening structures may provide. Construction-related noise impacts were assessed in part using the U.S. Federal Transit Administration (FTA) methodology for general quantitative noise assessment.[20] This methodology considers operation of the two noisiest pieces of equipment and applies documented usage to account for the amount of time that equipment is in use. The distance between noise source and receptor was based on the distance between each construction area to the specified receptors.

Construction Equipment Noise Thresholds

Thresholds used in this EIR to determine the significance of construction-related noise increases are as follows:

- **Non-Impact Construction Equipment Threshold.** Section 2907(a) of the Noise Ordinance limits noise from any individual piece of construction equipment, except impact tools approved by San Francisco Public Works, to 80 dBA at 100 feet, which is equivalent to 86 dBA at 50 feet.

[19] *California Building Industry Association v. Bay Area Air Quality Management District* (August 12, 2016) 2 Cal.App.5th 1057.

[20] U.S. Department of Transportation, Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment, Section 12.1.1 Quantitative Noise Assessment Methods*, May 2006, pp. 12-4 to 12-8. Available online at http://www.fta.dot.gov/12347_2233.html. Accessed on March 13, 2016.

- **Impact Construction Equipment Threshold.** For normal daytime operations (7:00 a.m. to 8:00 p.m.), there are no noise limits on the total construction noise generated by a project; construction is allowed during the daytime hours (7:00 a.m. to 8:00 p.m.) every day of the week. Since the Noise Ordinance does not identify a quantitative noise limit standard for impact equipment or combined noise impacts from simultaneous operation of multiple pieces of equipment, impacts are assessed relative to application of FTA construction noise criteria: 90 dBA (L_{eq}) during the day and 80 dBA during the night at residential uses, and 100 dBA (L_{eq}) at commercial/industrial uses.

- **Construction Noise Threshold for Daytime Hours.** The San Francisco Planning Department considers an increase of 10 dBA over existing noise levels from persistent construction to be a substantial temporary increase in noise levels.

- **Construction Noise Threshold for Nighttime Hours**. Construction work is proposed to extend into nighttime hours (8:00 p.m. to 11:00 p.m.). Section 2908 prohibits nighttime construction (between 8:00 p.m. and 7:00 a.m.) that generates noise exceeding the ambient noise level by 5 dBA at the nearest property line unless a special permit has been issued. If noise levels were expected to exceed this threshold, the contractor would be required to obtain a special permit for nighttime construction work under the SFPUC's standard construction measures. With a special permit, nighttime noise limits would be those specified in Section 2909(d) of the Noise Ordinance: 55 dBA between 7:00 a.m. and 10:00 p.m. and 45 dBA between 10:00 p.m. and 7:00 a.m. These interior limits are equivalent to a nighttime exterior limit of 70 dBA and daytime interior limit of 80 dBA with the windows closed, respectively, and they would be applied to the project's nighttime construction work as follows: 80 dBA between 8 p.m. and 10 p.m. and 70 dBA between 10 p.m. and 11 p.m.

Noise from Changes in Traffic Volumes (Worker Vehicles and Trucks)

Construction-related worker vehicles and trucks would operate during daytime construction hours. The significance of changes in traffic noise associated with the project is based on whether traffic noise increases would be noticeable to people. (Increases of less than 3 dB are barely noticeable, while increases of 5 dBA are readily noticeable.[21]) A noise increase of 5 dBA or more is considered significant regardless of the affected land uses because such an increase is readily noticeable. Where the existing or resulting noise environment exceeds acceptable levels for land uses located adjacent to affected road segments (as defined by Policy 11.1 of the *San Francisco General Plan* Environmental Protection Element's "Land Use Compatibility Guidelines for Community Noise" figure), noise increases of 3 dBA are considered significant.

Operational Noise Impact Methodology

General Considerations

To assess potential long-term noise impacts associated with BDFP process facilities, the analysis identifies and describes sensitive receptors and their relative noise exposure. Noise attenuation associated with distance was considered, but as in the construction impact analysis, this approach provides conservative results by excluding noise attenuation that intervening structures would provide.

[21] California Department of Transportation, Division of Environmental Analysis, "Technical Noise Supplement," November 2009, pp. 2-48 – 2-49. Available online at http://www.dot.ca.gov/hq/env/noise/pub/tens_complete.pdf. Accessed on March 13, 2016.

Combined operational noise levels from simultaneous operation of BDFP process equipment were estimated based on the SFPUC's equipment list presented in the project's Final Conceptual Engineering Report[22] and manufacturer's specifications,[23] and supplemented with noise data collected by the EIR consultant for pumps and air handling units[24] as part of other noise studies. Since most facilities are proposed to be enclosed and would be designed to maintain interior noise levels within buildings at or below 80 dBA (L_{eq}), the primary outlets for noise would be vent openings on process facility[25] buildings and rooftop air handling units. Based on the more conservative OSHA design interior noise level of 85 dBA (L_{eq}), the building shell is assumed to attenuate noise levels by at least 20 dB[26] at vent openings. With such attenuation, exterior noise levels are assumed to be 65 dBA (L_{eq}) at 25 feet from vent openings. Noise generated from exterior equipment such as rooftop air handling units was added to noise at vent openings by this analysis to estimate a combined reference noise level at 50 feet from each process facility. The minimum distances between each process facility and the identified sensitive receptors (coinciding with measurement locations presented in Table 4.7-2) were then calculated, and noise levels from each process facility as well as the combined noise level from operation of all process facilities that could operate simultaneously were estimated at these receptors.

Application of Noise Ordinance Limits[27]

Thresholds used in this EIR to determine the significance of operational noise increases are as follows:

- **Noise Limits at Property Boundary (Initial Screening).** The significance of estimated noise increases associated with operation of each proposed process facility is assessed by first comparing these increases to noise increase limits specified in Section 2909. Section 2909 generally prohibits noise produced by fixed noise sources (any machine or device) from resulting in noise levels that exceed the existing ambient (L_{90}) noise level by more than 5 dBA for residential uses, 8 dBA for commercial and industrial uses, and 10 dBA for public uses at any point outside the property plane. Operational noise from stationary sources such as process facilities is assessed first to determine whether noise increases of 8 dBA (for noise generated by industrial/commercial uses) over existing ambient (L_{90}) levels would occur at the closest property plane (Section 2909[b] ambient +8 dBA threshold).

[22] Biosolids Digester Facilities Project Consultant Team, Contract CS-235 Biosolids Digester Facilities Project, *Conceptual Engineering Report (Final), Appendix G-1, Operations Equipment List*, March 2016. Also see Tables 2-10 and 2-11 in Chapter 2, *Project Description*, for equipment list and estimated construction schedule.

[23] Ibid., *Equipment List and Manufacturer's Specifications*, included in Noise Info Package, December 14, 2015.

[24] An air handling unit is a device used to regulate and circulate air as part of a heating, ventilation, and air-conditioning system. Data from Vibro-Acoustic Consultants, *Noise Data for EIR Team – SEP Fenceline*, September 2015. A copy of this document is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2015.000644ENV.

[25] "Process facility" refers to specific processes in the wastewater treatment process such as digester gas treatment facility, energy recovery facility, pre-digestion solids processing facility, anaerobic digestion facility, biosolids dewatering facility, solids odor control facility, etc.

[26] According to the USEPA, the national average for building attenuation is 15 dB with windows open and 25 dB with windows closed (USEPA, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*, March 1974, p. B-6).

[27] As stated above, although the SFPUC is not required to conform to Noise Ordinance requirements, time and noise limits in the ordinance are used in this EIR as criteria to determine the significance of project impacts under CEQA.

- **Noise Limits at Closest Sensitive Receptors (Secondary Screening).** In instances where there would be a noise increase of 8 dBA at this property plane, the significance of the project's operational noise impacts on nearby residential receptors is then evaluated by comparing estimated noise levels to interior noise limits specified in Section 2909(d) (45 dBA between 10:00 p.m. and 7:00 a.m. and 55 dBA between 7:00 a.m. and 10:00 p.m., which are equivalent to a nighttime exterior limit of 60 dBA and daytime interior limit of 70 dBA with the windows open, respectively). Because the daycare and training facilities at the Southeast Community Facility only operate during the daytime hours, the interior limit of 55 dBA between 7:00 a.m. and 10:00 p.m. specified in Section 2909(d) is applied to this noise-sensitive use, which is equivalent to an exterior limit of 70 dBA with the windows open. There are existing facilities at the SEP that contribute to existing ambient noise levels and are proposed to be decommissioned. Since noise decreases resulting from proposed decommissioning are not subtracted from project-related operational noise levels, this analysis is considered to be conservative.

Noise from Changes in Traffic Volumes (Trucks)

Project implementation would not substantially change the levels of worker traffic or trucking operations associated with the SEP but would change truck routes. Impact NO-4 evaluates the potential noise impacts from changes in traffic volumes due to changes in truck routes. The same thresholds described above under construction-related traffic noise changes are also applied to operational traffic noise increases.

Vibration

Both construction-related and operational vibration impacts are considered significant if they would either result in vibration levels substantial enough to cause damage to nearby structures or buildings or result in long-term vibration levels that could cause annoyance to sensitive land uses. Groundborne noise occurs when vibrations transmitted through the ground result in secondary radiation of noise. Groundborne noise is generally associated with transit trains through tunnels and underground blasting activities, neither of which is proposed as part of this project. Therefore, this analysis is focused on groundborne vibration.

Vibration Thresholds for Structures

Vibration impacts for structures are considered significant if vibration levels would be substantial enough to result in damage to nearby structures. There are no City regulations that address vibration. This evaluation uses the Caltrans-identified PPV thresholds for architectural (cosmetic) damage to buildings from vibration, as presented in **Table 4.7-3**. As indicated in this table, the threshold for continuous vibration sources is about half of the threshold for transient sources.

For this analysis, the 0.5 in/sec PPV threshold was used as a significance threshold level for construction-related vibration impacts on structures located on the SEP site as well as for industrial and commercial structures located off-site, but a 0.3 in/sec PPV threshold was applied to older residential structures, consistent with the Caltrans-recommended threshold levels listed in Table 4.7-3. In general, cosmetic or threshold damage to buildings can occur at these vibration levels from continuous/frequent intermittent sources. Caltrans recommends a threshold level of 0.25 in/sec PPV for historic and some old buildings, which are mostly represented as buildings with plastered walls and

TABLE 4.7-3
VIBRATION THRESHOLDS FOR POTENTIAL DAMAGE TO STRUCTURES

Structure Type and Condition	Maximum Peak Particle Velocity (in/sec, PPV)	
	Transient Sources[a]	Continuous/Frequent Intermittent Sources[b]
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5[c]

NOTES:

in/sec = inches per second; PPV = peak particle velocity

[a] Transient sources create a single isolated vibration event, such as blasting or drop balls.
[b] Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.
[c] The 0.5 in/sec PPV threshold is also applied by the Swiss Association of Standardization for Class I buildings, which are defined as "buildings in steel or reinforced concrete such as factories, retaining walls, bridges, steel towers, open channels, underground chambers, and tunnels with and without concrete alignment."

SOURCE: Caltrans, *Transportation and Construction Vibration Guidance Manual*, September 2013, Table 19, p. 38. Available online at http://www.dot.ca.gov/hq/env/noise/publications.htm. Accessed on March 11, 2016.

ceilings, wooden ceilings, or masonry walls. Although some SEP buildings are historic, this threshold was not applied to SEP buildings because despite their historic status, all SEP buildings have been engineered for industrial use and lack fragile construction elements, such as plastered or masonry walls, that could be subject to cosmetic damage. Instead, a threshold level of 0.5 in/sec PPV was applied to SEP buildings, which is consistent with the Caltrans-recommended threshold level listed in Table 4.7-3 for modern industrial or commercial buildings.

Vibration Thresholds for Human Annoyance

People are more sensitive to vibration during the nighttime hours when sleeping than during daytime waking hours. Numerous studies have been conducted to characterize the human response to vibration. As shown in **Table 4.7-4**, for steady-state (continuous) vibration, people typically find vibration "strongly perceptible" at 0.1 in/sec PPV, "distinctly perceptible" at 0.04 in/sec PPV, and "barely perceptible" at 0.01 in/sec PPV. While nighttime construction work could occur (up to 11:00 p.m.) continuous vibration sources such as pile driving would not occur during the evening hours. Consequently, this analysis applies the "strongly perceptible" threshold for transient sources (0.1 in/sec PPV) to evaluate the potential for human annoyance impacts associated with project-generated vibration.

TABLE 4.7-4
VIBRATION THRESHOLDS FOR ANNOYANCE

Human Response	Maximum Peak Particle Velocity (in/sec, PPV)	
	Transient Sources[a]	Continuous/Frequent Intermittent Sources[b]
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.90	0.10
Severe	2.00	0.40

NOTES:
in/sec = inches per second; PPV = peak particle velocity

[a] Transient sources create a single isolated vibration event, such as blasting or drop balls.
[b] Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

SOURCE: Caltrans, *Transportation and Construction Vibration Guidance Manual*, September 2013, Table 20, p. 38. Available online at http://www.dot.ca.gov/hq/env/noise/publications.htm. Accessed on March 11, 2016.

Cumulative Impacts

Section 4.1.3, Approach to Cumulative Impact Analysis and Cumulative Projects, describes the overall approach to the cumulative analysis for those topics using a list-based approach and summarizes probable future projects in the vicinity of the project that could contribute to a cumulative impact; please refer to Table 4.1-1 and Figure 4.1-1 for a description and location of potential cumulative projects in the vicinity of the BDFP and its staging areas.

The cumulative analysis for noise and vibration uses the list-based approach to analyze the effects of the project in combination with other past, present, and probable future projects in the immediate vicinity and assumes that construction and operations of other projects in the geographical area would be required to comply with the same regulatory requirements as the project, which would serve to avoid or reduce many impacts to less-than-significant levels on a project-by-project basis. The analysis then considers whether or not there would be a significant, adverse cumulative impact associated with project implementation in combination with past, present, and probable future projects in the geographical area, and if so, whether or not the project's incremental contribution to the cumulative impact would be considerable. Both conditions must be met in order for a project's contribution to significant cumulative effects to be deemed cumulatively considerable. If it is, then mitigation measures are identified to reduce the project's contribution to the extent feasible.

The geographic scope of the cumulative analysis includes areas close enough to the BDFP site and staging areas (i.e., within 1,000 feet) to noticeably contribute to project-specific construction and operational noise and vibration impacts on sensitive receptors. Cumulative construction and operational noise impacts are assessed by determining those cumulative projects that could be constructed and could operate at the same time as the BDFP. An approximation is made of cumulative construction and operational noise and vibration levels using the same methodologies and significance thresholds outlined above for construction-related and operational noise and vibration impacts.

4.7.3.3 Impact Evaluation

The impact analysis addresses both construction-related and operational impacts as follows:

- Impact NO-1: Construction-related noise (short-term)
- Impact NO-2: Construction-related groundborne noise and vibration (short-term)
- Impact NO-3: Operational facility noise (long-term)
- Impact NO-4: Operational traffic noise (long-term)
- Impact NO-5: Operational vibration (long-term)
- Impact C-NO-1: Cumulative construction-related noise and vibration (short-term)
- Impact C-NO-2: Cumulative operational noise and vibration (long-term)

Construction Impacts

Impact NO-1: Construction of the project could cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project and could expose people to or generate noise levels in excess of standards in the Noise Ordinance. (Less than Significant with Mitigation)

Consistency with Equipment Noise Limit

Section 2907 of the Noise Ordinance allows construction activities between 7:00 a.m. and 8:00 p.m. but limits noise from any individual piece of construction equipment, except impact tools approved by San Francisco Public Works, to 80 dBA at 100 feet, which is equivalent to 86 dBA at 50 feet. **Table 4.7-5** presents the average noise levels (L_{eq}) that would be generated by each piece of construction equipment during construction. All non-impact equipment would be consistent with the Noise Ordinance except for concrete saws, as shown in Table 4.7-5. Consequently, the project could generate noise levels in excess of daytime equipment noise level standards established in the local noise ordinance, a significant impact. With implementation of noise controls as specified in **Mitigation Measure M-NO-1a (Shielding of Concrete Saw Operations)**, noise levels from all construction equipment would be reduced to below the applicable ordinance limit (86 dBA at 50 feet, or 80 dBA at 100 feet), reducing this impact to a less-than-significant level.

Noise from Construction Activities at the Project Site

Estimating Noise Levels at Sensitive Receptors. Construction of the BDFP would result in the operation of heavy equipment on the project site. Construction activities on the project site would occur intermittently over the five-year construction period during daytime (7:00 a.m. to 8:00 p.m.) and early nighttime (8:00 p.m. to 11:00 p.m.) hours. These activities could expose nearby sensitive receptors to temporary increases in noise levels substantially in excess of ambient levels.

As explained in Section 4.7.3.2, the FTA methodology for evaluating construction noise impacts was applied to this project for both daytime and nighttime activities. The FTA recommends daytime and nighttime threshold levels of 90 dBA (L_{eq}) and 80 dBA (L_{eq}), respectively, for construction noise from combined equipment affecting residential uses and 100 dBA (L_{eq}) for combined construction noise affecting commercial/industrial uses. In addition, a 10-dBA increase over existing daytime and nighttime noise levels due to persistent construction was also applied in this analysis. Construction noise levels

TABLE 4.7-5
DAYTIME NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Level (L_{max}, dBA) at 50 feet	Does Project Equipment L_{max} Noise Level Exceed Section 2907 Limit (86 dBA at 50 Feet)?[a]	Usage Factor (%)	Noise Level (L_{eq}, dBA) at 50 Feet
Auger Drill Rig	85	No	50	82
Backhoe	80	No	40	76
Bar Bender	80	No	20	73
Boring Jack Power Unit	80	No	50	77
Chain Saw	85	No	20	78
Compactor	80	No	20	73
Compressor	80	No	40	76
Concrete Mixer Truck	85	No	40	81
Concrete Pump Truck	82	No	20	75
Concrete Saw	**90**	**Yes**	20	83
Tower Crane	85	No	16	77
Crawler Crane	85	No	16	77
Hydraulic Crane	85	No	16	77
Dozer	85	No	40	81
Drill Rig Truck	84	No	20	77
Dump Truck	84	No	40	80
Excavator w/4-Cubic-Yard Bucket	85	No	40	81
Flat Bed Truck	84	No	40	80
Front End Loader	80	No	40	76
Generator	82	No	50	79
Gradall	85	No	40	81
Grader	85	No	40	81
Demolition Hammer	95	Exempt[a]	20	88
Impact Hammer	95[b]	Exempt[a]	20	88
Horizontal Boring Hydr. Jack	80	No	25	74
Jackhammer (Pneumatic)	85	Exempt[a]	20	78
Man Lift	85	No	20	78
Excavator	85	No	40	81
Pickup Truck	55	No	40	51
Pneumatic Tools	85	No	50	82
Pumps	77	No	50	74
Roller	85	No	20	78
Scraper	85	No	40	81
Shears	85	No	40	81
Welder/Torch	73	No	40	69

NOTES: dBA = A-weighted decibel

[a] Noise impacts from impact equipment are assessed relative to FTA thresholds for construction noise since they are exempt. As specified in Section 2907(b) of Article 29, impact tools and equipment are exempt from the 86-dBA ordinance limit, provided impact tools and equipment are equipped with intake and exhaust mufflers recommended by the manufacturers as best accomplishing maximum noise attenuation. In addition, pavement breakers and jackhammers are required to be equipped with acoustically attenuating shields or shrouds recommended by the manufacturers as best accomplishing maximum noise attenuation.

[b] Piles could be driven or drilled and pile-driving or drilling equipment has not yet been specified. Therefore, representative examples of impact pile drivers are used in this analysis to evaluate maximum (worst-case) noise impacts associated with pile installation.

[c] Bolded values exceed Section 2907 construction noise limit.

SOURCE: U.S. Department of Transportation, Federal Highway Administration, *Construction Noise Handbook, 9.0 Construction Equipment Noise Levels and Ranges, Table 9.1, RCNM Default Noise Emission Reference Levels and Usage Factors*, August 2006. Available online at http://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook09.cfm. Accessed on March 13, 2016.

during the nighttime hours were also compared to noise limits specified in Section 2908 (ambient +5 dBA exterior limit at the property plane) and Section 2909(d) (45 dBA interior limit at sensitive receptors) of the Noise Ordinance.

A combined noise level resulting from simultaneous operation of the two noisiest pieces of equipment was estimated for the following seven construction phases because each of these phases would involve operation of different types of equipment, would have different noise characteristics and durations, would have the potential to affect nearby sensitive receptors differently, and thus are representative of the different noise levels that could occur during the project construction period:

1. Demolition of the below-ground portions of the decommissioned Asphalt Plant and other SEP structures, set up of site offices, and relocation of utilities (six months in 2018);

2. Installation of secant pile walls (which would be drilled and cast-in-place) and other piles using drilling or vibratory driving methods (multiple week periods in 2018 and in 2020);

3. Excavation (five months in 2018, two weeks in 2020), and construction of the pipe gallery and pipe chases including impact pile driving (six weeks in 2018 and nine months in 2020) and utilities (two months in 2018, 12 months in 2020-2021), and installation of electrical utilities (12 months in 2021-2023);

4. Construction of anaerobic digesters, thermal hydrolysis process (THP) facilities, and gravity belt thickener (GBT) (foundation, substructure, super structure, etc.) in 2018-2023;

5. Construction of utilities, roadways, parking lots, traffic control, fencing, and landscaping (2020-2023);

6. Use of construction staging areas (February 2018-January 2023); and

7. Construction activities after 8:00 p.m. related to late finish concrete placement, minor grading related to shutdowns, crane use for pipe/precast concrete placement, welding, pipefitting, electrical work, pumps for groundwater dewatering, and moving equipment/materials associated with indoor work (2018-2023).

Table 4.7-6 presents combined maximum noise levels from the two noisiest pieces of equipment for each of the above construction phases. These noise levels assume (1) no attenuation from intervening buildings/structures or ground surface, and (2) unmitigated L_{eq} noise levels (reflecting usage factors) presented in Table 4.7-5 pursuant to FTA guidelines for assessing construction noise effects. As indicated in Table 4.7-6, the maximum combined noise levels associated with the range of equipment proposed to be used during project construction would range from 81 to 85 dBA (L_{eq}) at 50 feet, and up to 88 dBA (L_{eq}) at 50 feet if impact hammers or impact pile drivers are employed. Demolition activities are estimated to generate a maximum combined noise level of 85 dBA (L_{eq}) over a six-month period. Maximum combined noise levels of 88 dBA (L_{eq}) and noise peaks of up to 95 dBA (L_{max}) at 50 feet would occur over a five-month period in 2018 and a two-week period in 2020 if piles are driven instead of drilled.

TABLE 4.7-6
MAXIMUM COMBINED NOISE LEVELS FROM PROJECT-RELATED CONSTRUCTION ACTIVITIES

Construction Phase, Equipment Used in Estimate	Noise Level (Leq) at 50 Feet
1. Demolition, Site Offices Setup, Utilities Relocation Work (Six Months in 2018)	
Excavator	81
Concrete Saw	83
Combined L_{eq}:	**85**
2. Piles (Drilled) and Excavation (2018-2020)	
Auger Drill Rig	82
Excavator	81
Combined L_{eq}:	**85**
3. Construction of Gallery and Pipe Chases (One Month in 2018 and Six Months in 2020)	
Impact Hammer	88
Crane	77
Combined L_{eq}:	**88**
4. Construction of Anaerobic Digesters, Pre-THP, and GBT (Foundation, Substructure, Super Structure, etc.) (2018-2022)	
Tower Crane	77
Concrete Mixer Truck	81
Combined L_{eq}:	**82**
5. Construction of Utilities and Roadways, Parking Lots, Traffic Control, Fencing, and Landscaping (2020-2022)	
Scraper	81
Concrete Mixer Truck	81
Combined L_{eq}:	**84**
6. Operation of Construction Staging Areas (2018-2023)	
Dump Truck	80
Backhoe, Front End Loader	76
Combined L_{eq}:	**81**
7. Construction Activities After 8:00 p.m. (2018-2022)	
Tower Crane	77
Concrete Mixer Truck	81
Combined L_{eq}:	**82**

NOTES:
dBA = A-weighted decibel; THP = thermal hydrolysis process; GBT = gravity belt thickener

SOURCE: Orion Environmental Associates, data developed in 2016 for BDFP.

The combined noise levels listed in Table 4.7-6 from the closest project activity locations were then applied to the two closest representative sensitive receptors (Measurement Locations 1 and 3, shown in Figure 4.7-1) and attenuated for distance (6-dB reduction per doubling of distance). **Table 4.7-7** presents the adjusted maximum combined daytime construction-related noise level at the closest residential, commercial, and daycare receptors, while **Table 4.7-8** presents the maximum combined nighttime construction-related noise levels at the closest sensitive receptors. These tables present information on noise from construction activities *at the project site* and noise from activities at *off-site staging areas* (presented below under the heading "Noise from Use of Off-Site Construction Areas").

TABLE 4.7-7
ESTIMATED COMBINED DAYTIME CONSTRUCTION-RELATED NOISE LEVELS AT NEARBY RECEPTORS

Project Construction Activity/ Receptor Location		Combined Hourly L_{eq} in dBA at 50 Feet[a]	Minimum Distance between Receptor and Closest Equipment (feet)	Combined Noise Level (L_{eq}) Adjusted for Distance[b]	Does Noise Level Exceed FTA Threshold?		Ambient +10 dBA Threshold[c] at Closest Receptor	Does Noise Level Exceed Ambient +10 dBA Threshold?
					90 dBA (Residential)	100 dBA (Comm./Industrial)		
Measurement Location 1. Residential receptors on east side of Phelps Street (as represented by measurements collected at 1796 La Salle Avenue and distances measured from 1700 Kirkwood Avenue)[d]								
Project Site	1. Demolition, Site Offices Setup, Utilities Relocation Work (2018)	85	750	62	No	n/a	77	No
	2. Piles (Drilled) and Excavation (2018-2020)	85	575	63	No	n/a	77	No
	3. Gallery and Pipe Chases (2018, 2022)	88	900	63	No	n/a	77	No
	4. Anaerobic Digesters, Pre-THP, and GBT (2018-2023)	82	925	57	No	n/a	77	No
	5. Utilities, Roads, Parking Lots, Landscaping, etc. (2020-2022)	84	165	74	No	n/a	77	No
6. Construction Staging Areas (2018-2023)		81	70	**79**	No	n/a	77	**Yes**
Measurement Location 1. Commercial receptors on east side of Phelps Street (as represented by measurements collected at 1796 La Salle Avenue)[d]								
Project Site	1. Demolition, Site Offices Setup, Utilities Relocation Work (2018)	85	700	62	n/a	No	n/a	n/a
	2. Piles (Drilled) and Excavation (2018-2020)	85	450	65	n/a	No	n/a	n/a
	3. Gallery and Pipe Chases (2018, 2022)	88	700	65	n/a	No	n/a	n/a
	4. Anaerobic Digesters, Pre-THP, and GBT (2018-2023)	82	875	58	n/a	No	n/a	n/a
	5. Utilities, Roads, Parking Lots, Landscaping, etc. (2020-2022)	84	70	81	n/a	No	n/a	n/a
6. Construction Staging Areas (2018-2023)		81	125	74	n/a	No	n/a	n/a

TABLE 4.7-7 (Continued)
ESTIMATED COMBINED DAYTIME CONSTRUCTION-RELATED NOISE LEVELS AT NEARBY RECEPTORS

Project Construction Activity/ Receptor Location		Combined Hourly L_{eq} in dBA at 50 Feet[a]	Minimum Distance between Receptor and Closest Equipment (feet)	Combined Noise Level (L_{eq}) Adjusted for Distance[b]	Does Noise Level Exceed FTA Threshold?		Ambient +10 dBA Threshold[c] at Closest Receptor	Does Noise Level Exceed Ambient +10 dBA Threshold?
					90 dBA (Residential)	100 dBA (Comm./Industrial)		
Measurement Location 3. Southeast Community Facility including training/education center and daycare facility (as represented by measurements collected at 1200 Phelps Street)								
Project Site	1. Demolition, Site Offices Setup, Utilities Relocation Work (2018)	85	850	61	No	n/a	70	No
	2. Piles (Drilled) and Excavation (2018-2020)	85	975	59	No	n/a	70	No
	3. Gallery and Pipe Chases (2018, 2022)	88	1,050	62	No	n/a	70	No
	4. Anaerobic Digesters, Pre-THP, and GBT (2018-2023)	82	1,500	53	No	n/a	70	No
	5. Utilities, Roads, Parking Lots, Landscaping, etc. (2020-2022)	84	700	61	No	n/a	70	No
6. Construction Staging Areas (2018-2023)		81	70	**79**	No	No	70	**Yes**

NOTES: dBA = A-weighted decibel; FTA = Federal Transit Administration; THP = thermal hydrolysis process; GBT = gravity belt thickener; n/a = not applicable (i.e., threshold is not applicable to receptor)

[a] See Table 4.7-6 for derivation of combined noise levels by construction activity, which are applied in this table to residential receptor locations.
[b] Combined hourly noise levels were attenuated for distance (6-dB reduction per doubling of distance) based on the minimum distances listed in the preceding column (to the left).
[c] As indicated in Table 4.7-2, the daytime ambient noise level is 67 dBA (Leq) at Measurement Location 1 and 60 dBA (Leq) at Measurement Location 3. The ambient +10 dBA threshold represents a substantial temporary noise increase.
[d] Measurement Location 1 is assumed to be representative of noise levels at the closest residence and the closest commercial building. Therefore, the same ambient noise level (measured on the east side of Phelps Street at 1796 La Salle Avenue) was applied to both locations.

SOURCE: Orion Environmental Associates, data developed in 2016 for BDFP.

TABLE 4.7-8
ESTIMATED COMBINED NIGHTTIME CONSTRUCTION-RELATED NOISE LEVELS AT CLOSEST SENSITIVE RECEPTORS

Project Construction Activity/ Receptor Location[a]	Combined Hourly Leq in dBA at 50 Feet[b]	Minimum Distance between Receptor Property Plane and Closest Equipment (feet)	Combined Noise Level (Leq) Adjusted for Distance[c]	Does Noise Level Exceed Threshold?		Ambient +10 dBA Threshold[e]	Does Noise Level Exceed Ambient +10 dBA Threshold?
				FTA	Section 2909(d)		
				80 dBA at Closest Residential Receptor	80/70-dBA Exterior (55/45-dBA Interior [d]		
Measurement Location 1. Residential receptors on the east side of Phelps Street (as represented by 1796 La Salle Avenue)							
7. Night Work (2018-2023)	82	650	60	No	No	74	No
Measurement Location 2. Residential receptors to the east, mid-block east of Phelps Street (1663 Kirkwood Avenue is representative receptor with possible direct lines-of-sight from upper floors)							
7. Night Work (2018-2023)	82	850	57	No	No	68	No
Measurement Location 4. Residential receptors to the south, south of Oakdale Avenue (1901 Palou Avenue is a representative receptor, no direct line-of-sight)							
7. Night Work (2018-2023)	82	1,250	54	No	No	70	No
Measurement Location 5. Residential receptors to the south, mid elevations to the south (2000 Revere Avenue is a representative receptor with direct line-of-sight)							
7. Night Work (2018-2023)	82	1,800	51	No	No	67	No
Measurement Location 6. Residential receptors to the south, higher elevations to the south (296 Bayview Circle is a representative receptor with direct line-of-sight)							
7. Night Work (2018-2023)	82	2,000	50	No	No	65	No

NOTES: dBA = A-weighted decibel; FTA = Federal Transit Administration

[a] Measurement Location 1, also on Phelps Street but adjacent to a commercial use rather than a residential use, is not included in this table because commercial use is not a use that is sensitive to nighttime noise. Measurement Location 3, Southeast Community Facility, is also a daytime use, and therefore night work is not expected to adversely affect this receptor.
[b] See Table 4.7-6 for derivation of combined noise levels by construction activity, which are applied in this table to residential receptor locations.
[c] Combined hourly noise levels were attenuated for distance (6-dB reduction per doubling of distance) based on the minimum distances listed in the preceding column (to the left).
[d] Section 2909(d) specifies residential interior limits of 55 dBA between 7:00 a.m. and 10:00 p.m., and 45 dBA between 10:00 p.m. and 7:00 a.m., which are equivalent to exterior limits of 80 dBA and 70 dBA, respectively, with the windows closed. Since nighttime construction activities are proposed between 8:00 p.m. and 11:00 p.m., the following ordinance interior noise limits are applied: 55 dBA with windows closed between 8:00 p.m. and 10:00 p.m. (equivalent to an exterior limit of 80 dBA) and 45 dBA with windows closed between 10:00 p.m. and 11:00 p.m. (equivalent to an exterior limit of 70 dBA).
[e] The San Francisco Planning Department considers an increase of 10 dBA over existing noise levels from persistent construction to be a substantial temporary increase in noise levels.
[f] As indicated in Table 4.7-2, the nighttime ambient noise level is 64 dBA (Leq) at Measurement Location 1. The ambient +10 dBA threshold (74 dBA) represents a substantial temporary noise increase.

SOURCE: Orion Environmental Associates, data developed in 2016 for BDFP.

Maximum Combined Daytime Noise Levels at Closest Receptors. Maximum combined daytime noise levels from noise generated at the project site (not staging areas) would range from 57 to 74 dBA (L_{eq}) at the closest residential receptors on the east side of Phelps Street (see noise levels at Measurement Location 1). Commercial uses on the east side of Phelps Street (at Jerrold Avenue) are slightly closer to project-related construction activities (also assumed to be represented by noise levels at Measurement Location 1) and would be subject to combined noise levels of 58 to 81 dBA (L_{eq}). The educational and daycare uses at the Southeast Community Facility (Measurement Location 3) would be subject to combined noise levels of 53 to 62 dBA (L_{eq}). Maximum combined noise levels at more distant residential receptors would be relatively lower (48 to 60 dBA, L_{eq}).[28]

As indicated in Table 4.7-7, these estimated daytime construction-related noise levels, even at high noise levels, would not exceed the FTA-recommended threshold levels of 90 dBA (L_{eq}) for daytime construction affecting residential uses and 100 dBA (L_{eq}) at commercial/industrial uses. In addition, combined noise levels would not exceed the City's ambient +10 dBA threshold at the closest sensitive receptors except at the daycare center and residences located adjacent to or near the Southeast Greenhouses staging area (see discussion below under *Use of Off-Site Staging Areas*). Since construction-related noise increases from on-site daytime construction activities would not exceed the FTA's daytime or City's ambient +10 dBA significance thresholds, construction-related noise would be less than significant for all locations except at the daycare and residences located near the Southeast Greenhouses staging area (as discussed below). It should be noted, however, that if impact hammers are used to drive piles to support large diameter pipes (including the pipe gallery and pipe chases, currently proposed for construction during one month in 2018 and six months in 2020), peak noise levels (when the hammer hits the pile) could be noticeable at the daycare and residences located near the SEP (with a direct line-of-sight) during the daytime hours, even though they would not exceed the City's ambient +10 dBA significance thresholds.

Maximum Combined Nighttime Noise Levels at Sensitive Receptors. Table 4.7-8 presents a comparison of estimated nighttime combined noise levels at the property plane of the closest residential receptors to the 80-dBA FTA nighttime threshold, the Section 2909(d) 45-dBA interior (70 dBA exterior) threshold, and the City's ambient +10 dBA threshold (substantial temporary or periodic noise increase). As indicated in the table, none of these thresholds would be exceeded. Therefore, noise impacts on nearby sensitive receptors from proposed nighttime construction activities would be less than significant.

Noise from Use of Off-Site Staging Areas

Proposed off-site staging areas would be used for equipment and materials storage as well as worker parking. During the project's five-year construction period, noise generated in off-site staging areas would be associated with parking cars as well as trucks and equipment (i.e., loaders, backhoes) loading and unloading materials. Although construction equipment could be stored in these areas, noise associated with equipment storage would primarily involve periodic, temporary increases as the equipment arrives and leaves these areas (not by sustained operation of such equipment). Noise impacts at proposed off-site staging areas would be as follows:

[28] See Table 1 in Appendix NOI for combined construction-related noise levels at more distant receptors.

- **Piers 94 and 96.** There are no sensitive receptors within 1,000 feet of these staging areas; thus, short-term increases in ambient noise levels associated with operation of trucks and equipment at these staging areas would not adversely affect any noise-sensitive receptors and noise impacts associated with use of Piers 94 and 96 for staging would be less than significant.

  Shuttle Bus. If Piers 94 and 96 are used for construction worker parking, shuttle buses with seating for up to 50 passengers would transport workers between the staging areas and the project site. There could be up to 17 shuttle bus round trips at the beginning and end of each work shift; during periods when there are two work shifts, there would be morning, mid-day, and evening round trips for a maximum of 51 round trips per day, or 17 round trips per hour during each work shift change. The proposed shuttle bus loop route (shown on Figure 2-14 in Chapter 2, *Project Description*) follows Phelps Street, Jerrold Avenue, Third Street, Cargo Way, and Amador Street. There are three or four residences located on Jerrold Avenue between Phelps and Third Streets; these are the only sensitive receptors along the proposed shuttle bus route. A daily volume of 51 shuttle bus round trips per day would generate a noise level of 50 dBA (L_{dn}). Since shuttles would operate just before and after a shift change and the loop route would result in one shuttle passing these residences for each shuttle round trip, the hourly volume of 17 shuttles per hour would result in a noise level of 56 dBA (L_{eq}). Noise levels along all streets along this route would increase by less than 1 dBA.[29] When compared to the above 5-dBA threshold for evaluating the significance of permanent traffic noise increases (or a 3-dBA increase if noise levels exceed the City's land use compatibility guidelines), such short-term increases in traffic would have a less-than-significant noise impact on existing residential receptors located on Jerrold Avenue as well as on existing commercial and industrial receptors located along this route.

- **Quint Street and Jerrold Avenue, and Southeast Greenhouses.** These staging areas adjoin the project site and are located near one another. The closest sensitive receptors to these staging areas are residential receptors (located as close as 70 feet from the Southeast Greenhouses staging area's southeastern boundary, directly across Phelps Street, where the daytime ambient is 70 dBA, L_{eq}, as indicated in Table 4.7-2) and the daycare facility at the Southeast Community Facility (located approximately 70 feet from the Southeast Greenhouses staging area's southern boundary, where the daytime ambient is 60 dBA, L_{eq}, as indicated in Table 4.7-2). The Southeast Community Facility is the closest non-residential receptor, and the City College of San Francisco education/training center and Wu Yee South East Child Development Center daycare facility are located within this facility. The daycare facility is considered to be a sensitive receptor.

  As indicated in Table 4.7-7 (the rows titled "6. Construction Staging Areas" for Measurement Locations 1 and 3), when measured from the edge of the greenhouse area, operation of on-site trucks and stationary equipment within the staging area near the southern and southeastern boundaries would generate an average combined noise level of 79 dBA (L_{eq}) at the daycare facility and closest residences on the east side of Phelps Street. Such levels would exceed the City's ambient +10 dBA threshold by up to 9 dBA, a significant, temporary noise impact, but would not exceed FTA thresholds listed in Table 4.7-7. **Mitigation Measure M-NO-1b (Construction Noise Control Measures at Southeast Greenhouses Staging Area)** would ensure that equipment operation in this staging area would be managed to reduce this impact to a less-than-significant level at the daycare facility and the closest residences on Phelps

[29] Traffic noise levels were estimated by the SFDPH for roads on this route to range from 60 to 70 dBA (L_{dn}) adjacent to Phelps Street and Jerrold Avenue and over 70 dBA (L_{dn}) adjacent to Third Street. Addition of project-related shuttle bus noise levels of 50 dBA (L_{dn}) or 56 dBA (L_{eq}) to such background noise levels would increase these levels by approximately 1 dBA or less (estimated by Orion Environmental Associates, 2016).

Street. In addition, trucks would access this staging area via Phelps Street, and residents located along this street (between Jerrold and the access driveway near McKinnon Avenue) could be subject to noise increases of up to 1.3 dBA from worker vehicles and trucks.[30] When compared to the significance thresholds for traffic noise increases (see Section 4.7.3.2, Approach to Analysis), a 3-dBA noise increase along this section of Phelps Street would be considered significant. Therefore, the estimated increase of less than 2 dBA would be less than significant.

- **1550 Evans Avenue.** As indicated in Table 4.7-6, operation of trucks and equipment at staging areas (Construction Activity #6) would generate a combined noise level of 81 dBA (L_{eq}) at 50 feet. Since the closest sensitive receptor is 400 feet away (City College of San Francisco Evans Campus), this combined noise level would decrease to 63 dBA (L_{eq}) at this receptor, and 57 dBA (L_{eq}) at residential receptors located 850 feet away. Such levels would not exceed the 90-dBA FTA threshold or the City's ambient +10 dBA threshold.[31] If demolition also occurs at this staging area, estimated noise levels would be approximately 4 to 7 dBA higher depending on whether demolition hammers are used, and also would not exceed the applicable thresholds. Therefore, operation of this staging area would have a less-than-significant noise impact on the closest sensitive receptors.

Construction Truck Traffic

Most construction-related haul truck traffic on roads would be generated at the beginning of the construction period (2018) when demolition debris as well as excavated soils would be transported off-site (see Table 4.6-12 in Section 4.6, Transportation and Circulation, for information on construction-related travel demand). Most site excavation would occur over about five months in 2018 and would not overlap with demolition-related haul truck traffic. At the peak of the soil excavation period (corresponding to the maximum rate of construction trucks accessing the site), up to an average of 142 truck trips (71 trucks loads) per day would occur. During the remainder of project construction, much lower daily truck trips would occur. Construction-related truck trips generated during the estimated five-year project construction period would be required to travel on truck routes identified in the Traffic Control Plan (refer to Section 2.6.1.3 in Chapter 2, *Project Description*, and Section 4.6). The Traffic Control Plan would identify routes that minimize truck traffic in residential areas, and which are anticipated to be similar to the routes shown in Figure 2-14 (vehicular access in the vicinity of the SEP and Southeast Greenhouses staging area) and Figure 2-15 in Chapter 2. Streets used for access to the I-280 and U.S. Highway 101 (Highway 101) freeways would include Evans Avenue and Jerrold Avenue west of the SEP, Third Street between Cesar Chavez Street and Evans Avenue, and Cesar Chavez Street[32], where there are no residential uses located along the routes. While there are residential uses along the section of Phelps Street between Jerrold and McKinnon Avenues (the route by which worker vehicles would access the Southeast

[30] Traffic noise levels of approximately 49 dBA (L_{dn}) and 63 dBA (L_{eq}) adjacent to Phelps Street south of Jerrold Avenue (estimated based on the addition of up to 386 worker vehicles and 10 trucks during the daytime hours [7:00 a.m. to 8:00 p.m.], as listed in Table 4.6-14 in Section 4.6, Transportation and Circulation) would increase ambient noise levels of 71 dBA (L_{dn}) and 67 dBA (daytime L_{eq}) at Measurement Location 1 by up to 1.3 dBA (no change in the L_{dn} since all trucks would operate during the daytime hours).

[31] Fenceline noise measurements collected on Evans Street (approximately 800 feet west of this staging area) indicate that daytime noise levels (7:00 a.m. to 8:00 p.m.) range from 70 to 72 dBA (L_{eq}; Wilson Ihrig, *Noise and Vibration Technical Memo Southeast Plant New Headworks (Grit) Replacement Project,* August 19, 2016).

[32] San Francisco Municipal Transportation Agency, *San Francisco Truck Traffic Routes*, 2009. Trucks are expected to use truck routes, arterials, or freeways except for local deliveries.

Greenhouses staging area), this staging area would only generate an estimated 10 truck trips per day, which would not result in significant increases in traffic noise. Therefore, with proposed use of the haul routes designated in the Traffic Control Plan, potential construction-related truck noise impacts would be less than significant.

During project construction, trucks related to SEP existing operations would use Jerrold Avenue (west of the site), Phelps Street (north of Jerrold Avenue), Evans Avenue, Third Street, and Cesar Chavez Street for access to the Highway 101 and I-280 freeways. (Refer to Figure 2-12 in Chapter 2 for operational truck routes.) There are no residential uses located along these routes. Since the project's construction-related traffic noise increases on these streets would not adversely affect any sensitive receptors, off-site construction-related traffic noise increases would be less than significant.

Summary of Impact NO-1

Of all the various types of non-impact construction equipment proposed to be used, only concrete saws would exceed the 86-dBA (at 50 feet) noise limit of Section 2907. Implementation of noise controls, as specified in Mitigation Measure M-NO-1a (Shielding of Concrete Saw Operations), would reduce the impact to a less-than-significant level. During the five-year period when the Southeast Greenhouses staging area would be used, the City's ambient +10 dBA threshold at sensitive receptors would be exceeded at the daycare facility to the south and some of the closest residential receptors to the east, a significant, temporary noise impact. With implementation of the noise controls specified in Mitigation Measure M-NO-1b (Construction Noise Control Measures at Southeast Greenhouses Staging Area), the potential for noise disturbance of affected sensitive receptors would be reduced to a less-than-significant level. These project construction impacts would therefore be ***less than significant with mitigation***.

Mitigation Measure M-NO-1a. Shielding of Concrete Saw Operations

Project contractors shall erect temporary shielding when concrete saw operations are conducted within 100 feet of a sensitive receptor. Shielding shall be sufficient to reduce noise levels to 80 dBA at a distance of 100 feet (an approximate 5 dBA reduction), consistent with the noise limit specified in Section 2907 of the Noise Ordinance.

Mitigation Measure M-NO-1b. Construction Noise Control Measures at Southeast Greenhouses Staging Area

Project contractors shall implement noise control measures at the Southeast Greenhouses staging area, such as one of the following strategies, to ensure that construction-related noise does not exceed 77 dBA at the closest residences located across Phelps Street or 70 dBA at the daycare center (including its outdoor play area) at the Southeast Community Facility (this performance standard is based on the City's ambient +10 dBA noise limit):

- ***Restrict Use of Heavy Equipment***. Restrict operation of heavy equipment and trucks in the southern portion of the Southeast Greenhouses staging area within approximately 200 feet of the daycare center (including the outdoor play area) and residences across Phelps Street such that noise levels are maintained below this performance standard.
- ***Temporary Noise Barrier***. Erect temporary noise barrier(s) along the southern and eastern boundaries of the Southeast Greenhouses staging area to shield the daycare

facility and residences from noise generated by staging area activities necessary to achieve this performance standard.

The SFPUC shall also post a sign on-site describing permitted construction days and hours, noise complaint procedures, and a complaint hotline number (available during construction hours).

Impact NO-2: Construction of the project would not expose structures or persons to excessive groundborne vibration levels. (Less than Significant)

The project would include construction activities that could produce excessive groundborne vibration. An impact hammer may be used for demolition of some existing structures (such as concrete structures). Other types of construction equipment used for demolition, site preparation, and shoring activities, such as jackhammers, pavement breakers, and drills, could generate varying levels of temporary groundborne vibration, with the highest levels expected during demolition, excavation, and below-grade construction for partially buried structures (i.e., buildings with basements, odor control facilities, and utility tunnels). Project construction would also entail the use of heavy trucks for material deliveries and for off-site hauling of excavated materials and demolition debris that could generate groundborne vibration along the haul routes.

Building or Structural Damage

If groundborne vibration generated by project-related demolition and construction activities were to exceed 0.5 in/sec PPV, it could cause damage to nearby structures, which may include adjacent buildings. Impact pile driving associated with installation of large-diameter pipes (including construction of the pipe gallery and pipe chases) could occur as close as approximately 90 feet from Building 040, a historic building considered to be a contributor to the Southeast Treatment Plant Streamline Moderne Industrial Historic District that is eligible for listing on the National Register of Historic Places (see Section 4.5, Cultural Resources, for more detailed description of this building). **Table 4.7-9** lists typical vibration levels associated with the operation of various types of construction equipment at specified distances, some of which are similar to those proposed to be used for this project. Vibration levels at the closest adjacent structures are also indicated in the footnotes to this table; these include Building 040, as well as buildings to the east and south.

While vibration attenuation with distance can vary depending on subsoils, maximum vibration levels generated by vibratory or impact pile drivers could exceed the 0.5 in/sec PPV threshold at adjacent structures if the pile drivers are operated within 75 feet of a structure.

Proposed pile-driving activities on the project site would occur within the *Southeast Treatment Plant Streamline Moderne Industrial Historic District* (see Section 4.5, Cultural Resources) and as close as approximately 80 feet from the nearest structure that is a contributor to that district: Building 040 (Primary Sedimentation Building No. 1). Building 040 is an engineered, reinforced concrete building with no fragile architectural features. At a distance of 80 feet, vibration from impact or vibratory pile driving would range between <0.1 and 0.4 in/sec PPV, which would not exceed the 0.5 in/sec PPV threshold; this would be a less-than-significant vibration impact and no additional mitigation would be required.

TABLE 4.7-9
TYPICAL VIBRATION LEVELS FROM CONSTRUCTION EQUIPMENT

Equipment	Peak Particle Velocity (PPV) (in/sec)[a] at Specified Distances			
	35 Feet[b]	**90 Feet**[c]	**700 Feet**[d]	**900 Feet**[e]
Impact or Vibratory Pile Driver				
• Range	n/a	<0.1 – 0.4	<0.1	<0.1
• Typical	n/a	0.2	<0.1	<0.1
Vibratory Roller/Compactor	0.1	<0.1	<0.1	<0.1
Large Bulldozer, Caisson Drilling, Loaded Trucks, Jackhammer, Small Vibratory Compactor, Small Bulldozer	0.1	<0.1	<0.1	<0.1
Vibration Threshold for Damage to Reinforced Structures	0.5	0.5	0.5	0.5
Strongly Perceptible Threshold for Vibration	n/a	n/a	0.1	0.1

NOTES:

Vibration levels in **bold** exceed the 0.5 in/sec PPV threshold limit for cosmetic damage to structures.
in/sec = inches per second; PPV = peak particle velocity

[a] Vibration amplitudes for construction equipment assume normal propagation conditions and are calculated using the following formula: PPV equip = PPVref x (25/D)1.1 where:
- PPV (equip) = the peak particle velocity in in/sec of the equipment adjusted for the distance
- PPV (ref) = the reference vibration level in in/sec from pages 30-37 and Table 18 of the Caltrans Vibration Guidance Manual
- D = the distance from the equipment to the receiver

[b] Minimum distance between the No. 2 Water Pump Station and Building 040, the closest historic building to project facilities. (Figure 2-3 in Chapter 2, *Project Description,* shows the location of Building 040, Primary Sedimentation Building No. 1.)

[c] Minimum distance between the proposed pipe gallery located east of solids pretreatment facility (piles may be driven or drilled at this location) and Building 040, the closest historic building to project facilities. (Figure 2-3 in Chapter 2, *Project Description,* shows the location of Building 040, Primary Sedimentation Building No. 1.)

[d] Minimum distance between the proposed pipe gallery located east of solids pretreatment facility (piles may be driven or drilled at this location) and the closest structures to the east (east side of Phelps Street).

[e] Minimum distance between the proposed pipe gallery located east of solids pretreatment facility (piles may be driven or drilled at this location) and the closest residential receptor to the east (1700 Kirkwood Avenue).

SOURCE: Caltrans, *Transportation and Construction Vibration Guidance Manual*, September 2013, pp. 30-37. Available online at http://www.dot.ca.gov/hq/env/noise/publications.htm. Accessed on March 11, 2016.

Proposed pile driving (for a pipe chase east of the Solids Pretreatment Facility) could occur as close as 700 feet from the nearest off-site buildings, located on the east side of Phelps Street. As indicated in Table 4.7-9, vibration levels 700 feet from operation of the pile drivers and other construction equipment more than 700 feet away would remain well below the 0.5 in/sec PPV threshold and even the Caltrans recommended threshold for older residential structures of 0.3 in/sec PPV (see Table 4.7-3), indicating a less-than-significant vibration impact on structures to the east. Existing off-site buildings to the south are located at least 1,000 feet or more from proposed pile-driving activities. Therefore, piledriving activities would also have a less-than-significant vibration impact on structures to the south.

Human Annoyance

Vibration levels could also result in interference or annoyance impacts at nearby residential receptors. As shown in Table 4.7-4, vibration levels of 0.1 in/sec PPV are strongly perceptible, while vibration levels below this are distinctly perceptible at 0.04 in/sec PPV and barely perceptible at 0.01 in/sec PPV. The closest residential receptor to proposed impact pile driving activity (which would be conducted during daytime hours) is located approximately 900 feet from the pipe chase located east of the Solids Pretreatment Facility**.** As shown in Table 4.7-9, vibration levels from pile

driving and other construction activities would be below the strongly perceptible threshold, the threshold for assessing daytime vibration impacts. The distance between the existing Southeast Community Facility (including the daycare facility) to the south and the closest location where pile driving could occur (a pipe chase located east of the Energy Recovery Facility) would be even farther away (approximately 1,075 feet), and vibration levels would be even lower than at the closest residential receptor. Therefore, due to the distance of receptors from the project construction activities, impacts from vibration with respect to human annoyance would be less than significant.

Summary of Impact NO-2

Proposed construction activities including pile-driving would generate vibration, but vibration levels would not exceed the 0.5 in/sec PPV threshold for structural damage at the nearest buildings nor the 0.1 in/sec PPV threshold for human annoyance at the nearest sensitive receptor. The impact would therefore be ***less than significant***.

Mitigation: None required.

Operational Impacts

Impact NO-3: Operation of the project would not result in a substantial permanent increase in ambient noise levels in the project vicinity and permanently expose persons to noise levels in excess of standards in the Noise Ordinance (Article 29 of the Police Code). (Less than Significant)

Project operation would increase ambient noise levels in the immediate vicinity of the project site, primarily as a result of new equipment installed at the site.

On-Site Stationary Equipment

Project implementation would result in the installation of new facilities to upgrade the digestion, solids treatment, and odor handling processes as well as new digester gas treatment and energy recovery facilities. While most facilities would be enclosed within structures, some equipment would be located outdoors. In addition, all facilities located inside buildings would have vent openings, which would be new sources of noise at the SEP. All project buildings would have air handling units on roofs, and these would also be new sources of noise.

Estimated noise levels at vent openings, from equipment not enclosed, and from rooftop air handling units were combined into a single estimated noise level for each process facility, since this equipment could operate simultaneously. These reference noise levels by facility at a distance of 50 feet are included in Table 2 of Appendix NOI**.** As an initial screening review, the combined operational noise levels for each process facility were then adjusted for the minimum distance between each facility and the closest property plane on Jerrold Avenue (facility locations are shown on Figure 2-5 in Chapter 2, *Project Description*). **Table 4.7-10** presents the combined noise level associated with each process facility as well as the combined noise level from simultaneous operation of all process facilities at the closest property plane, which is the property boundary along Jerrold Avenue. Assessments of impacts at the property plane are used as a preliminary screening analysis to determine whether and where a more refined analysis for given receptors is warranted. The estimated

TABLE 4.7-10
ESTIMATED OPERATIONAL NOISE LEVELS AT CLOSEST PROPERTY PLANE

Project Component/Receptor Location		Outdoor or Enclosed	Reference Noise Level (L_{eq}) in dBA at 50 Feet[a]	Minimum Distance to Jerrold Avenue Property Plane (feet)	Distance Adjustment (dBA)[b]	Adjusted Noise Level (L_{eq}) at Jerrold (Closest Property Plane) (dBA)	Section 2909(b) Review – Initial Screening at Closest Property Plane[d]			Exceedance[d] (dBA)
							Ambient Noise Level at Jerrold (L_{90}[c])	Lowest Applicable Ordinance Limit (Lowest Ambient at Jerrold +8 dBA)	Does Project Noise Exceed Ordinance Limit)?	
SEP Closest Property Plane on Jerrold Avenue										
Energy Recovery	Digester Gas Treatment	Outdoor	70	30	4	75	57	65	**Yes**	10
	Waste Gas Burners[e]	Outdoor	64	725	-23	41	57	65	No	
	OR	OR	OR	OR	OR	OR	OR	OR	OR	
	Energy Recovery Facility[e]	Enclosed	67	200	-12	55	57	65	No	
Thermally Hydrolyzed Sludge Cooling		Outdoor	77	150	-10	68	57	65	**Yes**	3
Anaerobic Digestion		Enclosed	68	150	-10	59	57	65	No	
Biosolids Dewatering		Enclosed	68	850	-25	44	57	65	No	
Pipe Gallery/Chase		Enclosed	69	225	-13	56	57	65	No	
Solids Odor Control		Mostly Outdoor	85	375	-18	68	57	65	**Yes**	3
Pre-Digestion Solids Processing	Pre-THP Dewatering[f]	Enclosed	65	300	-16	50	57	65	No	
	Sludge Screening[f]	Enclosed	66	300	-16	51	57	65	No	
	Thickening[f]	Enclosed	64	300	-16	48	57	65	No	
	THP	Outdoor	59	225	-13	46	57	65	No	
Pumped Plant Recycled Water Pumping		Enclosed	64	50	0	64	57	65	No	
					Combined Noise Level at Closest Property Plane	77	57	65	**Yes**	*12*

dBA = A-weighted decibel; SEP = Southeast Water Pollution Control Plant; THP = thermal hydrolysis process

NOTES: Because the adjusted noise levels have been rounded to the nearest whole number, the difference may vary by up to 1 dBA. The combined noise levels that exceed threshold levels may not occur because this model applies very conservative assumptions. The model does not account for noise reductions from intervening buildings or topographic changes, and it assumes all noise sources for each project component are located at the closest distance between source and receptor. Noise sources within each component would actually be distributed over the entire footprint of that component and there are intervening structures that would partially or completely shield some receptors. Therefore, the combined noise level at each project facility component would likely be lower than these estimates.

[a] See Table 2 in Appendix NOI for derivation of reference noise levels.

[b] Reference noise levels are at 50 feet. These levels are adjusted for distance (at a rate of 6 dBA per doubling of distance) such that the adjusted noise level *increases* (reflected as a positive value) at distances closer than 50 feet and *decreases* (reflected as a negative value) at distances greater than 50 feet.

[c] Section 2901(a) states that under most conditions, the L90 (the level of noise exceeded 90 percent of the time) is a conservative representation of the ambient. In this case, L90 was applied and then the lowest (nighttime) measured L90 (50 dBA at Measurement Location A, which is 180 feet from the centerline of Jerrold Avenue; refer to Table 4.7-2 and Figure 4.7-1) was adjusted for distance (+6.5 dBA or 57 dBA, rounded) to reflect the noise level at 40 feet from the center line of Jerrold Avenue, which is the nearest property plane.

[d] Section 2909(b) limits noise increases associated with industrial uses to 8 dB over the ambient at the closest property plane. As indicated in Section 2901(h), "Person" means a person, firm, association, copartnership, joint venture, corporation, or any entity, public or private in nature, but shall not include the City and County of San Francisco." Since noise limits specified in Section 2909 apply to a "person" generating noise, the City is exempt from these ordinance limits. Nevertheless, for purposes of the CEQA, the project is reviewed for consistency with Noise Ordinance limits including those specified in Section 2909(b), which allows an increase of up to 8 dB over the ambient level. This limit is first applied to the closest property plane, which is the project boundary on Jerrold Avenue (initial screening review). In this case, since this initial screening threshold is exceeded, the ordinance limit specified in Section 2909(d) is then applied at the closest property boundary with a sensitive receptor to determine impact significance (secondary screening review). The CEQA impact significance determination is made after the second tier of review since CEQA significance criteria are defined as a "substantial permanent increase in ambient noise levels" and "exposure of persons to "exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies."

[e] Noise levels generated by the Energy Recovery Facility and waste gas burners (called emergency flares in Appendix NOI) are both listed, but since they would not operate simultaneously, only the highest noise level is added into the combined noise level at specified receptor locations.

[f] The same distance is applied to all of these facilities and based on the closest location of the Pre-THP facility and receptor.

SOURCE: Orion Environmental Associates, data developed in 2016 for BDFP.

noise levels are conservatively high as they reflect worst-case, maximum noise levels that do not account for noise reductions from intervening buildings or structures between sources and receptors or parapets around rooftop equipment, which can serve as effective noise barriers. The estimates also assume all equipment within all process facilities could be operating at the same time.

As indicated in Table 4.7-10, the combined noise level from all process facilities at the Jerrold Avenue property plane would be 77 dBA. The ordinance noise limit specified in Section 2909(b) (ambient +8 dBA) at this location is 65 dBA (L_{90}; 57 dBA ambient +8 dBA). Consequently, the combined operation of all process facilities at the Jerrold Avenue property plane would exceed the ordinance limit by approximately 12 dBA. This exceedance is attributable to the process facilities that would not be enclosed, as indicated in Table 4.7-10, and mostly attributable to the pumps and blowers at the digester gas treatment process facility, which is the closest facility to the Jerrold Avenue property plane (30 feet away). Other outdoor process facilities contributing to this exceedance include the cooling tower and large fans at the Solids Odor Control Facility. Based on the results of this initial screening, a secondary analysis of noise levels at the closest sensitive receptor was conducted to determine the severity of the impact.

For the secondary analysis, estimated noise levels associated with each proposed process facility and combined noise levels associated with simultaneous operation of all project facilities were estimated at the closest sensitive receptor (residence at the northeast corner of Phelps Street and Kirkwood Avenue, 1700 Kirkwood Avenue, shown on Figure 4.7-1) by attenuating the reference noise levels for distance (see Table 3 in Appendix NOI for derivation of adjusted noise levels at representative sensitive receptors). Estimated noise levels at this receptor are also representative of noise impacts at all residential receptors located on the east side of Phelps Street. Estimated project-related operational noise levels were then compared to Section 2909(d) limits. Section 2909(d) establishes maximum noise levels for fixed noise sources (e.g., mechanical equipment) of 45 dBA (10:00 p.m. to 7:00 a.m.) and 55 dBA (7:00 a.m. to 10:00 p.m.) inside any sleeping or living room in any dwelling unit located on residential property, which is equivalent to an *exterior* nighttime limit of 60 dBA and daytime limit of 70 dBA with windows open (see Section 4.7.3.2, Approach to Analysis, Operational Noise Impact Methodology, above). The adjusted maximum combined noise level at the closest sensitive receptor is presented in **Table 4.7-11**. As shown in this table, combined maximum noise levels at this closest receptor are estimated to be as high as 59 dBA (L_{eq} or L_{90}), which would not exceed the minimum 60-dBA nighttime exterior noise limit at the closest sensitive receptor applicable under Section 2909(d). Maximum combined operational noise levels at more distant residential receptors would be relatively lower (51 to 58 dBA, L_{eq} below the 60-dBA nighttime noise limit).[33] Estimated noise levels are considered to be conservatively high because attenuation benefits from intervening topography and structures, which would further reduce project noise levels at these receptors, have not been included. Additionally, the estimated noise levels assume simultaneous operation of all equipment sources which would be an infrequent, if not unlikely occurrence. Consequently, the operation of the proposed project equipment would not result in a substantial permanent increase in ambient noise levels in the project vicinity or expose persons to noise levels in excess of standards in the Noise Ordinance even under the conservative assumptions employed in this analysis which likely overstate resultant noise levels. Therefore, the operational noise impact would be less than significant.

[33] See Table 3 in Appendix NOI for combined operational noise levels at more distant receptors.

TABLE 4.7-11
ESTIMATED OPERATIONAL NOISE LEVELS AT CLOSEST SENSITIVE RECEPTORS[a]

Project Component/Receptor Location		Outdoor or Enclosed	Reference Noise Level (L_{eq}) in dBA at 50 Feet[b]	Minimum Distance between Receptor and Specified Source (feet)	Distance Adjustment (dBA)[c]	Adjusted Noise Level (L_{eq}) at Receptor (dBA)	Section 2909(d) Review – Secondary Screening at Closest Residential Receptor[d]	
							Lowest Exterior Noise Limit in dBA (8:00 p.m. to 10:00 p.m./After 10:00 p.m.)	Does Project Noise Exceed Limit at Receptor?
Residential receptor at 1700 Kirkwood (as represented by noise levels measured at 1796 La Salle Avenue)								
Energy Recovery	Digester Gas Treatment	Outdoor	70	775	-24	47	60	No
	Waste Gas Burners[e]	Outdoor	64	1,500	-30	35	60	No
	OR		OR	OR	OR	OR	OR	OR
	Energy Recovery Facility[e]	Enclosed	67	775	-24	43	60	No
Thermally Hydrolyzed Sludge Cooling		Outdoor	77	1,125	-27	50	60	No
Anaerobic Digestion		Enclosed	68	1,200	-28	41	60	No
Biosolids Dewatering		Enclosed	68	1,800	-31	37	60	No
Pipe Gallery and Chases		Enclosed	69	1,025	-26	43	60	No
Solids Odor Control		Mostly Outdoor	85	1,250	-28	57	60	No
Pre-Digestion Solids Processing	Pre-THP Dewatering[f]	Enclosed	65	1,100	-27	38	60	No
	Sludge Screening[f]	Enclosed	66	1,100	-27	40	60	No
	Thickening[f]	Enclosed	64	1,100	-27	37	60	No
	THP	Outdoor	59	1,150	-27	32	60	No
Pumped Plant Recycled Water Pumping		Enclosed	64	1,225	-28	36	60	No
					Combined Noise Level at Closest Property Plane	59	60	No

NOTES: Sensitive Receptor Locations 1 through 6 correlate to noise Measurement Locations 1 through 6 shown on Figure 4.7-1. Because the adjusted noise levels have been rounded to the nearest whole number, the difference may vary by up to 1 dBA.

dBA = A-weighted decibel; SEP = Southeast Water Pollution Control Plant; THP = thermal hydrolysis process

a See Figure 4.7-1 for location of closest nighttime sensitive receptor at 1700 Kirkwood Avenue. Noise levels at this receptor are represented by noise levels measured at Measurement Location 1,

b See Table 1 in Appendix NOI for derivation of reference noise levels.

c Reference noise levels are at 50 feet. These levels are adjusted for distance (at a rate of 6 dBA per doubling of distance) such that the adjusted noise level *increases* (reflected as a positive value) at distances closer than 50 feet and *decreases* (reflected as a negative value) at distances greater than 50 feet.

b The Noise Ordinance (Police Code Section 2909[d]) interior noise limits from fixed noise sources are 45 dBA between 10:00 p.m. and 7:00 a.m. and 55 dBA between 7:00 a.m. and 10:00 p.m. Assuming the building would attenuate exterior noise levels by 15 dBA with the windows open (World Health Organization [WHO], *Guidelines for Community Noise, Section 4.3.1. Dwellings,* page 61, 1999. Available online at http://www.who.int/docstore/peh/noise/guidelines2.html), these interior noise limits are equivalent to exterior noise limits of 60 dBA between 10:00 p.m. and 7:00 a.m. and 70 dBA between 7:00 a.m. and 10:00 p.m. at the closest residential receptors.

e Noise levels generated by the Energy Recovery Facility and waste gas burners (called emergency flares in Appendix NOI) are both listed, but since they would not operate simultaneously, only the highest noise level is added into the combined noise level at specified receptor locations.

f The same distance is applied to all of these facilities and based on the closest location of the Pre-THP facility and receptor.

SOURCE: Orion Environmental Associates, data developed in 2016 for BDFP.

Summary of Impact NO-3

Estimated worst-case combined maximum operational noise levels at nearby residential receptors would not exceed the 60-dBA nighttime noise limit applicable under Section 2909(d), and the operational noise impact would be ***less than significant***.

Mitigation: None required.

Impact NO-4: The project would not result in substantial permanent increases in traffic-related ambient noise levels in the project vicinity. (Less than Significant)

As explained in Section 4.7.3.2 under *Operational Noise Impact Methodology*, the following thresholds are applied to determine the significance of project-related traffic noise increases: (1) a noise increase of more than 5 dBA is considered a significant traffic noise increase, and (2) if the resulting noise environment on the affected road segment is not acceptable for adjacent land uses when compared to the "Land Use Compatibility Guidelines for Community Noise,"[34] an increase of more than 3 dBA is considered to be significant. Vehicle traffic associated with operation of the SEP includes trucks hauling biosolids product away from the facility, vendor trips delivering treatment chemicals, and worker trips. As indicated in the Section 4.6, Transportation and Circulation, operation of the BDFP would result in a minimal increase in truck trips, from fewer than 33 delivery and haul trucks per day (existing) to fewer than 36 delivery and haul trucks per day in 2045. There would be no increase in worker-related vehicular traffic because there would be no increase in SEP staff levels. Such a small change in truck trips on local roadways would result in truck noise increases that are well below 1 dBA. Therefore, this small increase in truck trips associated with the project would have a less-than-significant noise impact.

Proposed changes in vehicle entrances and exits and to on-site circulation roads (refer to Figure 2-5 in Chapter 2, *Project Description*) would alter traffic patterns associated with the SEP's operations, shifting some truck traffic off of Jerrold Avenue and onto Rankin Street at Evans Avenue. Since there are no residential receptors or noise-sensitive uses located along these streets, no significant operational traffic noise impacts would occur as a result of changes in project-related operational truck traffic distribution on local streets, given the low number of trucks that would be added to the new routes (up to three trucks per day). Overall, operational noise impacts associated with long-term changes in truck traffic would be ***less than significant***.

Mitigation: None required.

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[34] This chart is included in Policy 11.1 of the Environmental Protection Element of the *San Francisco General Plan*. Available online at http://generalplan.sfplanning.org/I6_Environmental_Protection.htm. Accessed on March 28, 2016.

Impact NO-5: Operation of the project would not expose any people or off-site structures to excessive groundborne vibration levels. (Less than Significant)

Operation of some proposed process facility equipment would have the potential to generate vibration. However, project-related process equipment that is vibration-sensitive would be located in closer proximity to existing SEP equipment than nearby sensitive receptors. The closest residences to the east are located a minimum of 700 feet from proposed digester gas treatment and energy recovery facilities, while the Southeast Community Facility to the south is located over 1,000 feet from these facilities. The primary concern with vibration generated by operating process equipment would be sleep disturbance at the closest residential receptors during the more sensitive nighttime hours. Sleep disturbance can occur at very low levels, but would not occur because the 700-foot separation between the closest project facilities and closest residences would be sufficient to attenuate vibration levels to below perceptible levels.

Relatively higher vibration levels (i.e., on the order of 0.2 to 0.3 in/sec PPV[35]) can be tolerated by process equipment. However, if vibration generated by operation of proposed facilities is high enough, vibration effects could adversely affect existing equipment operations at the SEP (resulting in more rapid wear). The SFPUC would design facilities to control vibration levels associated with project equipment as necessary so as to avoid adverse effects on not only project equipment (including the equipment itself and connections as well as other process equipment and piping), but also existing SEP structures and staff. If necessary, design measures that can be employed to isolate or control vibration include using passive techniques (i.e., rubber pads, mechanical springs) or active control systems such as sensors and actuators. Since existing equipment at the SEP is located closer to proposed BDFP equipment than off-site structures (including nearby residential receptors), vibration controls that would be implemented to ensure that much closer existing SEP facilities and proposed BDFP facilities would not be damaged would be sufficient to maintain vibration levels at more distant off-site receptors to below levels that could cause sleep disturbance.[36] Therefore, operational vibration effects would be ***less than significant.***

Mitigation: None required.

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[35] LaRocque, Tom et al., *Continuous Vibration Monitoring of Wastewater Pump Stations,* Pumps and Systems, page 3, August 2008. Available online at http://www.pumpsandsystems.com/topics/pumps/continuous-vibration-monitoring-wastewater-pump-stations?page=3. Accessed on August 17, 2016.

[36] For example, if the 0.5 in/sec PPV vibration threshold for damage to structures is conservatively applied to the proposed digester gas treatment facility, vibration levels at the closest residence (700 feet to the east) would be 0.001 in/sec PPV, which is well below the 0.01 in/sec PPV threshold for being barely perceptible (as indicated in Table 4.7-4).

Cumulative Impacts

Impact C-NO-1: Construction activities of the project combined with cumulative construction noise in the project vicinity could cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity or result in excessive groundborne vibration levels during construction. (Less than Significant with Mitigation)

Noise

In general, cumulative construction-related noise increases would occur if any nearby cumulative projects are constructed at the same time as the BDFP and affect the same sensitive receptors (i.e., receptors located near both the BDFP site and cumulative project sites). Among the projects identified in Table 4.1-1 and Figure 4.1-1 (in Section 4.1, Overview), only the following could result in cumulative impacts due to their location (adjacent to the BDFP site) and construction schedule:[37]

- **Southeast Plant Headworks Replacement Project.** Construction activities associated with this project would include demolition of existing facilities, pile installation for foundations, and earthwork/grading. These activities would require the use of heavy equipment. While piles would be installed to support foundations, they would be drilled and cast-in-place and impact pile drivers would not be used. This project is located north of the BDFP site, farther from residential receptors located east of Phelps Street and south of Jerrold Avenue, but construction is scheduled to occur from 2017 to 2021, concurrent with the BDFP construction. This project would have the potential to contribute to cumulative noise increases at the closest residential receptors.

- **Southeast Greenhouses Demolition Project.** This project would demolish the greenhouses, administrative building, and exhibit gallery located on the Southeast Greenhouses site. There would be no grading, excavation, or other ground disturbance at the site as part of the demolition activities, but demolition debris would be hauled off-site. The Southeast Greenhouses site is located south of the BDFP site, and its boundaries are contiguous with the Southeast Community Facility (and daycare facility) to the south and Phelps Street to the east. Residential receptors are located directly across Phelps Street from this staging area (approximately 65 feet from the eastern staging area boundary). Demolition of these structures is scheduled to begin in 2017 and end prior to BDFP construction. Since construction schedules would not overlap, this project would not contribute to cumulative construction-related noise increases, but would extend the overall duration of construction-related noise exposure at adjacent and nearby sensitive receptors.

- **Existing Digester Gas Handling Improvements.** This project would involve replacement of existing equipment in kind, and heavy equipment use would be limited to one excavator, one crane, one paver and paving equipment, one roller, five dump trucks, one loader, one trencher, and one concrete truck. No impact pile driving would occur as part of this project. This project is located closer to residential receptors to the east than the BDFP, but construction is scheduled to

[37] With respect to staging areas, three projects (Pier 90-94 Backlands Improvement Project, Asphalt and Concrete Recycling and Production Plant at Pier 94, and Pier 96 Bulk Export Terminal) are located adjacent to the Piers 94 and 96 staging area, while the Southeast Community Facility Revitalization project is located adjacent to the Southeast Greenhouses staging area and on the 1550 Evans Avenue staging area. Construction schedules for these projects have not yet been determined and they are still in the planning stages. If construction of any of these projects were to overlap with the BDFP, the three projects in the vicinity of Piers 94 and 96 are not expected to contribute to cumulative noise impacts due to the absence of nearby sensitive receptors. Since the Southeast Community Facility Revitalization project would use the staging areas being used as part of the BDFP, construction of that project could not proceed until after the BDFP is constructed and staging areas vacated.

occur from May 2016 to March 2018, predominantly prior to BDFP construction. Since this project would not use impact pile drivers and would only overlap with the BDFP by about one month, this project's contribution to cumulative noise increases would be minimal.

- **Building 521 Replacement/522 Disinfection Upgrade.** This project would involve installation of new equipment (pumps and a standby emergency generator), and construction work would occur mostly along the northern SEP boundary (east of Headworks). With only one forklift, one backhoe, and one dump truck, this project is not expected to contribute substantially to construction noise increases typically associated with operation of heavy equipment or impact pile drivers. In addition, this project is located farther away from residential receptors that are located closest to the BDFP site (south of Jerrold Avenue and east of Phelps Street). Construction is scheduled to occur 2016 to mid-2018, predominantly prior to BDFP construction. For these reasons, this project's contribution to cumulative noise increases would be minimal.

- **Power Feed and Primary Switchgear Upgrades.** This project would involve electrical upgrades, construction of a new primary switchgear station, and installation of an electrical duct bank within the northern portion of the SEP and outside the plant to connect to the Bruce Flynn Pump Station (BFS) and Islais Creek Booster Pump Station and is not expected to contribute construction noise increases related to operation of heavy equipment or pile drivers, even though construction is scheduled to be concurrent with BDFP (late 2017 to early 2020). Therefore, this project's contribution to cumulative noise increases would be minimal.

- **Seismic Reliability and Condition Assessment Improvements – All Phases.** This project would consist of seismic retrofit work at various existing facilities at the SEP. Activities could include rehabilitation (such as concrete spalling or breaking up and crack repair) as well as seismic retrofit of process tanks and buildings. The project would be conducted in two phases: retrofit and rehabilitate the channel under the post-chlorination building and SEP 530 channel and the remaining channel structures, and retrofit SEP 042. Proposed staging areas could include 2 Rankin Street and lot adjacent to the BFS. Seismic retrofit work would include the use of heavy equipment including cranes, rollers, excavators, bobcats, backhoes, and a drill rig (for drilled pier foundations). This work would occur at locations that are farther from the closest residential receptor to the BDFP (1700 Kirkwood Avenue). The closest location of the SEP 530 channel is approximately 800 feet from this receptor, while the closest BDFP facility (No. 2 Water pump station) is located approximately 625 feet from this receptor. SEP 042 is located north of the BDFP site and would be located farther away from this receptor. Given this project's location farther away from sensitive receptors and its avoidance of impact pile-driving activities, this project is not expected to contribute substantially to construction noise increases at the closest sensitive receptors. Construction is scheduled to occur from 2016 to mid-2019, overlapping only during the initial years of BDFP construction. Therefore, this project's contribution to cumulative noise increases would be minimal.

- **Quint-Jerrold Connector Road.** This project would involve construction of a new roadway along the west side of the railroad embankment to provide access between existing Quint Street and Jerrold Avenue. This project would be located west of the BDFP site. Construction activities (scheduled for late 2018 to 2019) would overlap with the initial years of BDFP construction. The existing railroad embankment separates the connector road project from the BDFP site and would buffer sensitive receptors to the east of this embankment from roadway construction noise. Given this barrier separating the project, no cumulative noise increases from these two overlapping construction projects are expected to occur at sensitive receptors located south and east of the BDFP site.

With the exception of the first project, none of the above-listed SEP projects are expected to contribute substantially to cumulative construction-related noise impacts at the closest noise-sensitive receptors because they would replace/upgrade existing facilities, avoid impact pile driving, be located farther from the sensitive receptors located closest to the BDFP, and/or involve construction that would occur inside existing building enclosures. The only cumulative project located at the SEP that would be constructed at the same time as the BDFP and would have the potential to contribute to the BDFP's cumulative construction-related noise impacts would be the Southeast Plant Headworks Replacement project.

The Headworks site is located north of the BDFP site and would be farther away from sensitive receptors to the south and southeast. The closest receptors to the Headworks site are located east of Phelps Street and south of Jerrold Avenue and are the same receptors that would be most affected by the BDFP. The closest residential receptor to both the BDFP and Headworks sites is at 1700 Kirkwood Avenue, the northernmost residence on Phelps Street. During demolition, excavation, and construction of the Headworks project, estimated noise levels at the 1700 Kirkwood Avenue residence would be 55 to 58 dBA (L_{eq})[38] and approximately 3 dBA lower at the more distant daycare center and residences directly across from the Southeast Greenhouses staging area. When these noise levels are added to 79 dBA (Leq) estimated for the BDFP at these receptors (see Table 4.7-7), there would be no incremental noise increase. Therefore, the combined or cumulative impact from construction of both of these projects would be ***less than significant.***

Construction activities associated with the BDFP in combination with construction of these SEP projects and other cumulative projects in the vicinity (identified on Figure 4.1-1 in Section 4.1, Overview) could result in cumulative increases in construction-related traffic on construction routes that are proposed to be used by the BDFP, such as Evans Avenue, Cesar Chavez Street, and Third Street (north of Evans Avenue), which provide access to and from the I-280 and Highway 101 freeways. Since these streets already serve as truck routes, and there is no residential development along these street segments that would be used by BDFP-related trucks, cumulative truck traffic noise impacts on sensitive receptors would not occur. In addition, truck routes already have higher ambient noise levels than other local streets. Therefore this cumulative impact relative to traffic noise increases would be ***less than significant***.

Vibration

As indicated above in Impact NO-2, vibration effects associated with pile-driving activities could exceed the 0.5 in/sec PPV threshold level for damage within approximately 70 feet. Therefore, the potential for cumulative vibration effects would occur if simultaneous construction activities from different projects generated substantial vibration within 70 feet of the BDFP site. Of the above-listed projects, only the Headworks project is anticipated to generate substantial construction-related vibration. The Headworks project is located north of the BDFP where there is no off-site structure located within 70 feet of both projects. Therefore, with regard to vibration, ***no cumulative impact*** would occur.

[38] Wilson Ihrig Associates (WIA), *Southeast Plant New Headworks (Grit) Replacement Project, Noise and Vibration Technical Memo,* August 19, 2016.

Mitigation Measure M-NO-1b: Construction Noise Control Measures at Southeast Greenhouses Staging Area (see Impact NO-1)

Impact C-NO-2: Operation of the project when considered with other cumulative development would not cause a substantial permanent increase in ambient noise levels or result in excessive groundborne vibration levels in the project vicinity. (Less than Significant)

Noise

In general, cumulative operational noise increases could occur if operational noise from cumulative projects would affect the same receptors as the BDFP. Among the projects identified in Table 4.1-1 and Figure 4.1-1, the following projects have the potential to contribute to cumulative operational noise increases at the same receptors due to their proximity to the BDFP site:

- **Southeast Plant Headworks Replacement Project.** This project would involve installation of various pumps, fans, filters, and grit screening equipment, and some have noise ratings of up to 85 to 100 dBA. However, all pumps and exhaust fans would be enclosed and buildings would have acoustical louvers to limit noise levels at vent openings. Rooftop ventilation equipment is estimated to generate 65 dBA at the SEP property plane along Phelps Street (east of the Headworks site). Noise levels would be lower at the more distant residential receptors farther south on Phelps Street. An emergency generator is also proposed and would be located outdoors, operating only during testing and emergencies. Trucks associated with this project would use Rankin Street and Evans Avenue for access to the freeways. There are no sensitive receptors located along these routes.

- **Chemical System Relocation and Facilities Upgrade.** This project would upgrade the odor control system (adding two fans) and add a new 200-kilowatt (kW) emergency generator. Fans are rated to generate noise levels of 68 dBA at 3 meters (about 10 feet). The project would relocate facilities to just east of SEP 042.

- **Existing Digester Roof Repairs.** This project would include repair or replacement of the roofs on the existing digesters and associated appurtenances. No operational noise increase would be expected to result from proposed roof repair or replacement.

- **Existing Digester Gas Handling Improvements.** This project would involve replacement of existing equipment (upgrade ventilation, boiler, and cooling system) in kind. Operation of equipment would not differ substantially from the previous condition because the equipment would be replaced in kind.

- **Building 521 Replacement/522 Disinfection Upgrade.** This project would add new pumps and a standby generator, which would be new sources of noise. There are currently two pumps operating four hours per day during peak demand periods. With this project, up to four to six pumps could operate four hours per day. Pumps are rated to generate noise levels of up to 85 dBA at 3 feet. The 80-kW standby generator would be located outdoors and would generate noise levels of 81 dBA at 23 feet, operating only during testing and emergencies. There is an existing wall located approximately 10 to 15 feet north of these pumps along Evans Avenue, and there are no residential receptors in the vicinity of this project.

- **Power Feed and Primary Switchgear Upgrades.** No new noise sources would be added because this project involves electrical upgrades only.

- **Primary/Secondary Clarifier Upgrades.** This project would consist of a new odor control system, which would include the addition of two 27,000-cubic-foot-per-minute dilution fans. While only one fan would operate at any given time, the fans would be enclosed and required to meet noise limits specified in Sections 2909(b) and 2909(d) of the Police Code.
- **Seismic Reliability and Condition Assessment Improvements – All Phases.** This project would consist of seismic retrofit work of existing facilities only, and no new noise sources would be added.
- **Northside Reliability Project.** This project replaced a variety of existing equipment in kind (e.g., an electric-powered compressor, pumps, air blowers, and included an emergency generator). Because equipment was installed mostly in 2011 to 2012, it is part of the existing (baseline) noise environment.
- **Oxygen Generation Plant Replacement.** The first part of this project (the plant replacement) added two blowers, which were enclosed to reduce noise levels to 85 dBA at 3 feet. The second part consists of installing new liquid storage tanks and vaporizers, and no new noise sources (i.e., pumps or motors) would be added.

Of the above-listed projects, five would add new equipment that could contribute to cumulative operational noise increases (Southeast Plant Headworks Replacement Project, Chemical System Relocation and Facilities Upgrade, Building 521 Replacement/522 Disinfection Upgrade, Primary/Secondary Clarifier Upgrades, Oxygen Generation Plant Replacement). As indicated in Impact NO-3, operation of the BDFP would result in combined maximum operational noise levels that would not exceed applicable ordinance noise limits at nearby residential receptors. Although addition of new pumps, standby generators, fans, blowers, or rooftop air handling units as a result of other cumulative projects would have the potential to contribute to cumulative operational noise increases at the closest sensitive receptors to the SEP, such cumulative noise increases are expected to be less than significant because each project would be required to comply with the noise limits specified in Sections 2909(b) and 2909(d) of the Police Code. Since each project would be required to meet the nighttime 45-dBA interior noise limit specified in Section 2909(d) at the closest residential receptors, and ambient noise levels occurring at the time each project undergoes review (which presumably account for noise from all existing sources) are reflected in the noise limit specified in Section 2909(b), it is expected that cumulative noise increases from these projects would remain below these ordinance threshold levels. Therefore, this cumulative operational noise impact would be ***less than significant***.

As stated in Impact NO-4, project operation would result in a minimal increase in truck trips and associated truck noise increases on truck routes. Truck routes that would be used by BDFP-related trucks for access to nearby freeways (shown in Figure 2-12 in Chapter 2, *Project Description*) include Rankin Street, Evans Avenue, Cesar Chavez Street, and Jerrold Avenue west of the SEP. Since these streets already serve as truck routes and lack residential development, cumulative noise impacts from truck traffic (combined with BDFP truck trips) on sensitive receptors would not occur. In addition, truck routes already have higher ambient noise levels than other local streets. Cumulative projects at the SEP or in the SEP vicinity could contribute to cumulative truck noise increases on these same streets, but for the same reasons (i.e., absence of noise-sensitive receptors and existing background noise levels), cumulative truck traffic increases on these routes would not result in a significant adverse, cumulative noise impact. Therefore, the cumulative operational noise impact related to noise increases from truck noise would be ***less than significant***.

Operation of cumulative SEP projects would not increase the number of workers at the SEP (refer to Section 4.6, Transportation and Circulation). Therefore, no cumulative increases in operational noise due to worker-related vehicular traffic on roadways in and around the SEP would occur.

Vibration

As stated in Impact NO-5, vibration levels associated with operation of the BDFP would be well below the 0.5 in/sec PPV vibration threshold for cosmetic damage and the 0.010 in/sec PPV threshold for sleep disturbance at the closest residential receptors. Most of the SEP cumulative projects listed above would involve replacement of equipment in kind, and vibration levels generated by replacement (new) equipment are expected to be similar to or less than levels generated by existing equipment. Five of the above-listed SEP cumulative projects (Southeast Plant Headworks Replacement Project, Chemical System Relocation and Facilities Upgrade, Building 521 Replacement/522 Disinfection Upgrade, Primary/Secondary Clarifier Upgrades, and Oxygen Generation Plant Replacement) would include addition of new equipment, and vibration generated by operation of new equipment at these project sites could contribute to cumulative vibration levels at nearby residential receptors. As indicated in Figure 4.1-1 in Section 4.1, Overview, all of these SEP projects would be located farther from the closest residential receptors to the east (south of Jerrold Avenue), and therefore operational vibration contributions from these cumulative projects at these receptor locations would be less than the levels estimated for the BDFP. Since BDFP-related vibration would be well below the threshold level for barely perceptible vibration, there would be sufficient buffer to accommodate any additional vibration from the relatively small amount of added equipment (four fans, four pumps, two blowers, and two standby generators) at more distant locations and still remain below the 0.01 in/sec PPV threshold for being barely perceptible (as indicated in Table 4.7-4). Therefore, cumulative operational vibration levels would be ***less than significant***.

Mitigation: None required.

4.8 Air Quality

This section describes the existing air quality conditions in the project area, evaluates the potential air quality and health risks and hazards impacts that would result from construction-related and operational emissions associated with implementation of the Biosolids Digesters Facility Project (BDFP or project), and identifies mitigation measures to reduce or avoid significant adverse impacts. The potential for the BDFP to result in odor impacts is also addressed in this section. Section 4.9, Greenhouse Gas Emissions, addresses greenhouse gas emissions (GHGs) associated with the project's potential impacts on climate change and the state's goals for GHGs pursuant to Assembly Bill 32.

4.8.1 Setting

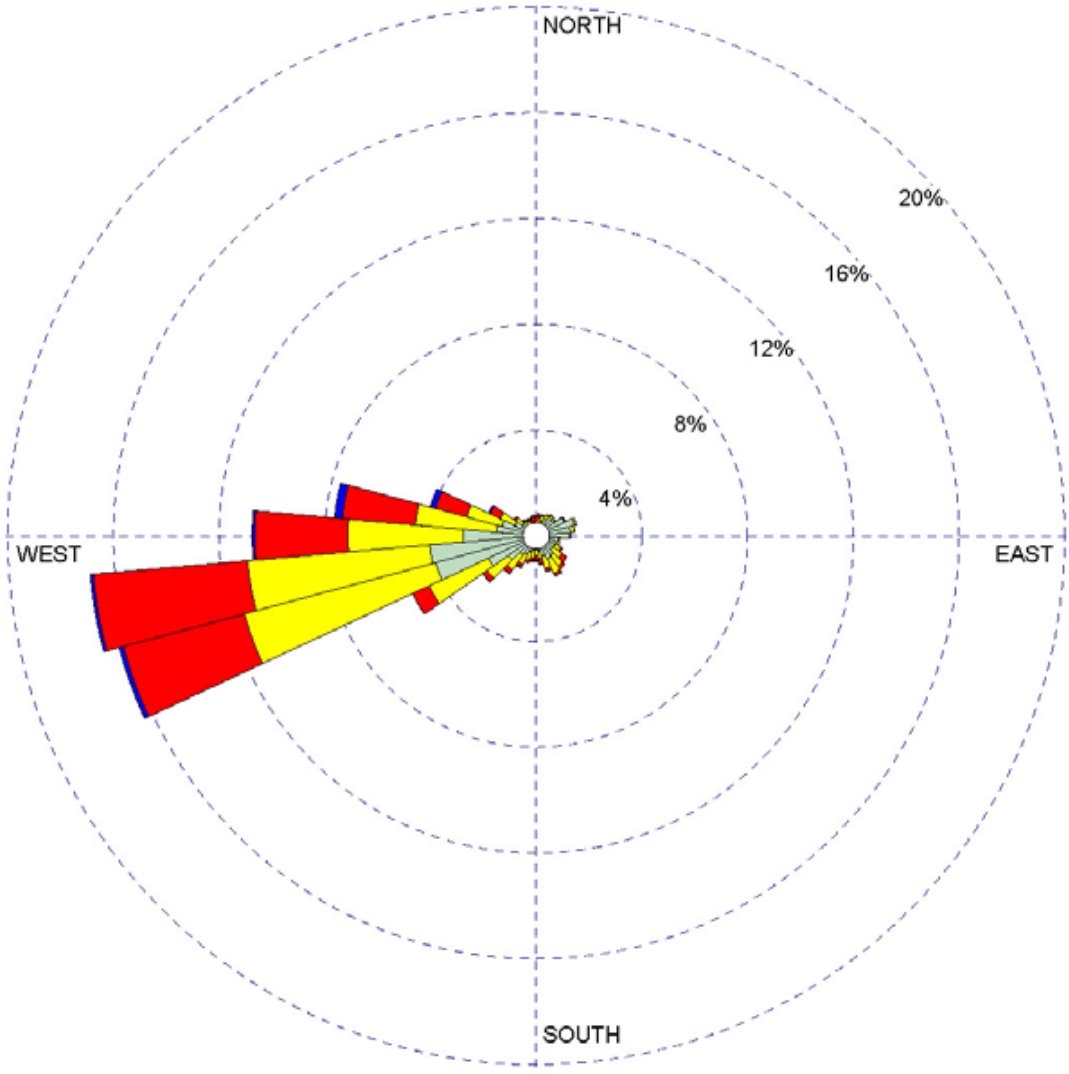
4.8.1.1 Climate and Meteorology

The project area is located within the San Francisco Bay Area Air Basin (SFBAAB). The SFBAAB has moderate climate for much of the year, although storms generally affect the region from November through April. San Francisco's proximity to the onshore breezes stimulated by the Pacific Ocean provide for generally very good air quality within San Francisco.

Temperatures in the project area average in the mid-50s annually, generally ranging from the low 40s on winter mornings to mid-70s during summer afternoons. Daily and seasonal oscillations of temperature are small because of the moderating effects of nearby San Francisco Bay. In contrast to the steady temperature regime, rainfall is highly variable and confined almost exclusively to the "rainy" period from November through April. Precipitation may vary widely from year to year, as a shift in the annual storm track of a few hundred miles can mean the difference between a very wet year and drought conditions.

Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants regionally and odors locally. Higher temperatures create the conditions in which ozone formation can increase and generally result in greater potential for odor generation. Precipitation can suppress ozone formation and migration of air pollutants and odor. Wind magnitude and direction have a profound effect on off-site odor incidents. A strong wind can disperse odors because of turbulence and mixing; the result is that odors are diluted and less noticeable off-site. Conversely, a light wind or stable meteorological condition (inversion) will tend to reduce dispersion and therefore increase the potential for off-site odor incidents. In the vicinity of the Southeast Water Pollution Control Plant (SEP or Southeast Plant) and the greater Bayview-Hunters Point area, winds can be complex and shift direction. Therefore, odor dispersion is not easily predictable. Winds in the vicinity are predominantly from the west to southwest, and average wind speeds are light (5 to 6 miles per hour [mph]). **Figure 4.8-1** presents a wind rose for the SEP's meteorological station (years 2007 to 2011).[1]

[1] A wind rose is a figure that is used to display how wind speed and direction are typically distributed at a particular location. The length of each spoke is related to the frequency of time that the wind blows from each direction, while the colored segments within the spoke correspond to different wind speed ranges.



WIND SPEED
Meters per second (m/s)

- >=11.10
- 8.80 - 11.10
- 5.70 - 8.80
- 3.60 - 5.70
- 2.10 - 3.60
- 0.50 - 2.10

Calms: 3.96%
Indicates the percentage of time that winds are calm

NOTE: A windrose is a figure that is used to display how wind speed and direction are typically distributed at a particular location (in this case, the SEP). The length of each spoke is related to the frequency of time that the wind blows from each direction, while the colored segments within the spoke correspond to different wind speed ranges.

SOURCE: CH2M Hill and Brown and Caldwell, Final Southeast Plant Odor Characterization Report, December 2015, *in* SFPUC, Final Biosolids Digester Facilities Project Conceptual Engineering Report, March 2016

SFPUC Biosolids Digester Facilities

Figure 4.8-1
SEP Wind Rose

4.8.1.2 Sensitive Receptors

Air pollution does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects than others. Population subgroups with greater sensitivity to the health effects of air pollutants include the elderly and the young; population subgroups with higher rates of respiratory disease, such as asthma and chronic obstructive pulmonary disease; and populations with other environmental or occupational health exposures (e.g., indoor air pollution) that affect cardiovascular or respiratory diseases. The Bay Area Air Quality Management District (BAAQMD) defines sensitive receptors as members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Uses typically associated with sensitive receptors (referred to as sensitive uses or sensitive receptor locations) include residential dwellings, schools, day care centers, hospitals, and senior care facilities. Workers are not considered sensitive receptors under the California Environmental Quality Act (CEQA) because all employers must follow regulations set forth by California Division of Occupational Safety and Health (Cal/OSHA) to ensure the health and well-being of their employees.[2]

Sensitive uses within 1,000 feet of the BDFP facilities and staging areas include residences to the east and south of the BDFP site as well as a day care facility located to the south (refer to Figure 4.2-1 in Section 4.2, Land Use). The closest residential uses are located to the east (about 600 to 700 feet from the closest BDFP facilities) on the east side of Phelps Street directly across the street from the SEP and along Jerrold Avenue on the block east of Phelps Street. Approximately 750 feet south of proposed BDFP facilities, the Southeast Community Facility (1800 Oakdale Avenue) provides services that include a day care facility (Wu Yee South East Child Development Center, 1300 Phelps Street). There are no schools or other licensed day care centers, nor are there any hospitals or senior care facilities, within 1,000 feet of BDFP facilities.[3]

4.8.1.3 Ambient Air Quality

Criteria Air Pollutants

As required by the 1970 federal Clean Air Act (CAA), the United States Environmental Protection Agency (USEPA) initially identified six criteria air pollutants that are pervasive in urban environments and for which state and federal health-based ambient air quality standards have been established. The USEPA calls these pollutants "criteria air pollutants" because the agency has regulated them by developing specific public-health-based and welfare-based criteria as the basis for setting permissible levels. The six criteria air pollutants originally identified by the USEPA are ozone, carbon monoxide (CO), particulate matter (PM), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead. Since that time, subsets of particulate matter have been identified for which permissible levels

[2] BAAQMD, *Recommended Methods for Screening and Modeling Local Risks and Hazards,* May 2011, page 12.

[3] Other than the Wu Yee South East Child Development Center, the California Department of Social Services records (http://www.ccld.ca.gov/PG3581.htm) indicate there are no licensed child care or elderly assisted living facilities located within 1,000 feet of BDFP facilities. The San Francisco Children's Council's online child care records (http://www.childrenscouncil.org/families/find-child-care/child-care-referrals/child-care-search/) indicate there are a few permitted in-home child care providers located within 1,000 feet of the BDFP facilities.

have been established. These include particulate matter of 10 microns in diameter or less (PM_{10}) and particulate matter of 2.5 microns in diameter or less ($PM_{2.5}$). In accordance with the California Clean Air Act (CCAA) and federal CAA, air pollutant standards are identified for the six criteria air pollutants: ozone, CO, PM, NO_2, SO_2, and lead.

The BAAQMD is the regional agency with jurisdiction for regulating air quality within the nine-county SFBAAB. The region's air quality monitoring network provides information on ambient concentrations of criteria air pollutants at various locations in the San Francisco Bay Area. **Table 4.8-1** presents a five-year (2011-2015) summary of the highest annual criteria air pollutant concentrations, collected at the air quality monitoring station operated and maintained by the BAAQMD at 16th and Arkansas Streets (Potrero Hill), approximately 1.6 miles north of the project site. Table 4.8-1 also compares measured pollutant concentrations with the most stringent applicable ambient air quality standards (state or federal). Concentrations shown in bold indicate an exceedance of a standard.

In general, the SFBAAB experiences low concentrations of most pollutants when compared to federal or state standards. The SFBAAB is designated as either in attainment[4] or unclassified for most criteria pollutants with the exception of ozone, $PM_{2.5}$, and PM_{10}, for which the SFBAAB is designated as non-attainment for either the state or federal standards.

Ozone Precursors

Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG, also sometimes referred to as volatile organic compounds or VOCs by some regulating agencies) and nitrogen oxides (NOx). The main sources of ROG and NOx, often referred to as ozone precursors, are combustion processes (including motor vehicle engines) and the evaporation of solvents, paints, and fuels. In the Bay Area, automobiles are the single largest source of ozone precursors. Ozone is referred to as a regional air pollutant because its precursors are transported and diffused by wind concurrently with ozone production through the photochemical reaction process. Ozone causes eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases, such as asthma, bronchitis, and emphysema.

Table 4.8-1 shows that, according to published data, the most stringent applicable standards for ozone (state 1-hour standard of 0.090 parts per million [ppm] and the state/federal 8-hour standard of 0.070 ppm) were not exceeded in San Francisco between 2011 and 2015. However the air basin remains listed as non-attainment for ozone.

[4] "Attainment" means the region is meeting federal and/or state standards for a specified criteria pollutant. "Non-attainment" means the region does not meet federal and/or state standards for a specified criteria pollutant. "Unclassified" means there are not enough data to determine the region's attainment status for a specified criteria air pollutant.

TABLE 4.8-1
SUMMARY OF SAN FRANCISCO AIR QUALITY MONITORING DATA (2011–2015)
AT BAAQMD MONITORING STATION, 10 ARKANSAS STREET, SAN FRANCISCO

Pollutant	Most Stringent Applicable Standard	Number of Days Standards Were Exceeded and Maximum Concentrations Measured[a]				
		2011	2012	2013	2014	2015
Ozone						
- Days 1-Hour Standard Exceeded		0	0	0	0	0
- Maximum 1-Hour Concentration (ppm)	>0.090 ppm[b]	0.070	0.069	0.069	0.079	0.085
- Days 8-Hour Standard Exceeded		0	0	0	0	0
- Maximum 8-Hour Concentration (ppm)	>0.070 ppm[c, d]	0.054	0.048	0.059	0.069	0.067
Carbon Monoxide (CO)						
- Days 1-Hour Standard Exceeded		0	0	0	0	0
- Maximum 1-Hour Concentration (ppm)	>20 ppm[b]	1.8	2.0	1.8	1.6	1.8
- Days 8-Hour Standard Exceeded		0	0	0	0	0
- Maximum 8-Hour Concentration (ppm)	>9 ppm[b, c]	1.2	1.2	1.4	1.2	1.3
Suspended Particulates (PM_{10})						
- Days 24-Hour Standard Exceeded[d]		0	1	0	0	0
- Maximum 24-Hour Concentration ($\mu g/m^3$)	>50 $\mu g/m^3$ [b]	46	**51**	44	36	47
Suspended Particulates ($PM_{2.5}$)						
- Days 24-Hour Standard Exceeded[e]		2	1	2	0	0
- Maximum 24-Hour Concentration ($\mu g/m^3$)	>35 $\mu g/m^3$ [c]	**47.5**	**35.7**	**48.5**	33.2	35.4[e]
- Annual Average ($\mu g/m^3$)	>12 $\mu g/m^3$ [b, c]	9.5	8.2	10.1	7.7	7.6
Nitrogen Dioxide (NO_2)						
- Days 1-Hour Standard Exceeded		0	1	0	0	0
- Maximum 1-Hour Concentration (ppm)	>0.10 ppm[c]	0.09	**0.12**	0.07	0.08	0.07

NOTES:
Bold values are in excess of applicable standard.
BAAQMD = Bay Area Air Quality Management District; ppm = parts per million; PM_{10} = particulate matter of 10 microns in diameter or less; $PM_{2.5}$ = particulate matter of 2.5 microns in diameter or less; $\mu g/m^3$ = micrograms per cubic meter
All values from BAAQMD Potrero Hill air quality monitoring station on Arkansas Street (approximately 1.6 miles from project site).

[a] Number of days exceeded is for all days in a given year, except for particulate matter of 10 microns in diameter or less. PM_{10} was monitored every six days prior to 2013 and has been monitored every 12 days effective January 2013. Therefore, the number of days exceeded is out of approximately 60 annual samples for 2011 and 2012 and out of approximately 30 annual samples afterward. $PM_{2.5}$ is monitored continuously (hourly, 365 days per year).
[b] State standard, not to be exceeded.
[c] Federal standard, not to be exceeded.
[d] In October 2015, the United States Environmental Protection Agency (USEPA) implemented a new 8-hour ozone standard of 70 parts per billion (equivalent to 0.070 ppm), which is the same as the California standard.
[e] For an exceedance of a federal standard to occur, the monitored value rounded to the whole integer must be greater than the standard. Therefore, this highest monitored value in 2015 does not represent an exceedance of the federal standard.

SOURCE: BAAQMD, Annual Bay Area Air Quality Summaries, 2011–2015. Available online at: http://www.baaqmd.gov/about-air-quality/air-quality-summaries. Accessed on August 30, 2016.

Carbon Monoxide

CO is an odorless, colorless gas usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicles; the highest emissions occur during low travel speeds, stop-and-go driving, cold starts, and hard acceleration. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue; impair central nervous system function; and induce angina (chest pain) in persons with serious heart disease. Very high levels of CO can be fatal. As shown in Table 4.8-1, the most stringent applicable

standards for CO (state 1-hour standard of 20 ppm and the state/federal 8-hour standard of 9 ppm) were not exceeded in San Francisco between 2011 and 2015.

Particulate Matter (PM_{10} and $PM_{2.5}$)

Particulate matter (PM) is a class of air pollutants that consists of heterogeneous solid and liquid airborne particles from man-made and natural sources. Particulate matter is measured in two size ranges: PM_{10} for particles 10 microns in diameter or less, and $PM_{2.5}$ for particles 2.5 microns in diameter or less.[5] In the Bay Area, motor vehicles generate about one-half of the air basin's particulates, through tailpipe emissions as well as brake pad and tire wear. Wood burning in fireplaces and stoves, industrial facilities, and ground-disturbing activities such as construction are other sources of particulates. One component of these particulate emissions is fine particulates, $PM_{2.5}$, which are small enough to be inhaled into the deepest parts of the human lung and can cause adverse health effects. (For more discussion, see Section 4.8.1.4 below.)

Table 4.8-1 shows that an exceedance of the state PM_{10} standard occurred on one monitored occasion between 2011 and 2015 in San Francisco. It is estimated that the state 24-hour PM_{10} standard of 50 micrograms per cubic meter ($\mu g/m^3$) was exceeded on up to six days between 2011 and 2015.[6] The state 24-hour $PM_{2.5}$ standard was exceeded on five days between 2011 and 2015.[7] The federal and state annual average $PM_{2.5}$ standard was not exceeded between 2011 and 2015.

Nitrogen Dioxide

NO2 is a reddish-brown gas that is a byproduct of combustion processes. Automobiles and industrial operations are the main sources of NO2. Aside from its contribution to ozone formation, NO2 can increase the risk of acute and chronic respiratory disease and reduce visibility. NO2 may be visible as a coloring component of the air on high pollution days, especially in conjunction with high ozone levels.

In 2010, the USEPA implemented a new 1-hour NO_2 standard (presented in Table 4.8-1). Currently, the California Air Resources Board (CARB) is recommending that the SFBAAB be designated as an attainment area for the new standard.[8] This new federal standard was exceeded on one day at the San Francisco station between 2011 and 2015.

The USEPA has also established requirements for a new monitoring network to measure NO_2 concentrations near major roadways in urban areas with a population of 500,000 or more. Sixteen new near-roadway monitoring sites are required in California, three of which will be in the Bay Area. These monitors are planned for Berkeley, Oakland, and San Jose. The Oakland station commenced operation in February 2014, the San Jose station commenced operation in March 2015, and the Berkeley station is not yet operational. The new monitoring data may result in a need to change area designations in the

5 PM10 is often called "coarse" particulate matter. PM2.5 is often called "fine" particulate matter.
6 PM_{10} concentrations were sampled every sixth day prior to 2013; therefore, actual days over the standard can be estimated to be six times the numbers listed in the table.
7 PM2.5 concentrations are continuously monitored.
8 California Air Resources Board (CARB), *Recommended Area Designations for the 2010 Federal Nitrogen Dioxide Standards, Technical Support Document,* January 2011. Available online at http://www.arb.ca.gov/desig/NO2_Enclosure_1.pdf. Accessed on January 19, 2016.

future. The CARB will revise the area designation recommendations, as appropriate, once the new monitoring data become available.

Sulfur Dioxide

SO_2 is a colorless, acidic gas with a strong odor. It is produced by the combustion of sulfur-containing fuels such as oil, coal, and diesel. SO_2 has the potential to damage materials and can cause health effects at high concentrations. It can irritate lung tissue and increase the risk of acute and chronic respiratory disease.[9] Pollutant trends suggest that the SFBAAB currently meets and will continue to meet the state standard for SO_2 for the foreseeable future.

The USEPA has designated the SFBAAB as an attainment area for SO_2. Similar to the new federal standard for NO_2, the USEPA has established requirements for a new monitoring network to measure SO_2 concentrations beginning in January 2013.[10] No additional SO_2 monitors are required for the Bay Area, because the BAAQMD jurisdiction has never been designated as non-attainment for SO_2, and no state implementation plans or maintenance plans have been prepared for SO_2.[11]

Lead

Leaded gasoline (phased out in the United States beginning in 1973), paint (on older houses, cars), smelters (metal refineries), and manufacture of lead storage batteries have been the primary sources of lead released into the atmosphere. Lead has a range of adverse neurotoxic health effects, which put children at special risk. Some lead-containing chemicals cause cancer in animals. Lead levels in the air have decreased substantially since leaded gasoline was eliminated. Ambient lead concentrations are only monitored on an as-warranted, site-specific basis in California.

On October 15, 2008, the USEPA strengthened the national ambient air quality standard for lead by lowering it from 1.5 $\mu g/m^3$ to 0.15 $\mu g/m^3$. The USEPA revised the monitoring requirements for lead in December 2010.[12] These requirements focus on airports and large urban areas, resulting in an increase in 76 monitors nationally. Lead monitoring stations in the Bay Area are located at Palo Alto Airport, Reid-Hillview Airport (San Jose), and San Carlos Airport. Non-airport locations for lead monitoring are in Redwood City and San Jose.

Fugitive Dust

Fugitive dust is PM suspended in the air by wind action and human activities. Fugitive dust does not come out of a vent or a stack; instead, fugitive dust particles are mainly composed of soil minerals

[9] BAAQMD, *CEQA Air Quality Guidelines*, May 2011, p. C-16. Available online at http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines%20May%202011.ashx?la=en. Accessed on January 19, 2016.

[10] USEPA, Fact Sheet: Revisions to the Primary National Ambient Air Quality Standard, Monitoring Network, and Data Reporting Requirements for Sulfur Dioxide, June 2, 2010. Available online at https://www.epa.gov/sites/production/files/2016-05/documents/final_primary_naaqs_factsheet.pdf. Accessed on January 19, 2016.

[11] BAAQMD, *2013 Air Monitoring Network Plan*, July 1, 2014, p. 27. Available online at http://www.baaqmd.gov/~/media/Files/Technical%20Services/2013_Network_Plan.ashx?la=en. Accessed on January 19, 2016.

[12] USEPA, *Fact Sheet Revisions to Lead Ambient Air Quality Monitoring Requirements*, 2010. Available online at https://www.epa.gov/lead-air-pollution/2010-lead-pb-air-monitoring-requirements-2013-method-determination-lead-pb-total. Accessed on August 24, 2016.

suspended in the air by wind action and human activities (e.g., demolition, excavation, grading, and other construction activities). Dust can be an irritant causing watering eyes or irritation to the lungs, nose, and throat. Depending on exposure, adverse health effects can occur due to this PM in general and also due to specific contaminants such as lead or asbestos that may be constituents of soil.

Air Quality Index

The USEPA developed the Air Quality Index (AQI) scale to make the public health impacts of air pollution concentrations easily understandable. The AQI, much like an air quality "thermometer," translates daily air pollution concentrations into a number on a scale between 0 and 500. The numbers in the scale are divided into six color-coded ranges, as described below:

- Green (0-50) indicates "good" air quality. No health impacts are expected when air quality is in the green range.
- Yellow (51-100) indicates air quality is "moderate." Unusually sensitive people should consider limited prolonged outdoor exertion.
- Orange (101-150) indicates air quality is "unhealthy for sensitive groups." Active children and adults, and people with respiratory disease, such as asthma, should limit outdoor exertion.
- Red (151-200) indicates air quality is "unhealthy." Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.
- Purple (201-300) indicates air quality is "very unhealthy." Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit outdoor exertion.

The AQI numbers refer to specific amounts of pollution in the air. They are based on the federal air quality standards for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, PM_{10}, and $PM_{2.5}$. In most cases, the federal standard for these air pollutants corresponds to the number 100 on the AQI chart. If the concentration of any of these pollutants rises above its respective standard, it can be unhealthy for the public. In determining the air quality forecast, local air districts, including the BAAQMD, use the anticipated concentration measurements for each of the major pollutants, convert them into AQI numbers, and determine the highest AQI for each zone in a district.

Readings below 100 on the AQI scale would not typically affect the health of the general public (although readings in the moderate range of 50 to 100 may affect unusually sensitive people). Levels above 300 rarely occur in the United States, and readings above 200 have not occurred in the Bay Area in decades.[13] AQI statistics over recent years indicate that air quality in the Bay Area is predominantly in the "Good" or Moderate" categories and healthy on most days for most people. As shown in **Table 4.8-2**, historical BAAQMD data indicate that the SFBAAB experienced air quality in the Red level ("Unhealthy") on three days between the years 2010 and 2015. As also shown in

[13] Bay Area Air Quality Management District, Spare the Air, Air Quality Index. Available online at sparetheair.org/Stay-Informed/Todays-Air-Quality/Air-Quality-Index.aspx. Accessed on January 25, 2017.

Table 4.8-2, the SFBAAB had a total of 14 Orange-level ("Unhealthy for Sensitive Groups") days in 2010, 12 days in 2011, 8 days in 2012, 15 days in 2013, 11 days in 2014, and 17 days in 2015.

TABLE 4.8-2
AIR QUALITY INDEX STATISTICS FOR THE SAN FRANCISCO BAY AREA AIR BASIN

Air Quality Index (AQI) Statistics for City of San Francisco	Number of Days by Year for Ozone					
	2010	2011	2012	2013	2014	2015
Unhealthy for Sensitive Groups (Orange)	14	12	8	15	11	17
Unhealthy (Red)	1	0	0	1	1	0

SOURCE: Bay Area Air Quality Management District, Emails from Duc Nguyen, Senior Air Quality Meteorologist (dated January 19, 2016) and Daniel M. Alrick, Air Quality Meteorologist (dated November 15, 2016) to Chris Sanchez, Environmental Science Associates, providing updated AQI information for the San Francisco Bay Area Air Basin.

4.8.1.4 Local Health Risks and Hazards

In addition to criteria air pollutants, individual projects may emit toxic air contaminants (TACs). TACs collectively refer to a diverse group of air pollutants that are capable of causing carcinogenic effects as well as chronic (i.e., of long duration) and/or acute (i.e., severe but short-term) adverse effects on human health. Human health effects of TACs include birth defects, neurological damage, cancer, and mortality. There are hundreds of different types of TACs with varying degrees of toxicity. Individual TACs vary greatly in the health risk they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another.

Unlike criteria air pollutants, TACs do not have ambient air quality standards but are regulated by the BAAQMD using a risk-based approach to determine which sources and pollutants to control as well as the degree of control. A health risk assessment (HRA) is an analysis in which human health exposure to toxic substances is estimated, and considered together with information regarding the toxic potency of the substances, to provide quantitative estimates of health risks.[14] As part of the Air Quality Technical Report (AQTR) for the BDFP, Ramboll Environ conducted an HRA for the project, which evaluated cancer risks from TACs, including diesel and gasoline speciated total organic gases (TOG) and diesel particulate matter (DPM), and plant operational TAC emissions, in addition to $PM_{2.5}$ concentrations.[15] Refer to Section 4.8.3.2, below, for additional information on the HRA conducted for the BDFP.

[14] In general, a Health Risk Screening Analysis is required to receive an operating permit from the BAAQMD for a new or modified source if that source has projected emissions of TACs above trigger levels that would suggest a potential public health risk. The applicant is then subject to a health risk assessment. However, for California Environmental Quality Act (CEQA) analyses, the BAAQMD recommends evaluation of not only stationary sources, which would be subject to permitting, but other sources, such as construction equipment or project traffic, that are not subject to BAAQMD permitting. As such, all sources associated with the project are evaluated for a CEQA health risk assessment. Both permitting and CEQA health risk assessments generally evaluate chronic, long-term effects, estimating the increased risk of cancer as a result of exposure to one or more TACs.

[15] Ramboll Environ, *Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR*, March 2017. Refer to Table 11 for a listing of existing operational TACs and Tables 16a –16c for proposed operational TACs. A copy of the Air Quality Technical Report (AQTR) is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2015.000644ENV.

Air pollution does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects than others. Residential areas, schools, day care centers, hospitals and senior care facilities are considered to be the most sensitive uses to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress or, as in the case of residential receptors, their exposure time is greater than that for other land uses. The BAAQMD's draft exposure assessment guidance typically assumes that residents would be exposed to air pollution 24 hours per day, 350[16] days per year, for 30 years. Therefore, assessments of air pollutant exposure typically find that, of all population groups, residential receptors experience the greatest adverse health outcomes.

In addition to $PM_{2.5}$ being a criteria air pollutant, exposures to fine particulate matter ($PM_{2.5}$) are strongly associated with impaired lung function, exacerbation of acute and chronic respiratory ailments including bronchitis and asthma, excess emergency room visits and hospital admissions, pre-mature arteriosclerosis, and premature death.[17]

DPM is also of concern. The CARB identified DPM as a TAC in 1998, primarily based on evidence demonstrating cancer effects in humans.[18] The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Mobile sources such as trucks and buses are among the primary sources of diesel emissions, and concentrations of DPM are higher near heavily travelled highways. The CARB estimated that average Bay Area cancer risk from exposure to diesel particulate, based on a population-weighted average ambient diesel particulate concentration, is about 480 in one million, as of 2000, which is much higher than the risk associated with any other toxic air pollutant routinely measured in the region. The statewide risk from DPM as determined by the CARB declined from 750 in one million in 1990 to 570 in one million in 1995; the CARB estimated the average statewide cancer risk from DPM in 2000 at 540 in one million.[19,20]

[16] The California Office of Environmental Health Hazard Assessment Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (February 2015) assumes a 2-week annual vacation away from exposure (thus 350 days instead of 365 days per year).

[17] San Francisco Department of Public Health (SFDPH), *Assessment and Mitigation of Air Pollutant Health Effects from Intra-Urban Roadways: Guidance for Land Use Planning and Environmental Review,* May 2008, page 6. A copy of this document is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2015.000644ENV.

[18] California Air Resources Board (CARB), Fact Sheet, *The Toxic Air Contaminant Identification Process: Toxic Air Contaminant Emissions from Diesel-fueled Engines*, October 1998.

[19] California Air Resources Board (CARB), *California Almanac of Emissions and Air Quality - 2009 Edition*, Table 5-44 and Figure 5-12. Available online at http://www.arb.ca.gov/aqd/almanac/almanac09/chap509.htm. Accessed on January 25, 2017.

[20] This calculated cancer risk value from ambient air exposure in the Bay Area can be compared against the lifetime probability of being diagnosed with cancer in the United States, from all causes, which for men is more than 40 percent (based on a sampling of 17 regions nationwide), or greater than 400,000 in one million, according to the American Cancer Society. (American Cancer Society, Lifetime Risk of Developing or Dying from Cancer, last revised March 23, 2016. Available online at http://www.cancer.org/cancer/cancer-basics/lifetime-probability-of-developing-or-dying-from-cancer.html. Accessed on January 25, 2017.)

San Francisco Modeling of Air Pollution Exposure Zones

In an effort to identify areas of San Francisco most adversely affected by sources of TACs, the City and County of San Francisco (CCSF or City) partnered with the BAAQMD to conduct a citywide health risk assessment based on an inventory and assessment of air pollution and exposures from mobile, stationary, and area sources within San Francisco. Citywide dispersion modeling was conducted using AERMOD[21] to assess emissions from the following primary sources: roadways, permitted stationary sources, port and maritime sources, and Caltrain. Emissions of DPM (which represent PM_{10} exhaust emissions from diesel-fueled engines), $PM_{2.5}$ (including brake and tire wear), TOG, and other TACs from stationary sources were modeled on a 20-by-20-meter receptor grid covering the entire city. The results represent a comprehensive assessment of existing cumulative exposures to air pollution throughout the city. The methodology and technical documentation for modeling citywide air pollution are available in the document entitled *The San Francisco Community Risk Reduction Plan: Technical Support Documentation*.[22]

Model results were used to identify areas in the city at the lot level with poor air quality, termed the Air Pollutant Exposure Zone (APEZ), based on the following health-protective criteria:

- ***Excess Cancer Risk.*** The 100 per one million persons (100 excess cancer risk) criterion is based on USEPA guidance for conducting air toxic analyses and making risk management decisions at the facility- and community-scale level.[23] As described by the BAAQMD, the USEPA considers a cancer risk of 100 per million to be within the "acceptable" range of cancer risk. In the 1989 preamble to the benzene National Emissions Standards for Hazardous Air Pollutants (NESHAP) rulemaking,[24] the USEPA states that it "…strives to provide maximum feasible protection against risks to health from hazardous air pollutants by (1) protecting the greatest number of persons possible to an individual lifetime risk level no higher than approximately one in one million and (2) limiting to no higher than approximately one in ten thousand [100 in one million] the estimated risk that a person living near a stationary source would have if he or she were exposed to the maximum pollutant concentrations for 70 years."[25] The 100 per one million excess cancer cases criterion is also consistent with the ambient cancer risk in the most pristine portions of the Bay Area based on BAAQMD regional modeling.[26]
- ***Fine Particulate Matter.*** In April 2011, the USEPA published *Policy Assessment for the Particulate Matter Review of the National Ambient Air Quality Standards*. In this document, USEPA staff concludes that the then-current federal annual $PM_{2.5}$ standard of 15 $\mu g/m^3$ should be revised to a level within the range of 13 to 11 $\mu g/m^3$, with evidence strongly supporting a

[21] AERMOD is the USEPA's preferred or recommended steady state air dispersion plume model. For more information on AERMOD and to download the AERMOD Implementation Guide, see https://www3.epa.gov/ttn/scram/7thconf/aermod/aermod_implmtn_guide_3August2015.pdf. Accessed on January 25, 2017.

[22] BAAQMD, San Francisco Department of Public Health, and San Francisco Planning Department, *The San Francisco Community Risk Reduction Plan: Technical Support Documentation*, December 2012.

[23] BAAQMD, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, October 2009, page 67.

[24] 54 Federal Register 38044, September 14, 1989.

[25] The air quality technical analysis was conducted in accordance with the 2015 California Office of Environmental Health Hazard Assessment (OEHHA) Guidance, which recommends using a 30-year exposure duration. Despite a lower exposure duration, other exposure parameters were also changed to make the overall impacts on human health more conservative (e.g., higher) than using the 70-year exposure in the 2003 OEHHA Guidance.

[26] BAAQMD, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, October 2009, page 67.

standard within the range of 12 to 11 μg/m^3. APEZ designations within San Francisco are based on the health-protective $PM_{2.5}$ standard of 11 μg/m^3, as supported by the USEPA's Particulate Matter Policy Assessment, but then the standard is lowered further to 10 μg/m^3 to account for uncertainty in accurately predicting air pollutant concentrations using emissions modeling programs.

- ***Health Vulnerable Locations.*** Also included in the APEZ were lots within San Francisco zip codes that were in the lowest 20 percent of Bay Area Health Vulnerability scores (zip codes 94102, 94103, 94105, 94124, and 94130). For lots within both an APEZ and Health Vulnerability zip code, the standard for identifying areas as being within the zone was lowered to (1) excess cancer risk from the contribution of emissions from all modeled sources greater than 90 per one million persons, and/or (2) cumulative $PM_{2.5}$ concentrations greater than 9 μg/m^3.[27]

The BDFP site is within the APEZ (as mapped by the San Francisco Planning Department) and is also in a Health Vulnerability zone (zip code 94124). **Figure 4.8-2** shows the existing APEZ (shaded blue) and the Health Vulnerability zip code (shaded beige) in relation to the project site, SEP, and nearby staging areas (Southeast Greenhouses and 1550 Evans).

Community Risk Reduction Plan

The City is currently preparing a Community Risk Reduction Plan. Extensive modeling has been conducted and is documented in *The San Francisco Community Risk Reduction Plan: Technical Support Documentation.*[28] That report identifies the SEP as a contributor to cancer risk due to volatilized gases emitted from wastewater.

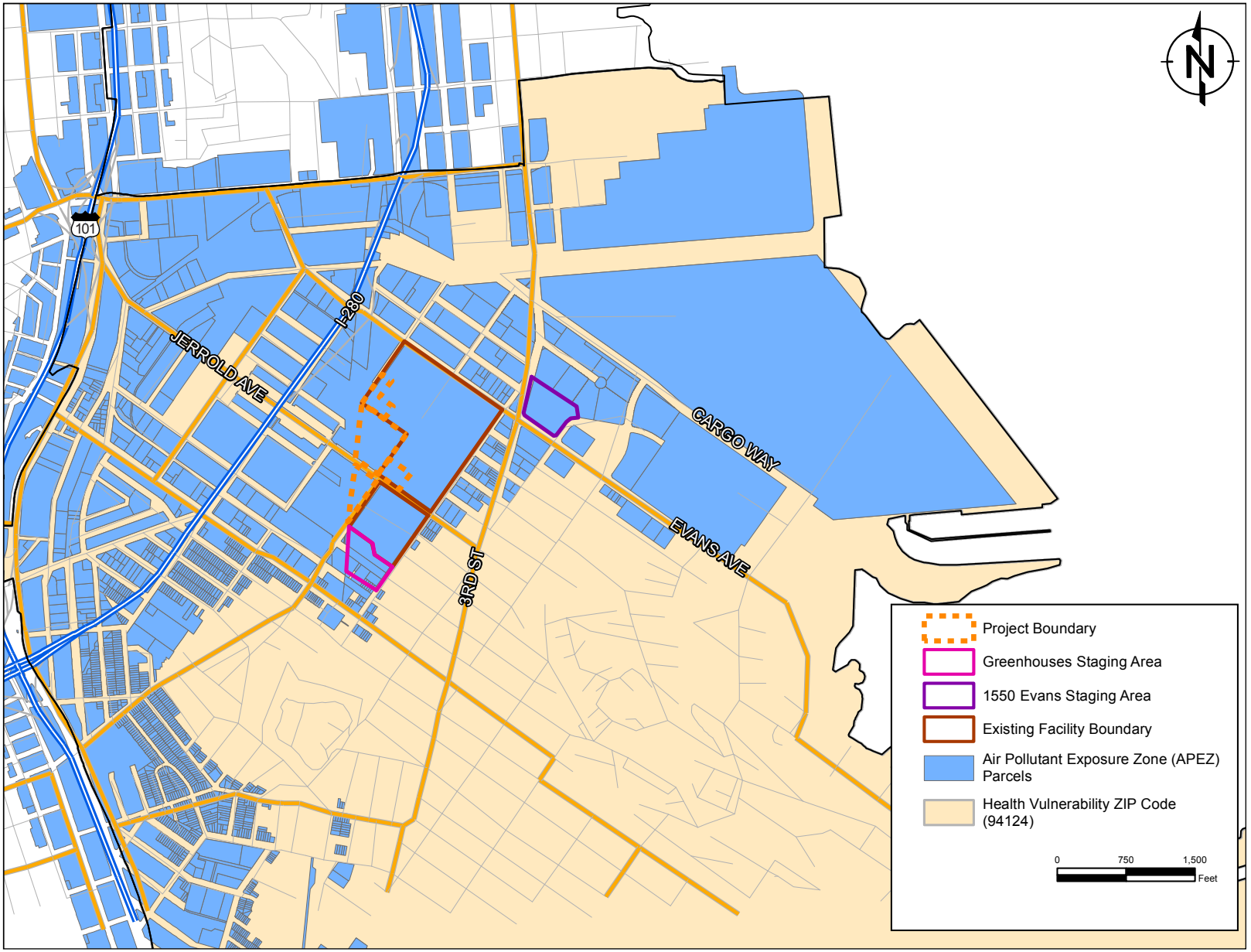
4.8.1.5 Existing Sources of Air Pollution in Project Site Vicinity

Existing Stationary Sources of Air Pollution

The BAAQMD's inventory of permitted stationary sources of emissions show nine permitted stationary emission facilities present within or near the 1,000-foot zone of influence of the BDFP site in addition to sources at the SEP itself. The sources at these permitted facilities are made up of four industrial uses (coffee roasting company, sign company, printer, pan-glo services), four auto body shops, and one site at the Southeast Community Facility (diesel-fueled emergency generator). Stationary sources associated with existing solids processing identified in the SEP's Permit to Operate include a cogeneration engine (in Building 810, shown on Figure 2-3 in Chapter 2, *Project Description*), sludge handling process unit (comprised of two gravity belt thickeners [GBTs] in Building 785), the active anaerobic digesters (Buildings 630 through 730), two waste gas burners (flares, Building 821), a sludge dewatering facility (Building 840), and three hot water boilers (Building 820). Other stationary sources identified in the site's Permit to Operate include the emergency generators (Building 990).

[27] San Francisco Planning Department and San Francisco Department of Public Health, *2014 Air Pollutant Exposure Zone Map (Memo and Map)*, April 9, 2014. These documents are part of San Francisco Board of Supervisors File No. 14806, Ordinance No. 224-14, Amendment to Health Code Article 38.

[28] Bay Area Air Quality Management District, San Francisco Department of Public Health, San Francisco Planning Department, *The San Francisco Community Risk Reduction Plan: Technical Support Documentation,* December 2012, p. 45. Available online at http://www.gsweventcenter.com/Appeal_Response_References%5C2012_1201_BAAQMD.pdf. Accessed on March 31, 2016.



SOURCE: BAAQMD, San Francisco Department of Public Health, and San Francisco Planning Department,The San Francisco Community Risk Reduction Plan: Technical Support Documentation, December 2012; Ramboll-Environ consulting analysis for the BDFP, 2017.

SFPUC Biosolids Digester Facilities

Figure 4.8-2

APEZ and Health Vulnerability Zip Code in Project Vicinity

Roadway and Rail-Related Pollutants

Motor vehicles are responsible for a large share of air pollution, especially in California. Vehicle tailpipe emissions contain diverse forms of particles and gases, and vehicles also contribute to particulates by generating road dust through tire wear. Epidemiologic studies have demonstrated that people living close to freeways or busy roadways have poorer health outcomes, including increased asthma symptoms and respiratory infections and decreased pulmonary function and lung development in children. Air pollution monitoring conducted in conjunction with epidemiologic studies has confirmed that roadway-related health effects vary with modeled exposure to PM and NO_2. In traffic-related studies, the additional non-cancer health risk attributable to roadway proximity was seen within 1,000 feet of the roadway and was strongest within 300 feet.[29] As a result, the CARB recommends that new sensitive land uses not be located within 500 feet of a freeway or urban road carrying 100,000 or more vehicles per day. As evidence shows that sensitive uses in an area within a 500-foot buffer of any freeway are at an increased health risk from air pollution,[30] lots that are within 500 feet of freeways are included in the APEZ.

Major roadway sources (defined by the BAAQMD as carrying more than 10,000 vehicles in annual average daily traffic) within 1,000 feet of the BDFP site include the Interstate 280 (I-280) freeway (located approximately 550 to 3,700 feet west of the BDFP site) and Evans Avenue.[31] This traffic contributes to concentrations of $PM_{2.5}$, DPM, and other air contaminants emitted from motor vehicles near the street level. There are approximately five to ten residences located within 1,000 feet of the I-280 freeway that are also within 1,000 feet of the BDFP site. There are no residences on Evans Avenue within 1,000 feet of the BDFP site. No other areas of mobile-source activity or otherwise "non-permitted" stationary sources related to mobile sources (e.g., railyards, trucking distribution facilities, and high-volume fueling stations) are located within 1,000 feet of the project site.

In addition to these roadway sources, existing railroad emission sources include Caltrain, a diesel-powered locomotive passenger rail service that runs along the western boundary of the BDFP site. There are no maritime sources of emissions (i.e., ocean-going marine vessels, harbor craft, cargo handling equipment) located within 1,000 feet of BDFP facilities.[32]

4.8.1.6 Odors

Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). Odor characterization can depend on a number of variables, including:

- Nature of the odor source (e.g., wastewater treatment plant, food processing plant);
- Frequency and duration of odor generation (e.g., daily, seasonal, activity-specific);

[29] California Air Resources Board (CARB), *Air Quality and Land Use Handbook: A Community Health Perspective,* April 2005. Available at http://www.arb.ca.gov/ch/handbook.pdf. Accessed on October 22, 2015.
[30] Ibid.
[31] San Francisco Municipal Transportation Agency, *Traffic Count Data, 1993-2015*, July 5, 2016. Available online at https://www.sfmta.com/about-sfmta/reports/sfmta-traffic-count-data-1995-2015. Accessed on January 25, 2017.
[32] Ibid. pp. 14-21.

- Intensity of odor (e.g., concentration);
- Distance of odor source to sensitive receptors;
- Physical barriers (e.g., walls, buildings, trees);
- Wind direction (e.g., upwind or downwind); and
- Sensitivity of the receptor.

Measurement of Odor: Dilution to Threshold Ratio

The measurement of odor concentration is the most common method used to quantify odors. To measure an odor, an odorous sample of air is diluted with odor-free air until 50 percent of a population cannot detect the odor. The number of equivalent units of odor-free air required to dilute the odorous sample to 50 percent detectability (the threshold value) determines the dilution to threshold ratio (D/T). The term "dilution to threshold" refers to the amount of pure air that must be added to a known volume of odorous air in order to dilute the sample to the concentration at which the odor can just be detected.[33]

Odor Associated with Wastewater Treatment

Odors can be generated and released from virtually all phases of wastewater collection, treatment, and disposal. Most odor-producing compounds found in domestic wastewater and in the removed solids result from anaerobic biological activity that consumes organic material, sulfur, and nitrogen found in wastewater. These odor-producing compounds can be organic or inorganic molecules. The two major inorganic odors are hydrogen sulfide and ammonia. Organic odors are usually the result of biological activity that decomposes organic matter and forms a variety of odors.

Hydrogen sulfide (H_2S), which has a characteristic rotten-egg odor, is the most common odorous compound found in wastewater collection and treatment systems. H_2S monitoring can be considered a surrogate for D/T measurements and thus provides useful information on the performance of odor control systems. H_2S is corrosive, toxic, and soluble in water. H_2S results from the reduction of sulfate to H_2S by bacteria under anaerobic (or septic) conditions. Other wastewater odorants that contribute to odor are organic sulfur compounds (e.g., methyl mercaptan and dimethyl sulfide), ammonia and nitrogen compounds (e.g., amines - dimethylamine and trimethylamine), volatile fatty acids (VFA), aldehydes, musty odorants (e.g., 2-Methylisoborneol), fecal odorants (e.g., skatole), and ketones. As these latter constituents are more costly and difficult to monitor, H_2S has become the key compound targeted for removal and for monitoring. Ammonia and organic odors are also common. Odors from wastewater and its residuals become significantly more intense and develop much higher concentrations of odorous compounds when the oxygen in the waste is consumed and anaerobic conditions develop. For this reason, most of the odor generated in wastewater collection and treatment is due to the anaerobic conditions that can develop in wastewater collection systems as well as treatment plant unit processes where anaerobic conditions are likely to develop (e.g., clarifiers, gravity thickeners, and sludge storage tanks). Odor problems can be controlled by proper

[33] For example, an odor is assigned a D/T of 7 if six units of odor-free air must be added to one unit of odorous air in order to make the odor undetectable by 50 percent of the population ([6+1]/1). The greater the dilution necessary to render an odorant undetectable, the greater the strength of the odor. Source: USEPA, *Regulatory Options for the Control of Odors*, February 1980.

design, adequate ventilation, vapor phase treatment, operational practices including process control and chemical treatment, and facility maintenance.

SEP Existing Odor Conditions

The SEP is an existing source of odor in the area. Odor emissions around the SEP have historically been detected by the public and City staff, and have been confirmed emanating from both liquids treatment and solids treatment systems.[34] **Figure 4.8-3** depicts odor sources at the SEP, as well as odor control units, and includes the facility numbers referenced in this section.

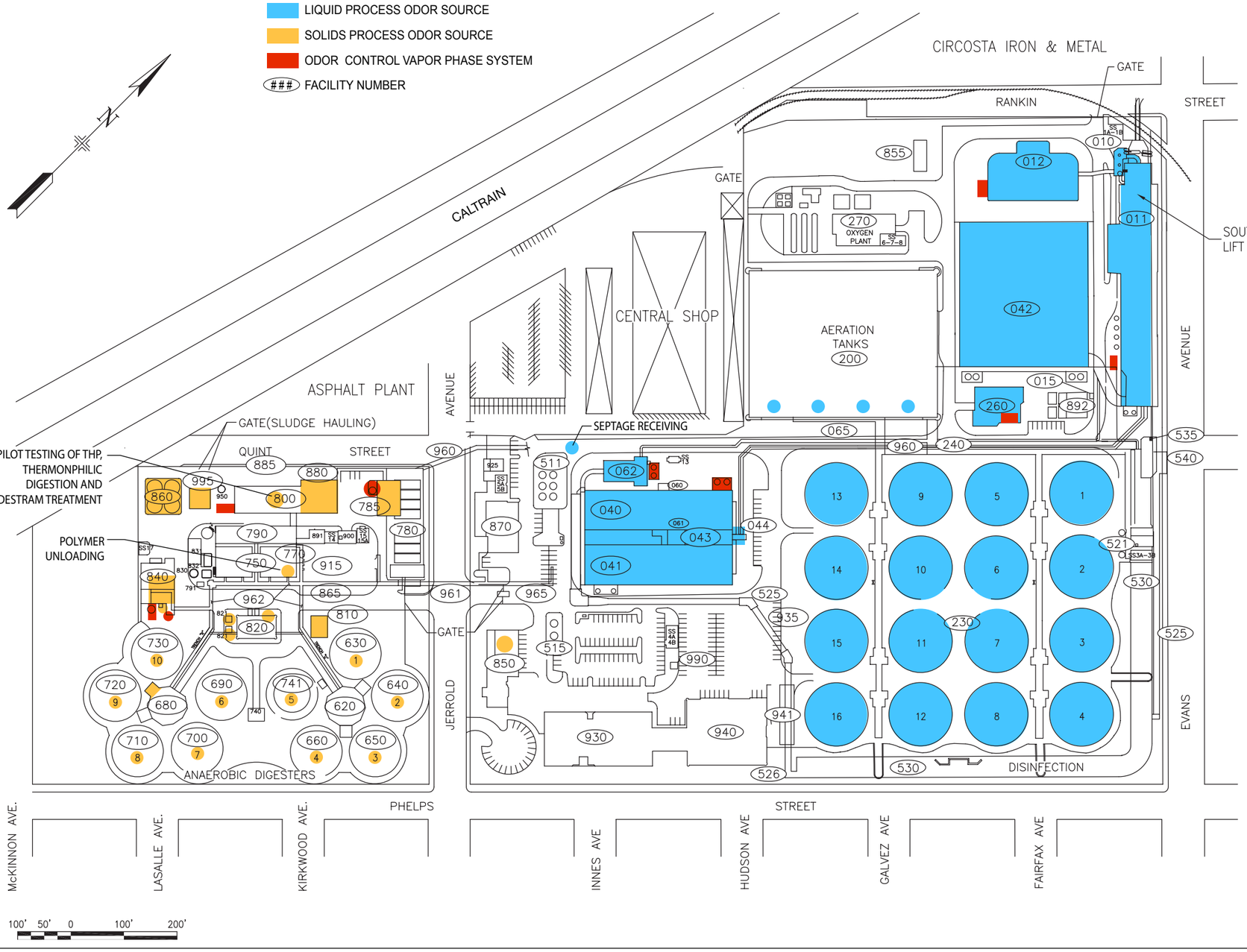
Odor Characterization Report

In 2015 the San Francisco Public Utilities Commission (SFPUC) conducted a study to evaluate SEP-related odor emissions.[35] The Odor Characterization Report includes the results of a site assessment to identify all existing odor sources and odor history, determine and quantify odor concentration inputs for dispersion modeling, estimate the potential effects on the surrounding community, and validate modeling results. Odor sources at the SEP were identified and ranked by relative contribution to overall odor emissions, and associated emissions were quantified with regard to predicted off-site odor effects. The relative contributions of odor sources at the SEP to off-site odor emissions were determined by considering the strength of the sources (measured in D/T) as well as the volumetric emission rates, and then applying dispersion modeling to reflect the effects of other parameters such as meteorological conditions and the height of odor sources.

Existing Odor Sources Identified in Odor Characterization Report

Table 4.8-3 summarizes the existing odor sources at the SEP identified in the Odor Characterization Report. The right-hand column reflects the ranking of odor sources; the number 1 indicates the highest maximum 1-hour off-site odor concentration. The odor sources that ranked the highest for summer included the GBT facility bypass louver (SEP Building 785),[36] the septage receiving unit (near SEP Building 511), Headworks (SEP Building 012), sedimentation basins (SEP Building 042), grease delivery facility (SEP Building 880), and biosolids cake loadout (SEP Building 860). Other sources for solids processing identified in the report include the cogeneration facility (when biogas cleaning underperforms), and initial start-up of flares and boilers.[37] Refer to Figure 4.8-3 for locations of existing odor sources.

[34] SFPUC, Odor Incident Data 2010-2015, revised November 9, 2015.
[35] CH2M Hill and Brown and Caldwell, Final Southeast Plant Odor Characterization Report *in* SFPUC, Final Biosolids Digester Facilities Project Conceptual Engineering Report, March 2016.
[36] The GBT louver is a vent used to bypass an odor control unit if that unit is out of service. Under normal operating conditions the odor control unit is in service.
[37] CH2M Hill and Brown and Caldwell, Final Southeast Plant Odor Characterization Report, December 2015, page ES-14 and Section 5.2.2 Solid Process Sources *in* SFPUC, Final Biosolids Digester Facilities Project Conceptual Engineering Report, March 2016.



Building Numbers

010	INFLUENT CONTROL STRUCTURE
011	OLD HEADWORKS
012	NEW HEADWORKS
015	PRIMARY INFLUENT CHANNEL DEWATER PUMP VAULT
040	SEDIMENTATION BUILDING NO.1
041	SEDIMENTATION BUILDING NO.2
042	SEDIMENTATION BUILDING NO.3
043	SEDIMENTATION CONTROL ROOM
044	PRIMARY INFLUENT CONTROL STRUCTURE
060	WEST PUMP ROOM
061	CENTRAL PUMP ROOM
062	PRIMARY EFFLUENT PUMP STATION
065	MAG METER ACCESS VAULT
200	AERATION TANKS
230	SECONDARY SEDIMENTATION TANKS
240	SECONDARY BYPASS JUNCTION STRUCTURE
260	SECONDARY SLUDGE CONTROL BUILDING
270	OXYGEN GENERATION BUILDING
511	SODIUM HYPOCHLORITE STORAGE TANKS
515	SODIUM BISULFITE STORAGE TANKS
521	POSTCHLORINATION BUILDING
525	PRIMARY EFFLUENT CHANNEL & DISINFECTION FACILITY
526	JUNCTION STRUCTURE
530	CHLORINE CONTACT CHANNELS
535	BIOASSAY BUILDING
540	PLANT EFFLUENT CONTROL STRUCTURE
550	ISLAIS CREEK BOOSTER STATION
620	DIGESTION GROUP NO.1 CONTROL
680	DIGESTION GROUP NO.2 CONTROL
740	GAS BOOSTER STATION
741	GAS STORAGE FACILITY
750	DIGESTED SLUDGE THICKENING TANKS
770	SLUDGE BLEND TANK
780	SECONDARY SLUDGE THICKENING
785	INTERIM GRAVITY BELT THICKENER
790	SLUDGE FILTRATION BUILDING
791	PLANT RECYCLE PUMP STATION
800	DRYER BUILDING
810	COGENERATION BLDG
820	DIGESTER HEATING BOILERS
821	WASTE GAS BURNERS
830	DRY LIME STORAGE FACILITY
831	LIME SLAKING & FEED FACILITY
832	LIME SYSTEM CONTROL BUILDING
840	CENTRIFUGE BUILDING
850	OPERATORS BUILDING & ENGINEERING OFFICES
855	ENGINEERING OFFICES ANNEX
860	BIN HOPPERS
865	TRUCK SCALE (TEMPORARY)
870	SERVICE BUILDING
880	GREASE HANDLING FACILITY
885	#3 WATER LOADING STATION
891	SOUTHSIDE SUB STATION
892	PRIMARY POWER SWITCHING STATION
900	MAINTENANCE SHOP–SOUTH SIDE
915	TRAILER OFFICE AND STORAGE BOX
925	NO.1 & NO.2 WATER PUMP STATION
930	MASTER CONTROL AND LABORATORY
935	TEMPRORARY OFFICES
940	MAINTENANCE BUILDING
941	MAINTENANCE OFFICES (TRAILERS)
950	CHIMNEY
960	GALLERY
961	JERROLD STREET UNDERCROSSING
962	PIPE TRENCHES
965	ENTRANCE CONTROL BUILDING
990	EMERGENCY GENERATOR BUILDING
995	SEWER DEBRIS UNLOADING STATION

SOURCE: CH2M Hill and Brown and Caldwell, Final Southeast Plant Odor Characterization Report, December 2015, *in* SFPUC, Final Biosolids Digester Facilities Project Conceptual Engineering Report, March 2016

NOTE: The digesters are covered. Sources at the digesters include pressure relief valves atop each digester as well as digester mixing compressors adjacent to Buildings 620 and 680. Sources at Aeration Tanks are vents.

SFPUC Biosolids Digester Facilities

Figure 4.8-3

Existing Odor Sources and Odor Control Units at the SEP

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TABLE 4.8-3
EXISTING ODOR SOURCES AT SEP REPORTED IN ODOR CHARACTERIZATION REPORT

	SEP Building Number [a]	Ranking of Select Odor Sources[b]
Liquid Treatment Process Odor Sources		
Septage Receiving	Near Building 511	2
Headworks	012	3, 8, 10[c]
New Primary Sedimentation Basins	042	4
Old Primary Sedimentation Basins	040, 041	7
Influent Control Structure Old Headworks	010, 011	11, 13[c]
Secondary Sedimentation	230	15
Primary Effluent Pump Station	060	Not in top 15
Aeration Tanks	200	
Bruce Flynn Pump Station	n/a[d]	
Solids Treatment Process Odor Sources		
Gravity Belt Thickening Facility (Bypass Louver) [e]	785	1
Grease Handling Facility	880	5
Cake Loadout	860	6
Polymer Unloading	750	9
Combustion Sources	810, 820, 821, 850	12
Dewatering Facility	840	14
Return Activated Sludge and Secondary Scum/Dewatering Wet Wells	260	Not in top 15
Digester Pressure/Vacuum Relief Valves and Covers	630, 640, 650, 660, 690, 700, 710, 720, 730, 741	
Pilot Testing of Thermal Hydrolysis Process (THP), Thermophilic Digestion, & Sidestream Treatment[f]	800	
Digester Mixing Compressors	620, 680	
Vactor Truck Decanting	995	

NOTES: SEP = Southeast Water Pollution Control Plant, n/a = not applicable.

[a] SEP Building numbers shown in Figure 4.8-3.
[b] Reflects summer odor source rankings identified in Table ES-4 of the *Odor Characterization Report* (page ES-16). Number 1 indicates the source contributing the highest maximum one-hour offsite odor concentration.
[c] Reflects multiple odor emissions sources associated with this SEP building.
[d] The Bruce Flynn Pump Station, located at the intersection of Rankin Street and Evans Avenue (less than 100 feet from the SEP), is primarily a wet weather pump station that pumps wastewater to the SEP Influent Control Structure (SEP 010).
[e] Odor from the bypass louver of the gravity belt thickener (GBT) facility was due to an inoperable Odor Control Unit and is considered atypical.
[f] SEP staff has a pilot testing facility set up in SEP 800 (Dryer Building) for pilot testing a THP, a temperature-based anaerobic digestion process, and a sidestream process. These technologies were tested on a small scale during the winter and summer sampling events in 2014.

SOURCE: CH2M Hill and Brown and Caldwell, Final Southeast Plant Odor Characterization Report, December 2015, *in* SFPUC, Final Biosolids Digester Facilities Project Conceptual Engineering Report, March 2016.

Site Odor Assessment and Dispersion Modeling

The site odor assessment included winter and summer site odor surveys, a winter and summer sampling event, and comprehensive sample analysis. Dispersion modeling was then conducted using the CALPUFF[38] model to understand the current overall odor footprint at the SEP, and specifically to:

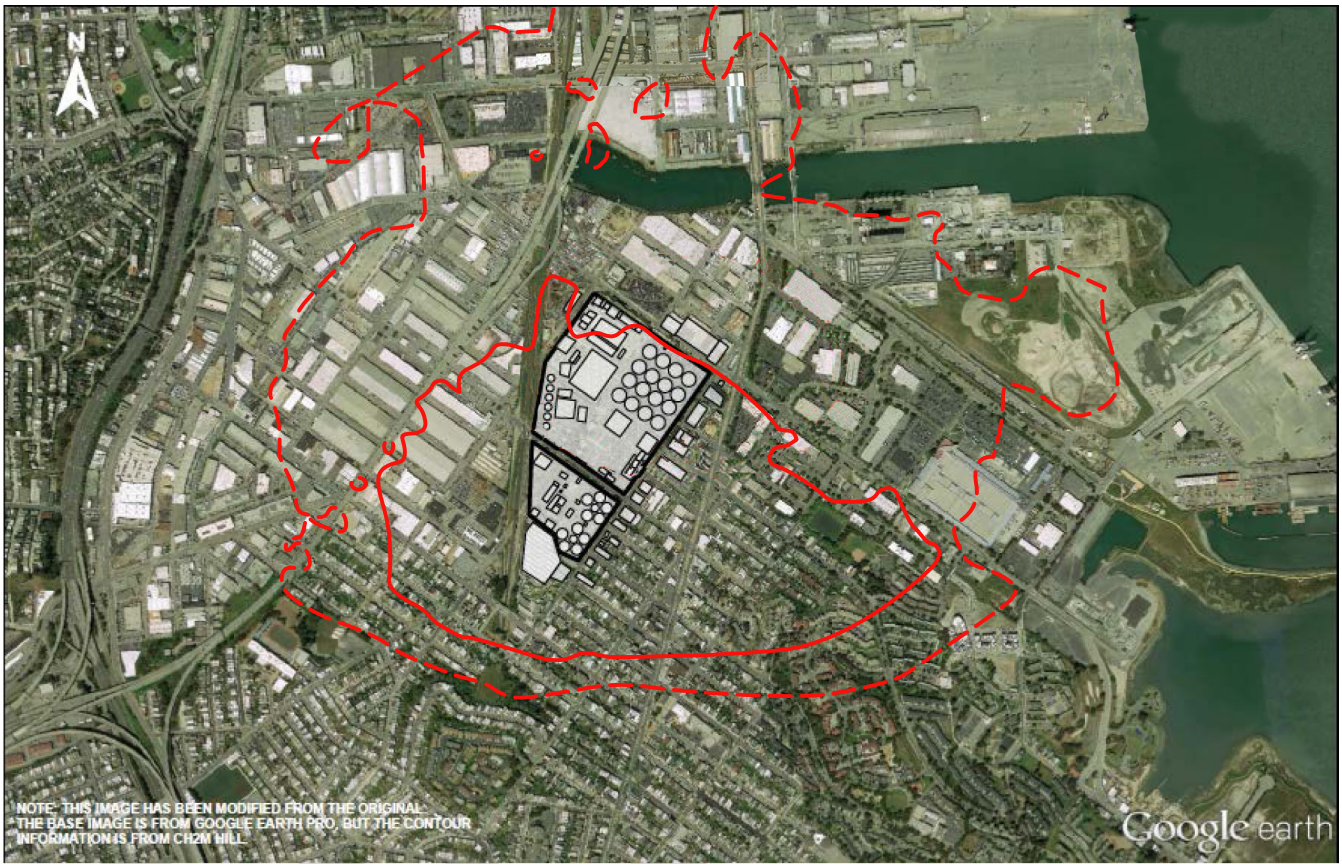
- Determine the area affected by individual, combined, and overall plant odor emissions for the current baseline for both summer and winter;
- Determine the frequency (number of hours per year) of emissions that are greater than 5 D/T beyond the plant boundary for both summer and winter based on one hour average;
- Determine strength (D/T) of emissions beyond the plant boundary for both summer and winter based on 1-hour average;
- Rank individual and combined odor sources for both summer and winter; and
- Conduct sensitivity analyses for specific sources to further evaluate and quantify effects.

Dispersion modeling was conducted using meteorological data from 2007 through 2011 to establish an accurate representation of the odor footprint at the SEP by quantifying the number of hourly exceedances above 5 D/T (the design criterion for the BDFP[39]) and identifying the greatest off-site odor concentrations for baseline conditions. Modeling was conducted for both H_2S concentrations and D/T. Isopleths were generated to show the maximum D/T and maximum number of D/T exceedances greater than 5 D/T over the five-year modeling period. An isopleth is a graphical plot with equal concentration lines or equal lines of exceedances drawn on a map. In this case, odor concentration isopleths were superimposed over a Google Earth aerial photograph of the modeled area (i.e., the SEP and neighboring areas). The purpose of mapping odor concentrations was to illustrate odor effects, areas affected, and plume trajectory, among other things.

Figure 4.8-4 shows the summer baseline isopleths representing exceedance of the 5 D/T, 99 percent, 1-hour average compliance goal (discussed in Section 4.8.3.2, below) for both the existing overall SEP (i.e., liquids and solids processing) and existing solids processing only over the five-year modeling period. For the overall SEP, the maximum off-site D/T value is 672. The maximum number of hours of exceedance over the entire five-year modeling period is 26,061 hours. This means that the odor concentration was greater than 5 D/T approximately 60 percent of the time over the five-year period. Results were found to be mostly influenced by odor from operation of the bypass louver at the GBT facility on the solids processing side. Figure 4.8-4 also shows the exceedance plot for the 5 D/T, 99 percent compliance goal, 1-hour average for the existing solids processing sources alone.

[38] CALPUFF is an advanced non-steady-state meteorological and air quality monitoring system adopted by the USEPA as the preferred model for assessing long-range transport of pollutants in certain circumstances and on a case-by-case basis for certain near-field applications involving complex meteorological conditions. (Exponent Engineering and Scientific Consulting, *Official CALPUFF Modeling System*, 2016. Available online at http://www.src.com/. Accessed on April 8, 2016.)

[39] Section 4.8.3.2, Approach to Analysis, below, provides more information about the BDFP's 5 D/T design criterion.



Existing Overall SEP (Liquids and Solids), Summer Conditions

Existing Solids Processing Sources Only, Summer Conditions

SEP Fenceline

NOTE: This figure illustrates the modeled geographic extent of existing source odors exceeding the 5 D/T, 99 percent (5 D/T exceedance occurring for 88 hours per year), 1-hour average compliance goal over the five year modeling period.
D/T (dilution to threshold ratio) refers to the amount of pure air that must be added to a known volume of odorous air in order to dilute the sample to the concentration at which the odor can just be detected.

SOURCE: CH2M Hill and Brown and Caldwell, Final Southeast Plant Odor Characterization Report, December 2015, *in* SFPUC, Final Biosolids Digester Facilities Project Conceptual Engineering Report, March 2016

SFPUC Biosolids Digester Facilities

Figure 4.8-4

Existing Odor Concentration Isopleths at SEP

Existing Odor Control Systems and Practices at SEP

Odor Control Systems

The majority of odor control systems at the SEP involve treating odorous air through adsorption[40] units with activated carbon[41] or activated carbon and potassium permanganate[42]-impregnated media. Odor control systems associated with liquids treatment include units at the Influent Control Structure (010), existing Headworks buildings (011 and 012), Secondary Sludge Control Building (260), and Primary Effluent Pump Station (062). Additionally, sodium hypochlorite is injected at the Influent Control Structure to oxidize sulfide in the influent. A biofilter with seashell media was recently installed at one of the existing Headworks buildings (012). Primary Sedimentation Buildings 1 and 2 (040 and 041) are equipped with odorous air dispersion fans and induction air stacks. With respect to solids treatment, the following facilities have odor control systems: Gravity Belt Thickeners (785), Centrifuge Building (840), and Cake Loadout (860). The existing digesters rely on floating covers for odor control. Three of the digesters have covers designed to control odors even under elevated pressure conditions (greater than 8 inches water column[43]); however, because the remaining covers are not designed for these elevated pressures, digester gas is vented through relief valves if the gas pressure rises to levels in excess of 3 to 5 inches water column.

Existing SEP Operational Practices Related to Odor Control

Operational practices related to odor control include the following:

- ***Operational Practices Upstream of the SEP***. Chemicals that reduce odors (ferrous chloride, sodium hypochlorite, and hydrogen peroxide) are added to wastewater upstream of the SEP. Generally, addition of these chemicals is initiated during warmer months and, depending on conditions, is temporarily halted during cooler months. Another practice involves using the Bruce Flynn Pump Station to pump treated plant effluent back into the collection system upstream of the SEP for flow equalization during low flow conditions as well as "freshening" of the influent wastewater to the plant. This operation has a direct effect on the odor loading to the SEP by reducing sulfides in the main sewer line serving the plant.
- ***Operational Practices at the SEP.*** When necessary to "freshen" sewage flows (generally early mornings seasonally or in response to an odor complaint), hypochlorite is added to No. 3 water[44] at the chlorination channel followed by pumping to the Phelps Street wastewater pipeline. While reducing wastewater odors, this operation can cause chlorine odors within the treatment plant at the dosing location. The diverted flow reduces the potential for odor emissions by diluting sewage strength as well as allowing residual chlorine to oxidize dissolved sulfides. In addition, during maintenance of open tanks (such as clarifiers and dissolved air flotation tanks), SEP operators reduce odors by partially filling the tanks with No. 3 water (sometimes called a "water pad").

[40] Adsorption occurs when a molecule is held physically on the surface of an adsorbent material, as opposed to absorption, in which a molecule chemically reacts with the absorbing material. Adsorbed molecules can also be desorbed (i.e., removed) from the material.
[41] Activated carbon is carbon that has been treated to increase the surface area available for adsorption, typically through pyrolysis (burning) or other types of oxidation.
[42] A strong oxidizing agent widely used to treat odor causing contaminants in air and water.
[43] Inch of water column is a way of measuring pressure, and refers to the amount of pressure equivalent to the weight of a column of water of certain height.
[44] No. 3 water is non-potable, chlorinated secondary effluent, in this case produced by the SEP.

- ***Monitoring Performance of Media in Odor Control Units.*** Pressure drop across odor control unit media, as well as H_2S removal performance (consistent with requirements in the SEP's Permit to Operate, discussed below), are generally measured at least once per month to monitor and record odor control unit operation. Increased pressure drop can be associated with media caking or excessive moisture or condensation, which decreases the porosity of the media. Early detection of reduced odor removal performance can identify spent media and the need for media replacement.

Odor Monitoring

The SFPUC monitors odors to maintain compliance with the SEP's BAAQMD Permit to Operate and monitors odor control units to assess their performance. The permit requires the SFPUC to employ all measures, practices, or modifications that would abate any public nuisance odors from the sludge handling process unit (consisting of GBTs and their associated odor control unit) and other odor control units. Maintenance intervals are specified for the odor control units to limit durations of unit downtime. A maintenance log must be kept, and emissions from the odor control units must be monitored in order to identify whether replacement of the odor control media is required. In addition, SEP staff monitor H_2S concentrations at 14 perimeter locations and 33 locations within the plant boundary. Weekly H_2S concentrations are also measured at the inlet and outlet of vapor-phase odor control equipment (i.e., carbon and carbon/permanganate media scrubbers) to monitor the effectiveness of odor control equipment.

Odor Incidents

Not all of the process facilities with odor emission potential have odor control units, and the configurations of some (particularly older) facilities make odor containment challenging. Because of these factors, and the proximity of residences and businesses to the SEP, existing odor control systems and operational practices do not always contain odors within the SEP fenceline. The SFPUC logs odor incidents reported by City staff, the public, and the BAAQMD as part of ongoing efforts to reduce off-site odors.[45] As shown in **Table 4.8-4**, between 2010 and 2015 the SEP recorded 73 odor incidents, 36 of which were reported by the public (this includes two odor incidents reported to the BAAQMD), and 37 of which were reported by City staff. During 2012, 27 odor incidents were reported, which were primarily associated with odor from digester gas (an equipment failure in July 2012 resulted in the venting of untreated digester gas until the equipment was repaired). Odor incidents reported by the public occurred most often along Phelps Street southeast of the existing digesters (between Jerrold Avenue and McKinnon Avenue) and along Phelps Street southeast of the clarifiers (between Evans Avenue and Galvez Avenue).[46] The BAAQMD has received two confirmed[47] odor complaints regarding odor at the SEP over the six-year period from January 1, 2009 through October 22, 2015.[48] The two complaints were reported in 2012. Both were associated with equipment failure in secondary clarifiers and were remedied by maintenance activities. There were no odor violation notices issued for the SEP by the BAAQMD during this period.

[45] SFPUC, Odor Incident Data 2010-2015, revised November 9, 2015. This total includes incidents both confirmed and unconfirmed by SEP staff.
[46] Ibid.
[47] BAAQMD confirmed complaints are complaints that were confirmed by a BAAQMD inspector.
[48] Odor Incident Data for San Francisco Southeast Treatment Plant, 1700 Jerrold Avenue, San Francisco, CA 94124, for January 1, 2009, through October 22, 2015, obtained from BAAQMD Public Records Section via electronic mail on October 22, 2015.

TABLE 4.8-4
ODOR INCIDENTS REPORTED FOR SEP, 2010 TO 2015[a]

Odor Source	Facility Name	Process Area	2010	2011	2012	2013	2014	2015
SEP 040/041	Old Primary Sedimentation Basins (SEP 040/041)	Liquids	2	7	0	1	0	0
Secondary Clarifier	Secondary Sedimentation (SEP 230)	Liquids	1	0	4	2	1	2
SEP - Septage receiving	Septage Receiving	Liquids	1	0	1	0	0	0
SEP 011/Evans	Influent Control Structure (SEP 010) and Old Headworks (SEP 011)	Liquids	0	1	0	0	0	0
SEP 011 - Bar Screen Room	Old Headworks (SEP 011)	Liquids	0	0	1	0	0	0
Digester gas	Anaerobic Digesters	Solids	0	1	16[b]	0	0	2
Incomplete digester gas combustion	Anaerobic Digesters	Solids	0	1	2	3	5	0
SEP 780	Secondary Sludge Thickening	Solids	0	0	0	1	0	0
SEP - Phelps Street	Unknown	Unknown	0	3	3	0	0	0
Unknown	Unknown	Unknown	3	1	0	0	2	0
SEP - Evans Avenue	Unknown	Unknown	1	4	0	0	0	0
Area Near SEP 925	Sewage truck unloading	Unknown	0	0	0	1	0	0
		Total Annual SEP Odor Incidents	**8**	**18**	**27**	**8**	**8**	**4**

NOTES:
SEP = Southeast Water Pollution Control Plant
Includes confirmed odor incidents (i.e., where SEP staff were able to confirm odors) and unconfirmed odor incidents.

[a] Includes incidents reported by City and County of San Francisco (City) staff (which can include on- and off-site odors at the SEP) as well as the public.
[b] Includes 15 incidents reported by the public and 1 incident reported by City staff.

SOURCE: SFPUC, Odor Complaint Data 2010 – 2015, revised November 9, 2015 and July 20, 2016.

4.8.2 Regulatory Framework

4.8.2.1 Federal Regulations

The 1970 federal CAA (last amended in 1990) requires that regional planning and air pollution control agencies prepare a regional air quality plan to outline the measures by which both stationary and mobile sources of pollutants will be controlled in order to achieve all standards by the deadlines specified in the CAA. These ambient air quality standards are intended to protect the public health and welfare, and they specify the concentration of pollutants (with an adequate margin of safety) to which the public can be exposed without adverse health effects. They are designed to protect those segments of the public most susceptible to respiratory distress, including asthmatics, the very young, the elderly, people weak from other illness or disease, or persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels that are somewhat above ambient air quality standards before adverse health effects are observed.

The current attainment status for the SFBAAB, with respect to federal standards, is summarized in **Table 4.8-5**. In general, the SFBAAB experiences low concentrations of most pollutants when compared to federal standards (in attainment), except for ozone and particulate matter (PM_{10} and $PM_{2.5}$), for which standards are exceeded periodically (see Table 4.8-1). In summary, the SFBAAB is designated as a marginal non-attainment area of the national 8-hour ozone standard.[49] The SFBAAB is in attainment for other criteria pollutants, with the exception of the 24-hour standards for PM_{10} and $PM_{2.5}$, for which the Bay Area is designated as "unclassified." Under the CAA definition, the "unclassified" designation applies to any area that cannot be classified, on the basis of available information, as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

4.8.2.2 State Regulations

California Clean Air Act

While the federal CAA established national ambient air quality standards, individual states retained the option to adopt more stringent standards and to include other pollution sources. The State of California had already established its own air quality standards when federal standards were established, and because of the unique meteorological conditions in California, there is considerable diversity between the state and national ambient air quality standards, as shown in Table 4.8-5. California ambient standards tend to be at least as protective as national ambient standards and are often more stringent.

In 1988, the State of California passed the CCAA (California Health and Safety Code Sections 39600 et seq.), which, like its federal counterpart, called for the designation of areas as attainment or non-attainment, but based on state ambient air quality standards rather than the federal standards. As indicated in Table 4.8-5, the SFBAAB is designated as "non-attainment" for state ozone, PM_{10}, and $PM_{2.5}$ standards. The SFBAAB is designated as "attainment" for other pollutants.

Regulation of Toxic Air Contaminants

For TACs, both the USEPA and the CARB recognized that air pollution affects the public's health, especially sensitive groups, and can result in respiratory and cardiovascular effects. Section 41700(a) of the California Health and Safety Code prohibits the discharge, from any source, of quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any of those persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property.

[49] Non-attainment designations range from Marginal (lowest) to Extreme (highest). "Marginal non-attainment area" means an area that is above the air quality standard of 0.070 ppm and ranges from 0.076 up to but not including 0.086 ppm.

TABLE 4.8-5
STATE AND FEDERAL AMBIENT AIR QUALITY STANDARDS AND SAN FRANCISCO BAY AREA AIR BASIN (SFBAAB) ATTAINMENT STATUS

Pollutant	Averaging Time	State (SAAQS[a])		Federal (NAAQS[b])	
		Standard	Attainment Status	Standard	Attainment Status
Ozone	1 hour	0.09 ppm	**N**	None	n/a
	8 hour	0.070 ppm	**N**	0.070 ppm[c]	**N**
Carbon Monoxide (CO)	1 hour	20 ppm	A	35 ppm	A
	8 hour	9.0 ppm	A	9 ppm	A
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm	A	0.100 ppm	U
	Annual	0.030 ppm	n/a	0.053 ppm	A
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm	A	0.075	A
	24 hour	0.04 ppm	A	0.14	A
	Annual	n/a	n/a	0.03 ppm	A
Particulate Matter (PM_{10})	24 hour	50 µg/m³	**N**	150 µg/m³	U
	Annual[d]	20 µg/m³	**N**	n/a	n/a
Fine Particulate Matter ($PM_{2.5}$)	24 hour	n/a	n/a	35 µg/m³	**N**
	Annual	12 µg/m³	**N**	12 µg/m³	U/A [e]
Sulfates	24 hour	25 µg/m³	A	n/a	n/a
Lead	30 day	1.5 µg/m³	A	n/a	n/a
	Cal. Quarter	n/a	n/a	1.5 µg/m³	A
Hydrogen Sulfide	1 hour	0.03 ppm	U	n/a	n/a
Visibility-Reducing Particles	8 hour	See Note f	U	n/a	n/a

NOTES:

A = Attainment; **N** = Non-attainment; U = Unclassified; n/a = not applicable, no applicable standard; ppm = parts per million; µg/m³ = micrograms per cubic meter.

[a] SAAQS = state ambient air quality standards (California). SAAQS for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All other state standards shown are values not to be equaled or exceeded.

[b] NAAQS = national ambient air quality standards. NAAQS, other than ozone and particulates, and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The 8-hour ozone standard is attained when the three-year average of the fourth highest daily concentration is 0.08 ppm or less. The 24-hour PM_{10} standard is attained when the three-year average of the 99th percentile of monitored concentrations is less than the standard. The 24-hour $PM_{2.5}$ standard is attained when the three-year average of the 98th percentile is less than the standard.

[c] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[d] State standard = annual geometric mean.

[e] In December 2012, the USEPA strengthened the annual $PM_{2.5}$ National Ambient Air Quality Standards (NAAQS) from 15.0 to 12.0 micrograms per cubic meter (µg/m³). In December 2014, the USEPA issued final area designations for the 2012 primary annual $PM_{2.5}$ NAAQS. Areas designated "unclassifiable/attainment" must continue to take steps to prevent their air quality from deteriorating to unhealthy levels. The effective date of this standard was April 15, 2015.

[f] Statewide visibility-reducing particle standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

SOURCE: Bay Area Air Quality Management District (BAAQMD), *Air Quality Standards and Attainment Status.* Available online at http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status. Accessed on August 30, 2016.

Emission Standards for New Off-Road Equipment

Prior to 1994, there were no standards to limit the amount of emissions from off-road equipment. In 1994, the USEPA established emission standards for hydrocarbons, nitrogen oxides, carbon monoxide, and particulate matter to regulate new pieces of off-road equipment. These emission standards came to be known as Tier 1. Since that time, increasingly more stringent Tier 2, Tier 3, and Tier 4 (interim and final) standards were adopted by the USEPA, as well as by the CARB. Each adopted emission standard was phased in over time. New engines built in and after 2015 across all horsepower sizes must meet Tier 4 final emission standards. In other words, new manufactured engines cannot exceed the emissions established for Tier 4 final emissions standards. Out of the estimated 161,420 pieces of construction equipment used statewide in 2014, 59 percent are Tier 2 and above.[50]

Verified Diesel Emission Control Strategies (VDECS)

Since these tiered emission standards only apply to new engines and off-road equipment can last several years, verified diesel emission control strategies (VDECS) were developed to help reduce emissions from existing engines. VDECS are designed primarily for the reduction of diesel particulate matter emissions and have been verified by the CARB. There are three levels of VDECS. The most effective VDECS (a device, system, or strategy used to achieve the highest level of pollution control from an existing off-road vehicle) is the Level 3 VDECS. Tier 4 engines are not required to install VDECS since they already meet the emissions standards for lower tiered equipment with installed controls.

In July 2007, the CARB adopted the In-Use Off-Road Diesel Vehicle Regulation to reduce diesel particulate matter and oxides of nitrogen emissions from in-use existing off-road diesel vehicles in California. This regulation includes:

- Equipment labeling requirements
- Annual reporting of equipment
- Five-minute (30 seconds within 100 feet of schools) idling limit (applies to off-road and on-road diesel vehicles)
- Restrictions on adding older and dirtier Tier 0 and Tier 1 vehicles to construction fleets.[51]

Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program)

For projects with significant contributions of criteria air pollutants, mitigation of any contributions in excess of threshold levels can be accomplished either by (1) implementing a project that reduces emissions from an existing facility and directly offsets the excess emissions or (2) contributing funds

[50] San Francisco Department of the Environment, San Francisco Department of Public Health, and San Francisco Planning Department, *San Francisco Clean Construction Ordinance, Implementation Guide for San Francisco Public Projects, Final,* August 2015, p. 5. Available online at https://www.sfdph.org/dph/files/EHSdocs/AirQuality/San_Francisco_Clean_Construction_Ordinance_2015.pdf. Accessed on November 13, 2016.

[51] San Francisco Department of the Environment, San Francisco Department of Public Health, and San Francisco Planning Department, *San Francisco Clean Construction Ordinance, Implementation Guide for San Francisco Public Projects, Final*, August 2015, p. 5. Available online at https://www.sfdph.org/dph/files/EHSdocs/AirQuality/San_Francisco_Clean_Construction_Ordinance_2015.pdf. Accessed on November 13, 2016.

to finance emissions reduction projects being implemented by the BAAQMD and funded by the Carl Moyer Program. The Carl Moyer Program issues grants to replace or retrofit older engines and equipment with cleaner-than-(USEPA)-required engines and equipment to reduce air pollution. This program is used as a basis to determine the amount of off-site contributions required to offset a project's impact. Money collected through the Carl Moyer Program complements California's regulatory program by providing incentives to effect early or extra emission reductions, especially from emission sources in environmental justice communities and areas disproportionately affected by air pollution. The Carl Moyer Program funds clean air projects involving a wide variety of vehicles and equipment, including:

- Repower: The replacement of an in-use engine with another, cleaner engine.
- Retrofit: An emission control system employed exclusively with an in-use engine, vehicle, or piece of equipment.
- New purchases: Vehicles or equipment certified to optional, lower emission standards.
- Fleet modernization or equipment replacement: The replacement of an older vehicle or piece of equipment that still has remaining useful life with a newer, cleaner vehicle or piece of equipment. The old vehicle/equipment is scrapped. Equipment may include on-road heavy-duty vehicle and off-road equipment replacement as well as emergency vehicles (fire apparatus) and lawn and garden equipment replacement.
- Vehicle retirement (or car scrap): Paying owners of older, more polluting vehicles that still have remaining useful life to voluntarily retire those vehicles earlier than they would have otherwise.

The Carl Moyer Program establishes a cost-effectiveness standard that a proposed clean air project must meet in order to receive funding under the program. On March 27, 2015, the cost effectiveness limit was determined to be $18,030 per weighted ton of ROG, NOx, and PM in resulting emissions reductions.[52] The program has established guidelines and criteria for the funding of emissions reduction projects. The BAAQMD administers the Carl Moyer Program within the SFBAAB.

4.8.2.3 Regional and Local Regulations and Plans

Bay Area Air Quality Management District

The BAAQMD is the regional agency with jurisdiction over the nine-county SFBAAB, which includes San Francisco, Alameda, Contra Costa, Marin, San Mateo, Santa Clara, and Napa Counties and portions of Sonoma and Solano Counties. The BAAQMD is responsible for attaining and maintaining air quality in the SFBAAB within federal and state air quality standards, as established by the federal CAA and the CCAA, respectively. Specifically, the BAAQMD has the responsibility to monitor ambient air pollutant levels throughout the SFBAAB and to develop and implement strategies to attain the applicable federal and state standards. The BAAQMD does not have authority to regulate emissions from motor vehicles.

[52] California Air Resources Board, Memorandum Re: Carl Moyer Program: Review and Update of the Cost-Effectiveness Limit and Capital Recovery Factors for 2015, March 27, 2015. Available online at http://www.arb.ca.gov/msprog/mailouts/msc1509/msc1509.pdf. Accessed on April 24, 2015.

Criteria Air Pollutants and Toxic Air Contaminants

Specific rules and regulations adopted by the BAAQMD limit the emissions that can be generated by various stationary sources (including facilities at the SEP, as discussed below), and identify specific pollution reduction measures that must be implemented in association with various activities. These rules regulate not only emissions of the six criteria air pollutants, but also TAC and odor emissions sources, which are subject to these rules and are regulated through the BAAQMD's permitting process and standards of operation. Through this permitting process, including an annual permit review, the BAAQMD monitors the generation of stationary emissions and uses this information in developing its air quality plans. Any sources of stationary emissions constructed as part of the project would be subject to the BAAQMD Rules and Regulations. Both federal and state ozone plans rely heavily upon stationary source control measures set forth in the BAAQMD Rules and Regulations.

Pursuant to its Policy and Procedure Manual, the BAAQMD requires implementation of Best Available Control Technology for Toxics and would deny an Authority to Construct or a Permit to Operate for any new or modified source of TACs that exceeds a cancer risk of 10 in one million or a chronic or acute hazard index of 1.0. The permitting process under BAAQMD Regulation 2, Rule 5 requires a Health Risk Screening Analysis, the results of which are posted on the BAAQMD website.

The BAAQMD's Strategic Incentives Division (SID) provides incentive funding for projects that improve air quality, reduce air quality health impacts, and protect the climate. Funding is primarily focused on mobile source projects that reduce or eliminate pollution from cars, trucks, marine vessels, locomotives, agricultural equipment, or construction equipment. Since 1992, the SID has awarded over $400 million in grant funding for cost-effective emission reduction projects, and the program oversees approximately 1,000 projects funded by state, federal, and local monies every year.

Odors

The BAAQMD is also the agency responsible for investigating and controlling odor complaints in the area. The BAAQMD enforces odor control by helping the public document a public nuisance. Upon receipt of a complaint, the BAAQMD sends an investigator to interview the complainant and to locate the odor source if possible. The BAAQMD typically brings a public nuisance court action when there are a substantial number of confirmed odor events within a 24-hour period. An odor source with five or more confirmed complaints per year averaged over three years is considered to have a substantial effect on receptors. As indicated above (under *Odor Incidents*), the BAAQMD has received two confirmed odor complaints regarding odor at the SEP over the six-year period from January 1, 2009 through October 22, 2015. Thus, the odor complaint history at the Southeast Water Pollution Control Plant has not resulted in its designation by the BAAQMD as a significant source of odors in the area. Nonetheless, the BAAQMD still considers the entirety of the treatment works at the water pollution control plant to be a potentially significant odor source.[52a, 52b]

[52a] Roggenkamp, Jean, Bay Area Air Quality Management District. Letter to Tim Johnson, July 28, 2017.

[52b] The term "significant" in this paragraph refers to BAAQMD's assessment of the odor source, and is not the same as impact significance as defined under CEQA.

There are several BAAQMD regulations and rules that apply to odorous emissions that could be generated by the BDFP. Regulation 1, Rule 301 is the nuisance provision that states sources cannot emit air contaminants that cause nuisance to a considerable number of persons. Regulation 9, Rule 2 limits ground level concentration of H_2S.[53] Regulation 7 specifies limits for the discharge of odorous substances where the BAAQMD receives complaints from ten or more complainants within a 90-day period. Among other things, Regulation 7 precludes discharge of an odorous substance that causes the ambient air at or beyond the property line to be odorous after dilution with four parts of odor-free air (i.e., 5 D/T), and specifies maximum limits on the emission of certain odorous compounds.[54]

BAAQMD Permit to Operate for SEP

The BAAQMD issued and periodically renews a Permit to Operate for the SEP.[55] The permit indicates the sources of criteria air pollutants, toxic air contaminants, and odorous emissions regulated at the SEP (e.g., the cogeneration engine, standby diesel engines, boilers, and abatement equipment serving various facilities) and conditions that apply to the operation of those sources. For example, gas from the digesters must be burned in certain equipment (the boilers or waste gas burners), and flaring of the gas must achieve a minimum destruction efficiency of 98.5 percent for total organic compounds. The permit also contains estimates of annual average emissions by pollutant. With respect to odors, the permit requires the SFPUC to employ all measures, practices, or modifications to abate public nuisance odors from the sludge handling process unit (consisting of GBTs and their associated odor control unit) and other odor sources and their associated odor control units. Requirements for maintenance of odor control units (maintenance intervals and logs, replacement of odor control media) are also addressed in the permit.

Bay Area Air Quality Planning Relative to State and Federal Standards

Federal Air Quality Planning Efforts

Air quality plans developed to meet federal requirements are referred to as State Implementation Plans. The CAA and the CCAA require plans to be developed for areas designated as non-attainment (with the exception of areas designated as non-attainment for the state PM_{10} standard). The most recent Bay Area ozone plan prepared in response to federal air quality planning requirements is the 2001 Ozone Attainment Plan.

State Air Quality Planning Efforts

The CAA and the CCAA require plans to be developed for areas that do not meet air quality standards. The most recent air quality plan, the *2010 Clean Air Plan*, was adopted by the BAAQMD on September 15, 2010. The *2010 Clean Air Plan* updates the *Bay Area 2005 Ozone Strategy* in accordance with the requirements of the CCAA to implement all feasible measures to reduce ozone; provide a control strategy to reduce ozone, particulate matter, air toxics, and GHGs in a single,

[53] BAAQMD, Rules & Regulations, Regulation 9 – Inorganic Gaseous Pollutants, Rule 2 – Hydrogen Sulfide, last amended October 6, 1999.
[54] BAAQMD, Rules & Regulations, Regulation 7 – Odorous Substances, last amended March 17, 1982.
[55] BAAQMD, Permit to Operate: San Francisco South East Treatment Plant, Plant #568, expires May 1, 2017.

integrated plan; and establish emission control measures to be adopted or implemented. The *2010 Clean Air Plan* contains the following primary goals:

- Attain air quality standards;
- Reduce population exposure and protect public health in the San Francisco Bay Area; and
- Reduce GHG emissions and protect the climate.

The *2010 Clean Air Plan*'s emissions control strategy includes stationary-source control measures to be implemented through BAAQMD regulations, mobile-source control measures to be implemented through incentive programs and other activities, and transportation control measures to be implemented through transportation programs in cooperation with the Metropolitan Transportation Commission (MTC), local governments, transit agencies, and others. The *2010 Clean Air Plan* also represents the Bay Area's most recent triennial assessment of the region's strategy to attain the state 1-hour ozone standard.[56] The *2010 Clean Air Plan* represents the most current applicable approved air quality plan for the SFBAAB. Consistency with this plan is the basis for determining whether the project would conflict with or obstruct implementation of air quality plans. The *2010 Clean Air Plan* is currently in the process of being updated, and in January 2017, the BAAQMD released the Draft *2017 Clean Air Plan* for public review.

Local Air Quality Planning Efforts

San Francisco General Plan Air Quality Element

The 1997 Air Quality Element[57] of the *San Francisco General Plan* (General Plan) includes the following objectives pertaining to air quality:

> ***Objective 1:*** Adhere to state and federal air quality standards and regional programs.
>
> ***Objective 2:*** Reduce mobile sources of air pollution through implementation of the Transportation Element of the General Plan.
>
> ***Objective 3:*** Decrease the air quality impacts of development by coordination of land use and transportation decisions.
>
> ***Objective 4:*** Improve air quality by increasing public awareness regarding the negative health effects of pollutants generated by stationary and mobile sources.
>
> ***Objective 5:*** Minimize particulate matter emissions from road and construction sites.
>
> ***Objective 6:*** Link the positive effects of energy conservation and waste management to emission reductions.

San Francisco Construction Dust Control Ordinance

In July 2008, the San Francisco Board of Supervisors approved a series of amendments to the San Francisco Building and Health Codes generally referred hereto as the Construction Dust Control

[56] BAAQMD, *2010 Clean Air Plan*. Available online at http://www.baaqmd.gov/Divisions/Planning-and-Research/Plans/Clean-Air-Plans.aspx. Accessed on April 15, 2013.

[57] San Francisco Planning Department, Air Quality Element of the *San Francisco General Plan*, July 1997, updated in 2000.

Ordinance (Ordinance 176-08, effective July 30, 2008) with the intent of reducing the quantity of dust generated during site preparation, demolition, and construction work in order to protect the health of the general public and of on-site workers, to minimize public nuisance complaints, and to avoid orders to stop work by the Department of Building Inspection (DBI). The ordinance requires that all site preparation work, demolition, or other construction activities within San Francisco that have the potential to create dust or to expose or disturb more than 10 cubic yards or 500 square feet of soil comply with specified dust control measures whether or not the activity requires a permit from the DBI. For projects over one-half acre and with sensitive receptors located within 1,000 feet, the Construction Dust Control Ordinance requires that a project sponsor submit a Dust Control Plan for approval by the San Francisco Department of Public Health (SFDPH). The plan must specify how construction dust on the site will be controlled, subject to approval by the Director of Public Health. Dust suppression activities may include watering of all active construction areas sufficiently to prevent dust from becoming airborne; increased watering frequency may be necessary whenever wind speeds exceed 15 mph. Reclaimed water must be used as required by Article 21, Section 1100 et seq. of the San Francisco Public Works Code. The SFPUC would be required to prepare a Dust Control Plan for the BDFP since the site is over one-half acre in size and sensitive receptors are located within 1,000 feet.

In conjunction with the Dust Control Ordinance, the City's Ordinance 175-91, Restriction of Use of Potable Water for Soil Compaction and Dust Control Activities, restricts the use of potable water for soil compaction and dust control activities undertaken in conjunction with any construction or demolition project occurring within the boundaries of San Francisco, unless permission is obtained from the SFPUC. Non-potable water must be used for soil compaction and dust control activities during project construction and demolition. The SFPUC operates a recycled water truck-fill station at the SEP that provides recycled water for these activities at no charge.

San Francisco Clean Construction Ordinance

In April 2007, the City adopted an ordinance requiring public projects to reduce emissions at construction sites starting in 2009. In March 2015, the City expanded the existing ordinance to require public projects to further reduce emissions at construction sites in certain areas with high levels of background concentrations of air pollutants. Establishment of the APEZ was used as the basis for approving a series of amendments to the San Francisco Environment and Administrative Codes, generally referred to as the Clean Construction Ordinance, or Environment Code Chapter 25 (Ordinance 28-15, effective April 19, 2015). The purpose of the Clean Construction Ordinance is to protect the public health, safety, and welfare by requiring contractors on City public works projects to reduce diesel and other PM emissions generated by construction activities. For projects located within the APEZ, such as the BDFP, the Clean Construction Ordinance requires the following:

- ***Equipment Requirements***
  - Equipment must meet or exceed Tier 2 standards for off-road engines and operate with the most effective CARB VDECS available for the engine type (Tier 4 engines automatically meet this requirement).
  - Portable diesel engines are prohibited where access to alternative sources of power is available.

  - Idling of off-road and on-road equipment is limited to two minutes at any location, except as provided in applicable state regulations (e.g., traffic conditions, safe operating conditions). The contractor must post legible and visible signs in English, Spanish, and Chinese in designated queuing areas and at the construction site to remind operators of the two-minute idling limit.

- ***Construction Emissions Minimization Plan***. A Construction Emissions Minimization Plan must be prepared before the start of construction. The Plan is required to include estimates of the construction timeline by phase and a description of each piece of off-road equipment required for every construction phase (e.g., equipment type, manufacturer, identification number, model year, Tier rating, horsepower, expected fuel usage and hours of operation). Additional details may be included for VDECS (e.g., technology type, serial number, make, model, manufacturer, CARB verification number level). For off-road equipment using alternative fuels, the description must specify the type of alternative fuel being used.

- ***Monitoring.*** Monitoring and reporting actions are required during construction to document compliance with the ordinance.

- ***Waivers***. Waivers to the requirements of the Clean Construction Ordinance can be issued under unusual circumstances (e.g., lack of available qualifying equipment).[58]

San Francisco Regulation of Objectionable Odors

Section 590 of the San Francisco Health Code restricts discharge of substances such as soot, smoke, and their associated odors. It prohibits discharge of objectionable fumes from any flue, chimney, or smokestack for such period of time or in such quantities as to become a nuisance by causing obnoxious odors in any residential or commercial district.

4.8.3 Impacts and Mitigation Measures

4.8.3.1 Significance Criteria

The project would have a significant impact related to air quality if the project were to:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

[58] Circumstances under which waivers to Clean Construction Ordinance requirements can be issued include (for example) emergencies; lack of available alternative power sources; or occasions where a particular piece of equipment with Tier 4 Final standards or CARB Level 3 VDECS is technically not feasible, does not produce the desired emissions reduction due to expected operating modes, or would create a safety hazard or impaired visibility.

4.8.3.2 Approach to Analysis

Guidelines and Methodologies Used

This air quality analysis[59] employs the guidelines and methodologies from the BAAQMD, CARB, California Office of Environmental Health Hazard Assessment (OEHHA), California Air Pollution Control Officers Association (CAPCOA), and USEPA. Consistent with the methods recommended in these various guidelines, this analysis estimates criteria air pollutants and the following health impacts: the excess lifetime cancer risk, chronic and acute hazards, and $PM_{2.5}$ concentrations. These health impacts are associated with diesel exhaust that would be emitted by operation of construction equipment, TACs that would be emitted during operation of project stationary sources, and TACs associated with diesel and gasoline exhaust emitted from construction-related and operational hauling, vendor, and worker vehicles traveling to and from the project site. The cumulative analysis estimates excess lifetime cancer risks from TACs and $PM_{2.5}$ concentrations that are attributable to the project in combination with other existing and planned mobile and stationary sources within the SEP site as well as in the project vicinity.

Project Construction

The BDFP's criteria air pollutant emissions associated with on-road and off-road construction-related vehicles[60] and equipment were calculated using methodology consistent with the 2014 version of the Emissions Estimator Model (EMFAC2014) and the California Emission Estimator Model (CalEEMod® 2013.2.2), respectively. Sources of construction emissions include off-gassing from architectural coating and paving, off-road equipment exhaust, and on-road equipment exhaust. The health risk analysis estimates the project's excess lifetime cancer risk, chronic and acute hazards, and $PM_{2.5}$ concentrations in the surrounding community based on air dispersion modeling of TACs, including DPM from off-road construction equipment as well as diesel and gasoline-speciated TOGs from on-road vehicles using the USEPA's atmospheric dispersion modeling system (AERMOD) model.

Project Operation

The BDFP's operational emissions were calculated based on reasonably foreseeable operating conditions in years 2023 and 2045 using operational air emissions data from the BDFP consultant team.[61] Historical actual emissions estimates from the BAAQMD for calendar year 2014 were used as an estimate of existing operational emissions for the cogeneration engine and boilers. Existing operational criteria air pollutant emissions from the waste gas burners, which are not included in BAAQMD emissions estimates, were calculated using the volume of digester gas sent to the waste gas

[59] A detailed Air Quality Technical Report (AQTR) was completed by Ramboll Environ for the project. Assumptions, methodologies, and modeling results are detailed in the AQTR. A copy of the AQTR is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2015.000644ENV.

[60] "On-road" construction-related vehicles refer to those traveling on local roadways, such as haul trucks, materials delivery trucks, or worker vehicles. "Off-road" vehicles refer to construction equipment operating on the project site and staging areas.

[61] Biosolids Digester Facilities Project Consultant Team, Brown and Caldwell with CH2M and Black & Veatch, Conceptual Engineering Report, *Operational Air Emissions Prepared for the SFPUC Biosolids Digester Facilities Project*, Appendix C, March 2016.

burners in calendar year 2014 and BAAQMD emission factors for NO_x and ROG as well as AP-42[62] emission factors for PM_{10}. These existing (2014) criteria air pollutant emissions were subtracted from the project's 2023 (transitional and full operation) and 2045 emissions to determine the net changes in operational emissions with the BDFP. The net changes in health risks (excess lifetime cancer risk, chronic and acute hazards, and $PM_{2.5}$ concentrations) in the surrounding community were estimated based on current on-site operational sources of emissions (DPM, $PM_{2.5}$, and other TACs) and 2023/2045 project-related operational emissions using the AERMOD model. Note that the net increases in operational criteria pollutant emissions and health risks are in part attributable to future increases in wastewater flows (due to population growth) projected to occur whether or not BDFP facilities are implemented (refer to Section 6.3.1.3 in Chapter 6, *Alternatives*, for more information on future conditions without the project [i.e., the No Project Alternative]).

Approach to Analysis of Project Impacts

This section describes the methodology used to evaluate the project's construction and operational impacts related to consistency with the *2010 Clean Air Plan*, emissions of criteria pollutants, local health risks and hazards, and odors. The assessment of criteria air pollutant impacts addresses the second and third bulleted significance criteria identified above. The assessment of localized health risks and odor impacts addresses the fourth and fifth bulleted significance criteria identified above.

Air Quality Plan

The current applicable air quality plan is the BAAQMD's *2010 Clean Air Plan.* A project can be found consistent with the *Clean Air Plan* if it supports the goals of, and includes applicable control measures from, the *Clean Air Plan*, and if it would not disrupt or hinder implementation of any control measures from the *Clean Air Plan*. Consistency with this plan is the basis for determining whether the project would conflict with or obstruct implementation of an applicable air quality plan, the first bulleted significance criterion identified above (see Impact AQ-4 discussion below).

Fugitive Dust

Fugitive dust emissions are typically generated during construction phases. Studies have shown that the application of best management practices (BMPs) at construction sites significantly controls fugitive dust,[63] and individual measures have been shown to reduce fugitive dust by anywhere from 30 to 90 percent.[64] The BAAQMD has identified a number of BMPs to control fugitive dust emissions from construction activities. The City's Construction Dust Control Ordinance (Ordinance 176-08, effective July 30, 2008) requires a number of measures to control fugitive dust to ensure that construction projects do not result in visible dust, and the BMPs employed in compliance with the City's Construction Dust Control Ordinance are an effective strategy for controlling construction-related

[62] AP-42 is a compilation of air pollutant emission factors produced by the USEPA. USEPA, Office of Air Quality Planning and Standards, *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume 1: Stationary Point and Area Sources*, January 1995. Available online at http://www.epa.gov/ttn/chief/ap42/ch02/final/c02s04.pdf. Accessed on January 8, 2017.

[63] Western Regional Air Partnership, *WRAP Fugitive Dust Handbook,* September 7, 2006. Available online at http://wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf. Accessed on April 3, 2016.

[64] BAAQMD, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, October 2009, page 27.

fugitive dust. This analysis assumes that the project would implement the requirements of the Construction Dust Control Ordinance, which is the basis for determining the significance of air quality impacts due to fugitive dust emissions (see Impact AQ-1 discussion below).

Criteria Air Pollutants

By definition, regional air pollution is largely a cumulative impact in that no single project is sufficient in size to, by itself, result in non-attainment of air quality standards. Instead, a project's individual emissions are considered to contribute to existing cumulative air quality impacts. If a project's contribution to existing cumulative air quality conditions is considerable, then the project's impact on air quality would be considered significant.[65]

Table 4.8-6 identifies construction-related and operational criteria air pollutant significance thresholds applied in this analysis (see Impacts AQ-1 and AQ-2 discussions, respectively, below). Projects that would result in criteria pollutant emissions below these significance thresholds would not violate an air quality standard, contribute substantially to an air quality violation, or result in a cumulatively considerable net increase in criteria air pollutants that could result in increased health effects.

TABLE 4.8-6
CRITERIA AIR POLLUTANT SIGNIFICANCE THRESHOLDS

	Construction Thresholds	Operational Thresholds	
Pollutant	**Average Daily Emissions (pounds/day)**	**Average Daily Emissions (pounds/day)**	**Maximum Annual Emissions (tons/year)**
ROG	54	54	10
NO_x	54	54	10
PM_{10}	82 (exhaust)	82	15
$PM_{2.5}$	54 (exhaust)	54	10
Fugitive Dust	Construction Dust Control Ordinance or other best management practices	Not Applicable	

NOTES:
ROG = reactive organic gases; NO_x = nitrogen oxides; PM10 = particulate matter of 10 microns in diameter or less; PM2.5 = particulate matter of 2.5 microns in diameter or less

SOURCE: Bay Area Air Quality Management District, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance,* October 2009, page 7. Available online at http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/revised-draft-ceqa-thresholds-justification-report-oct-2009.pdf?la=en. Accessed on April 3, 2016.

Construction

Although the regulations specified above apply to new or modified stationary sources, construction of these stationary sources generates criteria pollutant (ROG, NO_x, PM_{10}, and $PM_{2.5}$) emissions as a result of construction equipment, construction-related vehicle trips, and application of architectural coatings. Projects that would result in construction-related emissions below these thresholds would not be considered to contribute to an existing or projected air quality violation or result in a considerable net

[65] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, May 2012, page 2-1.

increase in ozone precursors or PM. Due to the temporary nature of construction activities, only the average daily thresholds are applicable to construction-phase emissions.

Operation

The potential for project operations to result in a cumulatively considerable net increase in criteria air pollutants that may contribute to an existing or projected air quality violation is based on the state and federal Clean Air Act emissions limits for stationary sources. To ensure that new stationary sources do not cause or contribute to a violation of a state air quality standard, BAAQMD Regulation 2, Rule 2 requires that any new source that emits criteria air pollutants above specified emissions limits (54 pounds per day or 10 tons per year for ozone precursors ROG and NO_x) must offset those emissions.[66] To ensure that new stationary sources are consistent with attainment of federal air quality standards, the federal New Source Review (NSR) program enforces emissions limits for PM_{10} and $PM_{2.5}$ of 15 tons per year (82 pounds per day) and 10 tons per year (54 pounds per day), respectively. These emissions limits represent levels below which a new source is not anticipated to contribute to an air quality violation or result in a considerable net increase in criteria air pollutants.[67]

In addition to operational stationary sources,[68] criteria pollutant emissions would also be associated with operational mobile sources, on-site area sources (i.e., natural gas combustion for space and water heating, and combustion of other fuels by building and grounds maintenance equipment), and energy usage. However, some of these sources are not discussed in the analysis for the following reasons. Vehicle traffic associated with operation of the SEP includes trucks hauling biosolids product away from the facility, vendor trips delivering treatment chemicals, and worker trips. As indicated in Section 4.6, Transportation and Circulation, the number of daily trucks delivering or hauling materials as a result of the project would increase slightly compared to existing conditions. The project would generate approximately three new truck trips per day, from approximately 33 to 36 trucks per day. The increase in biosolids haul trips would be due to the increase in solids load associated with projected population growth by 2045, and not due to the BDFP. Furthermore, such a small change in truck trips on local roadways would not substantially alter transportation-related criteria pollutant emissions. Therefore operational mobile sources are not discussed further.

Criteria pollutant emissions increases associated with increased energy usage from new on-site area sources for space cooling and water heating would be avoided because the project's long-term energy needs would be fully met by the project's Energy Recovery Facility, thus avoiding any increases in criteria pollutant emissions from energy usage (so no net change would result and this issue is not discussed further). Increases in criteria pollutant emissions associated with building and grounds maintenance are expected to be minimal because existing facilities that would be replaced have already been requiring maintenance (so the net change would be small and this issue is not

[66] Bay Area Air Quality Management District, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance,* October 2009, page 17. Available online at http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/revised-draft-ceqa-thresholds-justification-report-oct-2009.pdf?la=en. Accessed on April 3, 2016.

[67] BAAQMD, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance,* October 2009, page 16. Available online at http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/revised-draft-ceqa-thresholds-justification-report-oct-2009.pdf?la=en. Accessed on April 3, 2016.

[68] Stationary sources include the proposed backup diesel generator and emissions associated with testing it.

discussed further). Criteria pollutant emissions associated with testing of the proposed backup generator for 50 hours per year are included in the operational emissions estimates in Impact AQ-2 below.

Other Criteria Pollutants

As indicated above, the BAAQMD has demonstrated, based on modeling, that in order to exceed the California ambient air quality standard of 9.0 ppm (8-hour average) or 20.0 ppm (1-hour average) for CO, project traffic in addition to existing traffic would need to exceed 44,000 vehicles per hour at affected intersections (or 24,000 vehicles per hour where vertical and/or horizontal mixing is limited). Based on data from the project's traffic analysis,[69] existing and future (with project-related construction and operational traffic) traffic volumes at intersections in the project vicinity do not exceed this threshold level. Construction-related SO_2 emissions represent a negligible portion of the total basin-wide emissions. Therefore, given the Bay Area's attainment status and the limited CO and SO_2 emissions that could result from the project, the project would not result in a cumulatively considerable net increase in CO or SO_2, and these criteria air pollutants are not discussed further.

Local Health Risks and Hazards

As part of the AQTR for this project, Ramboll Environ conducted an HRA for the project to provide quantitative estimates of health risks from exposures to TACs. The HRA assessed both increased excess lifetime cancer and non-cancer (acute and chronic) risks as well as localized $PM_{2.5}$ concentrations from project-related construction and operational sources.[70] Localized $PM_{2.5}$ concentrations are assessed based on annual average concentrations, and hence, separate evaluations are performed for construction and operation. Conversely, cancer risk is assessed based on the probability of contracting cancer over a high-end estimate of residence in a particular home, evaluated as 30 years (5 years of construction followed by 25 years of operation).[71] Therefore, the probability of an increased cancer risk is determined by evaluating a sensitive receptor's exposure to both construction and operational emissions. Both the $PM_{2.5}$ and cancer risk assessments account for background (existing) concentrations and risk levels, as estimated in the San Francisco Community Risk Reduction Plan Health Risk Assessment or CRRP-HRA. For this project, operational emissions are estimated for 2023 (assuming six-months of performance testing and six months of full project operation, which is a conservative but realistic scenario that reflects higher emissions overall that

69 Ramboll Environ, *Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR*, *Appendix C*, March 2017. A copy of this document is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2015.000644ENV.

70 Ramboll Environ, *Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR*, March 2017. A copy of this document is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2015.000644ENV.

71 In February 2015, OEHHA released the updated Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2015), which combines information from previously released and adopted technical support documents to delineate OEHHA's revised risk assessment methodologies based on current science. This updated Guidance Manual supersedes the 2003 Guidance Manual that previously provided methodologies for conducting health risk assessments under the Air Toxics Hot Spots Program (AB2588). The updated guidance calls for analyzing health risks based on 30 years of exposure instead of 70 years (specified in 2003 guidance). The BAAQMD has issued Draft Guidelines on adopting the OEHHA 2015 Guidance Manual; however, the 2015 OEHHA has not yet been formally adopted. This evaluation used the 2015 methodology in anticipation of its adoption soon. The 2015 guidance is considered more conservative, which ensures that health risk impacts in this analysis would not be underestimated.

could occur in one year than if the performance testing occurred over a longer period) and 2045 (the project's horizon year). The average of 2023 and 2045 emissions was used for the cancer risk calculations to account for the linear increase over time. Additionally, existing operational emissions were modeled for sources not included in the current CRRP-HRA in order to determine net cancer risks. Existing operational sources were also modeled for sources included in the current CRRP-HRA, in order to make them consistent with the modeling for the project's operational sources. The methodologies used to evaluate emissions for the project's construction and operational health risks are based on the most recent guidance provided by the BAAQMD and other sources.[72]

The thresholds of significance used to evaluate health risks from new sources of TACs associated with construction and operation of project facilities are based on the potential for the project to substantially affect the extent and severity of an existing APEZ at sensitive receptor locations or create a new APEZ (see Section 4.8.1.4 for a more detailed description). Sensitive receptors that would be affected by the project are located within the APEZ; therefore, the project would be subject to significance thresholds that are lower (more stringent) than thresholds for projects located outside the APEZ. **Table 4.8-7** presents the health risk thresholds that are applied to projects within an APEZ. The shading in Figure 4.8-2 (presented above, in Section 4.8.1.4), which depict the existing APEZ in blue shading[73] and the Health Vulnerability zip code in beige shading, helps to illustrate the locations where the different significant thresholds presented in Table 4.8-7 apply. In the blue-shaded areas that are outside of the beige-shaded region, background $PM_{2.5}$ concentration exceeds 10 $\mu g/m^3$ or the background cancer risk exceeds 100 per million (or both). In the blue-shaded areas within the beige-shaded area, the background $PM_{2.5}$ concentration exceeds 9.0 $\mu g/m^3$ or the background cancer risk exceeds 90 per million (or both).

With respect to increased health risks from project-related mobile sources, there would be minimal change in operational vehicle trips (about three trucks per day and no change in worker-related vehicle trips). The BAAQMD considers roads with fewer than 10,000 vehicles per day to be "minor, low-impact" sources that do not pose a significant health impact, even in combination with other nearby sources, and recommends that these sources be excluded from the environmental analysis.[74] The project's estimated three additional trucks per day would be well below this level and would be distributed among the local roadway network; therefore, an assessment of project-generated TACs resulting from such small increases in truck trips is not required. The project would not generate a substantial amount of TAC emissions from operational vehicle trips that could affect nearby sensitive receptors; consequently, operational mobile source emissions are not discussed further.

[72] BAAQMD, Recommended Methods for Screening and Modeling Local Risks and Hazards, May 2012. Available online at http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf. Accessed on April 6,2017. ; Bhatia, Rajiv and Thomas Rivard, San Francisco Department of Public Health (SFDPH), *Assessment and Mitigation of Air Pollutant Health Effects from Intra-Urban Roadways: Guidance for Land Use Planning and Environmental Review,* page 17, May 6, 2008; SFDPH, *Memorandum to File regarding 2014 Air Pollutant Exposure Zone Map,* April 9, 2014; BAAQMD, SFDPH, and San Francisco Planning Department, *The San Francisco Community Risk Reduction Plan: Technical Support Documentation,* December 2012.

[73] The existing APEZ was updated to account for revised 2015 OEHHA guidance for calculating excess cancer risk for a residential receptor. This was done by scaling existing cancer risk by a calculated factor of 1.3744.

[74] BAAQMD, *CEQA Air Quality Guidelines,* updated May 2012, p. 5-12.

TABLE 4.8-7
HEALTH RISK SIGNIFICANCE THRESHOLDS

Affected Sensitive Receptors	Thresholds for Construction and Operation	
	$PM_{2.5}$ ($\mu g/m^3$)	Excess Cancer Risk (cases per one million population)
1. Criteria for sensitive receptor located within the APEZ[a]		
– Outside Health Vulnerability zip code[b]	10.0	100
– Within Health Vulnerability zip code[c]	9.0	90
2. Project contributions to sensitive receptor locations within the APEZ[d,e]	0.2	7.0
3. Project contributions to sensitive receptor locations not within the APEZ but brought into the APEZ as a result of the project[b,e]	0.3	10.0

NOTES: See Section 4.8.1.4, Local Health Risks and Hazards, for a description of the APEZ and Bay Area Health Vulnerability zip codes.

$PM_{2.5}$ = particulate matter of 2.5 microns in diameter or less; $\mu g/m^3$ = micrograms per cubic meter; APEZ = Air Pollutant Exposure Zone

[a] These thresholds consider both the background and project conditions.
[b] From Bay Area Air Quality Management District, *California Environmental Quality Act Guidelines Update, Proposed Air Quality CEQA Thresholds of Significance*, May 2010, page 2-2.
[c] From San Francisco Department of Public Health, Environmental Health, Planning, *Memorandum to File regarding 2014 Air Pollutant Exposure Zone Map dated April 9, 2014.*
[d] A 0.2 μg/m3 increase in PM2.5 would result in a 0.28 percent increase in non-injury mortality or an increase of about 21 excess deaths per 1,000,000 population per year from non-injury causes in San Francisco. This information is based on Jerrett M. et al., Spatial Analysis of Air Pollution and Mortality in Los Angeles, Epidemiology, 16:727-736, 2005. The excess cancer risk has been proportionally reduced to result in a significance criterion of 7 per million persons exposed.
[e] These thresholds consider project contributions (excluding background conditions).

SOURCES: Bay Area Air Quality Management District (BAAQMD), *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance,* October 2009, page 7. Available online at http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/revised-draft-ceqa-thresholds-justification-report-oct-2009.pdf?la=en. Accessed on April 3, 2016; BAAQMD, *California Environmental Quality Act Guidelines Update, Proposed Air Quality CEQA Thresholds of Significance*, May 2010, page 2-2. Available online at http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/draft_baaqmd_ceqa_guidelines_may_2010_final.pdf?la=en. Accessed on May 2, 2016; San Francisco Department of Public Health, Environmental Health, Planning, *Memorandum to File regarding 2014 Air Pollutant Exposure Zone Map,* April 9, 2014.

Odors

As indicated in the significance criteria above, Appendix G of the CEQA Guidelines recommends the following significance threshold for odor impacts: *Would a project create objectionable odors affecting a substantial number of people?* The BDFP involves the relocation of an existing source of objectionable odors associated with the solids handling facilities. For this environmental impact report (EIR), the analysis of the change in odor conditions associated with solids handling was based on an assessment of whether BDFP facilities and operations would generate objectionable odors and, if so, based on design features and dispersion modeling, whether future with-project odor conditions (a) would likely worsen or improve existing conditions and (b) would likely affect a substantial number of people.

Dispersion Modeling for the Project

Dispersion modeling using the USEPA's CALPUFF model was conducted for Existing Conditions (see Section 4.8.1.6 above) as well as Future with Project and Future Cumulative scenarios. Based on the results of the dispersion modeling, isopleths were generated for Existing, Future with BDFP only, and Future Cumulative (BDFP with select other planned SEP projects). The dispersion modeling of

future conditions was used to assess whether the BDFP, alone and in combination with select other planned SEP projects, would meet odor control goals and design standards, described below.

BDFP Odor Control Goals and Design Standards

In order to set a benchmark target both for meeting regulatory requirements and for the SEP to act as a "good neighbor," the SFPUC has established odor goals or limits at and beyond the SEP fence line. In addition to meeting the requirements of BAAQMD Regulation 7 and Regulation 9, Rule 2 (discussed above) that would apply to the SEP, the SFPUC has established the following odor-based goal and design criteria:[75]

- ***Sewer System Improvement Program (SSIP) Goal*:** The goal established for the Sewer System Improvement Program (SSIP) is defined as "Limit odors to within the treatment facility's fence-line" for all SSIP projects at the SEP.
- ***BDFP Project-Specific Objective*:** The BDFP project-specific objective is "Limit noticeable odors from BDFP facilities to the SEP property boundary." To implement this project-specific objective, the odor control facility is designed to meet the 5 D/T criterion with 99 percent compliance based on a 1-hour average.

For the solids treatment processes, 99 percent compliance equates to no more than 88 hours per year during which the 5 D/T design criterion may be exceeded. This exceedance is allowed to account for operational activities such as short-term opened doors/hatches and unplanned plant upsets. The 5 D/T design criterion is consistent with the requirements of Section 302 of BAAQMD Regulation 7. The 99 percent compliance requirement is consistent with the SFPUC's SSIP goal as well as the BDFP's odor objective of limiting odors to within the facility's fence line, while allowing for short-term operational and unplanned events.

Approach to Analysis of Cumulative Impacts

Section 4.1.3, Approach to Cumulative Impact Analysis and Cumulative Projects, describes the overall approach to the cumulative analysis for those topics using a list-based approach and summarizes probable future projects in the vicinity of the project that could contribute to a cumulative impact; refer to Table 4.1-1 and Figure 4.1-1 in Section 4.1, Overview, for a description of potential cumulative projects in the vicinity of the BDFP. The cumulative analyses for air quality use both plan- and list-based approaches.

The cumulative impact analysis assumes that construction and operation of other projects in the geographical area, listed in Table 4.1-1, would be required to comply with the same regulatory requirements as the project, which may serve to avoid and reduce many impacts to less-than-significant levels on a project-by-project basis. The analysis then considers whether or not there would be a significant, adverse cumulative impact associated with project implementation in combination with past, present, and probable future projects in the geographical area, and if so, whether or not the project's incremental contribution to the cumulative impact would be considerable. Both conditions must apply in order for a project's contribution to cumulative effects to

[75] CH2M Hill and Brown and Caldwell, *Final Southeast Plant Odor Characterization Report*, December 2015, *in* SFPUC, Final Biosolids Digester Facilities Project Conceptual Engineering Report, March 2016.

be deemed cumulatively considerable (significant). If so, then mitigation measures are identified to reduce the project's contribution to the extent feasible.

The contribution of a project's individual air emissions to regional air quality impacts is, by its nature, a cumulative effect. Emissions from past, present, and future projects in the vicinity also have or will contribute to adverse regional air quality impacts on a cumulative basis. No single project by itself would be sufficient in size to result in non-attainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulative air quality conditions.[76] As described above, the project-level thresholds for criteria air pollutants are based on levels by which new sources are not anticipated to contribute to an air quality violation or result in a considerable net increase in criteria air pollutants. Therefore, if a project's emissions are below the project-level thresholds, the project would not be considered to result in a considerable contribution to cumulative regional air quality impacts.

Similarly, the HRA takes into account the cumulative contribution of localized health risks to sensitive receptors from sources included in the city-wide modeling (CRRP-HRA) plus the project's sources and other cumulative project sources. Since health risk impacts are localized, and health impacts from sources decrease substantially with increasing distance,[77] cumulative emissions are modeled using AERMOD to account for their locations in relation to the BDFP site. The significance of cumulative contributions within and outside an APEZ is determined by comparing them to applicable thresholds listed in Table 4.8-7 (above). As described under Impact C-AQ-3 below, the approach to evaluating cumulative odor impacts relied on a qualitative evaluation of the odor generation potential of cumulative projects and SEP odor modeling.

4.8.3.3 Impact Evaluation

The impact analysis addresses construction-related and operational impacts as follows:

- Impact AQ-1: Construction-related criteria pollutant emissions
- Impact AQ-2: Operational criteria pollutant emissions
- Impact AQ-3: Health risks from construction-related and operational TAC emissions
- Impact AQ-4: Consistency with the Clean Air Plan
- Impact AQ-5: Construction and operational odor
- Impact C-AQ-1: Cumulative regional air quality impacts (criteria air pollutants)
- Impact C-AQ-2: Cumulative health risks and hazards
- Impact C-AQ-3: Cumulative odors

[76] BAAQMD, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, October 2009.

[77] California Air Resources Board (CARB), *Air Quality and Land Use Handbook: A Community Health Perspective,* April 2005. Available online at http://www.arb.ca.gov/ch/handbook.pdf. Accessed on May 2, 2016.

Criteria Air Pollutants – Project Construction

Impact AQ-1: The project's construction activities would not generate fugitive dust that could violate an air quality standard or contribute substantially to an existing or projected air quality violation, but project construction would generate criteria air pollutants that would violate an air quality standard and contribute substantially to an existing or projected air quality violation, and result in a cumulatively considerable net increase in criteria air pollutants. (Significant and Unavoidable with Mitigation)

Construction activities typically result in emissions of ozone precursors and PM in the form of dust (fugitive dust) and exhaust (e.g., vehicle tailpipe emissions). Emissions of ozone precursors and PM are primarily a result of the combustion of fuel from on-road and off-road vehicles. However, ROG are also emitted from activities that involve painting, other types of architectural coatings, or asphalt paving. The project includes demolition of existing structures on the BDFP site as well as construction of new solids treatment, odor control, energy recovery, and associated facilities. It has not yet been determined which of the potential staging areas (Piers 94 and 96, 1550 Evans Avenue, and the Southeast Greenhouses) would be used by the project; therefore, construction criteria air pollutant emissions from activity at all three are taken into account in the air quality analysis as a conservative approach, and TAC emissions from the potential construction (demolition and paving) activities at 1550 Evans Avenue were conservatively included in the health risk assessment for the BDFP.[78]

During the project's approximately five-year construction period, construction activities would have the potential to result in emissions of fugitive dust and criteria air pollutants (including ozone precursors and PM), as discussed below.

Fugitive Dust

Project-related demolition, excavation, grading, and other construction activities may cause wind-blown dust that could contribute PM into the local atmosphere. Since the project is over one-half acre in size and sensitive receptors are located within 1,000 feet of the site, the SFPUC and project contractors responsible for construction activities at the project site would be required to submit a Dust Control Plan for approval by the SFDPH in compliance with the Construction Dust Control Ordinance. The plan would specify practices to control construction dust on the site (or other practices that result in equivalent dust control) that are acceptable to the SFDPH. For the BDFP, the Dust Control Plan may include any of the following (or equivalent) measures to accomplish the goal of minimizing visible dust: wet down areas of disturbed soil at least three times per day using non-potable water; analyze wind direction and install upwind and downwind particulate dust monitors; record particulate monitoring results; hire an independent third party to conduct inspections and keep a record of those inspections; establish requirements for when dust-generating operations have to be shut down due to dust crossing the property boundary or if dust within the property boundary is not controlled after a specified number of minutes; establish a hotline for surrounding community members to call and report visible dust problems; limit the area subject to dust-generating construction activities at any one time; minimize on-site storage of excavated material or waste materials; install dust curtains and windbreaks on the property lines on windward and down

[78] Ramboll Environ, *Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR*, March 2017.

windward sides of construction, as necessary; pave or apply water or non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas; limit the amount of soil in hauling trucks to the size of the truck bed and walls and cover with a tarpaulin or other effective covers those trucks hauling soil, sand, and other loose materials; establish a 15 mph speed limit for vehicles entering and exiting construction areas; sweep streets with water sweepers at the end of the day where visible soil material is present; install and use wheel washers to clean truck tires if possible or otherwise brush off tires or tracks before they reenter City streets; temporarily stop excavation, grading, and other construction activities when winds exceed 25 mph; hydroseed or apply soil stabilizers to previously graded areas for at least 10 calendar days; and sweep adjacent streets to reduce particulate emissions. The SFPUC would be required to designate an individual to monitor compliance with these dust control requirements. Compliance with the regulations and procedures set forth by the Construction Dust Control Ordinance would ensure that potential dust-related air quality impacts would be less than significant.

Criteria Air Pollutants

Construction activities would include demolition of existing buildings and structures, site preparation, soil excavation, and foundation/facilities construction. Project-related construction emissions would be generated by many different construction sources, including the following: off-road construction equipment (such as excavators, loaders, backhoes, drill rigs, and cranes); on-road trucks; architectural coatings; and paving. Levels of criteria air pollutants generated by these sources were estimated using methods consistent with CalEEMod and outlined in the AQTR.[79,80] The model, including default data (e.g., emission factors, meteorology, etc.), was developed in collaboration with California air districts' staff. Default assumptions were used where project-specific information was not available. Construction-related emissions estimates assume compliance with the Clean Construction Ordinance which, for projects located within the APEZ and within 1,000 feet of sensitive uses, specifies requirements for off-road engines (refer to the description under San Francisco Clean Construction Ordinance in Section 4.8.2.3, above, for more detail).

Construction of the project would occur over approximately five years. Emissions were converted from tons per year to pounds per day using the estimated construction duration of 1,300 working days (i.e., 5 days a week for 5 years). As shown in **Table 4.8-8**, project construction emissions would be above the threshold of significance for NO_x during all five construction years, representing a significant adverse impact. Construction of the BDFP would result in emissions of ROG, PM_{10}, and $PM_{2.5}$ that would be below the thresholds of significance. As shown in Table 4.8-8, the predominant source of emissions of NOx, PM_{10}, and $PM_{2.5}$ would be off-road equipment, with such equipment generating 5 to 17 times more NOx than on-road vehicles depending on the construction year.

[79] A representative construction equipment list was provided by the BDFP consultant team for this modeling effort.
[80] Ramboll Environ, *Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR*, March 2017. A copy of this document is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2015.000644ENV.

TABLE 4.8-8
TOTAL CONSTRUCTION-RELATED CRITERIA AIR POLLUTANT EMISSIONS AND AVERAGE DAILY EMISSIONS DUE TO PROJECT

Year	Source	Total Criteria Air Pollutant Emissions (pounds)			
		ROG	**NO_x**	**PM_{10}**	**$PM_{2.5}$**
Year 1	Off-Road Equipment[a]	1,033	60,933	261	261
Year 2		1,358	54,385	253	253
Year 3		1,250	49,566	230	230
Year 4		1,061	37,147	180	180
Year 5		559	25,337	119	119
Year 1	On-Road Trucks and Vehicles	677	12,233	50	48
Year 2		562	3,073	16	15
Year 3		770	7,829	31	29
Year 4		794	4,222	25	24
Year 5		648	3,768	21	20
Years 4 and 5	Architectural Coating – Off-Gassing[b]	2,230	--	--	--
Years 1 and 5	Paving – Off-Gassing[c]	22	--	--	--
	Total Emissions	10,963	258,494	1,187	1,179
Year	**Days of Construction Per Year**	**Average Daily Construction Emissions (pounds/day)**			
		ROG	**NOx**	**PM_{10}**	**$PM_{2.5}$**
Year 1	260	6.6	**281**	1.2	1.2
Year 2	260	7.4	**221**	1.0	1.0
Year 3	260	7.8	**221**	1.0	1.0
Year 4	260	11	**159**	0.8	0.8
Year 5	260	9.0	**112**	0.5	0.5
	Total Length of Project Construction[d] (days)	1,300			
	Daily Emissions Averaged Over All Construction Years	8.4	199	0.9	0.9
Significance Thresholds		54	54	82	54
Emissions Above Thresholds (indicated in bold)?		No	**Yes**	No	No

NOTES: Emissions over threshold levels are in **bold**.

ROG = reactive organic gases; NO_x = nitrogen oxides; PM_{10} = particulate matter of 10 microns in diameter or less; $PM_{2.5}$ = particulate matter of 2.5 microns in diameter or less; VDECS = verified diesel emission control strategy; DPF = diesel particulate filter

[a] Assumes use of Tier 2 Engines + DPF (Level 3 VDECS) in off-road equipment as required by Clean Construction Ordinance.
[b] Architectural coating was assumed to occur during Years 4 and 5.
[c] Paving at 1550 Evans Avenue was assumed to occur in Year 1. Paving otherwise associated with the project was assumed to occur during Year 5.
[d] Construction duration is expected to be 60 months.

SOURCE: Ramboll Environ, *Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR*, March 2017 (Table 4a).

With NOx exceedances occurring during all five years of construction, supplemental emissions controls on construction equipment would be required to reduce the severity of the impacts, as specified in **Mitigation Measure M-AQ-1a (Construction Emissions Minimization)**. Such controls would be in addition to those already required under the Clean Construction Ordinance, and would include use of equipment that meets the following emissions controls: equipment with engines greater than or equal to 140 horsepower must meet Tier 4 final standards; equipment with engines less than 140 horsepower must meet Tier 2 standards and be equipped with diesel particulate filters (DPFs); at least 80 percent of haul trucks (i.e., trucks used to remove or deliver backfill soil, excavated soil, and demolition debris) used must have 2010 or newer engines; and all diesel haul trucks and off-road equipment must use renewable diesel. With use of off-road equipment that meets minimum emission standards, construction-related emissions of NOx (and other criteria air pollutants) would be reduced commensurate with the degree of compliance achieved. **Table 4.8-9** presents mitigated daily engine exhaust emissions assuming implementation of feasible supplemental emissions control compared with emission significance thresholds. Such emission controls would reduce total NOx emissions by 75 percent and daily emissions to below the threshold of significance during Years 2, 4, and 5. However, daily NOx emissions would still exceed the threshold during Years 1 and 3. As indicated in Table 4.8-9, NOx emissions in Year 1 would be 72 pounds per day under mitigated conditions, which exceeds the significance threshold of 54 pounds per day by 18 pounds per day; in Year 3, emissions would be 55 pounds per day, exceeding the threshold by 1 pound per day. During Year 1, demolition, site preparation, and soil excavation would occur. During Year 3, peak facilities construction would occur with two work shifts and extended work hours. (See Section 2.6 in Chapter 2, *Project Description*, for a detailed description of proposed construction activities and schedule.) Thus, with implementation of Mitigation Measure M-AQ-1a, NOx impacts would be less than significant during Years 2, 4, and 5 but would remain significant for NOx emissions in Years 1 and 3, even with implementation of the supplemental construction emissions controls.

Because construction-related emissions of NOx would remain significant in certain years even with implementation of Mitigation Measure M-AQ-1a (Construction Emissions Minimization) **Mitigation Measure M-AQ-1b (Emission Offsets)** would also be required in order to reduce the residual NOx emissions by an average of 18 pounds per day in Year 1 and 1 pound per day in Year 3. Mitigation Measure M-AQ-1b would require the SFPUC to offset remaining emissions to below significance thresholds by either implementing a specific offset program (e.g., equipment replacement), funding the implementation of an emissions reduction project through payment of a mitigation offset fee to the BAAQMD's Bay Area Clean Air Foundation,[81] or a combination of the two approaches, in an amount sufficient to mitigate residual construction NOx emissions. As discussed above under Section 4.8.2, Regulatory Framework, the BAAQMD administers the Carl Moyer program within the SFBAAB, which established the cost-effectiveness criteria for funding emissions

[81] In 2008, the BAAQMD's Board of Directors created the nonprofit Bay Area Clean Air Foundation to support the BAAQMD's mission by funding programs that reduce emissions and educate community members about air quality in the Bay Area. The BAAQMD's mission is to create a healthy breathing environment for every Bay Area resident while protecting and improving public health, air quality, and the global climate.

TABLE 4.8-9
TOTAL CONSTRUCTION-RELATED CRITERIA AIR POLLUTANT EMISSIONS AND AVERAGE DAILY EMISSIONS – MITIGATED

Year	Source	Total Criteria Air Pollutant Emissions (pounds)			
		ROG	**NO_x**	**PM_{10}**	**$PM_{2.5}$**
Year 1	Off-Road Equipment[a]	1,714	8,270	148	148
Year 2		1,958	8,355	154	154
Year 3		1,795	7,437	140	140
Year 4		1,455	6,455	113	113
Year 5		819	4,967	73	73
Year 1	On-Road Trucks and Vehicles[b]	551	10,355	28	27
Year 2		529	3,377	14	13
Year 3		729	6,986	25	23
Year 4		781	3,842	23	22
Year 5		639	3,514	20	19
Years 4 and 5	Architectural Coating - Off-Gassing[c]	2,230	--	--	--
Years 1 and 5	Paving - Off-Gassing[d]	22	--	--	--
	Total Emissions	13,222	63,559	738	731

Year	Days of Construction Per Year	Average Daily Construction Emissions (pounds/day)			
		ROG	**NOx**	**PM_{10}**	**$PM_{2.5}$**
Year 1	260	8.7	**72**	0.7	0.7
Year 2	260	10	45	0.7	0.6
Year 3	260	10	**55**	0.6	0.6
Year 4	260	13	40	0.5	0.5
Year 5	260	10	33	0.4	0.4
Total Length of Project Construction[e] (days)		1,300			
Daily Emissions Averaged Over All Construction Years		10	49	0.6	0.6
Significance Thresholds		54	54	82	54
Emissions Above Thresholds (indicated in bold)?		No	**Yes** (Years 1 and 3 only)	No	No

NOTES: Emissions over threshold levels are in **bold**.
ROG = reactive organic gases; NO_x = nitrogen oxides; PM_{10} = particulate matter of 10 microns in diameter or less; $PM_{2.5}$ = particulate matter of 2.5 microns in diameter or less; VDECS = verified diesel emission control strategy; DPF = diesel particulate filter

[a] Assumes use of Tier 4 Engines on larger equipment (140 horsepower or greater) and Tier 2 Engines + DPF (Level 3 VDECS) on smaller equipment (less than 140 horsepower) in off-road equipment as well as use of renewable diesel in all diesel off-road equipment.
[b] Assumes (a) use of renewable diesel in all diesel on-road haul trucks and (b) that 80 percent of haul trucks would have 2010 or newer engines.
[c] Architectural coating was assumed to occur during Years 4 and 5.
[d] Paving at 1550 Evans Avenue was assumed to occur in Year 1. Paving otherwise associated with the project was assumed to occur during Year 5.
[e] Construction duration is expected to be 60 months.

SOURCE: Ramboll Environ, *Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR*, March 2017 (Table 4c).

reduction projects at $18,030 per weighted ton of ROG, NOx and PM emissions.[82] The Carl Moyer guidelines can be used to evaluate other emissions reduction projects within the SFBAAB that are administered by the Strategic Incentive Division of BAAQMD. As specified in Mitigation Measure M-AQ-1b, the mitigation offset fee is determined by the amount of emissions, expressed in tons per year; the remaining construction emissions offset required is 2.3 tons per year of ozone precursors. The 2.3 tons per year of ozone precursors reduction is based on the construction-related NOx emissions exceeding the significance threshold that would occur under mitigated conditions during Year 1 of construction and assumes implementation of feasible supplemental emissions controls. As described above, NOx emissions in Year 1 would exceed the significance threshold by 18 pounds per day. Assuming construction occurs 260 days per year, 18 pounds per day is equivalent to 2.3 tons per year. This amount, which is well above the 1 pound per day NOx exceedance that would occur during Year 3 of construction, would also provide sufficient offset for the Year 3 exceedance. However, whether implementation of Mitigation Measure M-AQ-1b would fully offset excess NOx emissions cannot be confirmed at this time for two reasons. First, the SFPUC is in the process of determining whether there are enough opportunities available for upgrading existing SFPUC facilities sufficient to achieve the needed offset to reduce this impact to below the significance threshold. Second, although implementation of emissions offsets via the mitigation offset fee would result in an agreement with a third party, the BAAQMD, that agreement depends in part on the actions of that third party, and thus is not fully within the City's control. Therefore, the residual impact of construction emissions is conservatively considered significant even with implementation of identified mitigation measures.

It is difficult to predict the magnitude of health effects from the project's exceedance of significance criteria for regional NOx emissions.[83] However, the increase in emissions associated with the BDFP represents less than 0.01 percent of total SFBAAB regional NOx emissions (49 pounds per day, on average, compared to 316 tons per day in the SFBAAB region in 2011[84]). Although Table 4.8-1 indicates that the most stringent applicable ozone standards were not exceeded at the Potrero Hill monitoring station between 2011 and 2015, the SFBAAB region experienced an average of 8.6 days of exceedance per year between 2011 and 2015.[85] As an ozone precursor, the BDFP's NOx increases could contribute to new or exacerbated air quality violations in the SFBAAB region by contributing

[82] The following equation is used to calculate the Weighted Emissions Reductions: Weighted Emissions Reductions = NOx reductions (tons/year) + ROG Reductions (tons/year) + (20 x [PM Reductions (tons/year)]). On March 27, 2015, CARB updated the cost-effectiveness limit to $18,030 (ARB mail-out announcement available online at https://www.arb.ca.gov/msprog/mailouts/msc1509/msc1509.pdf).

[83] Several factors influence health impacts associated with NOx, including the concentrations of ground-level ozone in the atmosphere, the duration of exposure, average volume of air breathed per minute, the length of intervals between short-term exposures, and the sensitivity of the person to the exposure (The World Bank Group, *Pollution Prevention and Abatement Handbook 1998: Toward Cleaner Production*, pp. 227–230, 1999. Available online at http://www.ifc.org/wps/wcm/connect/0f8fe18048855d738f04df6a6515bb18/PPAH.pdf?MOD=AJPERES&CACHEID=0f8fe18048855d738f04df6a6515bb18. Accessed on September 9, 2016; AirNow, *Air Quality Guide for Ozone,* August 2015. Available online at www.airnow.gov/index.cfm?action=pubs.aqiguideozone. Accessed on September 9, 2016; AirNow, *Air Quality Guide for Ozone,* August 2015. Available online at www.airnow.gov/index.cfm?action=pubs.aqiguideozone. Accessed on September 9, 2016).

[84] Bay Area Air Quality Management District, *Annual Bay Area Emissions Inventory Summary Report for Criteria Air Pollutants: Base Year 2011, Table 3,* page 5, May 2014. Available online at http://www.baaqmd.gov/research-and-data/emission-inventory/criteria-air-pollutants. Accessed on September 9, 2016.

[85] Bay Area Air Quality Management District, *Annual Bay Area Air Quality Summaries*, 2015. Available online at http://www.baaqmd.gov/about-air-quality/air-quality-summaries. Accessed on September 9, 2016.

to more days of ozone exceedance or result in AQI values that are unhealthy for sensitive groups and other populations. As shown in Table 4.8-2, the SFBAAB has averaged between 8 and 17 days per year that are considered unhealthy for sensitive groups and had three unhealthy (red) days total between 2010 and 2015. On unhealthy days, persons are recommended to avoid both prolonged and heavy exertion outdoor activities.[86]

Summary of Impact AQ-1

Construction of the project would generate emissions of fugitive dust and criteria air pollutants. The SFPUC, through its contractors, would be required to implement dust control measures in compliance with the requirements of the Construction Dust Control Ordinance, and therefore, construction-related air quality impacts due to fugitive dust would be ***less than significant***.

The SFPUC, through its contractors, would also be required to implement emissions control measures in compliance with the requirements of the Clean Construction Ordinance. With these control measures, estimated average daily construction emissions of ROG, PM_{10}, and $PM_{2.5}$ would be below the applicable thresholds during all five construction years. Emissions of NO_x, however, would exceed the applicable significance thresholds. Implementation of Mitigation Measure M-AQ-1a (Construction Emissions Minimization) would help to reduce NO_x emissions, but not to below the applicable significance threshold during the first and third construction years. Implementation of Mitigation Measure M-AQ-1b (Emission Offsets) could offset the residual NO_x emissions to below significance thresholds. While use of waivers allowed under Mitigation Measure M-AQ-1a could alter the residual NOx emissions requiring offsets under Mitigation Measure M-AQ-1b, use of these waivers is not expected to occur frequently enough to alter the amount of offsets that would be required under Mitigation Measure M-AQ-1b. Although implementation of these two mitigation measures combined would mitigate NO_x emissions to below threshold levels, construction-related NO_x emissions are considered ***significant and unavoidable with mitigation*** for the reasons stated above (i.e., uncertainty of availability of sufficient offset opportunities and reliance on an agreement with a third party).

Mitigation Measure M-AQ-1a. Construction Emissions Minimization

The SFPUC's contractors shall comply with the following:

A. ***Engine Requirements.***

1. All off-road equipment with larger engines (greater than or equal to 140 horsepower) shall meet United States Environmental Protection Agency (USEPA) or California Air Resources Board (CARB) Tier 4 Final off-road emission standards, while equipment with smaller engines (less than 140 horsepower) shall meet or exceed Tier 2 off-road emission standards and be equipped with diesel particulate filters (DPFs), which is equivalent to a Level 3 verified diesel emission control strategy (VDECS).

2. At least 80 percent of haul trucks (i.e., trucks used to remove or deliver backfill soil, excavated soil, and demolition debris) used must have 2010 or newer engines. The SFPUC should strive to exceed this requirement when possible; if

[86] U.S. Environmental Protection Agency, *Air Quality Index, A Guide to Air Quality and Your Health,* February 2014. Available online at www.epa.gov/airnow/aqi_brochure_02_14.pdf. Accessed on September 9, 2016.

trucks with 2010 or newer engines are available in the Contractor's, or subcontractor's fleet, then those should be used for the project.

The SFPUC, through its Contractors Assistance Center, will work with the BAAQMD's Strategic Incentives Division and interested, eligible truckers to pursue funding to replace vehicles or retrofit engines to comply with the lower emissions requirement, including but not limited to conducting informational presentations at the Contractors Assistance Center to notify truckers about the grants and incentives and assisting with the completion of applications to the grant programs.

3. All diesel-powered haul trucks and off-road equipment must use renewable diesel.

B. ***Waivers.***

1. Pursuant to the Clean Construction Ordinance, the SFPUC General Manager (GM) or designee may waive the alternative source of power requirement if an alternative source of power is limited or infeasible at the project site. If the SFPUC GM grants the waiver, the contractor shall submit documentation that the equipment used for on-site power generation meets the requirements of Subsection (A)(1).

2. The SFPUC GM or designee may waive the equipment requirements of Subsection (A)(1) but only under any of the following unusual circumstances: if a particular piece of off-road equipment with Tier 4 Final standards or CARB Level 3 VDECS is technically not feasible; the equipment would not produce desired emissions reduction due to expected operating modes; installation of the equipment would create a safety hazard or impaired visibility for the operator; or there is a compelling emergency need to use off-road equipment that is not retrofitted with a CARB Level 3 VDECS. If the SFPUC GM or designee grants the waiver, the contractor shall use the next cleanest piece of off-road equipment, according to the following table:

Compliance Alternative	Engine Emission Standard
1	Tier 4 Interim
2	Tier 3
3	Tier 2

NOTES: How to use the table: If the SFPUC GM or designee determines that the equipment requirements cannot be met, then the contractor shall meet Compliance Alternative 1. If the SFPUC GM or designee determines that the contractor cannot supply off-road equipment meeting Compliance Alternative 1, then the contractor shall meet Compliance Alternative 2. If the SFPUC GM or designee determines that the contractor cannot supply off-road equipment meeting Compliance Alternative 2, then the contractor shall meet Compliance Alternative 3.

Mitigation Measure M-AQ-1b. Emission Offsets

During the five-year construction period and prior to project completion, the SFPUC, with the oversight of the Planning Department, shall implement either of the following two options or a combination of both:

1. Directly implement a specific offset program (such as replace equipment) to achieve reductions of 2.3 tons per year of ozone precursors, subject to Environmental Review Officer (ERO) approval. To qualify under this mitigation measure, the specific emissions retrofit project must result in emissions reductions within the San Francisco Bay Area Air Basin (SFBAAB) that are real, surplus, quantifiable, enforceable, and would not otherwise be achieved through compliance with existing regulatory requirements or any other legal requirement. Prior to implementation of the offset project, the SFPUC must obtain Planning Department's approval of the proposed offset project by providing documentation of the estimated amount of emissions of 2.3 tons per year of ozone precursors within the SFBAAB from the emissions reduction project(s). The project sponsor shall notify the Planning Department within six months of completion of the offset project for verification.

2. Pay a mitigation offset fee to the Bay Area Air Quality Management District's (BAAQMD) Bay Area Clean Air Foundation (Foundation) in an amount to be determined at the time of the impact. The mitigation offset fee will be no less than $30,000 per weighted ton of ozone precursors per year requiring emissions offsets plus an administrative fee of no less than 5 percent, to fund one or more emissions reduction projects within the SFBAAB. The $30,000 will be adjusted to reflect annual California Consumer Price Index adjustments between 2017 and the estimated first year of exceedance. This fee will be determined by the Planning Department in consultation with the SFPUC and BAAQMD and based on the type of projects available at the time of impact. This fee is intended to fund emissions reduction projects to achieve reductions of 2.3 tons per year of ozone precursors.

   For this option, the SFPUC is required to enter into a Memorandum of Understanding (MOU) with the BAAQMD's Foundation. The MOU will include details regarding the funds to be paid, administrative fee and the timing of the emissions reductions project. Acceptance of this fee by the BAAQMD shall serve as an acknowledgment and commitment by the BAAQMD to: (1) implement an emissions reduction project(s) within a time frame to be determined based on the type of project(s) selected, after receipt of the mitigation fee to achieve the emission reduction objectives specified above; and (2) provide documentation to the ERO and the SFPUC describing the amount of and the project(s) funded by the mitigation fee, including the amount of emissions of NOx reduced (tons per year) within the SFBAAB from the emissions reduction project(s). If there is any remaining unspent portion of the mitigation offset fee following implementation of the emission reduction project(s), the SFPUC shall be entitled to a refund in that amount from the BAAQMD. To qualify under this mitigation measure, the specific emissions reduction project must result in emission reductions within the SFBAAB that are real, surplus, quantifiable, enforceable, and would not otherwise be achieved through compliance with existing regulatory requirements or any other legal requirement.

Criteria Air Pollutants – Project Operation

Impact AQ-2: During project operations, net changes in criteria air pollutant emissions would not result in any new violations of air quality standards, contribute to an existing or projected air quality violation, or result in a cumulatively considerable net increase in criteria air pollutants. (Less than Significant)

Criteria air pollutant emissions from BDFP operations would primarily result from operation of proposed energy recovery and biosolids treatment facilities, rather than motor vehicle trips.

Changes in Emissions

Total and net changes in operational-related criteria air pollutant emissions associated with existing operations and the project were estimated using (1) BAAQMD records data for existing SEP facilities, (2) USEPA AP-42 emissions factors to estimate emissions from existing facilities to be decommissioned as part of the project as well as proposed equipment to be added, (3) manufacturer specifications for proposed equipment, and (4) BAAQMD Best Available Control Technology (BACT) standards for proposed equipment. Estimated emissions from these sources and their derivations are presented in the AQTR.

There are several existing stationary sources of criteria air pollutants that would be decommissioned as part of project implementation:

- A cogeneration engine;
- Sludge handling process unit (comprised of two GBTs);
- Nine anaerobic digesters and two waste gas burners (or flares);[87]
- A sludge dewatering facility; and
- Three hot water boilers.

In addition to removing these existing stationary emission sources, the project would add the following stationary emission sources:

- Two gas turbines (one duty and one future standby);
- Two backup steam boilers (both standby);
- One emergency diesel engine;
- Five anaerobic digesters and two enclosed waste gas burners (both standby);
- One odor control system; and
- Four microturbines (three duty/one standby which are estimated to be brought online in 2031).

Net changes in emissions associated with the addition of these new facilities in combination with removal of existing sources are represented in the 2023 start-up year and 2045 horizon year. **Table 4.8-10** presents existing daily and annual emissions associated with these existing facilities[88] as well as new emissions associated with project facilities.

Project facilities would be operational as early as 2023. As shown in Table 2-10 in Chapter 2, *Project Description*, following construction there would be a transition period to phase out existing facilities and bring new facilities online. During the first six months of this transition period, performance testing (start-up) of the new facilities would be conducted. This was modeled in the air quality analysis by assuming that (a) neither the existing cogeneration engines nor the proposed turbine would operate, but that 50 percent of the existing digester gas production would be burned using the existing waste gas burners and 50 percent would be burned through the proposed waste gas burners; and (b) the backup boiler would operate on natural gas instead of digester gas. Performance testing would be followed by approximately 24 months of full facility commissioning, during which both old and new biosolids treatment systems would operate concurrently. As the new systems are tested, stabilized, and optimized, the BDFP would gradually increase its share of the solids treatment, while the old systems would be phased out. The period when existing and proposed biosolids treatment

87 Waste gas burners are abatement for digesters and not considered a separate emission source.

88 Three of the identified emission sources (sludge handling process unit, anaerobic digesters, and sludge dewatering facility) that are proposed to be removed under this project are part of the entire SEP operations but their emissions were not estimated by the BAAQMD. The BAAQMD only estimated the total organics emissions from all wastewater treatment plant operations, and did not estimate the emissions from individual operations. Therefore, the emissions associated with the sludge handling process unit, anaerobic digesters, and sludge dewatering facility were assumed to be zero for purposes of estimating existing operational emissions for this analysis. This method is conservative as it leads to lower existing operational emissions and a higher net increase in criteria pollutants attributable to project emissions.

TABLE 4.8-10
PROJECT-RELATED NET OPERATIONAL CRITERIA AIR POLLUTANT EMISSIONS

Daily Emissions for Each Operating Scenario			Net Daily Emissions (pounds/day) ROG	NOx	PM_{10}	$PM_{2.5}$
Existing (2014)[a]		Total	28	118	9.3	9.3
Future with Project	Performance Testing (2023)[b]	Total	54	76	20	20
		Project Impact (Net Change)[c]	*27*	*(42)*	*11*	*11*
	Full Operation (2023)[d]	Total	11	128	25	25
		Project Impact (Net Change)[c]	*(17)*	*10*	*15*	*15*
	Full Operation (2045)[e]	Total	3.8	133	25	25
		Project Impact (Net Change)[c]	*(24)*	*14*	*16*	*16*
Significance Threshold (pounds/day)			54	54	82	54
Net Emissions Above Threshold?			*No*	*No*	*No*	*No*
Annual Emissions for Each Operating Scenario			**Net Annual Emissions (tons/year) ROG**	**NOx**	**PM_{10}**	**$PM_{2.5}$**
Existing (2014)[a]		Total	5.0	22	1.7	1.7
Future with Project	Performance Testing (2023)[b,f]	Total	9.9	14	3.6	3.6
		Project Impact (Net Change)[c]	*4.9*	*(7.7)*	*1.9*	*1.9*
	Full Operation (2023)[d,f]	Total	2.0	23	4.5	4.5
		Project Impact (Net Change)[c]	*(3.1)*	*1.8*	*2.8*	*2.8*
	Full Operation (2045)[e]	Total	0.69	24	4.6	4.6
		Project Impact (Net Change)[c]	*(4.3)*	*2.6*	*2.9*	*2.9*
Significance Threshold (tons/year)			10	10	15	10
Net Emissions Above Threshold?			*No*	*No*	*No*	*No*

NOTES:

ROG = reactive organic gases; NOx = nitrogen oxides; PM_{10} = particulate matter of 10 microns in diameter or less; $PM_{2.5}$ = particulate matter of 2.5 microns in diameter or less; BDFP = Biosolids Digester Facilities Project; BAAQMD = Bay Area Air Quality Management District; SEP = Southeast Water Pollution Control Plant

Numbers in parentheses (x) indicate a reduction in emissions.

[a] The existing operational scenario is based on the emissions during the 2014 year of operation of existing BDFP facilities (the most recent full year of emissions data that was available from the BAAQMD at the time the Notice of Preparation was issued for the BDFP environmental impact report [EIR]). Emissions from existing facilities are represented by emissions from the cogeneration engine, two waste gas burners/flares, and two hot water boilers.

[b] The 2023 performance testing represents emissions when new equipment would be brought online. During this period, neither the existing cogeneration engines nor the proposed turbine would operate, but 50 percent of the existing biogas production would be burned using existing waste gas burners, while 50 percent would be burned using the proposed waste gas burners. Additionally, the backup boiler would operate on natural gas instead of digester gas.

[c] Existing biosolids processing facilities at the SEP currently emit criteria pollutants and these are represented by "Existing (2014)" emissions. Because these existing facilities would be decommissioned and replaced by project facilities, project-related emissions would be the net change from existing emissions to future (with project) emissions under the three different operating scenarios listed in this table.

[d] The 2023 Full Operation Scenario represents emissions from project sources (such as turbines) that are fully operational, with the exception of the future equipment and the microturbines, which are not expected to be installed or operate until future years (starting in 2031). When $PM_{2.5}$ emissions under this scenario (associated with turbine emissions) are compared to $PM_{2.5}$ emissions during performance testing (associated with emissions from waste gas burners), it appears that $PM_{2.5}$ emissions would increase, but this increase is not expected to actually occur to the degree indicated in this table because it is based a manufacturer guaranteed emission factor for the proposed turbine, which is very conservative. The turbine should never exceed this value, and therefore it would likely operate with much lower emissions.

[e] The 2045 Full Operation Scenario would increase emissions due to the increased biogas production – a function of population growth. To accommodate the projected biogas increase, three microturbines would be added and the hours of operation of the boilers would be increased. By 2045, a backup turbine would be installed and the waste gas burners are expected to only operate in emergency situations.

[f] The emissions reflect 12 months of performance testing and 12 months of full operation (since emissions are shown in tons per year), although the 2023 scenario would more likely consist of 6 months of performance testing and 6 months of full operation in 2023.

SOURCE: Ramboll Environ, *Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR*, March 2017 (Table 14).

systems would operate concurrently was not explicitly modelled since the amount of digester gas (which powers energy recovery equipment and generates attendant emissions) remains fixed. The assumption that the BDFP facilities would process 100 percent of the digester gas is conservative since NOx and PM emissions from the project equipment are assumed to be greater than from the existing equipment.[89] Full facility commissioning is expected to be complete in 2025. Although the transition period could last up to three years, emissions modeling was completed only for the performance testing period. Assuming six months of performance testing and six months of full project operation for 2023 is a conservative but realistic scenario that reflects the highest expected emissions for the one year that any performance testing occurs. (If the performance testing were to occur over a period longer than six months, emissions would be lower than those presented here.)

Existing biosolids processing facilities at the SEP currently emit criteria pollutants, and these are represented by "Existing (2014)" emissions listed in Table 4.8-10. The project would replace existing solids processing and energy recovery facilities emissions sources with new equipment. Therefore, the total operational emissions associated with the project would be the net changes in emissions, or the difference between emissions from the new project sources and emissions from existing sources to be decommissioned. Table 4.8-10 presents the net changes in daily and annual operational emissions associated with the project. The net changes in criteria pollutant emissions are presented for the performance testing (six months in 2023) and for when project facilities are in full operation in the remaining six months in 2023 and in 2045. As shown in Table 4.8-10, during performance testing in 2023, ROG, PM_{10}, and $PM_{2.5}$ emissions would increase over existing emissions, but NO_x emissions would decrease based on the equipment assumed to be operating. Once project facilities are fully operational in 2023, ROG emissions would decrease and would continue to decrease through 2045, while NO_x would increase and continue to increase through 2045. PM_{10} (and $PM_{2.5}$)[90] emissions would also increase in 2023 and continue to increase through 2045. Nevertheless, for daily and annual emissions, project-related net changes in criteria pollutant emissions would not exceed the applicable significance thresholds. Therefore, operation of the BDFP would not violate an air quality standard, contribute substantially to an air quality violation, or result in a cumulatively considerable net increase in criteria air pollutants within the SFBAAB.

Summary of Impact AQ-2

As shown in Table 4.8-10, operational emissions associated with the project would not exceed any of the significance thresholds for criteria air pollutants. The project's impact with respect to causing new violations of air quality standards, contributing to an existing or projected air quality violation, or causing a cumulatively considerable net increase in criteria air pollutants during operations would therefore be ***less than significant***.

Mitigation: None required.

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[89] Turbine emissions are based on manufacturer guaranteed emission factors operating continuously (8,760 hours per year) at full capacity. A manufacturer guaranteed emission factor is conservative as the turbine should never exceed this value, and therefore the turbine would likely operate with much lower NOx and PM emissions. As such, higher NOx and PM emissions are a result of conservative assumptions made in this analysis.

[90] PM2.5 emissions are assumed to be equal to PM10 emissions.

Toxic Air Contaminants – Project Construction and Operation

Impact AQ-3: Construction and operation of the project would generate toxic air contaminants, including diesel particulate matter, but would not expose sensitive receptors to substantial air pollutant concentrations or result in a cumulatively considerable net increase in health risks or hazards. (Less than Significant)

Construction TAC Sources

The project would require construction activities for the approximate five-year construction period. Project construction activities would result in short-term emissions of DPM and other TACs over this five-year period. The project site is located in an area that already experiences poor air quality, and project construction activities would generate additional air pollution, affecting nearby sensitive receptors.

Operational TAC Sources

As indicated above under Impact AQ-2, the project would involve the decommissioning of several existing stationary sources and the addition of several new stationary sources of TAC emissions. Existing sources of TAC emissions to be decommissioned include a cogeneration engine, sludge handling process unit (comprised of two GBTs), nine anaerobic digesters, two waste gas burners (or flares), a sludge dewatering facility, and three hot water boilers. New stationary sources of TAC emissions associated with BDFP facilities include two gas turbines (one duty and one future standby), two backup steam boilers (both standby), one emergency diesel engine, five anaerobic digesters, two enclosed waste gas burners (both standby), one odor control system, and four microturbines (three duty/one standby which would be brought online in 2031).

The primary sources of TACs from proposed facilities would be associated with energy recovery (turbine, microturbines, waste gas burners, boilers, emergency diesel generator), anaerobic digestion (digester gas), and odor control. Examples of stationary-source air toxics include DPM, 3-methylchloranthrene, 7,12-dimethylbenz(a)anthracene, benz(a)anthracene, benzene, benzo(a)-pyrene, benzo(b)fluroanthene, benzo(k)fluoranthene, 1,3-butadiene, carbon tetrachloride, vinyl chloride, diesel particulate matter, formaldehyde, acetaldehyde, acrolein, naphthalene, and chloroform.

Health Risk Assessment

Both construction-related and operational sources considered in the health risk analysis include DPM and TOG emissions from diesel equipment and on-road vehicles, and operational TAC emissions from the project's stationary sources (including periodic testing of the backup diesel generator that is part of the Energy Recovery Facility).[91] If the proposed backup diesel generator is larger than 50 horsepower, it would require a permit from the BAAQMD and must comply with the Airborne Toxic Control Measure for Stationary Compression Ignition Engines. For construction emissions, the project was analyzed assuming use of Tier 2 equipment with DPFs.

[91] Under California regulatory guidelines, DPM is used as a surrogate measure of carcinogen exposure for the mixture of chemicals that make up diesel exhaust as a whole.

Changes to Air Pollution Exposure Zone Boundaries

As described in Section 4.8.1.4, the project site and its vicinity are located in the APEZ and Health Vulnerability zip code 94124, which indicates that the area already experiences poor air quality due to emissions from various stationary and mobile sources in the area. The San Francisco Community Risk Reduction Plan model (CRRP-HRA) indicates that the existing background excess cancer risk ranges from 7 to 143 cases per million within 1 kilometer (km, equal to 0.6 mile) of the project, while the existing background $PM_{2.5}$ concentration ranges from 8.1 to 10.6 $\mu g/m^3$ within 1 km of the project.[92]

The presence of an APEZ at a sensitive receptor location is a significant health risk impact. The thresholds of significance used to evaluate the cancer risk from new sources of TACs are based on the potential for the BDFP to substantially affect the extent and severity of an APEZ at sensitive receptors (i.e., whether the project would expand the existing boundaries of an APEZ or substantially contribute to existing health risks at sensitive receptors already within an APEZ).[93] For sensitive receptors previously located outside an APEZ, but brought into the APEZ by the BDFP's impact, thresholds of 10 per million for excess cancer risk and $PM_{2.5}$ concentration of 0.3 μg/m3 are applied to determine if the project would have a considerable contribution to the significant cumulative impact. For sensitive receptors already located within an APEZ, thresholds of 7.0 per million for excess cancer risk and $PM_{2.5}$ concentration of 0.2 μg/m3 are applied to determine if the project would have a considerable contribution to the significant cumulative impact. (Table 4.8-7, above, provides more background information on these thresholds.)

Figure 4.8-5 indicates where project-related construction and operational emissions increases would potentially expand the APEZ for both $PM_{2.5}$ or cancer risk. Figure 4.8-5 shows the existing APEZ (in blue shading) which is defined by areas where either (a) the background $PM_{2.5}$ exceeds 9.0 $\mu g/m^3$ inside the Health Vulnerability zip code or 10 $\mu g/m^3$ outside the Health Vulnerability zip code or (b) the background cancer risk exceeds 90 per million inside the Health Vulnerability zip code or 100 per million outside the Health Vulnerability zip code.[94] The green shaded area shows the same information but for the sum of the background-plus-project impacts. As shown in Figure 4.8-5, the area resulting from project implementation (green shaded area) would not extend beyond areas already within the APEZ (blue-shaded area). Since the project would not expand the APEZ boundaries, project construction and operations would not significantly affect sensitive receptors in the project vicinity.

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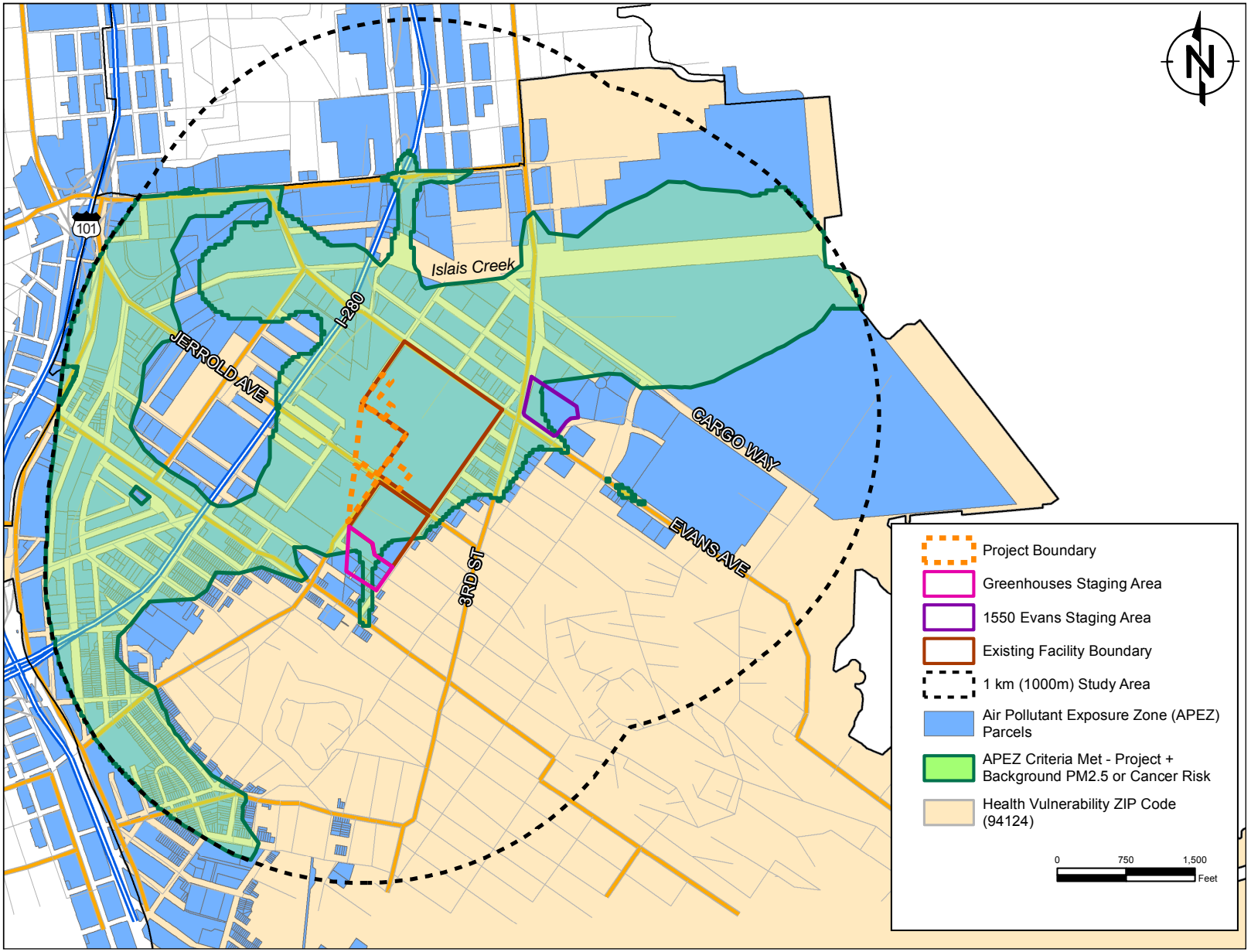
92 The CRRP-HRA takes into account the cumulative contribution of localized health risks to sensitive receptors from sources included in the city-wide modeling, which includes stationary sources such as diesel-fueled standby generators within 1 km of the project and major roadways (carrying over 10,000 vehicles per day, as defined by the BAAQMD). The CRRP-HRA background cancer risk levels were then adjusted to include existing stationary sources at the SEP that were not modeled in the CRRP-HRA but would be removed as part of the project (including waste gas flares and the cogeneration engine). Additionally, the boilers, which are already included in the CRRP-HRA, were remodeled in their exact locations and with building downwash to get an adjusted existing risk that is more comparable to calculated risks for the project. The CRRP-HRA risks were also scaled by a factor of approximately 1.4 to be consistent with health assumptions in the California Office of Environmental Health Hazard Assessment (OEHHA) 2015 Guidance Manual since they were originally calculated with the 2003 Guidance Manual.

93 As indicated in Table 4.8-7, in zip codes not designated as Health Vulnerability zip codes, the APEZ delineates areas that are subject to background excess cancer risk greater than 100 per million and PM2.5 concentrations in excess of 10 $\mu g/m^3$. In zip codes designated as Health Vulnerability zip codes, the APEZ area is redefined as areas that are subject to background excess cancer risk greater than 90 per million and PM2.5 concentrations in excess of 9.0 $\mu g/m^3$.

94 The existing APEZ boundaries (blue shading) shown in Figures 4.8-2 and 4.8-5 were updated to account for the revised 2015 OEHHA guidance for calculating excess cancer risk for a residential receptor. This was done by scaling existing cancer risk by a calculated factor of 1.3744.



SOURCE: BAAQMD, San Francisco Department of Public Health, and San Francisco Planning Department, The San Francisco Community Risk Reduction Plan: Technical Support Documentation, December 2012; Ramboll-Environ consulting analysis for the BDFP, 2017.

SFPUC Biosolids Digester Facilities

Figure 4.8-5

Project-Related Changes in Combined (PM2.5 and Cancer Risk) Air Pollutant Exposure Zone in Project Vicinity

Cancer Risk

Table 4.8-11 presents the excess cancer risks associated with project construction and operation as well as background cancer risk from existing sources within the 1-km area.[95] As shown in this table, the BDFP's construction and operational emissions would result in a lifetime excess cancer risk of 3.8 per million at the maximum receptor (with highest levels to the east). When existing facilities to be decommissioned are subtracted from project-related emissions, the project's net excess cancer risk would range between less than (<) 0.1 and 3.4 per million.[96] The maximally exposed individual sensitive receptor (MEISR) (greatest excess cancer risk at sensitive receptor locations) for the project occurs east of the project site. More specific details on the health risk calculations and methodology are provided in the AQTR for this project.[97]

When the project's net increase in excess cancer risk within the existing APEZ is added to the background cancer risk (as reflected in the CRRP-HRA model), the net combined excess cancer risk at receptors already within the APEZ would increase by <0.1 to 3.4 per million (from 69 to 102 per million to 69 to 105 per million; see Table 4.8-11). With implementation of Mitigation Measure M-AQ-1a (Construction Emissions Minimization, not required to reduce this impact but required to reduce Impact AQ-1), the project's net combined excess cancer risk within the existing APEZ would decrease from <0.1 to 3.4 per million to <0.1 to 1.7 per million. The combined excess cancer risk is compared to the existing APEZ to determine whether any new areas would exceed either 90 or 100 per million.[98] The project's impact would be considered cumulatively considerable if new areas were added to the APEZ and if the project's contribution to the excess cancer risk exceeded the threshold of 7.0 or 10 per million (discussed above). As shown on Figure 4.8-5, the project's impacts do not expand the APEZ, and no new sensitive receptors would be added to the APEZ. In addition, the project's construction-related and operational net increase in cancer risk of <0.1 to 3.4 per million (or <0.1 to 1.7 per million with mitigation) would not exceed the 7 per million threshold.

For areas outside the APEZ, the project's estimated net increase in excess cancer risk (<0.1 to 1.8 per million) due to construction-related and operational emissions would not exceed the project-level significance thresholds for cancer risk of 10 per million at receptors located within 1 km of the site. With implementation of Mitigation Measure M-AQ-1a, the project's estimated net increase in excess cancer risk would be further reduced to <0.1 to 1.6 per million.[99]

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95 Long-term health impacts (cancer risk and $PM_{2.5}$ concentrations) are evaluated at sensitive receptors, and the maximum impact for each is called the MEISR (maximally exposed individual sensitive receptor).

96 The range shown here represents the minimum and maximum net excess cancer risks due to the project at receptors within the 1-km study area. This analysis evaluated two 30-year exposure scenarios. The risks shown represent 30-year exposure of a resident commencing at the time of project construction in 2018 and continuing to include exposure to project operation. A scenario representing 30-year exposure of a resident commencing at the time of project operations in 2023 was also analyzed in the AQTR (results were lower).

97 Ramboll Environ, *Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR*, March 2017. A copy of this document is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2015.000644ENV.

98 The lower cumulative significance thresholds for excess cancer risk are applied to sensitive receptors within APEZs and also in Health Vulnerability areas (as indicated by zip code 94124), while the higher thresholds represent cumulative thresholds specified for areas within APEZs but outside Health Vulnerability zip codes.

99 If waivers under Mitigation Measures M-AQ-1a are exercised, the mitigated excess cancer risk would be greater than the mitigated level (<0.1 to 1.6 per million) but less than the unmitigated level (<0.1 to 1.8 per million).

TABLE 4.8-11
PROJECT-RELATED NET CANCER RISKS – PROJECT CONSTRUCTION AND OPERATION

Source	Net Excess Cancer Risks (Cases Per Million)	
	With Project[a]	Mitigated[a]
Adjusted Existing CRRP-HRA Background[b]	102	85[b]
Project Construction	3.8	1.7
Project Operation[c]	0.4	0.3
Less Existing Operations to be Decommissioned[d]	(0.7)	(0.4)
Total Net Project Excess Cancer Risk at All Sensitive Receptors within 1-km Area	3.4	1.7
Total Combined Excess Cancer Risk at All Sensitive Receptors within 1-km Area	105	87
Cumulative Significance Thresholds[e]	90 / 100	90 / 100
Do Total Combined Emissions Exceed Either Cumulative Threshold?	Yes / Yes	No / No
Project-Level Significance Thresholds[f]	7.0 / 10	7.0 / 10
Do Total Project Emissions Exceed Either Project-Level Threshold?	No / No	No / No

NOTES:
CRRP-HRA = San Francisco Community Risk Reduction Plan Health Risk Assessment; km = kilometer
Numbers in parentheses (x) indicate a reduction in emissions.

[a] The AQTR analysis evaluates two 30-year exposure scenarios for cancer risk. The risks shown here represent the 30-year exposure of a resident commencing at the time of project construction in 2018 (5 years) and continuing to include exposure to project operation (25 years). A lower risk representing the 30-year exposure of a resident commencing at the time of project operations in 2023 is presented in the AQTR. For construction emissions, the "With Project" case (corresponding to the "Uncontrolled" case in the Air Quality Technical Report [AQTR]) assumes use of Tier 2 equipment with diesel particulate filters (DPFs), as required by the San Francisco Clean Construction Ordinance, and the project's net increase in cancer risk would be less than significant. With implementation of Mitigation Measure M-AQ-1a (required to reduce Impact AQ-1), the "Mitigated" case (corresponding to the "Controlled" case in the AQTR) assumes use of Tier 4 Final equipment for all equipment greater than or equal to 140 horsepower, while equipment less than 140 horsepower is assumed to be Tier 2 equipment with a DPF. "Mitigated" emissions also assume (a) use of renewable diesel for all diesel off-road equipment and on-road diesel haul trucks and (b) that 80 percent of haul trucks would have 2010 or newer engines.

[b] The background levels for cancer risk from existing nearby stationary sources were obtained from the San Francisco Community Risk Reduction Plan (CRRP-HRA) geodatabase. The CRRP-HRA risks were adjusted to include existing stationary sources at the Southeast Water Pollution Control Plant (SEP) that were not modeled in the CRRP-HRA but would be removed as part of the project (including waste gas burners and the cogeneration engine). Additionally, the boilers, which are already included in the CRRP-HRA, were remodeled in their exact locations and with building downwash to get an adjusted existing risk that is more comparable to calculated risks for the project. The CRRP-HRA risks were also scaled by a factor of approximately 1.4 to be consistent with health assumptions in the California Office of Environmental Health Hazard Assessment (OEHHA) 2015 Guidance Manual since they were originally calculated with the 2003 Guidance Manual. Background cancer risk is at the maximally exposed individual sensitive receptor (MEISR). The locations of the maximum project impacts are different for the "with project" and "mitigated" cases, which is why the background values are not the same for both.

[c] Cancer risk is at the MEISR or maximum combined receptor. Cancer risk is based on the project's operational toxic air contaminant (TAC) emissions at full operation for all years from the proposed turbine (one duty/one future standby), microturbines, two backup boilers (two standby), emergency diesel engine, two waste gas burners, and solids odor control system. TAC emissions from the existing waste gas burners are also included since they would operate during the six-month performance testing in 2023.

[d] Cancer risk is at the MEISR or maximum combined receptor. The adjusted cancer risk from the existing operational sources that would be decommissioned and replaced by project facilities was subtracted from the risk to calculate net project cancer risk. Existing health risks are based on existing operational TAC emissions from existing waste gas burners, cogeneration engine, and boilers.

[e] The lower cumulative significance threshold for excess cancer risk is applied to sensitive receptors within APEZs and also in Health Vulnerability areas (as indicated by zip code 94124), while the higher threshold represents the cumulative threshold specified for areas within APEZs but outside Health Vulnerability zip codes.

[f] The lower project-level significance threshold for excess cancer risk represents the threshold for sensitive receptor locations within the APEZ under existing and cumulative conditions, while the higher threshold represents the threshold for sensitive receptor locations not within the APEZ under existing conditions but brought into the APEZ as a result of the project.

SOURCE: Ramboll Environ, *Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR*, March 2017.

Therefore, the project's combined cancer risk would be less than significant, and no mitigation would be necessary. Although the impact would be less than significant, implementation of controls specified in Mitigation Measure M-AQ-1a (Construction Emissions Minimization to reduce Impact AQ-1) would reduce the project's less-than-significant impact by decreasing the project's net increase in cancer risk from <0.1 to 3.4 per million to <0.1 to 1.7 per million, which would also be less than significant. Additionally, the combined or cumulative excess cancer risk of 69 to 87 per million would not exceed the 90 or 100 per million threshold, and therefore would also be less than significant.

PM2.5 Concentrations

Table 4.8-12 presents the $PM_{2.5}$ emissions associated with project construction and operation as well as background $PM_{2.5}$ from existing sources within the 1-km area. As indicated in this table, the BDFP's construction-related $PM_{2.5}$ emissions (2018 to 2023) would result in $PM_{2.5}$ concentrations at sensitive receptors within 1 km of the BDFP site of <0.1 $\mu g/m^3$ (without and with implementation of Mitigation Measure M-AQ-1a). The project's net operational $PM_{2.5}$ emissions (2023 to 2045) would result in $PM_{2.5}$ concentrations at sensitive receptors within 1 km of the BDFP site ranging between -0.2 and 0.1 $\mu g/m^3$ (the receptor with the lowest project impact and highest project impact). The BDFP would result in the MEISR (highest $PM_{2.5}$ levels at sensitive receptor locations) to the east of the project site. More specific details on the $PM_{2.5}$ calculations and methodology are provided in the AQTR for this project.[100]

As indicated in Table 4.8-12, when the project's construction-related increase in $PM_{2.5}$ emissions of <0.1 $\mu g/m^3$ is added to the existing background $PM_{2.5}$ concentration of 9.1 $\mu g/m^3$ (as reflected in the CRRP-HRA model),[101] the combined $PM_{2.5}$ concentration would increase to 9.2 $\mu g/m^3$. While background $PM_{2.5}$ concentrations for some receptors already exceed 9.0 $\mu g/m^3$ and are thus in the APEZ due their location within a Health Vulnerability zip code, the addition of project-related construction emissions would not exceed the significance threshold of 0.2 $\mu g/m^3$.

With implementation of controls specified in Mitigation Measure M-AQ-1a (Construction Emissions Minimization), the project's net construction-related $PM_{2.5}$ contributions would decrease slightly (<0.1 $\mu g/m^3$), such that the combined $PM_{2.5}$ level would remain at 9.2 $\mu g/m^3$.

When the project's future operational $PM_{2.5}$ contributions/reductions (2023 to 2045) of -0.2 to 0.1 $\mu g/m^3$ (at the receptors with the lowest and highest contributions from the project) are added to background $PM_{2.5}$ concentrations of 8.9 $\mu g/m^3$, $PM_{2.5}$ levels would increase to a maximum of 9.0 $\mu g/m^3$.

[100] Ramboll Environ, *Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR*, March 2017. A copy of this document is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2015.000644ENV.

[101] The CRRP-HRA takes into account the cumulative contribution of localized health risks to sensitive receptors from sources included in the city-wide modeling, which includes stationary sources such as diesel-fueled standby generators within 1 km of the project and major roadways (carrying over 10,000 vehicles per day, as defined by the BAAQMD). In addition, project-related operational PM2.5 emissions are adjusted for **c**ontributions from existing stationary sources at the SEP that were not included in the CRRP-HRA.

TABLE 4.8-12
PROJECT-RELATED $PM_{2.5}$ CONCENTRATIONS –
PROJECT CONSTRUCTION AND OPERATION

Source	Maximum Annual $PM_{2.5}$ Concentrations ($\mu g/m^3$)[a]		
	Construction, With Project[b]	Construction, Mitigated[b]	Operational
CRRP-HRA Background $PM_{2.5}$[c]	9.1	9.1	8.9
Net Project $PM_{2.5}$ Concentrations[d]	<0.1	<0.1	0.1
Total Combined $PM_{2.5}$ Concentrations	9.2	9.2	9.0
Cumulative Significance Thresholds[e]	9.0/10	9.0/10	9.0/10
Do Total Combined Emissions Exceed Cumulative Thresholds?	Yes/No	Yes/No	No/No
Project-Level Significance Thresholds[f]	0.2/0.3	0.2/0.3	0.2/0.3
Do Total Project Emissions Exceed Project-Level Thresholds?	No/No	No/No	No/No

NOTES:
CRRP-HRA = San Francisco Community Risk Reduction Plan Health Risk Assessment; $PM_{2.5}$ = particulate matter of 2.5 microns in diameter or less; $\mu g/m^3$ = micrograms per cubic meter
Numbers in parentheses (x) indicate a reduction in emissions.

[a] $PM_{2.5}$ concentration is reported as a maximum annual value. Since $PM_{2.5}$ concentrations are evaluated over a shorter period (annually), the construction-related and operational impacts are evaluated separately for $PM_{2.5}$. For Construction, the concentration is reported for Year 4, which is the construction year with the highest $PM_{2.5}$ concentration. For Operational impacts, $PM_{2.5}$ concentration is reported for the maximum year, which is during performance testing in 2023.

[b] For construction emissions, the "With Project" case assumes use of Tier 2 equipment with diesel particulate filters (DPFs), as required by the San Francisco Clean Construction Ordinance. With implementation of Mitigation Measure M-AQ-1a, the "Mitigated" case assumes use of Tier 4 Final equipment for all equipment greater than or equal to 140 horsepower. Equipment less than 140 horsepower is assumed to be Tier 2 equipment with a DPF. "Mitigated" emissions also assume(a) use of renewable diesel for all diesel off-road equipment and on-road diesel haul trucks and (b) that 80 percent of haul trucks would have 2010 or newer engines.

[c] The background levels for $PM_{2.5}$ concentrations from existing nearby stationary sources were obtained from the San Francisco Community Risk Reduction Plan (CRRP-HRA) geodatabase. The background levels are different for the construction and operational scenarios since the maximally-exposed individual sensitive receptors (MEISRs) are at different locations.

[d] The $PM_{2.5}$ concentrations from the existing operational sources were adjusted from the value calculated in the San Francisco Risk Reduction Plan (CRRP-HRA) by modeling the existing operational sources in their actual locations and adding building downwash. These sources are proposed to be replaced by project facilities; therefore, this adjusted value was subtracted from project-related $PM_{2.5}$ concentrations to calculate net project $PM_{2.5}$ concentrations.

[e] The lower cumulative significance thresholds for $PM_{2.5}$ concentrations are applied to sensitive receptors within Air Pollutant Exposure Zones (APEZs) and also in Health Vulnerability areas (as indicated by zip code 94124), while the higher thresholds represent cumulative thresholds specified for areas within APEZs but outside Health Vulnerability zip codes.

[f] The lower project-level significance thresholds for $PM_{2.5}$ concentrations represent thresholds specified for Health Vulnerability areas (as indicated by specified zip codes) within APEZs, while the higher thresholds represent thresholds specified for areas within APEZs but outside Health Vulnerability zip codes.

SOURCE: Ramboll Environ, *Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR*, March 2017.

In order to determine whether the project's construction-related or operational contributions to background levels are considered significant, the project's contribution must be compared to the project-level significance thresholds for $PM_{2.5}$ concentrations. When compared to both the 0.2 and 0.3 $\mu g/m^3$ project-level threshold levels for $PM_{2.5}$ for sensitive receptors located within and outside of the APEZ (and within and outside the Health Vulnerability zip code 94124), respectively, the project's construction-related and operational $PM_{2.5}$ concentrations would be less than significant since construction-related and operational concentrations, with and without Mitigation Measure M-AQ-1a would not exceed either threshold level.

Summary of Impact AQ-3

Both construction and operation of the project would generate emissions of $PM_{2.5}$ and toxic air contaminants, including DPM. Project-related construction and operational emissions increases would not expand APEZ boundaries or create new APEZs. The project-specific HRA indicated that the project's net construction-related and operational cancer risk as well as $PM_{2.5}$ concentrations would not exceed significance thresholds at sensitive receptors within 1 km of the BDFP site. Therefore, the project's impact would be ***less than significant***.

Mitigation: None required.

Consistency with Clean Air Plan – Project Construction and Operation

Impact AQ-4: The project's construction-related air pollutant emissions could conflict with, or obstruct implementation of, the *2010 Clean Air Plan*. (Less than Significant with Mitigation)

The most recently adopted air quality plan in the SFBAAB is the BAAQMD's *2010 Clean Air Plan*. The *2010 Clean Air Plan* is a road map showing how the San Francisco Bay Area will achieve compliance with the state 1-hour ozone standard as expeditiously as practicable, and how the region will reduce transport of ozone and ozone precursors to neighboring air basins. The primary goals of the *2010 Clean Air Plan* are to (1) reduce emissions and decrease concentrations of harmful pollutants, (2) safeguard the public health by reducing exposure to air pollutants that pose the greatest health risk, and (3) reduce GHG emissions. To meet the primary goals, the *2010 Clean Air Plan* recommends specific control measures and actions. These control measures are grouped into various categories and include stationary and area source measures, mobile source measures, transportation control measures, land use measures, and energy and climate measures. The *2010 Clean Air Plan* recognizes that, to a great extent, community design dictates individual travel mode, and that a key long-term control strategy to reduce emissions of criteria pollutants, air toxics, and GHGs from motor vehicles is to channel future Bay Area growth into vibrant urban communities where goods and services are close at hand and people have a range of viable transportation options.

Project Relationship to 2010 Clean Air Plan Control Measures

The *2010 Clean Air Plan* includes 55 control measures aimed at reducing air pollution in the SFBAAB. The control measures most applicable to the project are the stationary source control measures and land use and local impact measures, which are intended to reduce public health impacts associated with air pollution, as well as the energy and climate measures, which reduce air pollutant and GHG emissions by promoting energy efficiency and renewable energy production. The project's relationship to applicable *2010 Clean Air Plan* control measures is as follows:

- **Mobile Source Control Measures.** The *2010 Clean Air Plan* includes 10 mobile source measures (MSMs) that reduce emissions by accelerating the replacement of older, dirtier vehicles and equipment through programs such as the BAAQMD's Vehicle Buy-Back and Smoking Vehicle programs, and promoting advanced technology vehicles that reduce emissions of criteria pollutants and/or GHGs. Since the CARB is responsible for establishing statewide motor vehicle emissions standards and fuel specifications, implementation of the 10 MSMs relies

heavily upon incentive programs, such as the Carl Moyer Program and the Transportation Fund for Clean Air, to achieve voluntary emission reductions in advance of, or in addition to, CARB requirements. Of the 10 MSMs, three would pertain to the project. One measure relates to use of off-road construction equipment (MSM C-1, Construction and Farming Equipment), while two relate to use of on-road heavy duty vehicles (MSM B-1, HDV Fleet Modernization, and MSM B-2, Low NOx Retrofits for In-Use Engines). MSM C-1 calls for incentives to retrofit construction equipment with DPM filters or upgrade to Tier 3 or 4 engines and use of renewable alternative fuels in applicable equipment. MSM B-1 encourages replacement or retrofit of on-road heavy-duty diesel engines in advance of CARB regulatory requirements, while MSM B-2 encourages installation of retrofit devices that reduce NOx emissions for older heavy-duty engines (model years 1994-2006). The project would be consistent with MSM C-1 because construction equipment associated with the project would be equipped with DPM filters, as required by the Clean Construction Ordinance. With implementation of Mitigation Measure M-AQ-1a, the project would be consistent with MSM B-1 and B-2 because the SFPUC or its contractors would be required to implement the following measures: (1) equipment with engines greater than 140 horsepower would meet Tier 4 Final standards; (2) equipment with engines less than 140 horsepower would meet Tier 2 standards and be equipped with DPFs consistent with the Clean Construction Ordinance; (3) at least 80 percent of haul trucks used would have 2010 or newer engines; and (4) all diesel-powered haul trucks, off-road equipment, and on-road vehicles would use renewable diesel. Therefore, with implementation of Mitigation Measure M-AQ-1a, the project would be consistent with these *2010 Clean Air Plan* control measures.

- **Stationary Source Control Measures.** The project includes stationary sources, and the *2010 Clean Air Plan* includes stationary source control measures (SSMs) to enhance the BAAQMD's regulatory program. The BAAQMD's regulatory program includes the New Source Review program and the Air Toxics Hot Spots program. Measures SSM 17 (Revise Regulation 2, Rule 2: New Source Review) and SSM 18 (Revise Regulation 2, Rule 5: New Source Review for Air Toxics) support implementation of more stringent requirements through these programs based on revisions to OEHHA risk factors and methodologies. This analysis uses the more stringent 2015 OEHHA guidance in evaluating the project's health risks and hazards. As indicated in Impact AQ-3, the project's stationary source emissions would not exceed the more stringent thresholds outlined in the 2015 OEHHA guidance, indicating the project's consistency with these *2010 Clean Air Plan* control measures.

- **Land Use and Local Impact Measures.** The *2010 Clean Air Plan*'s land use and local impact measures include establishing appropriate CEQA significance thresholds (Measure LUM 3, Enhanced CEQA Program) and establishing a system to track cumulative health risks from all emissions sources in impacted communities (as identified by the BAAQMD's Community Air Risk Evaluation [CARE] program) in order to monitor progress in reducing population exposure (Measure LUM 5, Reduced Risk in Impacted Communities). As part of the CARE program, communities most affected by air pollution are identified. In support of this program, the City completed the CRRP which included a city-wide HRA, described above in Section 4.8.3.2. The CRRP-HRA provides the basis for the designation of APEZs in San Francisco and establishes more stringent criteria for projects located within these zones. Designation of APEZs and application of more stringent criteria in these areas in identifying the project's health risk impacts as less than significant reflect the project's consistency with the *2010 Clean Air Plan*'s land use and local impact measures, which are intended to protect public health and reduce health risks in impacted communities.

The BAAQMD designates eastern San Francisco as a CARE impacted community, and the project is located within this area. Most of the designated APEZs and Health Vulnerability zip codes are located within the CARE community boundary identified by the BAAQMD as eastern San Francisco. Projects within APEZs are subject to more stringent project-level significance thresholds for excess cancer risk and $PM_{2.5}$ concentrations, and this analysis uses these more stringent significance thresholds in determining the significance of the project's health risks and hazards and reducing the project's impact to be consistent with these threshold levels.

- **Energy and Climate Measures.** The *2010 Clean Air Plan*'s energy and climate measures (Measures ECM 1, Energy Efficiency, and ECM 2, Renewable Energy) promote energy efficiency and renewable energy for purposes of both air quality and climate protection. With respect to energy efficiency and renewable energy, the project would result in an increase in energy demand, but this increase would be offset by the project's increased energy generation from digester gas and the provision of solar panels (ultimately resulting in a surplus of energy), efficiency and conservation (see Section 4.18, Mineral Resources, Energy Resources, and Water Use, Impact ME-2, for more discussion). In addition, the project would directly increase production of renewable energy from digester gas and indirectly increase utilization of renewable energy by making more renewable energy from hydropower available to other Hetch Hetchy hydropower customers (see Section 4.9, Greenhouse Gas Emissions, Impact C-GG-1, for more discussion).

Examples of projects that could cause the disruption or delay of these *2010 Clean Air Plan* control measures are projects involving stationary sources that would be allowed to exceed threshold levels in APEZs and Health Vulnerability zip codes, or projects that would preclude transit improvements such as the extension of a transit line or bike path.

The project's operational criteria pollutant and TAC emissions would not exceed threshold levels, and project implementation would not preclude the extension of a transit line or a bike path or any other transit improvement. However, the project's construction-related NOx emissions would exceed threshold levels during all five years of construction, a significant impact. With implementation of Mitigation Measures M-AQ-1a (Construction Emissions Minimization) and M-AQ-1b (Emissions Offsets) combined, NOx emissions would be reduced and/or offset, but not necessarily to a less-than-significant level for the reasons stated in Impact AQ-1 (uncertainty of availability of sufficient offset opportunities; reliance on an agreement with a third party). Although construction-related NO_x emissions are considered to be significant and unavoidable with mitigation in Impact AQ-1, this significance determination does not necessarily indicate a significant conflict with the *2010 Clean Air Plan*. The project's consistency with the *2010 Clean Air Plan* is determined by other factors such as a project's consistency with pertinent measures, as described above. Based on the project's consistency with these measures, the project would not conflict with or obstruct implementation of the *2010 Clean Air Plan* because it would not hinder the plan's ability to meet its primary goals to reduce emissions and harmful pollutants, safeguard public health, and reduce GHG emissions.

Project Relationship to Draft 2017 Clean Air Plan Control Measures

In January 2017, the BAAQMD released the Draft *2017 Clean Air Plan* for public review.[102,103] The plan's primary goals are to protect public health and protect the climate. The plan includes a wide range of proposed control measures, which consist of actions to reduce combustion-related activities, decrease fossil fuel combustion, improve energy efficiency, and decrease emissions of potent GHGs. Numerous measures address reduction of several pollutants: ozone precursors, particulate matter, air toxics, and/or GHGs. Other measures focus on a single type of pollutant, potent GHGs such as methane and black carbon, or harmful fine particles that affect public health. Of the 84 control measures outlined in Draft *2017 Clean Air Plan*, draft stationary source control measures that pertain to the project include the following:

- SS23, Digester Gas Flares, which calls for development of a new BAAQMD rule to reduce NOx from non-refinery flares and investigate the potential for more stringent limits on emissions from non-refinery flares. Implementation of the project would reduce flaring of digester gas through provision of an energy recovery facility, which would be consistent with this draft control measure (see Section 4.9, Greenhouse Gas Emissions, Impact C-GG-1, for more discussion).

- SS21, New Source Review for Toxics, which was approved in December 2016, revised BAAQMD Rule 2-5, New Source Review of Toxic Air Contaminants, and the BAAQMD's HRA trigger levels for each TAC using the OEHHA's 2015 Health Risk Assessment Guidelines and CAPCOA's 2015 Risk Management Guidance. As indicated above, this analysis uses the more stringent 2015 OEHHA guidance in evaluating the project's health risks and hazards. As indicated in Impact AQ-3, the project's stationary source health impacts would not exceed thresholds outlined in the 2015 OEHHA guidance and therefore the project's impact on health risks would be less than significant, reflecting the project's consistency with this draft control measure.

Draft transportation (mobile source) control measures that pertain to the project include the following:

- TR19, Medium- and Heavy-Duty Trucks, directly provides and encourages organizations to provide incentives for purchasing new trucks that exceed the CARB's 2010 NOx emission standards for heavy-duty vehicles, new hybrid trucks, and new zero-emission trucks. With implementation of Mitigation Measure M-AQ-1a, which would require that at least 80 percent of haul trucks have 2010 or newer engines, the project would be consistent with this draft control measure.

- TR22, Construction and Farming Equipment, which provides incentives for early deployment of electric, Tier 3 and Tier 4 off-road engines used in construction equipment. With implementation of Mitigation Measure M-AQ-1a, the project would be consistent with this draft control measure.

[102] BAAQMD, *Draft 2017 Clean Air Plan, Spare the Air, Cool the Climate*, 2017. Available online at http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/baaqmd_2017_cap_draft_122816-pdf.pdf?utm_campaign=CAP+2017+Draft&utm_medium=email&utm_content=article3_link1. Accessed on January 13, 2017.

[103] On April 19, 2017, the BAAQMD approved the 2017 CAP, but at that time, the Draft EIR text was going to print. If the final 2017 CAP differs from the draft 2017 CAP described in the Draft EIR, the relevant updates will be reflected in the Final EIR.

Draft water control measures that pertain to the project include the following:

- WR1, Limit GHGs from POTWs (publicly owned treatment works), which calls for initiating a process to better understand and quantify GHG emissions at POTWs, exploring rulemaking to reduce GHG emissions from POTWs, and promoting the use of digester gas recovery systems at POTWs. The project's proposed energy recovery facility would be consistent with this control measure.

The project's operational criteria pollutant and health impacts would not exceed threshold levels (consistent with 2015 OEHHA guidance), and Mitigation Measures M-AQ-1a and M-AQ-1b would require the project to reduce construction-related emissions or offset excess emissions so that they do not exceed significance thresholds. Construction-related health impacts would not exceed thresholds. With implementation of these mitigation measures, the project would not conflict with or obstruct implementation of the Draft *2017 Clean Air Plan* because it would not hinder the draft plan's ability to meet its primary goals to protect public health and the climate.

Summary of Impact AQ-4

The project would be consistent with the adopted *2010 Clean Air Plan* and Draft *2017 Clean Air Plan* because it would not hinder either plan in meeting its primary goals. Additionally, with implementation of Mitigation Measures M-AQ-1a and M-AQ-1b, the project would be consistent with the *2010 Clean Air Plan*'s control measures, including mobile/stationary source measures, land use/local impact measures, and energy/climate measures, as well as the Draft *2017 Clean Air Plan's* transportation, stationary source, and water control measures. Therefore, the mitigated project would not conflict with or obstruct implementation of the *2010 Clean Air Plan,* and the impact would be ***less than significant with mitigation***.

> **Mitigation Measures M-AQ-1a. Construction Emissions Minimization and M-AQ-1b. Emission Offsets** (see Impact AQ-1).

Odors During Project Construction and Operation

Impact AQ-5: Construction and operation of the BDFP facilities would not create objectionable odors that would affect a substantial number of people. (Less than Significant)

Odors During Project Construction

During construction, diesel exhaust from construction equipment would generate some odors at various locations within and around the project site vicinity. However, construction-related odors would be temporary and variable, depending on the construction activities, and would not persist upon project completion. In addition, the project would involve commonly used construction techniques and materials, which are not particularly odorous. Thus, construction activities would not be expected to create objectionable odors affecting a substantial number of people, and the impact would be less than significant.

Odors During Project Operation

Decommissioning of Existing Facilities

Following construction, there would be a 24-month period during which the new and the existing biosolids treatment systems would be commissioned and decommissioned, respectively. The decommissioning of existing solids handling facilities would involve (among other things) emptying, cleaning, and disconnecting existing structures. Facilities and equipment at the SEP are periodically emptied and cleaned, either as part of regularly scheduled maintenance activities or to address equipment failure, and several odor incidents at the SEP have been linked to such activities.[104] Similarly, decommissioning of existing solids handling equipment could also result in odor incidents. The SFPUC would continue existing practices to limit the potential for odors to emanate off-site during emptying and cleaning operations (e.g., washdown of exposed sludge, application of a layer of water to act as an odor barrier) as well as continue ongoing monitoring and odor incident response practices. Unlike some previous odor incidents that have been associated with digester cleanout in response to equipment failure, the proposed facility decommissioning and associated odor control measures and preventive action(s) would be planned in advance and implemented to minimize the potential for odor problems. Therefore, decommissioning activities would not be expected to create objectionable odors that could affect a substantial number of people, and the impact would be less than significant.

Full Operation – Proposed Facilities

Changes in Existing and Proposed Facilities Associated with Odor. As described in Section 4.8.1.6, SEP solids treatment facilities are an existing source of odors in the vicinity of the SEP. The project would replace the existing solids treatment system with new biosolids handling facilities at a new location farther away from residences. For comparison, under existing conditions, residences are less than 100 feet from the digesters. With the project, the proposed Solids Pretreatment Facility (the closest solids handling facility to residences) would be approximately 900 feet from the nearest residence on Phelps Street. Similarly, digester gas handling facilities would be located approximately 1,000 feet from the nearest residences (refer to Figure 2-5 in Chapter 2, *Project Description*), compared to approximately 200 feet under current conditions. As described in Chapter 2, Section 2.4.1.6, the BDFP includes the Solids Odor Control Facility. All of the solids treatment facilities identified as an existing odor source (see Table 4.8-3) or otherwise associated with an odor incident (see Table 4.8-4) would be taken out of service and replaced with new facilities, and all new odor sources would be served by the new Solids Odor Control Facility. Figure 2-7 in Chapter 2 depicts the specific unit processes (e.g., thickening, screening) from which odorous air would be collected via a system of ducts and fans, and subsequently treated.

Proposed Odor Control. As indicated in Section 4.8.3.2, the SFPUC adopted goals for the BDFP that odor control facilities would be designed to meet the 5 D/T design criterion with 99 percent compliance based on a 1-hour average.[105] The Solids Odor Control Facility is being designed to contain, treat, and disperse odors to meet this goal. The proposed odor control system would have

[104] Examples include cleanout of clarifiers and maintenance of a heat exchanger at Building 620 (Digester Group 1 Control Building).
[105] SFPUC, *Biosolids Digester Facilities Project Alternatives Analysis Report*, December 2014.

redundant features to help the BDFP meet the off-site odor goals during both routine maintenance and accidental shutdowns.[106] In addition, fans and ductwork would be slightly oversized to account for any future increases in odorous airflows. The specific odor control technologies proposed as part of the BDFP are described in **Table 4.8-13** and include carbon adsorption with potassium permanganate, biofiltration, and ammonia scrubbers. The SFPUC selected these technologies in part because of their low risk of odor break-through, technology maturity, and reliability.[107] In its guidance to Bay Area agencies regarding air quality improvement methods, the BAAQMD identifies carbon adsorption, biofiltration, and ammonia scrubbers as effective methods to reduce odor impacts from wastewater treatment plants.[108] For the BDFP Solids Odor Control Facility, overall removal performance is estimated to be 99.98 percent removal of H_2S and 98.5 percent removal of general odor.[109]

Odor Modeling Results. The BDFP odor control facilities would be designed and constructed to meet the project's design standard of 5 D/T with 99 percent compliance based on a 1-hour average, and considering the demonstrated success of the proposed BDFP odor control technologies at other facilities, odors from the BDFP facilities are not expected to extend beyond the SEP boundary. Dispersion modeling was completed for the BDFP as part of the Odor Characterization Report to confirm the effectiveness of odor controls using the CALPUFF model (see Section 4.8.1.6, above for description). The modeling results determined that there would be no exceedances of the project's 5 D/T 99 percent design standard over five years outside the SEP boundary from BDFP sources. The maximum odor was found to be 3 D/T, which would occur along the western SEP property boundary near the railroad tracks. The modeling demonstrates that, in addition to meeting the BDFP's goal to limit odors to within the SEP's fence line, the project would also improve existing odor conditions.[110]

Future Monitoring. As part of proposed future operations, the potential for odor nuisance would also be reduced for BDFP facilities by odor monitoring for internal SFPUC operations and maintenance purposes and responding proactively to the monitoring data with odor control practices. The new odor control units proposed as part of the BDFP would also be subject to monitoring requirements and conditions in the BAAQMD's Permit to Operate (discussed in Section 4.8.2.3) for the purpose of abating any public nuisance from odors.

[106] The biofilter is split into three modules or cells to allow for uninterrupted ventilation and treatment when one cell is out of service for media replacement or maintenance. Exhaust fans would be provided with a standby unit such that if one exhaust fan fails or must be removed for maintenance, the standby unit would provide uninterrupted operation. The adsorption polishing units also would have a redundant unit, allowing for uninterrupted ventilation and treatment when one unit is down for media replacement or maintenance.

[107] San Francisco Water Power Sewer, Sewer System Improvement Program – Odor Control Fact Sheet, December 2014.

[108] BAAQMD, *BAAQMD CEQA Air Quality Guidelines*, adopted May 2011, updated May 2012, pages 7-3 to 7-4. Available online at http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines_Final_May%202012.ashx?la=en.

[109] San Francisco Water Power Sewer, Sewer System Improvement Program – Odor Control Fact Sheet, December 2014.

[110] CH2M Hill and Brown and Caldwell, Final Southeast Plant Odor Characterization Report, Section 5.2.2 Solid Process Sources, December 2015, *in* SFPUC, Final Biosolids Digester Facilities Project Conceptual Engineering Report, March 2016.

TABLE 4.8-13
BDFP PROPOSED ODOR CONTROL TECHNOLOGY

Technology	Description of Odor Control Technologies
Adsorption vessels - combination of virgin carbon and potassium permanganate blend	• ***Carbon adsorption*** uses activated carbon as the adsorption medium to remove odors, gases, and other VOCs. Activated carbon has a complex pore structure with a very large surface area. Odorous compounds are transferred from the air being treated to the surface of the carbon as the air is forced through the carbon bed. There is a physical attraction between the compound and the carbon that causes a bonding. The odor compounds will continue to adsorb onto the surface of the carbon until all the pore space in the carbon is used up, at which point odors will break through and the carbon has to be replaced (or reused after regeneration: restoring the adsorption capacity of the saturated activated carbon).[a] Chemical treatment using ***potassium permanganate*** is used to enhance the adsorbing properties of carbon. Potassium permanganate is an inorganic chemical compound that is a strong oxidizing agent. It removes contaminants and impurities by chemisorption.[b]
Biofilters - engineered media	• ***Biofiltration*** uses biological oxidation as the treatment mechanism. Microorganisms in media oxidize odor and air emission compounds, producing carbon dioxide, water, biomass, and benign by-products (i.e., chloride, sulfate). Biofilters work by routing odorous air through a porous filter media. The media functions as the contact surface area on which the microorganisms live and where the biological oxidation takes place.[c] The BDFP would use engineered media (as opposed to naturally occurring media such as lava rock or seashells), chosen for its known efficacy, odor removal efficiency, and preferable disposal interval. The microorganisms need water to remain active; the presence of water affects the transfer of the contaminants from the air to the media.
Ammonia scrubber tank and related equipment	• ***Ammonia scrubbers*** use packed bed adsorber to remove ammonia from a gas stream either by physical removal (injecting liquid into the air) or chemical removal (by chemical reaction). The Solids Odor Control Facility would include two ammonia scrubbers (one duty and one backup) primarily for removing ammonia gas produced during anaerobic digestion. Odorous air from post-digestion sources would flow through the ammonia scrubber before being routed to the biofilter and carbon adsorption media for additional odor removal. Due to the expected low vapor-phase ammonia levels at the BDFP, the proposed scrubber would primarily use water to remove ammonia with provision to use sulfuric acid to adjust pH and improve removal efficiency, if needed. Ammonia scrubbers are used by many industries to control emissions of ammonia gas, due to their demonstrated removal efficiencies of 99 percent.[d] In addition, low pH leachate from the biofilter would be used to lower pH at the ammonia scrubbers, resulting in reduced chemical use.

NOTES:
VOCs = volatile organic compounds; BDFP = Biosolids Digester Facilities Project

[a] CH2M Hill and Brown and Caldwell, Final Southeast Plant Odor Characterization Report, Section 5.2.2 Solid Process Sources, December 2015, *in* SFPUC, Final Biosolids Digester Facilities Project Conceptual Engineering Report, March 2016.
[b] Chemisorption is a process during which potassium permanganate media converts odorous air into harmless microscopic particles, which remain trapped in the media.
[c] Webster Environmental Associates, Inc., *Environmental and Odor Control Engineering*, January 2016.
[d] United States Environmental Protection Agency (USEPA), *Control and Pollution Prevention Options for Ammonia Emissions*, April 1995.

SOURCE: SFPUC, Final Biosolids Digester Facilities Project Conceptual Engineering Report, March 2016.

Summary of Impact AQ-5

Project construction activities would not be expected to create objectionable odors affecting a substantial number of people. During project operation, odors from the solids treatment facilities both inside and outside the SEP boundary are expected to improve compared to existing conditions. Based on the relocation of solids handling and digester gas handling facilities farther from sensitive receptors, design of proposed facilities, implementation of the proposed odor control features, and results of odor modeling, operation of the BDFP is not expected to create objectionable odors that would affect a substantial number of people, and this impact would be ***less than significant***.

Mitigation: None required.

Cumulative Impacts

As discussed above, regional air pollution is by its very nature a cumulative impact. Emissions from past, present, and future projects contribute to the region's adverse air quality on a cumulative basis. No single project by itself would be sufficient in size to result in regional non-attainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulative adverse air quality impacts.[111] The project-level thresholds for criteria air pollutants are based on levels by which new sources are not anticipated to contribute to an air quality violation or result in a considerable net increase in criteria air pollutants. For these reasons, the geographic scope of the cumulative impact analysis of criteria air pollutant emissions encompasses the SFBAAB.

Impact C-AQ-1a: Construction of the project, in combination with other past, present, and probable future projects, would result in a cumulatively considerable net increase in criteria air pollutants and contribute to cumulative regional air quality impacts. (Significant and Unavoidable with Mitigation)

Regional air pollution is by its very nature a cumulative impact. Emissions from past, present, and future projects contribute to the region's adverse air quality on a cumulative basis. No single project by itself would be sufficient in size to result in regional nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulative adverse air quality impacts.[112] The project-level thresholds for criteria air pollutants are based on levels by which new sources are not anticipated to contribute to an air quality violation or result in a considerable net increase in criteria air pollutants.

The project's construction-related criteria pollutant emissions would exceed the project-level threshold for NO_x, but would not exceed thresholds for other criteria pollutants (ROG, PM_{10}, and $PM_{2.5}$). With implementation of Mitigation Measure M-AQ-1a, the project's construction-related criteria air pollutant emissions (Impact AQ-1) would still exceed the project-level thresholds for NO_x for the first and third years of construction. Implementation of Mitigation Measure M-AQ-1b (Emission Offsets) could offset the residual NO_x emissions to below significance thresholds during these two construction years, but

[111] BAAQMD, *CEQA Air Quality Guidelines,* May 2011, page 2-1.
[112] Ibid.

construction-related NO_x emissions are considered significant and unavoidable with mitigation for reasons stated above (uncertainty of availability of sufficient offset opportunities; reliance on an agreement with a third party). Likewise, the project would also be considered to result in a cumulatively considerable contribution to regional air quality impacts even with implementation of mitigation measures identified for Impact AQ-1, and the cumulative impact is also considered significant and unavoidable with mitigation for the first and third years of construction, and less than significant with mitigation for all other construction years. Because the project's criteria pollutant emissions could result in a cumulatively considerable contribution to regional air quality impacts during the first and third years of construction, the cumulative impact of construction-related criteria pollutant emissions is considered ***significant and unavoidable with mitigation***.

Mitigation Measures M-AQ-1a. Construction Emissions Minimization and M-AQ-1b. Emission Offsets (see Impact AQ-1)

Impact C-AQ-1b: Operation of the project, in combination with other past, present, and probable future projects, would not result in a cumulatively considerable net increase in criteria air pollutants nor contribute to cumulative regional air quality impacts. (Less than Significant)

The project's net operational criteria pollutant emissions would not exceed threshold levels (Impact AQ-2), and therefore, the project also would not result in a cumulatively considerable contribution to regional air quality impacts, a ***less-than-significant*** impact.

Mitigation: None required

Impact C-AQ-2: Construction and operation of the project, in combination with other past, present, and probable future projects, would generate toxic air contaminants, including diesel particulate matter, but would not expose sensitive receptors to substantial air pollutant concentrations or result in a cumulatively considerable net increase in health risks and hazards. (Less than Significant)

The geographic scope of analysis of cumulative localized air pollutant exposure impacts from TAC emissions encompasses existing and new emissions sources (including diesel-fueled standby emergency generators) located within approximately 1 km of the project site. These emissions sources include those modeled in the CRRP-HRA as well as additional on- and off-site projects modeled specifically for the BDFP.[113] Although a zone encompassing TAC emission sources within a distance of 1,000 feet is typically applied,[114] a distance of 3,281 feet (1 km) from the project site and major roadways (carrying over 10,000 vehicles per day, as defined by the BAAQMD) was applied to be consistent with the CRRP methodology.

[113] On-site emissions sources modeled as part of the cumulative analysis include both construction-related and operational future sources of emissions that are expected to occur at the SEP, which are not included in the CRRP-HRA. Off-site emissions sources modeled for the BDFP cumulative analysis include construction projects within the vicinity of the SEP. (See footnotes 116 and 116 for listing of the projects evaluated.)

[114] Beyond 1,000 feet, the CARB has found that ground-level TAC emissions return to background levels. (California Air Resources Board, *Air Quality and Land Use Handbook: A Community Health Perspective,* April 2005, page C-3. Available online at http://www.arb.ca.gov/ch/handbook.pdf.)

As discussed above, the project site is located in an APEZ, which indicates that the area already experiences poor air quality. In addition to the project, there are 10 other SFPUC projects at the SEP ("on-site cumulative projects")[115] and 10 more projects located outside of the SEP boundary and within 1 km of the project ("off-site cumulative projects").[116] These projects have either been recently completed, are currently under construction, or are planned to be constructed so that their construction or operation could coincide with the construction or operation of the BDFP. The methodologies used to evaluate emissions for the project's construction and operational health risks as well as its contribution to cumulative health risks are the same as those used in Impact AQ-3, and they are based on the most recent guidance provided by the BAAQMD and other sources.[117]

Cancer Risk

Table 4.8-14 presents the cumulative cancer risks at nearby sensitive receptors from exposure to TAC emissions from the project in combination with existing sources within the 0.6-mile (1-km) area[118] as well as other cumulative projects. As indicated in this table, the maximum cumulative excess cancer risk is estimated as 166 cases per million persons exposed (the range of minimum to maximum excess cancer risk is 70 to 166 cases per million). The combined excess cancer risk at some receptors would exceed both 90 per million (within APEZ and Health Vulnerability zip code 94124) and 100 per million (within APEZ but outside this zip code), indicating a significant cumulative impact. With implementation of controls specified in Mitigation Measures M-AQ-1a (Construction Emissions Minimization, not required to reduce this impact but required to reduce Impact AQ-1), the cumulative net excess cancer risk would decrease to between 70 and 111 cases per million persons exposed at some receptors, and would still be in the APEZ. In order to determine whether the project's construction and operational contributions to the excess cancer risk are considered cumulatively considerable, the project's contribution must be compared to the project-level significance thresholds for cancer risk. When compared to both the 7.0 and 10 per million excess cancer risk thresholds for sensitive receptors located within and outside the APEZ, respectively, the project's excess cancer risk of <0.1 to 3.4 per million (and <0.1 to 1.7 per million with Mitigation

[115] The 10 other SFPUC on-site cumulative projects are SEP Headworks Replacement; SEP Chemical System Relocation and Facilities Upgrades; SEP Existing Digester Roof Repairs; SEP Building 521 Replacement/522 Disinfection Upgrade; SEP Power Feed and Primary Switchgear Upgrades; SEP Primary/Secondary Clarifier Upgrades; SEP Seismic Reliability and Condition Assessment Improvements; SEP Oxygen Generation Plant Replacement; Demolition of the Existing SEP Digesters and Southside Renovation Project; and Southeast Greenhouses Demolition located to the south of the project. Refer to Table 4.1-1 in Section 4.1, Overview, and Table 17 of the AQTR for more information on these projects.

[116] The 10 off-site cumulative projects are Central Bayside System Improvement Project; Central Shops Relocation and Land Reuse; Land Reuse – 1801 Jerrold Avenue; Kansas and Marin Streets Sewer Improvements; Southeast Outfall Islais Creek Crossing Replacement; Quint Street Bridge Replacement Project; Quint-Jerrold Connector Road; San Francisco Wholesale Produce Market Expansion; 1995 Evans Avenue; and Quint Street Lead Track. Refer to Table 4.1-1 in Section 4.1, Overview, and Table 17 of the AQTR for more information on these projects.

[117] BAAQMD, *Recommended Methods for Screening and Modeling Local Risks and Hazards*, May 2012. Available online at http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf. Accessed on April 6,2017. ; Bhatia, Rajiv and Thomas Rivard, San Francisco Department of Public Health (SFDPH), *Assessment and Mitigation of Air Pollutant Health Effects from Intra-urban Roadways: Guidance for Land Use Planning and Environmental Review,* May 6, 2008, page 17; SFDPH, *Memorandum to File regarding 2014 Air Pollutant Exposure Zone Map,* April 9, 2014*;* BAAQMD, SFDPH, San Francisco Planning Department*, The San Francisco Community Risk Reduction Plan: Technical Support Documentation,* December 2012.

[118] Long-term cancer risk is evaluated at sensitive receptors and the maximum impact is at the MEISR.

Measure M-AQ-1a) would not exceed either threshold level, indicating that the project's contribution would be less than cumulatively considerable, a less-than-significant impact.

TABLE 4.8-14
CUMULATIVE LIFETIME CANCER RISKS

Source	Lifetime Excess Cancer Risks[a] (Cases Per Million)	
	With Project[b]	**Mitigated[b]**
Net Project Excess Cancer Risk (Construction + Operation – Existing)[c]	3.4	1.7
Cumulative Projects[d]	61	24
Adjusted CRRP-HRA Background[e]	102	85
Total Cumulative Excess Cancer Risk	166	111
Cumulative Significance Thresholds[f]	90/100	90/100
Do Total Cumulative Emissions Exceed Cumulative Thresholds?	Yes/Yes	Yes/Yes
Project-Level Significance Thresholds[g]	7.0/10	7.0/10
Do Total Project Emissions Exceed Project-Level Thresholds?	No/No	No/No

NOTES:

CRRP-HRA = San Francisco Community Risk Reduction Plan Health Risk Assessment

[a] Excess lifetime cancer risks are estimated as the upper-bound incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens. The estimated risk is expressed as a unitless probability. The cancer risk attributed to the emissions associated with the project was calculated based on the modeled annual average pollutant concentrations, the intake factor for resident child, the Cancer Potency Factors (CPF) for all toxic pollutants emitted, and the Age Sensitivity Factors (ASF).

[b] Since cancer risks are evaluated over a 30-year exposure period, the construction-related and operational impacts are evaluated together. For construction emissions, the "With Project" case assumes use of Tier 2 equipment with diesel particulate filters (DPFs), as required by the San Francisco Clean Construction Ordinance. With implementation of Mitigation Measure M-AQ-1a (required to reduce Impact AQ-1), the "Mitigated" case assumes use of Tier 4 Final equipment for all equipment greater than or equal to 140 horsepower. Equipment less than 140 horsepower is assumed to be Tier 2 equipment with a DPF. "Mitigated" emissions also assume (a) use of renewable diesel for all diesel off-road equipment and on-road diesel haul trucks, and (b) that 80 percent of haul trucks would have 2010 or newer engines. The locations of the maximum project impacts are different for the "with project" and "mitigated" cases, which is why the background values are not the same for both.

[c] The adjusted cancer risk from the existing operational sources that would be decommissioned and replaced by project facilities was subtracted from project's risk to calculate the net project cancer risks.

[d] The excess lifetime cancer risk from additional projects at the Southeast Water Pollution Control Plant (SEP) and in the surrounding area (within 1,000 meters) that would be under construction during the construction and operation of the Biosolids Digester Facilities Project (BDFP) were estimated.

[e] The background cancer risk from existing nearby stationary sources was obtained from the CRRP-HRA geodatabase. The Community Risk Reduction Plan-Health Risk Assessment (CRRP-HRA) cancer risk values were calculated with the 2003 California Office of Environmental Health Hazard Assessment (OEHHA) health risk assessment guidance. The CRRP-HRA risk shown here was scaled by a calculated factor of 1.3744 to account for the revised 2015 OEHHA guidance for calculating excess cancer risk for a residential receptor. The CRRP-HRA cancer risk was also adjusted to include existing stationary sources at the SEP that were not modeled in the CRRP-HRA but would be removed with this project, including waste gas flares and the cogeneration engine. Additionally, the boilers, which are already in the CRRP-HRA, were remodeled in their exact locations and with building downwash to get an adjusted existing risk that is more comparable to project calculated risks. The locations of the maximum project impacts are different for the "with project" and "mitigated" cases, which is why the background values are not the same for both.

[f] The lower cumulative significance thresholds for excess cancer risk are applied to sensitive receptors within Air Pollutant Exposure Zones (APEZs) and also in Health Vulnerability areas (as indicated by zip code 94124), while the higher thresholds represent cumulative thresholds specified for areas within APEZs but outside Health Vulnerability zip codes.

[g] The lower project-level significance threshold for excess cancer risk represents the threshold specified for sensitive receptor locations within the APEZ under existing and cumulative conditions, while the higher threshold represents the threshold for sensitive receptor locations not within the APEZ under existing conditions but brought into the APEZ as a result of the project.

SOURCE: Ramboll Environ, *Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR*, March 2017.

$PM_{2.5}$ Concentrations

Table 4.8-15 presents the $PM_{2.5}$ emissions associated with the project in combination with existing sources within the 0.6-mile (1-km) area[119] as well as other cumulative projects. As indicated in this table, the cumulative construction-related $PM_{2.5}$ emissions (without and with implementation of Mitigation Measure M-AQ-1a: Construction Emissions Minimization, required to reduce Impact AQ-1) would increase by a maximum increment of <0.1 for a maximum cumulative total of 9.2 $\mu g/m^3$, which would exceed the 9.0 $\mu g/m^3$ threshold for sensitive receptors located within the APEZ in the Health Vulnerability zip code, indicating a significant cumulative impact. Across all receptors, the cumulative total would range from 8.2 to 9.2 $\mu g/m^3$ (receptor with the minimum project impact and maximum project impact). In order to determine whether the project's construction-related contributions to $PM_{2.5}$ are cumulatively considerable, the project's contribution was compared to the project-level significance thresholds for $PM_{2.5}$. When compared to both the 0.2 and 0.3 $\mu g/m^3$ $PM_{2.5}$ thresholds for sensitive receptors located within the APEZ as well as within and outside the Health Vulnerability zip code 94124, respectively, the project's $PM_{2.5}$ concentrations of <0.1 $\mu g/m^3$ would not be cumulatively considerable since it would not exceed either threshold level. Therefore, the project's construction-related $PM_{2.5}$ contributions to this cumulative impact are considered less than cumulatively considerable, a less-than-significant impact.

With respect to operational emissions, when the project's operational $PM_{2.5}$ emissions are considered with background $PM_{2.5}$ levels from existing sources within 0.6 mile of the BDFP site and other cumulative projects, cumulative operational $PM_{2.5}$ concentrations would increase to between 8.9 and 9.0 $\mu g/m^3$, which would not exceed either the 9.0 and 10.0 $\mu g/m^3$ $PM_{2.5}$ concentrations required for an area to be determined an APEZ. Therefore, the project's contribution would not be cumulatively considerable, a less-than-significant impact.

Summary of Impact C-AQ-2

Cumulative increases in excess cancer risk from the project in combination with background risks and other development would exceed the cumulative threshold of 90 per million and 100 per million, indicating a significant cumulative impact. However, since the project's combined construction-related and operational cancer risks (without and with Mitigation Measure M-AQ-1a, which is not required to reduce this impact but required to reduce Impact AQ-1) would not exceed the project-level thresholds of 7.0 per million and 10 per million, the project's contribution to the cumulative cancer risks is considered to be less than cumulatively considerable, a ***less-than-significant*** impact.

Cumulative $PM_{2.5}$ increases during construction would exceed the cumulative $PM_{2.5}$ threshold of 9.0 $\mu g/m^3$, indicating a significant cumulative impact. However, the project's construction-related contributions (without and with Mitigation Measure M-AQ-1a, which is not required to reduce this impact but required to reduce Impact AQ-1) to cumulative $PM_{2.5}$ levels within the APEZ would not exceed the project-level thresholds of 0.2 and 0.3 $\mu g/m^3$, and therefore the project's construction-related contribution to the cumulative $PM_{2.5}$ levels would not be cumulatively considerable, a ***less-than-significant*** impact. With respect to project operations, cumulative operational $PM_{2.5}$ emissions would

[119] Long-term $PM_{2.5}$ concentrations are evaluated at sensitive receptors and the maximum impact is at the MEISR.

TABLE 4.8-15
CUMULATIVE $PM_{2.5}$ CONCENTRATIONS

Source	Maximum Annual $PM_{2.5}$ Concentrations ($\mu g/m^3$)		
	Construction, With Project[a]	Construction, Mitigated[a]	Operational
Net Project PM2.5 Concentrations[b]	<0.1	<0.1	0.1
Cumulative Projects[c]	<0.1	<0.1	<0.1
CRRP-HRA Background PM2.5 Concentration[d]	9.1	9.1	8.9
Total Cumulative $PM_{2.5}$ Concentrations	9.2	9.2	9.0
Cumulative Significance Thresholds[e]	9.0/10	9.0/10	9.0/10
Do Total Cumulative Emissions Exceed Cumulative Thresholds?	Yes/No	Yes/No	No/No
Project-Level Significance Thresholds[f]	0.2/0.3	0.2/0.3	0.2/0.3
Do Total Project Emissions Exceed Project-Level Thresholds?	No/No	No/No	No/No

NOTES:

CRRP-HRA = San Francisco Community Risk Reduction Plan Health Risk Assessment; $PM_{2.5}$ = particulate matter of 2.5 microns in diameter or less; $\mu g/m^3$ = micrograms per cubic meter

[a] Since $PM_{2.5}$ concentrations are evaluated over a shorter period (annually), the construction-related and operational impacts are evaluated separately for $PM_{2.5}$. For construction emissions, the "With Project" case assumes use of Tier 2 equipment with diesel particulate filters (DPFs), as required by the San Francisco Clean Construction Ordinance. With implementation of Mitigation Measure M-AQ-1a (required to reduce Impact AQ-1), the "Mitigated" case assumes use of Tier 4 Final equipment for all equipment greater than or equal to 140 horsepower. Equipment less than 140 horsepower is assumed to be Tier 2 equipment with a DPF. "Mitigated" emissions also assume (a) use of renewable diesel for all diesel off-road equipment and on-road diesel haul trucks and (b) that 80 percent haul trucks would have 2010 or newer engines.

[b] The $PM_{2.5}$ from the existing operational sources was adjusted from the value calculated in the San Francisco Community Risk Reduction Plan (CRRP-HRA) by modeling the existing operational sources in their actual locations and adding building downwash. These sources would be replaced with project facilities; therefore, this adjusted value was subtracted from project concentrations to calculate a net project concentration.

[c] The $PM_{2.5}$ emissions from additional projects at the Southeast Water Pollution Control Plant (SEP) and in the surrounding area that would be under construction during construction and operation of the Biosolids Digester Facilities Project (BDFP) were estimated. The construction of the modeled cumulative projects was assumed to occur during both construction and operation of the project, so the $PM_{2.5}$ emissions were added to both project construction and operational impacts.

[d] The background $PM_{2.5}$ concentration from existing nearby stationary sources was obtained from the CRRP-HRA geodatabase. It is different for the construction and operational scenarios since the maximally exposed individual sensitive receptors (MEISRs) are at different locations.

[e] The lower cumulative significance thresholds for $PM_{2.5}$ concentrations are applied to sensitive receptors within Air Pollutant Exposure Zones (APEZs) and also in Health Vulnerability areas (as indicated by zip code 94124), while the higher thresholds represent cumulative thresholds specified for areas within APEZs but outside Health Vulnerability zip codes.

[f] The lower project-level significance thresholds for $PM_{2.5}$ concentrations represent thresholds specified for Health Vulnerability areas (as indicated by specified zip codes) within APEZs, while the higher thresholds represent thresholds specified for areas within APEZs but outside Health Vulnerability zip codes.

SOURCE: Ramboll Environ, *Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR*, March 2017.

also not exceed either the 9.0 and 10 $\mu g/m^3$ $PM_{2.5}$ project-level significance thresholds, and therefore the project's operational contribution to the cumulative $PM_{2.5}$ levels would not be cumulatively considerable, a ***less-than-significant*** impact.

Mitigation: None required.

Impact C-AQ-3: The project, in combination with past, present, and probable future projects, would not create objectionable odors that would affect a substantial number of people. (Less than Significant)

The geographic scope for cumulative odor impacts is the vicinity of the SEP. Cumulative odor impacts could occur if cumulative projects generated objectionable odors and affected a substantial number of people that would also be affected by the BDFP. Of the cumulative projects identified in Table 4.1-1 (in Section 4.1, Overview), the projects proposed at the SEP were evaluated for their potential to generate cumulative odor impacts; the remaining cumulative projects were determined to be either beyond the geographic scope for cumulative odor impacts and/or not to have the potential to generate odors. Factors considered include whether odor incidents have been attributed to the SEP facilities with which these projects are associated, and project characteristics, including whether odor control is part of the project's design. Based on this assessment, the potential for the cumulative project to change existing odor conditions was determined. **Table 4.8-16** depicts the results of the evaluation. As shown, none of the projects would be expected to worsen existing odor conditions and some projects are expected to improve odor conditions.

Of the projects proposed at the SEP, Projects 1 through 4, 7, 9, and 12 were initially deemed to have the potential to adversely affect future odor conditions based on their association with facilities identified as an odor source in the Odor Characterization Report (refer to Table 4.8-3) or with a history of odor incidents (refer to Table 4.8-4). Projects 1, 2, 3, and 7 each include a new odor control component in their design; as a result, these projects would be expected to improve existing odor conditions in the vicinity of the SEP. An objective of Project 1, SEP Headworks Replacement, includes maximizing control of odors and involves the replacement of structures associated with numerous odor emissions sources (refer to Table 4.8-3). While Project 12 (Demolition of the Existing SEP Digesters and Southside Renovation Project) does not include an odor control component and the existing digesters are an existing source of odors, the *decommissioning* of the digesters (including removal of all odor-producing solids, liquids, and gases) would occur as part of the BDFP (described above in Impact AQ-5) and prior to their demolition under Project 12. Implementation of the other projects at the SEP (Projects 4, 5, 6, 8, 9, 10, 11, and 13) is not expected to change existing odor conditions, based on available information on these projects. As odor conditions in the vicinity of the BDFP would either improve or remain unchanged, these projects combined would be expected to improve odor conditions in the vicinity and reduce the likelihood of SEP operations generating objectionable odors affecting a substantial number of people.

Dispersion modeling was conducted for the BDFP in combination with two other projects proposed at the SEP: SEP Headworks Replacement (Project 1 in Table 4.8-16), and SEP Primary/Secondary Clarifier Upgrades (Project 7 in Table 4.8-16). As shown in Table 4.8-16, these projects involve modifications to and/or demolition and replacement of multiple facilities associated with existing odor sources, the results of which are described in the Odor Characterization Report. **Figure 4.8-6** shows the exceedance plot (5 D/T, 99 percent compliance, 1-hour average) for the future scenario assuming the following: primary sedimentation basins would be covered and ventilated through a discharge stack without treatment (Project 7), headworks with odor control (Project 1), BDFP with odor control, and remaining existing SEP sources. As shown on Figure 4.8-6, the 99 percent compliance isopleth extends beyond the SEP fence line primarily toward the north and northeast of

TABLE 4.8-16
PROJECTS CONTRIBUTING TO CUMULATIVE ODOR CONDITIONS[a]

Project No.	Name	Odor Generation Potential	Associated with an Existing Odor Source? (SEP Building No.)[b]	Odor Control Included	Change to Existing Odor Conditions
1	SEP Headworks Replacement	The objectives of this project include maximizing the control of odors within the treatment facility. The project includes an odor control facility. The SFPUC has indicated that all buildings would be sealed and equipped with odor control.	Yes (012)	Yes	Improve
2	SEP Chemical System Relocation and Facilities Upgrade	The project includes structural and mechanical repairs as well as upgrades to the odor control systems in various buildings, including SEP 012. The odor control unit contains two fans that serve the two seashell biofilter units. Both units are currently run simultaneously to reduce and treat odors at SEP 012.	Yes (012)	Yes	Improve
3	SEP Existing Digester Roof Repairs	This project repaired/replaced the roofs on five existing digesters and associated appurtenances. No odor-generating facilities or operations *per se* were proposed as part of this project.	Yes. Release of digester gas is a source of multiple incidents, many of which are attributable to gas management equipment (boilers, gas manifold, heat exchanger) and incomplete combustion of digester gas. Some complaints are associated with the digesters themselves. (630-660, 690-730, 741)	No; however, replacement of digester covers could reduce odorous digestion gas emissions from the digesters, reducing the extent that the existing covers (e.g., propensity to tip) contributes to odor incidents.	Potentially improve
4	SEP Existing Digester Gas Handling Improvements	The project includes improving the digester gas control system.	Yes. Release of digester gas is a source of multiple odor incidents; many are attributable to gas management equipment (boilers, gas manifold, heat exchanger) and incomplete combustion of digester gas. Leaks at failed seals of the aged gas compressors have been observed at the SEP. (620, 680, 741)	No. Odor control improvements are not proposed as part of this project.	No change
5	SEP Building 521 Replacement/522 Disinfection Upgrade	This project does not include new equipment that would generate odor (would include pumps, hydraulic power unit, compressor, standby generator) or any changes to operations/maintenance activities.	No	No	No change
6	SEP Power Feed and Primary Switchgear Upgrades	The project involves installing and replacing electrical equipment.	No	No	No change
7	SEP Primary/Secondary Clarifier Upgrades	The project includes installing odor control design features (i.e., installing covers on the primary sedimentation tanks, installing a ventilation system designed to extract and dilute odorous air from clarifiers and discharge the diluted air at a height of 21 feet), and replacing aging infrastructure.	Yes (SEP 042, 230, 260)	Yes	Improve

TABLE 4.8-16 (Continued)
PROJECTS CONTRIBUTING TO CUMULATIVE ODOR CONDITIONS[a]

Project No.	Name	Odor Generation Potential	Associated with an Existing Odor Source? (SEP Building No.)[b]	Odor Control Included	Change to Existing Odor Conditions
8	SEP Seismic Reliability and Condition Assessment Improvements	This project does not include facilities or operations that would generate odor.	Odor incidents associated with SEP 040/041	No	No change
9	SEP Northside Reliability Project	This project replaced equipment in kind, mostly in 2011-2012, so it is part of baseline conditions. Buildings 040/041 are mentioned in odor incidents.	Yes (041, 042)	No	No change
10	SEP Oxygen Generation Plant Replacement	This project does not include facilities or operations that would generate odor emissions.	No	No	No change
11	SEP Repair and Replacement Projects	This project does not include facilities or operations that would generate odor emissions.	Unknown (projects could occur at multiple buildings)	No	No change
12	Demolition of the Existing SEP Digesters and Southside Renovation Project	Existing digesters would be emptied and cleaned as part of the BDFP; thus, the source of odors will have been removed from the existing digesters prior to demolition.	Yes (630-660, 690-730, 741)	No	No change to future (post-BDFP) conditions
13	Eastside Recycled Water Project	While the specific characteristics of the Eastside Recycled Water Project are not known, these types of projects (e.g., the addition of tertiary treatment) typically are not expected to produce odors.	No	No	No change

NOTES:

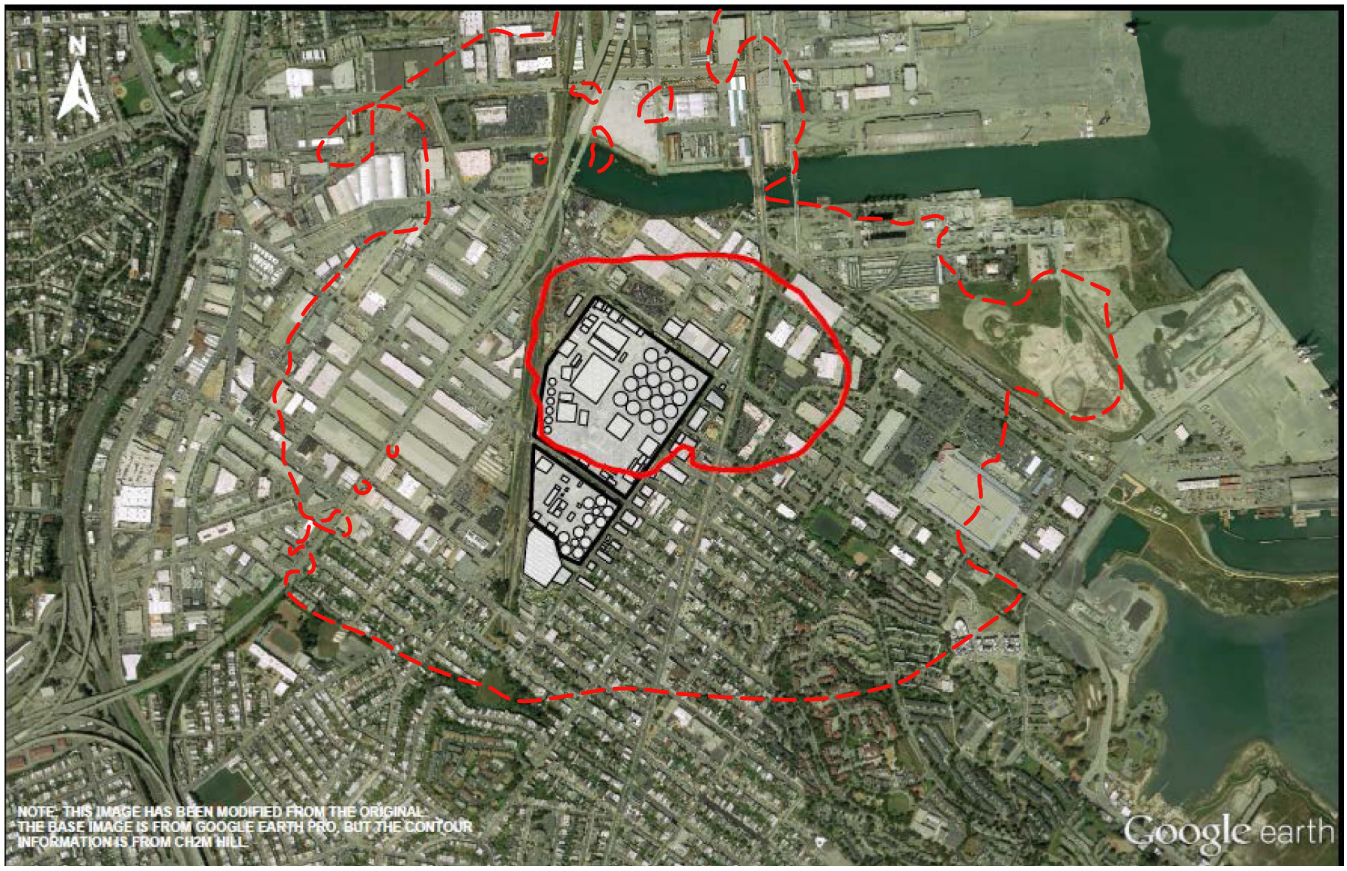
SEP = Southeast Water Pollution Control Plant; BDFP = Biosolids Digester Facilities Project; SFPUC = San Francisco Public Utilities Commission

[a] The following San Francisco Public Utilities Commission (SFPUC) projects are not expected to contribute to cumulative odor impacts, either because the project is not expected to generate odors or based on the distance to sensitive receptors, and are therefore excluded from the analysis: Central Bayside System Improvement Project, Central Shops Relocation and Land Reuse, Land Reuse - 1801 Jerrold Avenue, Kansas and Marin Streets Sewer Improvements, Griffith Yard Improvements, Southeast Outfall Islais Creek Crossing Replacement, Southeast Community Facility Revitalization, Southeast Greenhouses Demolition, Griffith Pump Station, and Marin Street Sewer Replacement.

The following non-SFPUC off-site projects are not expected to generate odors and are therefore excluded from analysis: Jerrold Bridge North Span Replacement, Quint Street Bridge Replacement Project, Quint-Jerrold Connector Road, San Francisco Wholesale Produce Market Expansion, 1995 Evans Avenue, Candlestick Point-Hunters Point Shipyard Phase I and II Development Project, Event Center and Mixed-Use Development at Mission Bay Blocks 29-32, Pier 70 Waterfront Site, Blue Greenway Project and Heron's Head Park Improvements, Pier 90-94 Backlands Improvements, Asphalt and Concrete Recycling and Production Plant at Pier 94, Quint Street Lead Track, Pier 96 Bulk Export Terminal, Peninsula Corridor Electrification Project, 2225 Jerrold Avenue Facility, India Basin Mixed-Use Development, and San Francisco Gateway.

[b] Refer to Tables 4.8-3 and 4.8-4.

SOURCE: Refer to Table 4.1-1 in Section 4.1, Overview; ESA analysis for the BDFP.



Existing Overall SEP (Liquids and Solids) Summer Conditions

Future Cumulative Conditions with BDFP, Overall SEP (Liquids and Solids)

SEP Fenceline

NOTE: This figure illustrates the modeled geographic extent of existing and future source odors exceeding the 5 D/T, 99 percent (5 D/T exceedance occurring for 88 hours per year), 1-hour average compliance goal over the five year modeling period.
D/T (dilution to threshold ratio) refers to the amount of pure air that must be added to a known volume of odorous air in order to dilute the sample to the concentration at which the odor can just be detected.

SOURCE: CH2M Hill and Brown and Caldwell, Final Southeast Plant Odor Characterization Report, December 2015, *in* SFPUC, Final Biosolids Digester Facilities Project Conceptual Engineering Report, March 2016

Figure 4.8-6
Future Cumulative Odor Concentration Isopleths at SEP

the SEP, an area smaller than that affected currently. The residential areas to the south and southeast that are currently exposed to odors above the 5 D/T design criterion would no longer be within the exceedance plot. The primary reason for exceedances above the BDFP's design standard would be due to emissions from the SEP's liquid treatment process, particularly the odor from the primary sedimentation basins being discharged without treatment and the open design of the secondary sedimentation clarifiers. Although the odors associated with the cumulative scenario would exceed the 5 D/T at and beyond the SEP fence line, there are no residential receptors within the affected area.

On the basis of an assessment of the odor generation potential of cumulative projects, supplemented by dispersion modeling for select cumulative projects, implementation of cumulative projects at the SEP, including the BDFP, would not create a significant cumulative odor impact. Thus cumulative impacts would be ***less than significant***.

Mitigation: None required.

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4.9 Greenhouse Gas Emissions

This section describes greenhouse gas (GHG) emissions and global climate change, the existing regulatory framework governing GHG emissions, and the potential impacts related to GHGs associated with implementation of the Biosolids Digester Facilities Project (BDFP or project). Mitigation measures are identified to avoid or reduce adverse impacts, as appropriate. The project's energy generation is evaluated for compliance with Assembly Bill 32 (discussed below), and other components of the project (e.g., building energy use, transportation, etc.) are evaluated for compliance with San Francisco's *Strategies to Address Greenhouse Gas Emissions*, which is recognized by the Bay Area Air Quality Management District (BAAQMD) as meeting the criteria of a qualified GHG Reduction Strategy.

4.9.1 Setting

4.9.1.1 Overview

Gases that trap heat in the atmosphere are referred to as GHGs because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse does. As discussed further below, the accumulation of GHGs contributes to global climate change. The primary GHGs, or climate pollutants, are carbon dioxide (CO_2), black carbon, methane (CH_4), nitrous oxide (N_2O), ozone, and water vapor.

Individual development projects contribute to the cumulative effects of climate change by emitting GHGs during demolition, construction, and operational phases. While the presence of the primary GHGs in the atmosphere is naturally occurring, CO_2, CH_4, and N_2O are also emitted from human activities, accelerating the rate at which these compounds occur within the earth's atmosphere. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices, landfills, and to a lesser extent wastewater treatment.[1] Black carbon has emerged as a major contributor to global climate change, possibly second only to CO_2. Black carbon is produced naturally and by human activities as a result of the incomplete combustion of fossil fuels, biofuels, and biomass.[2] N_2O is a byproduct of various industrial processes including wastewater treatment.[3] Other GHGs include hydrofluorocarbons, perfluorocarbons, and sulfur

[1] As discussed in Chapter 2, *Project Description,* the anaerobic digestion process produces biogas (digester gas), comprised mostly of methane and carbon dioxide. Similar to the existing processes at the Southeast Water Pollution Control Plant (Southeast Plant or SEP), the BDFP would reduce greenhouse gas emissions by converting digester gas into energy. Nationwide, wastewater treatment accounts for 2.0 percent of United States methane emissions (U.S. Environmental Protection Agency, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2014, p. 2-20, April 15, 2016). Available online at https://www3.epa.gov/climatechange/ghgemissions/usinventoryreport.html. Accessed on July 3, 2016.

[2] Center for Climate and Energy Solutions, *What is Black Carbon?*, April 2010. Available online at http://www.c2es.org/docUploads/what-is-black-carbon.pdf. Accessed on March 3, 2016.

[3] N_2O is emitted through processes to remove nitrogen from wastewater through nitrification (the biological oxidation of nitrogen-containing compounds like ammonia into nitrate) and denitrification (the biological conversion of nitrate into dinitrogen gas). Nationwide, wastewater treatment accounts for 1.6 percent of N_2O emissions (U.S. Environmental Protection Agency, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2010 [EPA 430-R-12-001], April 15, 2012)

hexafluoride, and are generated in certain industrial processes. GHGs are typically reported in "carbon dioxide-equivalent" (CO_2E) measures.[4]

There is international scientific consensus that human-caused increases in GHGs contribute to global warming and, thus, climate change. Many impacts resulting from climate change, including sea level rise, increased fires, floods, severe storms, and heat waves, already occur and will only become more severe and costly.[5] Secondary effects of climate change likely include impacts on agriculture, the state's electricity system, and native freshwater fish ecosystems; an increase in the vulnerability of levees such as in the Sacramento-San Joaquin Delta; changes in disease vectors; and changes in habitat and biodiversity.[6,7]

4.9.1.2 GHG Emission Estimates and Energy Providers in California

The California Air Resources Board (CARB) estimated that in 2010 California produced about 451.60 million gross metric tons of CO_2E (million $MTCO_2E$).[8] The CARB found that transportation is the source of 38 percent of the state's GHG emissions, followed by electricity generation (both in-state generation and imported electricity) at 21 percent and industrial sources at 19 percent. Commercial and residential fuel use (primarily for heating) accounted for 10 percent of GHG emissions.[9] In San Francisco, motorized transportation and natural gas sectors were the two largest sources of GHG emissions, accounting for approximately 42 percent (2.0 million $MTCO_2E$) and 31 percent (1.5 million $MTCO_2E$), respectively, of San Francisco's 4.75 million $MTCO_2E$ emitted in 2012.[10] Electricity consumption (building operations and transit) accounts for approximately 22 percent (1.0 million $MTCO_2E$) of San Francisco's GHG emissions.[11]

Electricity in San Francisco is primarily provided by the Pacific Gas and Electricity Company (PG&E) and the San Francisco Public Utilities Commission (SFPUC). In 2012, electricity consumption in San Francisco was approximately 6.0 billion megawatt-hours (kWh).[12] Of this total, PG&E produced approximately 71 percent of the electricity distributed (4.2 billion kWh; about 81 percent of San Francisco's electricity-driven GHG emissions), and the SFPUC produced approximately

4 Because of the differential heat absorption potential of various GHGs, GHG emissions are frequently measured in "carbon dioxide-equivalents," which present a weighted average based on each gas's heat absorption (or "global warming") potential.

5 Intergovernmental Panel on Climate Change, *Climate Change 2013: The Physical Science Basis, Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 2013. Available online at http://www.climatechange2013.org/images/report/WG1AR5_ALL_FINAL.pdf. Accessed on March 3, 2016.

6 Ibid.

7 California Climate Change Center, *Our Changing Climate 2012: Vulnerability and Adaptation to the Increasing Risks from Climate Change in California*, July 2012. Available online at http://www.energy.ca.gov/2012publications/CEC-500-2012-007/CEC-500-2012-007.pdf. Accessed on March 3, 2016.

8 California Air Resources Board, *California Greenhouse Gas Inventory for 2000-2010— by Category as Defined in the Scoping Plan*. Available online at http://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2010/ghg_inventory_scopingplan_00-10_2013-02-19.pdf. Accessed on March 3, 2016.

9 Ibid.

10 San Francisco Department of Environment (DOE), Community GHG Inventory data for 1990-2012. Available online at https://data.sfgov.org/Energy-and-Environment/San-Francisco-Communitywide-Greenhouse-Gas-Invento/btm4-e4ak/data. Accessed August 31. 2016.

11 Ibid.

12 Ibid.

16 percent of the electricity distributed (0.9 billion kWh; about 0 percent of San Francisco's electricity-driven GHG emissions, described below).[13]

PG&E's 2014 power mix was as follows: 24 percent natural gas, 21 percent nuclear, 27 percent eligible renewables (described below), 8 percent large hydroelectric, and 21 percent unspecified power.[14]

The SFPUC operates three hydroelectric power plants in association with San Francisco's Hetch Hetchy water system and provides electrical power to Muni, City and County of San Francisco (CCSF or City) buildings, and a limited number of other commercial accounts in San Francisco. Electricity generated by the Hetch Hetchy system achieved net zero GHG emissions for fiscal year 2012-2013.[15]

4.9.2 Regulatory Framework

4.9.2.1 Federal Regulations

Mandatory Greenhouse Gas Reporting

Title 40 Code of Federal Regulations Part 98, Mandatory Greenhouse Gas Reporting, establishes mandatory GHG reporting requirements for certain facilities that directly emit GHGs, including wastewater treatment plants.[16] The purpose of the mandated GHG Reporting Program is to provide accurate and timely GHG data to inform the public, policy makers, and other interested parties regarding emissions from specific industries, emissions from individual facilities, factors that influence GHG emission rates, and actions that could be taken at facilities to reduce emissions.

Section 98.2(a)(2) of Subpart A specifies that any facility that falls under one of the following categories is subject to GHG reporting requirements: (1) source categories listed in Table A-3 of Subpart A; (2) source categories listed in Table A-4 of Subpart A that emit 25,000 metric tons CO_2E ($MTCO_2E$) or more per year in combined emissions from stationary fuel combustion units, or (3) source categories that are not listed in Table A-3 or Table A-4 but have an aggregate maximum rated input capacity of the stationary fuel combustion units at the facility of 30 million British thermal units per hour (mmBtu/hr) or greater, and that emit 25,000 $MTCO_2E$ or more per year in combined emissions from stationary fuel combustion sources. Table A-4 includes industrial wastewater treatment facilities (among other source categories), but Subpart II, Industrial Wastewater Treatment, Section 98.350(c) indicates that this source category does not include municipal wastewater treatment plants. For any facility not falling under Table A-3 or Table A-4

[13] San Francisco Department of Environment (DOE), Community GHG Inventory data for 1990-2012. Available online at https://data.sfgov.org/Energy-and-Environment/San-Francisco-Communitywide-Greenhouse-Gas-Invento/btm4-e4ak/data. Accessed August 31. 2016.

[14] Pacific Gas & Electricity, PG&E's 2014 Power Mix, 2015. Available online at https://www.pge.com/includes/docs/pdfs/myhome/myaccount/explanationofbill/billinserts/11.15_PowerContent.pdf. Accessed on December 6, 2016.

[15] San Francisco Public Utilities Commission (SFPUC), SFPUC Departmental Climate Action, Annual Report, Fiscal Year 2012-2013, March 18, 2014. Available online at http://sfwater.org/modules/showdocument.aspx?documentid=4138. Accessed December 6. 2016.

[16] Title 40, Chapter 1, Subchapter C, Part 98, Subparts A and II. Available online at http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=c784a291ba489991c58a3321c8ff8fcf&mc=true&n=pt40.23.98&r=PART&ty=HTML#se40.23.98_12. Accessed on October 5, 2016.

source categories, but meeting the third source category, the annual GHG report must cover emissions from stationary fuel combustion sources only.

The proposed power generation equipment under the BDFP would produce an estimated 4.2 megawatts (MW) in 2023 and up to 5.2 MW in 2045. Stationary fuel combustion sources associated with the project would emit up to 212 $MTCO_2E$ per year of non-biogenic emissions (in accordance with the federal reporting requirement, CO_2 emissions from biomass are not included in the calculation of emissions for comparison to the reporting threshold).[17] Such emissions would be well below the 25,000 MTCO2E per year federal reporting requirement threshold. Therefore, the proposed project would not appear to be subject to federal mandatory GHG reporting requirements on its own. However, project emissions would need to be combined with other emissions at the Southeast Water Pollution Control Plant (Southeast Plant or SEP) to ultimately determine whether the SEP would be subject to federal reporting requirements.

4.9.2.2 State Regulations

Executive Orders S-3-05 and B-30-15

Executive Order (EO) S-3-05 sets forth a series of target dates by which statewide emissions of GHGs need to be progressively reduced, as follows: by 2010, reduce GHG emissions to 2000 levels (approximately 457 million $MTCO_2E$); by 2020, reduce emissions to 1990 levels (estimated at 427 million $MTCO_2E$); and by 2050, reduce emissions to 80 percent below 1990 levels (approximately 85 million $MTCO_2E$). As discussed in Section 4.9.1, California produced about 452 million MTCO2E in 2010, thereby meeting the 2010 target date to reduce GHG emissions to 2000 levels.

EO B-30-15 set an additional, interim statewide GHG reduction target of 40 percent below 1990 levels to be achieved by 2030. The purpose of this interim target is to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050.[18] EO B-30-15 also requires all state agencies with jurisdiction over sources of GHG emissions to implement measures within their statutory authority to achieve reductions of GHG emissions to meet the 2030 and 2050 GHG emissions reductions targets.

Assembly Bill 32

In 2006, the California legislature passed Assembly Bill No. 32 (California Health and Safety Code Division 25.5, Sections 38500, et seq., or AB 32), also known as the California Global Warming Solutions Act. AB 32 requires the CARB to design and implement emission limits, regulations, and other measures, such that feasible and cost-effective statewide GHG emissions are reduced to 1990 levels by 2020.

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17 In 40 CFR Parts 98.2(b)(2) and 98.2(c), CO_2, CH_4 and N_2O emissions from non-biomass sources as well as CH_4 and N_2O emissions from biomass sources are included in the determination of whether or not a facility meets the 25,000 MT CO2e reporting threshold (CO_2 emissions from biomass sources are excluded).

18 Governor's Office, *Governor Brown Establishes Most Ambitious Greenhouse Gas Reduction Target in North America*, April 29, 2015. Available online at https://www.gov.ca.gov/news.php?id=18938. Accessed on March 3, 2016.

GHG Mandatory Reporting Regulation

Requirements

The GHG Mandatory Reporting Regulation,[19] administered by the CARB, applies to the SEP. The regulation classifies three types of reporting entities: industrial sources, fuel suppliers (of natural gas, CO_2, and transportation fuels), and electricity importers/power entities. Application of the regulation is determined based on the total emissions of all applicable source categories for each type of reporting entity. Generally, cement production, lime manufacturing, nitric acid production, and petroleum refineries are subject to reporting regardless of their emissions level. Other facilities with greater than 25,000 $MTCO_2E$ of emissions, inclusive of non-biogenic and biogenic emissions (discussed below), are subject to full reporting requirements. (Facilities with emissions between 10,000 and 25,000 $MTCO_2E$ of emissions have the option to file an abbreviated report.)

Biogenic and Non-Biogenic Emissions

Under the GHG Mandatory Reporting Regulation, biogenic emissions must be included in the reporting. Biogenic emissions result from materials that are derived from living cells, as opposed to non-biogenic (also referred to as anthropogenic) emissions derived from fossil fuels and other materials that have been transformed by geological processes. Biogenic emissions contain carbon that is present in organic materials (including, but not limited to, wood, paper, vegetable oils, animal fat, and food, animal and yard waste).[20]

Non-biogenic and biogenic sources of GHG emissions have different impacts on the global carbon cycle. Carbon in fossil fuel reservoirs, such as coal, oil, and gas deposits, was removed from the atmosphere over millions of years. Without human intervention, fossil-fuel carbon would remain isolated from the active carbon cycle. Through extraction and combustion of fossil fuels, humans release this fossil-fuel carbon, increasing the total amount of carbon in the atmosphere and in the active carbon cycle.[21] In contrast to fossil-fuel carbon (non-biogenic), carbon present in biomass and part of the active carbon cycle is cycling through the atmosphere and global carbon cycle on a much faster time scale. For example, over the course of a year, carbon removed from the atmosphere by growing corn is released back into the atmosphere through the harvest, and subsequent combustion or decomposition of the corn biomass. Over short time scales, the mass of carbon released by the decomposition of biomass will generally equal the mass of carbon taken up by living organisms. Because biogenic carbon is constantly being released and taken up in the carbon cycle, biogenic CO_2 emissions do not act to increase the total amount of carbon in the atmosphere in the same way as the release of carbon from fossil fuels.

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19 Codified in California Code of Regulations Title 17, Subchapter 10, Article 2, Sections 95100 to 95133.

20 Bay Area Air Quality Management District, *BAAQMD CEQA Guidelines,* May 2012, p. 4-5. Available online at http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/baaqmd-ceqa-guidelines_final_may-2012.pdf?la=en. Accessed on April 25, 2016.

21 U.S. Environmental Protection Agency, *Accounting Framework for Biogenic CO_2 Emissions from Stationary Sources,* September 2011, Available online at http://www.epa.gov/climatechange/Downloads/ghgemissions/Biogenic-CO2-Accounting-Framework-Report-Sept-2011.pdf. Accessed on April 25, 2016.

SEP Emissions Reported Under the GHG Mandatory Reporting Regulation

The SEP is required to report its emissions to the CARB under the GHG Mandatory Reporting Regulation. Year 2014 total emissions (combustion, process, vented, and supplier) for the SEP were 10,614 $MTCO_2E$. Total non-biogenic CO_2E emissions in 2014 were reported to be 217 $MTCO_2E$, while biogenic CO_2E emissions were 10,397 $MTCO_2E$.[22] Annual GHG emissions from existing operations were estimated as part of this analysis and estimated to be higher, 14,165 $MTCO_2E$ (non-biogenic emissions of 234 $MTCO_2E$ and biogenic emissions of 13,931 $MTCO_2E$). The emissions estimates for this analysis differ from the estimates provided to CARB because of the inclusion of emissions from the waste gas burners (although waste gas burners are excluded under the GHG reporting rule – and therefore excluded from the CARB estimates -- they are still a source of GHGs, with emissions of 3,741 $MTCO_2E$ in 2014) and exclusion of emissions from boilers associated with Building 850 (which would not be affected by implementation of the BDFP, and account for 209 $MTCO_2E$ of the CARB estimates).

Cap-and-Trade

On January 1, 2013, the CARB launched the second largest GHG cap-and-trade program in the world. The Cap-and-Trade Regulation ensures progress toward the near-term 2020 statewide limit and is a vital component in achieving both California's near- and long- term GHG emissions targets. In February 2016, the CARB issued updated guidance for reporting biomass-derived fuels under California's Mandatory GHG Reporting Regulation. The guidance states, "Under the greenhouse gas (GHG) emissions accounting framework established by Mandatory Reporting of Greenhouse Gas Emissions and the Cap-and-Trade Regulation, CO_2 emissions from the combustion of biomass fuels that meet specified criteria in the regulations are considered biogenic fuels and are exempt from a compliance obligation under the Cap-and-Trade Regulation." Digester gas appears to meet eligibility requirements for biomass-derived fuels that are listed in Section 95852.1.1 of the Cap-and-Trade Regulation.[23] Section 95852.2(a)(8)(B) of this Regulation lists biogas (digester gas) or biomethane from wastewater treatment plants as one of the emissions without compliance obligation.

Based on this CARB guidance, the project would not be subject to requirements of the Cap-and-Trade Regulation because over 99 percent of the project's CO_2E emissions would be biogenic.

California Climate Change Scoping Plan

Pursuant to AB 32, the CARB adopted the *Climate Change Scoping Plan* (Scoping Plan) in December 2008 outlining measures to meet the 2020 GHG reduction limits. In order to meet the goals of AB 32, California must reduce its GHG emissions by 30 percent below projected 2020 business-as-usual emissions levels (approximately 15 percent below 2008 levels).[24] The Scoping Plan estimates a

[22] CARB, Mandatory GHG Reporting - 2014 GHG Facility and Entity Emissions, November 2015. Available online at http://www.arb.ca.gov/cc/reporting/ghg-rep/reported-data/ghg-reports.htm. Accessed on April 6, 2016. The total biogenic CO_2E emissions reported to the CARB does not include emissions from waste gas burners since they are excluded under this rule.

[23] Section 95852.1.1(a)(3) states that biogas or biomethane used at the site of production, and not transferred to another operation, can be considered a "biomass-derived fuel."

[24] California Air Resources Board, *California's Climate Plan: Fact Sheet*. Updated January 27, 2010. Available online at http://www.arb.ca.gov/cc/facts/scoping_plan_fs.pdf. Accessed on March 3, 2016.

reduction of 174 million $MTCO_2E$ from transportation, energy, agriculture, forestry, and other high global warming sectors (see **Table 4.9-1**).[25]

TABLE 4.9-1
GREENHOUSE GAS REDUCTIONS
FROM ASSEMBLY BILL NO. 32 SCOPING PLAN SECTORS

	GHG Reductions (Million $MTCO_2E$)
GHG Reduction Measures By Sector	
Transportation Sector	62.3
Electricity and Natural Gas	49.7
Industry	1.4
Landfill Methane Control Measure (Discrete Early Action)	1
Forestry	5
High Global Warming Potential GHGs	20.2
Additional Reductions Needed to Achieve the GHG Cap	34.4
Other Recommended Measures	
Government Operations	1 – 2
Agriculture – Methane Capture at Large Dairies	1
Water	4.8
Green Buildings	26
Recycling/Zero Waste	9
Total Reductions Counted Toward 2020 Target	**216.8 – 217.8**

NOTES:

GHG = greenhouse gas; $MTCO_2E$ = metric tons of carbon dioxide-equivalent

SOURCES: California Air Resources Board, *Climate Change Scoping Plan*, December 2008. Available online at http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf. Accessed on March 3, 2016; California Air Resources Board, *California's Climate Plan: Fact Sheet*, January 27, 2010. Available online at http://www.arb.ca.gov/cc/facts/scoping_plan_fs.pdf. Accessed on March 3, 2016.

The Scoping Plan also anticipates that actions by local governments will result in reduced GHG emissions because local governments have the primary authority to plan, zone, approve, and permit development to accommodate population growth and the changing needs of their jurisdictions.[26] The Scoping Plan also relies on the requirements of Senate Bill (SB) 375 (discussed below) to align local land use and transportation planning to achieve GHG reduction.

The Scoping Plan must be updated every five years to evaluate AB 32 policies and ensure that California is on track to achieve the 2020 GHG reduction goal. In 2014, the CARB released the *First Update to the Climate Change Scoping Plan* (First Update), which builds upon the initial scoping plan with new strategies and recommendations. The First Update identifies opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and

[25] Ibid.
[26] California Air Resources Board, *Climate Change Scoping Plan*, December 2008. Available online at http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf. Accessed on March 3, 2016.

targeted low carbon investments. This update defines the CARB's climate change priorities for the next five years and sets the groundwork to reach long-term goals set forth in EO S-3-05. The First Update highlights California's progress toward meeting the near-term 2020 GHG emission reduction goals in the initial scoping plan. It also evaluates how to align the state's longer-term GHG reduction strategies with other state policy priorities for water, waste, natural resources, clean energy, transportation, and land use.[27]

One of these strategies, Measures W-5, Renewable Energy Production from Water, was designed to propose opportunities for developing renewable energy projects on lands associated with California's state and local water infrastructure. The California Energy Commission (CEC) recently financed public interest research and demonstration projects that focus on developing and demonstrating biogas technologies at wastewater plants to meet on-site electricity demand and supply the local electricity grid with excess generation. The research supports several efforts to improve renewable energy generation from wastewater treatment plants. For example, a hybrid combined heat and power project operated by the San Bernardino Municipal Water Department reforms biogas into a hydrogen-rich gas, which is then blended with non-reformed biogas to create a fuel for reciprocating engines that will meet air quality standards.[28]

Such goals and programs support the development of projects such as the proposed energy recovery facilities at the SEP.

Senate Bill 375

The Scoping Plan also relies on the requirements of SB 375 (Chapter 728, Statutes of 2008), also known as the Sustainable Communities and Climate Protection Act of 2008, to reduce carbon emissions from land use decisions. SB 375 requires regional transportation plans developed by each of the state's 18 metropolitan planning organizations (MPOs) to incorporate a "Sustainable Communities Strategy" in each regional transportation plan that will then achieve GHG emission reduction targets set by the CARB. For the Bay Area, the per-capita GHG emission reduction target is a 7 percent reduction by 2020 and a 15 percent reduction from 2005 levels by 2035.[29] *Plan Bay Area*, the Metropolitan Transportation Commission's regional transportation plan, adopted in July 2013, is the region's first plan subject to SB 375 requirements.[30]

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27 California Air Resources Board, *First Update to the Climate Change Scoping Plan*, May 2014. Available online at http://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf. Accessed on March 3, 2016.

28 California Air Resources Board, *First Update to the Climate Change Scoping Plan*, Appendix B, Status of Initial Scoping Plan Measures, Posted March 14, 2014, p. 26. Available online at http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm. Accessed on July 22, 2016.

29 California Air Resources Board, *Executive Order No. G-11-024, Relating to Adoption of Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375,* February 2011. Available online at http://www.arb.ca.gov/cc/sb375/executive_order_g11024.pdf. Accessed on March 3, 2016.

30 Association of Bay Area Governments and Metropolitan Transportation Commission, *Plan Bay Area*, adopted July 18, 2013. Available online at http://planbayarea.org/plan-bay-area.html. Accessed on March 3, 2016.

Senate Bills 1078, 107, X1-2, and 350 and Executive Orders S-14-08 and S-21-09

California established aggressive renewable portfolio standards under SB 1078 (Chapter 516, Statutes of 2002) and SB 107 (Chapter 464, Statutes of 2006), which require retail sellers of electricity to provide at least 20 percent of their electricity supply from renewable sources by 2010. EO S-14-08 (November 2008) expanded the state's renewable portfolio standard from 20 to 33 percent of electricity from renewable sources by 2020. In September 2009, then Governor Schwarzenegger continued California's commitment to the renewable portfolio standard by signing EO S-21-09, which directed the CARB to enact regulations to help California meet the renewable portfolio standard goal of 33 percent renewable energy by 2020.[31]

In April 2011, Governor Brown signed SB X1-2 (Chapter 1, Statutes of 2011) codifying the GHG reduction goal of 33 percent by 2020 for energy suppliers. This renewable portfolio standard preempts the CARB's 33 percent renewable sources electricity standard and applies to all electricity suppliers (not just retail sellers) in the state, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. Under SB X1-2, all of these entities must adopt the new renewable portfolio standard goals of 20 percent of retail sales from renewable sources by the end of 2013, 25 percent by the end of 2016, and 33 percent by the end of 2020.[32] Eligible renewable sources include geothermal, ocean wave, solar photovoltaic, and wind, but exclude large hydroelectric (30 megawatts [MW] or more). Therefore, because the SFPUC receives more than 67 percent of its electricity from large hydroelectric facilities, the remaining electricity provided by the SFPUC is required to be 100 percent renewable.[33] SB 350 (Chapter 547, Statutes of 2015), signed by Governor Brown in October 2015, dramatically increased the stringency of the renewable portfolio standard. SB 350 establishes a renewable portfolio standard target of 50 percent by 2030, along with interim targets of 40 percent by 2024 and 45 percent by 2027.

Senate Bill 32 and Assembly Bill 197

In August 2016, the California state legislature passed Senate Bill 32 (SB 32) which establishes a new target for GHG emissions reductions in the state. This bill requires the CARB to ensure that statewide GHG emissions are reduced to 40 percent below the 1990 level by the year 2030. The bill would augment AB 32, (described above). The Legislature paired SB 32 with AB 197, which directs the CARB to prioritize disadvantaged communities in its climate change regulations and to evaluate the cost-effectiveness of the measures it considers. SB 32 and AB 197 have been enacted[34] and became effective on January 1, 2017.

[31] California Public Utilities Commission, *RPS Program Overview*, June 2015. Available online at http://www.cpuc.ca.gov/RPS_Overview/. Accessed on August 31, 2016.
[32] Ibid.
[33] San Francisco Public Utilities Commission, *Approval of the Enforcement Program for the California Renewable Energy Resources Act*, December 13, 2011. Available online at https://infrastructure.sfwater.org/fds/fds.aspx?lib=SFPUC&doc=741114&data=285328890. Accessed on March 3, 2016.
[34] Chapters 249 and 250, Statutes of 2016 (chaptered September 8, 2016).

California Green Building Standards Code

The 2013 California Green Building Standards Code, as specified in Title 24, Part 11 of the California Code of Regulations, specifies building standards to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in five categories: planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. The provisions of this code apply to the planning, design, operation, construction, replacement, use and occupancy, location, maintenance, removal, and demolition of every building or structure or any appurtenances connected or attached to such building structures throughout California.

4.9.2.3 Regional and Local Regulations and Plans

Regional

The BAAQMD is responsible for attaining and maintaining federal and state air quality standards in the San Francisco Bay Area Air Basin (SFBAAB), as established by the federal Clean Air Act (CAA) and the California Clean Air Act (CCAA), respectively. The CAA and the CCAA require plans to be developed for areas that do not meet air quality standards, generally. The most recent air quality plan, the *Bay Area 2010 Clean Air Plan*, includes a goal of reducing GHG emission to 1990 levels by 2020, 40 percent below 1990 levels by 2035, and 80 percent below 1990 levels by 2050.[35]

In addition, the BAAQMD established a climate protection program to reduce pollutants that contribute to global climate change and affect air quality in the SFBAAB; the program includes GHG reduction measures that promote energy efficiency, reduce vehicle miles traveled, and develop alternative energy sources.[36]

The BAAQMD California Environmental Quality Act (CEQA) Air Quality Guidelines also assist lead agencies in complying with the requirements of CEQA regarding potentially adverse impacts on air quality. The BAAQMD advises lead agencies to consider adopting a GHG reduction strategy capable of meeting AB 32 goals and then reviewing projects for compliance with the GHG reduction strategy as a CEQA threshold of significance.[37] This is consistent with the approach to analyzing GHG emissions described in CEQA Guidelines Section 15183.5.

[35] Bay Area Air Quality Management District, *Clean Air Plan*, September 2010. Available online at http://www.baaqmd.gov/plans-and-climate/air-quality-plans/current-plans. Accessed on March 3, 2016.

[36] Bay Area Air Quality Management District, *Climate Protection Program*. Available online at http://www.baaqmd.gov/plans-and-climate/climate-protection/climate-protection-program. Accessed on October 5, 2016.

[37] Bay Area Air Quality Management District, *California Environmental Quality Act Air Quality Guidelines*, May 2012. Available online at http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines_Final_May%202012.ashx?la=en. Accessed on March 3, 2016.

Local

2004 Climate Action Plan for San Francisco[38]

The *Climate Action Plan for San Francisco, Local Actions to Reduce Greenhouse Gas Emissions* (2004) outlines citywide actions to reduce GHGs in the energy, transportation, and solid waste sectors. The 2004 Climate Action Plan includes GHG reduction strategies such as targeting emissions from fossil-fuel use in cars, power plants, and commercial buildings; developing renewable energy technologies like solar, wind, fuel cells, and tidal power; and expanding residential and commercial recycling programs. The 2004 Climate Action Plan identifies implementing agencies for GHG reduction strategies in the various sectors and describes actions the SFPUC was taking and intended to take to reduce GHGs at that time.

2008 San Francisco Greenhouse Gas Reduction Ordinance

In May 2008, the City adopted Ordinance No. 81-08 amending the San Francisco Environment Code to establish GHG emissions targets and require departmental action plans and to authorize the San Francisco Department of Environment (DOE) to coordinate efforts to meet these targets. The City ordinance establishes the following GHG emissions reduction limits and target dates by which to achieve them: determine 1990 citywide GHG emissions by 2008, the baseline level, with reference to which target reductions are set; reduce GHG emissions by 25 percent below 1990 levels by 2017; reduce GHG emissions by 40 percent below 1990 levels by 2025; and reduce GHG emissions by 80 percent below 1990 levels by 2050.[39] The City's GHG reduction targets are consistent with—in fact, are more ambitious than—those set forth in Governor Brown's EO B-30-15 by targeting a 40 percent reduction of GHGs by 2025 rather than a 40 percent reduction by 2030.

2010 San Francisco Greenhouse Gas Reduction Strategy

San Francisco has developed a number of plans and programs to reduce the City's contribution to global climate change and meet the goals of the Greenhouse Gas Reduction Ordinance. San Francisco's *Strategies to Address Greenhouse Gas Emissions*[40] documents the City's actions to pursue cleaner energy, energy conservation, alternative transportation, and solid waste policies. For instance, the City has implemented mandatory requirements and incentives that have measurably reduced GHG emissions, including, but not limited to, increasing the energy efficiency of new and existing buildings, installing solar panels on building roofs, implementing a green building strategy, adopting a zero waste strategy, adopting a construction and demolition debris recovery ordinance, creating a solar energy generation subsidy, incorporating alternative fuel vehicles in the City's transportation fleet (including buses), and adopting a mandatory recycling and composting ordinance. The strategy also includes 30 specific regulations for new development that would reduce a project's GHG emissions. These GHG reduction actions have resulted in a 23.3 percent reduction in

[38] San Francisco Department of Environment and San Francisco Public Utilities Commission, *Climate Action Plan for San Francisco: Local Actions to Reduce Greenhouse Gas Emissions.* September 2004.

[39] City and County of San Francisco, *Greenhouse Gas Emissions Targets and Departmental Action Plans*, May 13, 2008. Available online at http://environment.sanfranciscocode.org/9/902. Accessed on August 31, 2016.

[40] San Francisco Planning Department, *Strategies to Address Greenhouse Gas Emissions in San Francisco*, November 2010, p. VIII-22. Available online at: http://www.sf-planning.org/index.aspx?page=2627. Accessed on September 1, 2016.

GHG emissions in 2012 compared to 1990 levels,[41] exceeding the year 2020 reduction goals in the BAAQMD's *Bay Area 2010 Clean Air Plan*, EO S-3-05 and EO B-30-15, and AB 32.

2011 Updated Electricity Resource Plan

In Ordinance 81-08, the City endorsed a goal to have a GHG-free electric system by 2030, generating, deploying, and procuring all of its energy needs from renewable and zero-GHG electric energy sources. The purpose of the 2011 Update of San Francisco's 2002 Electricity Resource Plan (2002 ERP) is to identify the next steps that San Francisco must take in order to achieve this goal. It identifies recommendations that promote zero GHG energy, influence procurement of electric resources at the wholesale level, and expand reliable, reasonably priced, and environmentally sensitive electric service. The most recent annual update prepared for the SFPUC in 2015[42] highlighted the past year's activities, which included working toward implementation of the CleanPower SF program, offering San Francisco residents and businesses a cleaner electricity supply; completing the Power Enterprise Business Plan, identifying strategies to increase delivery of clean energy supplies in San Francisco; certifying the SFPUC's Kirkwood generating units as eligible renewable energy resources under California's Renewables Portfolio Standard (RPS); and initiating GHG-free SFPUC electric service to the residents of the Shipyard, San Francisco's newest neighborhood.

2013 San Francisco Climate Action Strategy[43]

The San Francisco Department of Environment published an update to the 2004 Climate Action Plan in 2013. This report provides a summary of progress and examples of successful policies and programs, and outlines a set of actions that can be taken by citizens, businesses, and government. For the energy sector, the document includes a number of areas where the SFPUC has taken action, including moving toward 100 percent GHG-free and renewable electricity in buildings, implementing energy efficiency programs, and implementing the GoSolarSF incentive program. The Strategy also reported on progress in GHG emissions reductions in the municipal sector, due in part to the SFPUC's carbon-free Hetch Hetchy Power and reductions in natural gas use in municipal buildings, a focus of the SFPUC's energy efficiency program.

SFPUC Climate Action Plan Annual Reports

Ordinance 81-08 also required each City department to report annually on its own departmental emissions and emissions reductions. The SFPUC prepared Climate Action Plan annual reports in 2009, 2010, 2011, 2012, 2013, and 2014. The most recent annual report (Climate Action Annual Report Fiscal Year 2012-2013) was prepared in 2014.[44] Each annual report summarizes GHG emissions associated with electricity, natural gas, and fleet fuels consumed by the SFPUC for the previous fiscal year for its own operations, and highlights the SFPUC's activities to reduce GHG emissions. According to the

[41] ICF International, *Technical Review of the 2012 Community-wide Inventory for the City and County of San Francisco,* January 21, 2015. Biogenic emissions are quantified in the GHG emissions inventory but not typically counted toward total citywide emissions, consistent with ICLEI 2012 U.S. Community Protocol Version 1.0.
[42] SFPUC, *Implementation of Electricity Resource Plan,* August 28, 2015.
[43] San Francisco Department of Environment, *San Francisco Climate Action Strategy, 2013 Update,* October 2013.
[44] SFPUC, *San Francisco Public Utilities Commission Climate Action Annual Report Fiscal Year 2012 – 2013,* March 18, 2014.

2014 report, total GHG emissions from facility energy use (natural gas and electricity) decreased 76 metric tons (2.9 percent) in Fiscal Year 2012-2013 compared to the previous year.

SFPUC Actions to Address Climate Change

Current SFPUC actions to reduce GHG emissions include the following:

- The SFPUC's Renewable Generation program has installed 21 solar photovoltaic projects on municipal facilities, with 8 MW of solar capacity, and continues to plan for additional projects to increase local renewable energy generation. In addition, the SFPUC operates cogeneration plants at the SEP and the Oceanside Water Pollution Control Plant that generate both electricity and process heat, and that are primarily fueled by digester biogas, a by-product of wastewater treatment operations. These facilities generate 2 MW and 1 MW at peak, respectively.

- The SFPUC's GoSolarSF program continues to provide incentives to San Francisco residents, businesses, and nonprofits. In Fiscal Year 2014-2015, $1.9 million in incentives resulted in the installation of 2.2 MW of new local solar generation at over 570 locations in the city.

- The SFPUC's energy efficiency program continues to reduce electricity use and natural gas consumption in municipal buildings year after year and is expanding its focus in the coming year with new program offerings for the private sector.

- The SFPUC is expanding existing GHG-free electricity programs to serve more customers in San Francisco. In spring 2015, the new residents at the Hunters Point Shipyard became San Francisco's newest green power neighborhood, receiving Hetch Hetchy Power for 100 percent of their electric needs. May 2016 marked the launch of the CleanPowerSF program, which is now delivering cleaner energy to San Francisco residents and business through the Green (35 percent renewable) and SuperGreen (100 percent renewable) enrollment options.

- The SFPUC recently opened the College Hill Learning Garden in Bernal Heights. This educational site features kid-friendly interactive features such as solar panels, rain gardens, a mini-green roof, and a composting toilet, all designed to teach children about how they can be stewards of water, energy, food, and waste systems.

- The SFPUC continues to encourage the use of sustainable transportation in all forms, including changing its diesel purchases from petroleum-based diesel and biodiesel to renewable diesel.[45]

2015 Executive Directive 06-02 to Use Renewable Diesel in City Fleet

This Executive Directive was issued in July 2015 and requires all City departments to begin using renewable diesel in their fleets, converting the City's entire municipal fleet from petroleum to renewable diesel. According to the CARB, the full lifecycle emissions of carbon from renewable diesel produced from sustainable sources are more than 60 percent lower than petroleum.[46]

[45] Biodiesel is a fuel produced from biological feedstock sources including fats, oils and greases. Biodiesel is chemically different from petroleum diesel and renewable diesel (which is chemically indistinguishable from petroleum diesel). Biodiesel is usually blended with petroleum diesel, such as the B20 biodiesel grade used in City fleets.

[46] Office of the Mayor, City and County of San Francisco, *Press Release, Mayor Lee Announces San Francisco to Use Renewable Diesel in City Fleet,* July 21, 2015. Available online at http://sfmayor.org/article/mayor-lee-announces-san-francisco-use-renewable-diesel-city-fleet. Accessed on January 12, 2017.

San Francisco Environment Code, Green Building Requirements

The San Francisco Environment Code sets green building requirements that apply to all new construction in San Francisco. Adopted in 2013, Chapter 7 (Green Building Requirements) of the San Francisco Environment Code adopts the mandatory measures in the state green building code (CALGreen) and requires documentation of compliance with either Leadership in Energy and Environmental Design (LEED®) or GreenPoint Rated standards. The Department of the Environment promulgates guidance, forms, rules, and regulations in accordance with this chapter, and City departments must administer their construction projects in accordance with this chapter. Chapter 7 includes requirements for municipal projects related to LEED® certification, collection of recyclable and compostable materials, construction and demolition debris management, water conservation, energy-efficient lighting, and indoor environmental quality. For example, fluorescent fixtures must meet certain efficiency of lumens per watt of electricity consumed and/or be controlled by an occupancy sensor, and exterior light fixtures must include an automatic timer to prevent lights from operating during daylight hours.

San Francisco Better Roof Requirements for Renewable Energy Facilities Ordinance

This ordinance requires projects like the BDFP (i.e., newly constructed buildings of non-residential occupancy meeting criteria related to size) to install solar photovoltaic systems and/or solar thermal systems in the solar zone (i.e., building roofs, overhangs or other structures meeting certain criteria such as size, slope and orientation).[47] Under the proposed project, the SFPUC is proposing to install solar photovoltaic panels on the maintenance shop roofs consistent with this ordinance.

4.9.3 Impacts and Mitigation Measures

4.9.3.1 Significance Criteria

The project would have a potentially significant impact related to GHG emissions if the project were to:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

4.9.3.2 Approach to Analysis

GHG emissions and global climate change represent cumulative impacts. GHG emissions cumulatively contribute to the significant adverse environmental impacts of global climate change. No single project could generate enough GHG emissions to noticeably change the global average temperature; instead, the combination of GHG emissions from past, present, and future projects and activities across the entire planet have contributed and will continue to contribute to global climate

[47] The solar zone is located on the roof or overhang of a building, or on the roof or overhang of another structure located within 250 feet of the building or on covered parking installed with the building project.

change and associated environmental impacts. Therefore, the GHG emissions impact analysis is a cumulative impact analysis only, and this cumulative analysis does not rely on a list-based approach but rather on adopted regional and statewide guidelines described below and consistent with CEQA Guidelines Section 15130(b)(1)(B).

The BAAQMD has prepared guidelines and methodologies for analyzing GHGs. These guidelines are consistent with CEQA Guidelines Sections 15064.4 and 15183.5, which address the analysis and determination of significant impacts from a proposed project's GHG emissions. CEQA Guidelines Section 15064.4 allows lead agencies to rely on a qualitative analysis to describe GHG emissions resulting from a project. CEQA Guidelines Section 15183.5 allows for public agencies to analyze and mitigate GHG emissions as part of a larger plan for the reduction of greenhouse gases and describes the required contents of such a plan. Accordingly, the following analysis evaluates the project's consistency with AB 32 goals by comparing the project's net changes in non-biogenic GHG emissions to the GHG significance thresholds outlined by the BAAQMD, which is 10,000 $MTCO_2E$ per year for a stationary source. In addition, San Francisco has prepared its own greenhouse gas reduction strategy (described above); the BAAQMD has reviewed this strategy and concluded that "Aggressive GHG reduction targets and comprehensive strategies like San Francisco's help the Bay Area move toward reaching the State's AB 32 goals, and also serve as a model from which other communities can learn."[48]

The following analysis of the project's impact on climate change assesses the project's contribution to cumulatively significant GHG emissions. Because no individual project could emit GHGs at a level that could result in a significant impact on the global climate, this analysis is in a cumulative context, and this section does not include an individual project-specific impact analysis.

4.9.3.3 Impact Evaluation

Impact C-GG-1: The project would generate greenhouse gas emissions, but not at levels that would result in a significant impact on the environment or conflict with any policy, plan, or regulation adopted for the purpose of reducing greenhouse gas emissions. (Less than Significant)

Individual projects such as the BDFP contribute to the cumulative effects of climate change by directly or indirectly emitting GHGs during construction and operational phases.

Construction Impacts

Construction-related GHG emissions would include direct GHG emissions from operation of construction equipment and new vehicle trips over the five-year construction period. Construction-related GHG emissions associated with off-road equipment and on-road trucks were estimated based on a project-specific construction equipment list provided by the SFPUC and on-road haul/delivery truck volume estimates presented in Section 4.6, Transportation and Circulation. **Table 4.9-2** summarizes the project's annual and total construction-related GHG emissions from off-road equipment and on-road trucks. Based on a minimum life span of 22 years for project facilities (2023 to

[48] San Francisco Planning Department, *Letter Regarding Draft GHG Reduction Strategy*, October 28, 2010. Available online at http://www.sf-planning.org/ftp/files/MEA/GHG-Reduction_Letter.pdf. Accessed on March 3, 2016.

2045), the project's annualized construction-related GHG emissions would average 894 $MTCO_2E$. The BAAQMD does not identify a significance threshold for construction-related GHG emissions. However, when the project's construction-related annualized GHG emissions are compared to the BAAQMD's annual threshold for stationary sources of 10,000 $MTCO_2E$, the project's construction-related GHG emissions would remain well below this threshold and would be considered ***less than significant***.

TABLE 4.9-2
PROJECT CONSTRUCTION-RELATED GREENHOUSE GAS EMISSIONS

Year	Source	GHG Emissions ($MTCO_2E$)
Year 1	Off-Road Equipment	3,545
Year 2		3,107
Year 3		2,780
Year 4		2,106
Year 5		1,458
Year 1	On-Road Trucks	1,629
Year 2		797
Year 3		1,656
Year 4		1,432
Year 5		1,246
	Total	19,664

NOTES:
GHG = greenhouse gas; $MTCO_2E$ = metric tons of carbon dioxide-equivalent

Compliance with the Clean Construction Ordinance would reduce the non-biogenic portion of GHG emissions shown above. In addition, implementation of mitigation measures requiring use of renewable diesel fuel (see Section 4.8, Air Quality) would reduce the non-biogenic portion of the above-listed GHG emissions (because GHG emissions associated with renewable diesel are biogenic).

SOURCE: Ramboll Environ, *Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR*, March 2017 (Table 5).

Indirect GHG emissions are typically associated with emissions by electricity providers for line power, but the source of line power at the SEP that would be used by BDFP facilities is renewable energy from Hetch Hetchy hydropower. Electricity from this source would minimize the potential for project-related indirect GHG emissions.

In addition to the Executive Directive 06-02 requiring use of renewable diesel in all municipal fleets, the project would also be subject to and required to comply with San Francisco Environment Code Chapters 7 and 14 and the Construction Recycled Content Ordinance. Compliance with these regulations would help to further reduce GHG emissions from construction activities, vehicles, and equipment. Recycling and reuse of construction and demolition debris materials would reduce GHG emissions by reducing the energy required to produce new materials and diverting waste from landfills.

Operational Impacts

Operation of the existing solids processing facilities at the SEP currently generates biogenic and non-biogenic GHG emissions. As noted in Section 4.9.2, biogenic emissions result from materials that are derived from living cells and contain carbon that is present in organic materials. Existing operational biogenic GHG emissions were estimated based on digester gas throughput in 2014 in the cogeneration engine, boiler, and waste gas burners (see **Table 4.9-3**). Non-biogenic GHG emissions were estimated based on natural gas throughput in 2014 at the SEP, which is mostly used as a backup (when digester gas is not available) in the cogeneration engine. Table 4.9-3 presents estimated GHG emissions associated with existing operations.

Table 4.9-3 also presents estimated GHG emissions associated with the BDFP under three representative operating conditions: (1) during the transition period in 2023 when limited existing facilities (waste gas burners only) would still operate along with some proposed facilities (proposed waste gas burners, backup steam boilers, and standby diesel engine), as project facilities are gradually brought online; (2) after the transition period (assumed to be in 2023) when existing waste gas burners would be decommissioned and project facilities (proposed turbine, backup steam boilers, waste gas burners, and standby diesel engine) would be in full operation; and (3) full operation of project facilities (proposed turbine, microturbines, backup steam boilers, waste gas burners, and standby diesel engine) in 2045.

When compared to existing conditions, implementation of the BDFP would result in a 120 percent increase in biogenic emissions between 2015 and 2045 and an 11 percent decrease in non-biogenic emissions during this same period. The increase in biogenic emissions is largely attributable to population growth that is projected to occur between 2023 and 2045 and the associated increase in wastewater treatment demand. These increases in biogenic emissions and decreases in non-biogenic emissions would be due mainly to the increase in production and combustion of digester gas at the proposed anaerobic digesters and Energy Recovery Facility (i.e., increased capture of biogas for energy recovery) and elimination of natural gas use at the existing cogeneration engine. Biogenic CO_2 emissions from wastewater solids at the SEP will occur regardless of the project and regardless of whether the organic material decomposes in solids processing facilities at the BDFP or at a land application site (i.e., landfills, composting operation, etc.). Therefore, biogenic emissions are not attributable to the BDFP and the BDFP's projected increase in biogenic emissions is not considered a CEQA impact.

The main difference between the digester gas that would be produced under the BDFP operations and GHG emissions that are currently generated at land application sites from off-hauling of treated solids is that the digester gas generated from biosolids at the BDFP would be used to generate energy, whereas there is no energy capture from GHG emissions at land application sites. With project implementation, BDFP process treatment facilities would increase digester gas production (separate from digester gas increases attributable to population growth) and, in turn, increase production of renewable energy from digester gas. The BDFP energy recovery facilities would generate sufficient levels of electricity by 2045 to power all BDFP facilities and eliminate use of natural gas (non-biogenic) and renewable energy from Hetch Hetchy hydropower (except as backup). Excess power produced by the BDFP could be used for other SEP processes. By eliminating the need for energy from Hetch Hetchy hydropower, the BDFP would make this renewable energy

TABLE 4.9-3
PROJECT OPERATIONAL GREENHOUSE GAS EMISSIONS

Source	GHG Emissions ($MTCO_2E$)[a]			
	Existing Operation (2015)	**Project Transition (2023)**	**Project Full Operation (2023)**	**Project Full Operation (2045)**
Biogenic Sources				
Existing Waste Gas Burners[b]	3,741	7,131	--	--
Existing Cogeneration Engine–Digester Gas[b]	5,975	--	--	--
Existing Hot Water Boiler[b]	4,214	--	--	--
Proposed Turbines (1 duty/1 future standby)	--	--	27,824	27,824
Proposed Backup Steam Boilers (2 standby)	--	--	87	109
Proposed Microturbines (3 duty/1 standby)	--	--	--	2,874
Proposed Waste Gas Burners (2 standby)	--	7,131	1,364	227
Total Biogenic Emissions	13,931	14,261	29,276	31,035
Non-Biogenic Sources				
Existing Cogeneration Engine–Natural Gas	164	--	--	--
Existing Cogeneration Engine – Digester Gas[b]	30	--	--	--
Existing Utility-Provided Electricity	0	--	--	--
Existing Waste Gas Burners[b]	19	36	--	--
Existing Hot Water Boiler[b]	21	--	--	--
Proposed Turbines (1 duty/1 future standby)	--	--	140	140
Proposed Waste Gas Burners (2 standby)	--	36	6.88	1.1
Proposed Backup Steam Boilers (2 standby)	--	89	0.44	0.55
Proposed Microturbines (3 duty/1 standby)	--	--	--	14
Proposed Emergency Diesel Engine (1 standby)	--	50	50	50
Total Non-Biogenic Emissions	234	212	198	207
Net Change in Non-Biogenic Emissions from Existing Conditions	**--**	**(22)**	**(36)**	**(27)**

NOTES:

[a] GHG = greenhouse gas; $MTCO_2E$ = metric tons of carbon dioxide-equivalent; -- = no emissions. Numbers may not add due to rounding.

[b] CO_2 emissions from digester gas combustion in the waste gas burners, cogeneration engine, and boilers are considered biogenic emissions by the CARB; however, CARB considers CH_4 and N_2O emissions to be non-biogenic for the purposes of reporting because the combustion of digester gas results in net additions of CH4 and N2O to the atmosphere, which would otherwise not be generated without this process.

SOURCE: Ramboll Environ, *Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR*, March 2017 (Table 10, 13a, 13b, 13c, 15).

source available to other users in 2023. Therefore, the project would directly reduce GHG emissions from non-biogenic sources (natural gas), and also indirectly reduce GHG emissions by making more renewable energy from hydropower available to other Hetch Hetchy hydropower customers.

Implementation of the BDFP would also result in a change in non-biogenic emissions associated with truck trips off-hauling biosolids. The biosolids volume generated at the SEP is currently (year 2015) 13,000 dry tons annually, requiring about 7 to 10 haul trips per day. In 2045, *without implementation of the BDFP*, the amount of biosolids generated is projected to be 27,700 dry tons, requiring 14 to 18 haul trips per day. With project implementation, the amount of biosolids generated by the proposed BDFP solids handling facilities is projected to be 24,000 dry tons, requiring 10 to 14 haul trips per day. This reduction in the future number of truck trips would reduce vehicle miles traveled that would otherwise be required to transport biosolids volumes to land application sites or landfills. In addition, the proposed new thermal hydrolysis process/digestion process would also upgrade the quality of the current Class B biosolids produced from the treatment process to Class A biosolids, which would expand the options for beneficial reuse of these materials. These new options for biosolids reuse could be located closer to San Francisco, and thereby reduce travel distances of haul trucks with associated reductions in truck-related GHG emissions.

As indicated in Table 4.9-3, total GHG emissions (biogenic and non-biogenic) from proposed facilities under both full operation scenarios would exceed the 25,000 $MTCO_2E$ threshold, and therefore project facilities would be subject to the CARB's GHG Mandatory Reporting Regulation. The SFPUC would be required to report total GHG emissions (biogenic and non-biogenic) after project implementation, as it currently reports under existing operations. Based on the CARB guidance described in Section 4.9.2.2, the project would not be subject to requirements of the Cap-and-Trade Regulation because over 99 percent of the project's CO_2E emissions would be biogenic. Therefore, the project would be consistent with the mandatory reporting requirements and cap and trade regulations in AB 32. Given the 11 percent reduction in non-biogenic GHG emissions from 2015 levels over the next 30 years, the project would not conflict with the AB 32 goal to reduce GHG emissions to 1990 levels by 2020. This 11 percent reduction in addition to indirect reductions in GHG emissions (i.e., making more renewable energy from hydropower available to other Hetch Hetchy hydropower customers) would also not conflict with state goals to reduce GHG emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050 (EO S-3-05 and EO B-30-15).

The project would be subject to applicable regulations adopted to reduce operational GHG emissions, as identified in the San Francisco Strategies to Address Greenhouse Gas Emissions. Compliance with the City's Commuter Benefits Program, Emergency Ride Home Program, transportation management programs, Executive Directive 06-02 requiring use of renewable diesel, Clean Construction Ordinance, and bicycle parking requirements would reduce the project's transportation-related emissions. These regulations would reduce GHG emissions from single-occupancy vehicles during operations by promoting the use of alternative transportation modes with zero or lower GHG emissions on a per capita basis.

The project would comply with the applicable energy efficiency requirements of the City's Green Building Requirements for City Buildings related to indoor water use, lighting, and energy use,

which would promote energy and water efficiency, thereby reducing the project's energy-related GHG emissions.[49] Additionally, the project would meet the renewable energy criteria of the Green Building Code by increasing use of renewable energy, further reducing the project's energy-related GHG emissions.

The project's waste-related GHG emissions would be reduced through compliance with the City's recycling and composting ordinance, and Green Building Code requirements. These regulations reduce the amount of materials sent to a landfill, reducing GHGs emitted by landfill operations. These regulations also promote reuse of materials, conserving their embodied energy[50] and reducing the energy required to produce new materials.

Compliance with the City's street tree planting requirements would serve to increase carbon sequestration, and proposed planting of landscape trees would help offset the effects associated with the proposed removal of about 90 trees (see Section 2.4.2.3 of the Project Description, Architecture and Landscaping).[51] Compliance with other regulations, including those limiting refrigerant emissions, managing stormwater, and protecting indoor air quality, would reduce emissions of GHGs. Regulations requiring low-emitting finishes would reduce volatile organic compounds (VOCs).[52] Thus, the project would be consistent with San Francisco's Strategies to Address Greenhouse Gas Emissions.[53]

As part of the proposed project, the SFPUC is required to comply with the above regulations, which have proven effective as San Francisco's GHG emissions have measurably decreased when compared to 1990 emissions levels, demonstrating that the City has met and exceeded EO S-3-05, AB 32, and the *Bay Area 2010 Clean Air Plan* GHG reduction goals for the year 2020.

Other existing regulations, such as those implemented through AB 32, will continue to reduce a project's contribution to climate change. In addition, San Francisco's local GHG reduction targets are consistent with the long-term GHG reduction goals of EO S-3-05, EO B-30-15, AB 32, and the *Bay Area 2010 Clean Air Plan.* Therefore, because the project's energy generation would be regulated by AB 32 under the mandatory reporting requirements and the project's non-biogenic emissions would decrease by 11 percent from existing emissions, and because other components of the project would be consistent with the City's GHG reduction strategy, the project is consistent with the GHG reduction goals of EO S-3-05, EO B-30-15, AB 32, and the *Bay Area 2010 Clean Air Plan*, would not

[49] Although the City's green building requirements for City buildings related to indoor water conservation and energy reduction measures are not applicable to wastewater treatment facilities, the SFPUC proposes to implement these measures to the extent feasible. Compliance with water conservation measures would reduce the energy (and GHG emissions) required to convey, pump, and treat water required for the project.

[50] Embodied energy is the total energy required for the extraction, processing, manufacture, and delivery of building materials to the building site.

[51] GHG emissions reductions from such carbon sequestration effects would gradually increase over time as planted trees grow, and such reductions are not included in existing or project-related operational GHG emissions estimates.

[52] While not a GHG, VOCs are precursor pollutants that form ground level ozone. Increased ground level ozone is an anticipated effect of future global warming that would result in added health effects locally. Reducing VOC emissions would reduce the anticipated local effects of global warming.

[53] San Francisco Planning Department, *Greenhouse Gas Analysis: Compliance Checklist for Biosolids Digester Facilities Project*, April 2017.

conflict with these plans, and would therefore not exceed the applicable GHG threshold of significance. As such, the project would result in a less-than-significant impact with respect to GHG emissions. No mitigation measures are necessary.

Summary of Impact C-GG-1

The project's GHG emissions would not conflict with state, regional, or local GHG reduction plans and regulations, and the project would not contribute considerably to cumulative GHG emissions. As such, the project would result in a ***less-than-significant*** impact with respect to GHG emissions. No mitigation measures are necessary.

Mitigation: None required.

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FINAL ENVIRONMENTAL IMPACT REPORT – Volume 2

Biosolids Digester Facilities Project

PLANNING DEPARTMENT
CASE NO. **2015-000644ENV**

STATE CLEARINGHOUSE NO. 2015062073

	Draft EIR Publication Date:	**May 3, 2017**
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SAN FRANCISCO PLANNING DEPARTMENT

BIOSOLIDS DIGESTER FACILITIES PROJECT FINAL ENVIRONMENTAL IMPACT REPORT
Volume 2

Planning Department Case No. 2015-000644ENV
State Clearinghouse No. 2015062073

City and County of San Francisco
San Francisco Planning Department

A dot (●) indicates material that has been revised since publication of the Draft EIR. A dot with an asterisk (●*) is used in the Table of Contents to identify which sections of the document contain changes. Long changes are indicated with opening dots (❶) and closing dots (❶).

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4.10 Wind and Shadow

This section describes the existing wind and shadow environment in the project area and analyzes the potential for implementation of the Biosolids Digester Facilities Project (BDFP or project) to alter wind patterns and shadow patterns in a manner that would adversely affect outdoor recreational facilities or other public areas. Mitigation measures are identified to avoid or reduce adverse impacts, as appropriate.

4.10.1 Setting

4.10.1.1 Wind

Background

The difference in atmospheric pressure between two points on the earth causes air masses to move from the area of higher pressure to the area of lower pressure. This movement of air masses results in wind currents. The direction and speed of wind currents can be altered by natural features of the land or by buildings and structures. Groups of buildings clustered together tend to act as obstacles that reduce wind speeds. Building characteristics that can affect wind speeds include:

- ***Height.*** When a building is much taller than those around it, rather than a similar height, it can intercept and redirect winds downward that might otherwise flow overhead. The winds can be directed down the vertical face (or wall) of the building to ground level, and these redirected winds can be relatively strong and turbulent, particularly if such a wall includes no articulation.1 Based on a multitude of wind tunnel tests conducted for proposed buildings in San Francisco, buildings that are less than 80 feet tall typically do not result in substantial changes in ground-level winds.

- ***Massing.*** The massing of a building can affect wind speeds. In general, slab-shaped buildings have the greatest potential to accelerate ground-level winds, while buildings that have unusual shapes or are more geometrically complex tend to have lesser effects.

- ***Orientation and Profile.*** The orientation or profile of a building can also affect wind speeds. When the wide face of a building, as opposed to its narrow face, is oriented toward the prevailing wind direction, the building has more surface area to intercept and redirect winds down to ground level, thus increasing the probability of strong and turbulent winds at ground level.

Existing Climate and Wind Conditions in Project Site Vicinity

Meteorological data from the City and County of San Francisco (CCSF) show that winds from the northwest, west-northwest, west, and west-southwest are the most prevalent in eastern San Francisco and reflect the persistence of sea breezes.[2] Average wind speeds in the city are highest in the summer

[1] Building articulation refers to street frontage elements, both horizontal and vertical, that help create a streetscape of interest.

[2] City and County of San Francisco, wind monitoring data for Pier 40, 2016. Available online at https://data.sfgov.org/Energy-and-Environment/Historic-San-Francisco-Wind-Monitoring-Data/rabs-nyxp data. Accessed on April 20, 2017.

and lowest in the winter; the strongest peak winds occur in winter in association with storm events. Throughout the year, the highest wind speeds typically occur in mid-afternoon and the lowest in the early morning. Westerly to northwesterly winds are the most frequent and strongest winds in the city regardless of season, although topography and structures affect localized wind patterns.

The project site, the Southeast Water Pollution Control Plant (Southeast Plant or SEP), 1550 Evans Avenue, and the Piers 94 and 96 staging areas are generally flat; the approximately 15-foot-tall berm and retaining wall supporting the Caltrain tracks extend along the western boundary of the project site and the Southeast Greenhouses site. The Southeast Greenhouses site, which could be used for construction staging, gently slopes to the northeast. Based on wind rose[3] data (shown on Figure 4.8-1 in Section 4.8, Air Quality) obtained for the grid cell[4] for the SEP's meteorological station (years 2007 to 2011), winds in the vicinity are predominantly from the west to southwest, and average wind speeds are light (5 to 6 miles per hour).[5]

Existing Building Characteristics in Project Vicinity

Salient characteristics of existing structures at the project site and the SEP are as follows (refer also to the aerial photograph presented on Figure 2-2 in Chapter 2, *Project Description*):

- ***Project Site.*** The Central Shops site is surrounded by a chain-link fence and includes three rectangular buildings ranging from one to two stories, as well as several one-story aluminum buildings; these buildings range in size from approximately 13,000 to 50,000 square feet. The tallest building at the site (Building B) is approximately 30 feet tall. The Asphalt Plant site is surrounded by a chain-link fence and includes a three-story steel asphalt mixing structure approximately 65 feet across and about 40 feet in height. There are also several rectangular one-story industrial buildings ranging in size from approximately 800 to 3,800 square feet, which will be demolished prior to BDFP construction. The project site also contains two areas within the existing SEP.

- ***SEP.*** Both SEP North and SEP South are densely developed with buildings ranging in size from approximately 100 to 38,000 square feet. The tallest above-grade structures at the SEP include an unused chimney along Quint Street (200 in height) and the following facilities which range in height from 52 to 65 feet: existing Headworks buildings, oxygen generation air separators, Dryer Building, waste gas burners, and bin hoppers. One of the Headworks buildings, a structure extending approximately 400 feet along Evans Avenue with two square concrete towers on the eastern and western ends, is the largest SEP structure adjacent to a public street.[6]

[3] A wind rose is a graphical representation of wind speed and direction over a discrete period of time. See Section 4.8, Air Quality.

[4] "Grid cell" here refers to the latitude and longitude position of the sites that are measured for wind speed. The SEP's meteorological station is atop the Master Control and Laboratory Building near the corner of Phelps Street and Jerrold Avenue (UTM Easting 553.647km and UTM Northing 4177.212km).

[5] CH2M Hill and Brown and Caldwell, Final Southeast Plant Odor Characterization Report, December 2015, *in* SFPUC, Final Biosolids Digester Facilities Project Conceptual Engineering Report, March 2016.

[6] Brewster, Brad, ESA, Department of Parks and Recreation (DPR) form, Southeast Treatment Plant. Prepared for San Francisco Public Utilities Commission, June 2015.

4.10.1.2 Shadow

Background

In an urban environment, shadow is a function of the height, size, and massing of buildings and other elements of the built environment, as well as the angle of the sun. The angle of the sun varies due to the time of day (from rotation of the earth) and the change in seasons (due to the earth's elliptical orbit around the sun and the earth's tilted axis). The longer mid-day shadows are cast during the winter (when the mid-day sun is lowest in the sky), and the shorter mid-day shadows are cast during the summer (when the mid-day sun is higher in the sky). At the time of the summer solstice (which falls approximately on June 21 of every year), the mid-day sun is highest in the sky, and the longest day and shortest night occur on this date. Conversely, the shortest day and longest night occur on the winter solstice (which falls on approximately December 21 of every year). The vernal and fall equinoxes (when day and night are equal in length) represent the halfway point between solstices.

San Francisco is generally densely populated and urbanized, except for publicly owned open spaces that make up approximately 20 percent of the total land area. As discussed below in Section 4.10.2, in 1984 San Francisco voters passed a proposition to preserve sunlight in publicly owned open spaces through restrictions in the issuance of building permits.

Existing and Planned Open Space Under Public Jurisdiction in the Project Site Vicinity

The project site and off-site staging areas are within the eastern portion of San Francisco. There are two parks approximately 0.2 mile and 0.3 mile from the SEP, respectively: Palou & Phelps Mini-Park and Youngblood Coleman Playground (refer to Figure 4.2-1 in Section 4.2, Land Use). These parks are under the jurisdiction of the San Francisco Recreation and Parks Department (SFRPD). The Wu Yee South East Child Development Center at the Southeast Community Center has an outdoor play area along Phelps Street, just south of the Southeast Greenhouses site, that is not under the jurisdiction of the SFRPD. Public access to SEP facilities is restricted, although Jerrold Avenue, a public roadway, bisects the plant and the project site. Nearby publicly accessible areas include Jerrold Avenue and Rankin Street, which abut the project site, and Phelps Street and Evans Avenue. Rankin Street is not a through street and has limited sidewalks, constraining public access. Jerrold and Evans Avenues and Phelps Street have sidewalks. Quint Street was closed to through traffic in October 2015 as part of a separate Caltrain project.[7]

[7] San Francisco Planning Department, Preliminary Mitigated Negative Declaration, Quint-Jerrold Connector Road Project, Case No. 2013.0858E, August 5, 2015.

4.10.2 Regulatory Framework

4.10.2.1 Federal Regulations

There are no federal regulations governing wind or shadow effects that apply to the BDFP.

4.10.2.2 State Regulations

There are no state regulations governing wind or shadow effects that apply to the BDFP.

4.10.2.3 Local Regulations

Wind

The San Francisco Planning Code establishes wind comfort and wind hazard criteria for evaluating new development in four areas of the city: the C-3 Downtown Commercial Districts (Section 148), the Van Ness Avenue Special Use District (Section 243[c][9]), the Folsom–Main Residential/Commercial Special Use District (Section 249.1), and the Downtown Residential District (Section 825). The San Francisco Planning Code sections provide that any new building or addition located in these areas of the city that would cause wind speeds to exceed the hazard level of 26 mile per hour (mph)-equivalent (as defined in the Planning Code) for more than one hour of any year must be modified to meet this criterion. (The 26-mph standard accounts for short-term—three-minute averaged—wind observations at 36 mph as equivalent to the frequency of an hourly averaged wind speed of 26 mph. Winds over 34 mph make it difficult for a person to maintain balance, and gusts can blow a person over.) The BDFP is not within any of the four areas of the city identified above. For California Environmental Quality Act (CEQA) purposes, the San Francisco Planning Department generally refers to the wind hazard criterion to determine the significance of wind effects related to new development in the city.

Shadow

San Francisco General Plan

The Recreation and Open Space Element of the *San Francisco General Plan*[8] includes the following policy related to potential sunlight access or shading impacts:

> ***Policy 1.9:*** Preserve sunlight in public open spaces.

The policy promotes sunlight access to public open spaces and avoidance of shading from new development to maintain the utility and comfort of public open spaces. It notes that Planning Code Section 295 (described below) protects SFRPD properties and that the City should support more specific protections elsewhere to maintain sunlight in open spaces during the hours of their most

[8] City and County of San Francisco (CCSF), *San Francisco General Plan,* Recreation and Open Space Element, April 2014.

intensive use, while balancing this with the need for new development to accommodate a growing population in the city.

The project is not located on SFRPD property, and none of the project components would be located in areas accessible to the public.

San Francisco Planning Code

San Francisco Planning Code Section 295,[9] adopted in 1984 pursuant to voter approval of Proposition K (also known as the Sunlight Ordinance), prohibits the issuance of building permits for structures over 40 feet in height that would cast shade or shadow from one hour after sunrise to one hour before sunset at any time of year on property under the jurisdiction of, or designated to be acquired by, the Recreation and Park Commission, unless the Planning Commission determines that the shade or shadow would have an insignificant adverse impact on the use of such property. Specifically, the Recreation and Park Commission and the Planning Commission consider whether the new shadow would be adverse to use of a park, based on the qualitative criteria adopted in 1989.[10] These criteria consider the timing of the shadow (both time of day as well as time of year), as well as the size, duration, and location of the shadow and the use patterns of those areas of the park that may be affected. The criteria also include consideration of whether the proposed development serves the public interest in terms of a needed use or contribution to urban form.

As described in Chapter 2, *Project Description*, some of the proposed BDFP facilities would be more than 40 feet in height; therefore, the project is subject to review under Planning Code Section 295.

4.10.3 Impacts and Mitigation Measures

4.10.3.1 Significance Criteria

The project would have a significant impact related to wind and shadow if it were to:

- Alter wind in a manner that substantially affects public areas; or
- Create shadow in a manner that substantially affects outdoor recreation facilities or other public areas.

Due to the nature of the BDFP, there would be no impact related to the following topics for the reasons described below:

[9] Planning Code Section 295 provides as follows: "The City Planning Commission shall conduct a hearing and shall disapprove the issuance of any building permit governed by the provisions of this Section if it finds that the proposed project will have any adverse impact on the use of the property under the jurisdiction of, or designated for acquisition by, the Recreation and Park Commission because of the shading or shadowing that it will cause, unless it is determined that the impact would be insignificant. The City Planning Commission shall not make the determination required by the provisions of this Subsection until the general manager of the Recreation and Park Department in consultation with the Recreation and Park Commission has had an opportunity to review and comment to the City Planning Commission upon the proposed project."

[10] San Francisco Planning Department, Informational Hearing on Section 295 Actions Related to the Transit Center District Plan and Transbay Tower (101 1st Street), Executive Summary, September 27, 2012.

- ***Wind and Shadow from Project Construction***. Construction equipment would be smaller than or similar in size and height to other equipment and buildings in the area. The construction equipment would be moved to different locations within the project site as needed during the construction period and would not be permanent. Consequently, construction activities would not substantially alter wind patterns in the project vicinity and would not be tall enough to create substantial new shadows that could affect public open spaces. Therefore, the two significance criteria are not applicable to construction of the project, and construction-related effects are not discussed further.

4.10.3.2 Approach to Analysis

Operational Impacts

This analysis considers whether the project structures could alter wind patterns in the project vicinity and/or be tall enough to create substantial new shadows that could affect public open spaces (i.e., outdoor recreation facilities or other public areas). The analysis is based on evaluation of (1) the size, form, and placement of proposed structures as compared to existing structures; and (2) proximity to public areas. Regarding the analysis of wind patterns, while San Francisco Planning Code Section 148 does not apply to the project area, the wind standards in Section 148 nonetheless provide an appropriate methodology and criteria for the analysis of wind effects in the project area. Consequently, for the purposes of CEQA review, an exceedance of the Planning Code's wind hazard criterion (qualitatively estimated based upon building height) is used in this EIR as the standard for determining whether the project would alter pedestrian winds in a manner that would substantially affect public areas.

Regarding the analysis of shadow, the analysis uses a "shadow fan" diagram prepared by the San Francisco Planning Department and included in **Appendix WS** of this EIR to determine whether any properties under the jurisdiction of the Recreation and Park Commission could be potentially affected by project shadow.[11]

Cumulative Impacts

Section 4.1.3, Approach to Cumulative Impact Analysis and Cumulative Projects, describes the overall approach to the cumulative analysis for those topics using a list-based approach and summarizes reasonably foreseeable future projects in the vicinity of the project that could contribute to a cumulative impact; refer to Table 4.1-1 and Figure 4.1-1 for a description and location of potential cumulative projects in the vicinity of the BDFP. The cumulative analysis for wind and shadow uses a list-based approach to analyze the effects of the project in combination with other past, present, and probable future projects in the immediate vicinity. The cumulative impact analysis assumes that construction and operation of other projects in the geographical area, listed in Table 4.1-1, would be required to comply with the same regulatory requirements as the project (unless specific information to

[11] The shadow fan is a diagram that shows the maximum extent of the shadows cast by a building throughout the year, between one hour after sunrise and one hour before sunset. The preliminary shadow fan is typically based on full buildout of the zoning envelope (the maximum three-dimensional space within which a structure can be built, based on the zoning of the relevant lot), including complete lot coverage and maximum building height (in this case, 65 feet).

the contrary is known about a project[12]), which would serve to avoid and reduce many impacts to less-than-significant levels on a project-by-project basis. The analysis then considers whether or not there would be a significant, adverse cumulative impact associated with project implementation in combination with past, present, and probable future projects in the geographical area, and if so, whether or not the project's incremental contribution to the cumulative impact would be considerable. Both conditions must apply in order for a project's contribution to cumulative effects to be deemed cumulatively considerable (significant). Long-term or permanent cumulative wind and shadow impacts would occur if the project and cumulative projects in the vicinity of the project site and the SEP were to involve permanent aboveground facilities that would also contribute to alteration of wind patterns and speed or shadows in public areas. If the project's contribution to a cumulative impact is determined to be cumulatively considerable (i.e., significant), then mitigation measures are identified to reduce the project's contribution to the extent feasible.

4.10.3.3 Impact Evaluation

Operational Impacts

Impact WS-1: The project structures would not alter wind in a manner that would substantially affect public areas. (Less than Significant)

Project implementation would involve construction and operation of new solids treatment, odor control, energy recovery, and associated facilities at the project site, expanding the boundaries of SEP operations in a westerly direction. Existing structures at the project site would be demolished and replaced by the proposed facilities. The two two-story buildings at 1550 Evans Avenue would also be demolished as part of the BDFP. As discussed in Section 4.10.1, Setting, existing structures on the project site range in height from 10 feet to 40 feet; existing structures at the adjacent SEP reach up to 65 feet, with one unused chimney that is 200 feet high. Once constructed, the proposed facilities would range in height from 10 feet to 65 feet above grade, although some building appurtenances would extend above 65 feet in height, including the exhaust stack atop the Energy Recovery Facility which would be 75 feet high.

New structures that would be adjacent to publicly accessible areas (sidewalks) include those along Jerrold Avenue: Maintenance Shops 1 and 2; digester gas treatment; and energy recovery (refer to Figure 2-5 in Chapter 2, *Project Description*). The existing 3,800-square-foot Service Building (Building 870 on Figure 2-3 in Chapter 2, *Project Description*) extends 20 feet above grade and would be replaced with the Maintenance Shops 1 building, which would be approximately 12,600 square feet and 30 feet high. Maintenance Shops 1 would be the largest new structure adjacent to Jerrold Avenue. The smaller Maintenance Shops 2 building (5,500 square feet and 15 feet high) would also be constructed along Jerrold Avenue, at a site currently occupied by temporary storage areas and parking. With the expanded boundaries of the SEP, fencing would be extended along Jerrold Avenue and along Quint Street to the western terminus of the project site boundary.

[12] An exception to this general assumption about regulatory compliance for the current analysis is the San Francisco Gateway project, which proposes to construct facilities to a height of 115 feet in the 65-J Height and Bulk District, which has a height limit of 65 feet.

As indicated in Section 4.10.1.1, a project's wind impacts are directly related to its height, orientation, design, location (particularly relative to public areas), and surrounding development context. Based on wind analyses for other development projects in San Francisco, a building or structure that does not exceed a height of 80 feet generally has little potential to cause substantial changes to ground-level wind conditions. The tallest project facilities, at 65 feet above grade, would include the Solids Pretreatment Facility, digesters, and Biosolids Dewatering Facility (refer to Figure 2-5 and Table 2-4 in Chapter 2, *Project Description*). Other tall project structures would include the digester gas storage tank (60 feet tall) and the Energy Recovery Facility (57 feet tall, with an exhaust stack 75 feet tall). These structures would exceed the height of existing structures within the project site but would be similar in height to some existing buildings at the SEP and to neighboring buildings that would remain. With buildings at a maximum height of 65 feet, the BDFP would not be substantially taller than adjacent or nearby buildings and structures. As indicated in Section 4.10.1.1, Setting, winds at the SEP are typically from the west-southwest and average wind speeds (5 to 6 miles per hour) are light. The cylindrical massing of the digesters and digester gas storage tank would allow overhead winds to flow eastward instead of being intercepted and redirected to ground level. The Biosolids Dewatering Facility would be northeast of the digesters. The digesters would slow the wind currents before they reach the Biosolids Dewatering Facility, reducing their potential to cause substantial changes to ground-level wind conditions. The Solids Pretreatment Facility would be near the center of the project site, would be largely sheltered from wind currents, and would have little to no potential to cause substantial changes to ground-level conditions. The wide face of the new Energy Recovery Facility would encounter prevailing winds from the west but, because of this building's massing, orientation, and location, it would not substantially alter ground-level conditions in public areas; there are no public sidewalks or other public areas located west of this building. The density of development adjacent to publicly accessible areas would generally be similar to the density of existing development in these areas. Consequently, there would be no corridors formed by new structures along Jerrold Avenue that would funnel wind toward public areas. While no permanent structures are proposed for the staging areas, two buildings at 1550 Evans Avenue would be demolished. Although one of these buildings is near the public sidewalk along Evans Avenue, the buildings are only two stories tall, lower than the height at which structures could substantially affect wind patterns experienced at ground level. As such, the project would not contribute to wind pattern alteration in a manner that would substantially affect public areas.

For the above reasons, the project would not alter wind patterns in a manner that substantially affects public areas, and this impact would be ***less than significant.***

Mitigation: None required.

Impact WS-2: Project structures would not create new shadow in a manner that would substantially affect outdoor recreation facilities or other public areas. (Less than Significant)

Implementation of the project would involve construction of new structures near publicly accessible areas. As stated in Section 4.10.1, the Palou & Phelps Mini-Park and Youngblood Coleman Playground are approximately 0.2 mile and 0.3 mile from the SEP, respectively, and the Wu Yee

South East Child Development Center has an outdoor play area south of the Southeast Greenhouses. The shadow fan analysis (refer to Appendix WS) was used to determine the locations where shadows generated by project structures would be cast. The shadow fan analysis conservatively models shadow cast by the maximum buildout of the project site as well as the remainder of SEP North. According to the shadow fan analysis, due to the distance between the proposed structures and the nearest recreational facilities, there would be no new shadows created by the project that would affect outdoor recreational areas.[13]

Proposed facilities would be restricted from public access, though new structures would be adjacent to publicly accessible areas (sidewalks) including those along Jerrold Avenue and Rankin Street. Full buildout of the project site and SEP North at 65 feet above grade would cast shade on surrounding public streets including Jerrold and Evans Avenues and Rankin and Phelps Streets. In general, the net new project shadow would fall to the west of the project site in the morning, to the north during the middle of the day, and to the east in the late afternoon and early evening. Shadows on streets and sidewalks would be transitory, would not substantially affect the function of sidewalks, would not exceed levels commonly expected in urban areas, and would be considered a less-than-significant impact under CEQA. Due to the placement of these structures, increased shading would not substantially affect actively used public areas.

For the reasons described above, the project would not create new shadow that would substantially affect public open spaces. As a result, the impact would be ***less than significant***.

Mitigation: None required.

Cumulative Impacts

Impact C-WS-1: The project, in combination with past, present, and probable future projects, would not substantially contribute to cumulative impacts on wind. (Less than Significant)

The geographic scope for the analysis of potential cumulative impacts related to changes in wind generally includes the areas around the project site and SEP. (No permanent structures are proposed at the staging areas.) Given that wind effects are highly localized, the geographic context for cumulative wind effects encompasses the immediate project site vicinity—generally a few blocks (less than one-quarter mile) in each direction. It is in this vicinity that cumulative development, when combined with the project, would have any effect on wind and shadow on the same locations. Such projects include most projects at the SEP, the Central Bayside System Improvement Project, Central Shops Relocation and Land Reuse, Land Reuse at 1801 Jerrold Avenue, Southeast Greenhouses Demolition, Jerrold Bridge North Span Replacement, Quint Street Bridge Replacement Project, Quint-Jerrold Connector Road, Peninsula Corridor Electrification Project, and San Francisco Gateway. The Southeast Community Facility Revitalization Project may include relocation of the Southeast

[13] San Francisco Planning Department, Shadow Fan, September 3, 2015.

Community Facility to the 1550 Evans Avenue site. Refer to Figure 4.1-1 in Section 4.1, Overview, for the locations of these projects.

A cumulative impact could result if, together, buildings or structures constructed in the cumulative scenario would increase the relief between building heights in the area, create a substantial slab-shaped massing, or enlarge the adjacent surface area oriented toward the prevailing wind direction (thus increasing the winds directed toward the same ground-level public areas). As described above, the maximum height of BDFP buildings would be 65 feet, which is similar to the heights of existing buildings on the site, a height that is generally considered too low to result in substantial ground-level wind effects. Other projects in the cumulative scenario located along Jerrold Avenue include Central Shops Relocation and Land Reuse, Land Reuse at 1801 Jerrold Avenue, Peninsula Corridor Electrification, and Jerrold Bridge North Span Replacement. The first three of these cumulative projects would not construct buildings and thus not contribute to construction of a substantial slab-shaped massing nor enlarge building surface area along Jerrold Avenue. The Jerrold Bridge North Span Replacement is complete, shorter than the proposed BDFP facilities, and oriented nearly perpendicular to the massing created by BDFP facilities along Jerrold Avenue, and thus would not combine with the BDFP to create substantial slab-shaped massing or enlarge the adjacent surface area along Jerrold Avenue. The Southeast Plant Headworks Replacement Project is the single cumulative project located along Rankin Street, and would replace the existing headworks facilities with new structures up to 65 feet tall. While the resulting combined massing along the block of Rankin Street west of Evans Avenue could result in slab-shaped massing along Rankin Street facing the prevailing wind direction, the buildings would not be tall enough to result in substantial ground-level wind effects. The San Francisco Gateway project, southwest of the BDFP, may itself cause wind-related effects based on both its height (115 feet, 50 feet taller than the 65-foot height limit in the area) and the slab shape of its four buildings, although the widest side of the buildings would not be oriented directly toward the prevailing wind,[14] which would moderate its wind effects to some degree. That project's wind-related effects will be addressed in the EIR prepared for it. Given that the BDFP would have little to no potential to cause substantial changes to ground level wind conditions, as discussed in Impact WS-1, and because (1) the BDFP is separated from the San Francisco Gateway site by the Caltrain tracks and other structures and (2) many BDFP structures have a different orientation relative to wind direction, the BDFP would not combine with the San Francisco Gateway project to increase the relief between building heights in the area, create a substantial slab-shaped massing, or enlarge the adjacent surface area oriented toward the prevailing wind direction. Therefore, these projects would not combine to create a significant cumulative effect.

The single cumulative project near or adjacent to the 1550 Evans Avenue site is the Southeast Community Facility Revitalization, which could construct new facilities at 1550 Evans Avenue. The existing buildings at 1550 Evans Avenue would be demolished prior to Southeast Community Facility Revitalization construction. Any ground-level wind effects would depend on the design of the Southeast Community Facility Revitalization, the relevant details of which are currently unavailable, and would be evaluated in project-specific environmental review for that project. For

[14] This assessment assumes that direction of prevailing winds for this project site would be the same at the SEP, which is shown in Figure 4.8-1 in Section 4.8, Air Quality.

these reasons, the BDFP and cumulative projects in the geographic scope would not result in an increase in hazardous wind conditions. The cumulative impact would be ***less than significant***.

Mitigation: None required.

Impact C-WS-2: The project, in combination with past, present, and probable future projects, would not substantially contribute to cumulative impacts on shadow. (Less than Significant)

The geographic scope of impacts related to changes in shadow includes projects that would cast shadows affecting different portions of the same public areas affected by shadows identified in the BDFP shadow fan analysis. As discussed above, the preliminary shadow fan is typically based on full buildout of the zoning envelope, including complete lot coverage and maximum building height. As described under Impact WS-2 above, due to the distance between the proposed structures and the nearest recreational facilities, there would be no new shadows created by the project that would affect outdoor recreational areas. The shadow fan extends from the project site and SEP North outward across Jerrold and Evans Avenues and Rankin and Phelps Streets, and onto other adjacent streets. Cumulative projects that could cast shadows along different portions of these same streets would include the Southeast Plant Headworks Replacement Project, San Francisco Whole Produce Market Expansion, San Francisco Gateway, the Southeast Community Facility Revitalization, and the Central Bayside System Improvement Project. While streets are public areas, the shadows cast would be transitory, would not substantially affect the function of sidewalks, and would not exceed levels commonly expected in urban areas. For these reasons, the cumulative impact would be ***less than significant***.

Mitigation: None required.

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4.11 Recreation

This section describes publicly accessible recreational resources, including parks and designated recreational trails, in the vicinity of the Biosolids Digester Facilities Project (BDFP or project). For the purpose of this assessment, recreational resources are generally defined as the natural and built features that people use for recreation (e.g., fields, trails, and playgrounds), including facilities associated with the recreational resources that enable recreation, such as parking facilities and restrooms. This impact analysis evaluates the potential for the project to result in impacts on recreational resources and identifies mitigation measures to avoid or reduce significant adverse impacts, as appropriate.

4.11.1 Setting

The San Francisco Recreation and Parks Department (SFRPD) manages more than 230 parks, playgrounds, and open spaces throughout San Francisco that are available to the public for recreation.[1] The SFRPD manages the majority of the open space and recreational resources near the project site and off-site staging areas. There are no designated recreational facilities within or immediately adjacent to the Southeast Water Pollution Control Plant (Southeast Plant or SEP).

4.11.1.1 Parks

Palou & Phelps Mini-Park (refer to Figure 4.2-1 in Section 4.2, Land Use) is south of Palou Avenue at Phelps Street, approximately 0.2 mile south of the SEP. This mini-park is operated by the SFRPD and includes community green space with benches, slides, and a jungle gym.[2] There are also numerous trails that extend up the hillside adjoining the south end of the park.

Youngblood Coleman Playground (also shown on Figure 4.2-1) is at 1398 Hudson Street, approximately 0.3 mile east of the SEP. This is an approximately six-acre sports park that serves the Bayview-Hunters Point neighborhood and includes artificial turf soccer and softball fields, basketball and tennis courts, and picnic areas.[3] The SFRPD manages the park.

Heron's Head Park (refer to Figure 4.2-2 in Section 4.2) is a 22-acre open space and wildlife habitat at the eastern terminus of Cargo Way at Jennings Street, just south of Pier 96. Heron's Head Park contains one of the few wetlands on San Francisco's shoreline. Heron's Head Park attracts more than 100 bird species a year and is used for education and recreation by bird-watchers, hikers, students, teachers, and visitors from around the San Francisco Bay Area. The Port of San Francisco manages Heron's Head Park.[4]

[1] San Francisco Recreation and Parks Department, Parks & Open Spaces, 2015 Available online at http://sfrecpark.org/parks-open-spaces/. Accessed on October 12, 2015.
[2] San Francisco Parks Alliance, Palou & Phelps Mini-Park, 2015. Available online at http://www.sfparksalliance.org/our-parks/parks/palou-phelps-mini-park. Accessed on August 7, 2015.
[3] San Francisco Recreation and Parks Department, Youngblood Coleman Playground, 2010-2015. Available online at http://sfrecpark.org/destination/youngblood-coleman-playground/. Accessed on August 7, 2015.
[4] City and County of San Francisco, Port of San Francisco, Heron's Head Park, 2015. Available online at http://www.sf-port.org/index.aspx?page=210. Accessed on August 7, 2015.

There are approximately five acres of salt marsh and uplands that are being restored along the shore north of Pier 94, providing opportunities for wildlife viewing. The Port of San Francisco and Golden Gate Audubon Society manage this site. While public amenities are few, the goal for this site, in addition to preserving habitat, is to encourage public access and education.[5,6]

4.11.1.2 San Francisco Bay Trail

The San Francisco Bay Trail (Bay Trail) (refer to Figure 4.2-2) is a multi-purpose recreational trail that circumnavigates the entire San Francisco Bay and provides opportunities for walking, jogging, and bicycling.[7] One segment of the Bay Trail crosses Heron's Head Park near the park entrance and extends along the Bay shoreline south of the park; a spur of the Bay Trail extends through the park via a dirt/gravel path. North of the park a paved portion of the Bay Trail extends along Cargo Way to the junction of Amador and Illinois Streets where it turns and continues north along Illinois Street.[8] In this area, the Bay Trail coincides with San Francisco's Blue Greenway (except for the Bay Trail spur that extends into Heron's Head Park), which is the City's project to improve the southerly portion of the Bay Trail in San Francisco as well as the newly established Bay Area Water Trail and associated waterfront open space system.[9]

4.11.2 Regulatory Framework

4.11.2.1 Federal Regulations

There are no federal regulations that govern recreational resources that are applicable to the BDFP.

4.11.2.2 State Regulations

In 1987, Senate Bill 100 was passed into law,[10] directing the Association of Bay Area Governments to create a trail/recreational corridor that was to be aligned along the Bay. The Bay Trail is a multi-purpose recreational trail that, when complete, will encircle San Francisco Bay and San Pablo Bay with a continuous 500-mile network of bicycling and hiking trails. A portion of the Bay Trail is near the Piers 94 and 96 staging areas. The law does not contain any specific policies that relate to project impacts on recreational resources.

5 Port of San Francisco, Pier 94 Wetlands, 2016. Available online at http://sfport.com/pier-94-wetlands. Accessed on August 15, 2016.
6 Golden Gate Audubon Society, Pier 94, 2016. Available online at http://goldengateaudubon.org/conservation/wetlands/pier-94/. Accessed on August 15, 2016.
7 Information in this section is derived from San Francisco Bay Trail Project, Welcome to the San Francisco Bay Trail, 2016. Available online at http://baytrail.org/about-the-trail/welcome-to-the-san-francisco-bay-trail/. Accessed on December 30, 2016.
8 San Francisco Bay Trail Project, San Francisco Bay Trail Maps and Guides, 2015. Available online at http://baytrail.org/baytrailmap.html. Accessed August 12, 2015.
9 Port of San Francisco, Blue Greenway, 2016. Available online at http://sfport.com/blue-greenway-project. Accessed on August 22, 2016.
10 Senate Bill 100 is codified in Division 5 of the Public Resources, Chapter 11 (commencing with Section 5850).

4.11.2.3 Local Regulations

San Francisco General Plan

The *San Francisco General Plan* provides general policies and objectives to guide land use decisions. The Recreation and Open Space Element of the General Plan serves to guide the City's land use decisions as they relate to recreational resources and the open space system.[11] See Chapter 3, *Plans and Policies*, for additional discussion of the *San Francisco General Plan*.

Bayview Hunters Point Area Plan

The Recreation and Open Space Element of the *Bayview Hunters Point Area Plan* includes policies to address the neighborhood's recreation and open space system, including policies that call for renovating and expanding area facilities and emphasizing shoreline connections in new development projects. Refer to Chapter 3, *Plans and Policies*, of this EIR for additional discussion of the *Bayview Hunters Point Area Plan*.

4.11.3 Impacts and Mitigation Measures

4.11.3.1 Significance Criteria

The project would have a significant impact related to recreational resources if it were to:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated;
- Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment; or
- Physically degrade existing recreational resources.

4.11.3.2 Approach to Analysis

This analysis assesses recreation and public open space impacts associated with the implementation of the project. Local planning documents and maps were reviewed and site visits conducted to identify the recreational resources in the project area that, because of their proximity, could be directly or indirectly affected by the project.

Construction and Operational Impacts

To determine the potential for construction activities and project operations to cause physical effects on recreation facilities or resources, the project-related activities at the project site and off-site staging areas were evaluated for their potential to affect identified recreational resources in the vicinity. Short-term physical degradation or temporary loss of use of a recreational facility (e.g., a bicycle path or a park area) would not typically result in a finding of a significant recreational impact if the use is restored

[11] City and County of San Francisco, *San Francisco General Plan*, Recreation and Open Space Element, 2014. Available online at http://www.sf-planning.org/ftp/General_Plan/Recreation_OpenSpace_Element_ADOPTED.pdf.

after completion of construction. A significant recreational impact would more typically result from the permanent loss of a recreational opportunity or the physical degradation of a recreational resource, particularly if there are no similar alternative recreational facilities or resources available nearby. Section 4.6, Transportation and Circulation, addresses potential construction traffic impacts on pedestrians and bicyclists.

Cumulative Impacts

Section 4.1.3, Approach to Cumulative Impact Analysis and Cumulative Projects, describes the overall approach to the cumulative analysis for those topics using a list-based approach and summarizes past, present, and reasonably foreseeable future projects in the vicinity of the project that could contribute to a cumulative impact; please refer to Table 4.1-1 and Figure 4.1-1 for a description and location of potential cumulative projects in the vicinity of the BDFP. The cumulative analysis for Recreation uses a list-based approach to analyze the effects of the project in combination with other past, present, and probable future projects in the immediate vicinity. Cumulative construction and operations impacts are analyzed together because the consequences of the impacts (e.g., loss of use or deterioration of a recreational resource) would be similar, although the duration of the potential impacts would differ. The analysis then considers whether or not there would be a significant, adverse cumulative impact associated with project implementation in combination with past, present, and probable future projects in the geographical area, and if so, whether or not the project's incremental contribution to the cumulative impact would be considerable. Both conditions must apply in order for a project's contribution to cumulative effects to be deemed cumulatively considerable (significant). If so, then mitigation measures are identified to reduce the project's contribution to the extent feasible.

The geographic scope for the analysis of potential cumulative impacts on recreational resources encompasses the recreational facilities and trails in the vicinity of project site and off-site staging areas. This generally includes the areas around the SEP within the Bayview-Hunters Point community, and the areas around Piers 94 and 96.

4.11.3.3 Impact Evaluation

Construction and Operational Impacts

Impact RE-1: The project's construction and operation would not (a) increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated, (b) include recreational facilities or require the construction or expansion of recreational facilities, or (c) otherwise result in substantial degradation of existing recreational resources. (No Impact)

Temporary, direct impacts on established recreational facilities (parks and trails) and resources could result if construction activities overlapped geographically with existing recreational facilities or trails. Project construction activities would not directly affect any recreational facilities because there are no such facilities within the project site or the off-site staging areas. Furthermore, construction activities would not affect nearby park and trail facilities because the existing parks in the vicinity would remain open and are far enough from the project site (over 1,000 feet to the closest park) and off-site

staging areas (over 300 feet to the Bay Trail) that project construction would not result in the physical deterioration or degradation of these recreational resources.

The project does not include new recreational facilities and would not permanently affect existing recreational resources. The project does not include new residential or other uses that would generate increased demand for parks or other recreational facilities. The project would not increase existing operations staff levels at the SEP, so demand at existing recreational facilities near the SEP would not increase as a result of project operations; ongoing demand would continue to be met by existing parks and recreational facilities. As such, operation of the project would have ***no impact*** related to direct or indirect physical deterioration of recreational resources.

Mitigation: None required.

Cumulative Impacts

Impact C-RE-1: The project, in combination with past, present, and probable future projects, would not substantially affect recreational resources. (No Impact)

Pursuant to CEQA Guidelines Section 15130(a)(1), an EIR should not discuss impacts that do not result in part from the project evaluated in the EIR. As described under Impact RE-1, the project would have no impact related to increased use or degradation of parks or other recreational facilities. Therefore, there would be ***no significant cumulative impact*** on these resources to which the project would contribute.

Mitigation: None required.

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4.12 Utilities and Service Systems

This section describes existing utilities and service systems in the vicinity of the Southeast Water Pollution Control Plant (Southeast Plant or SEP) and evaluates the potential impacts of the Biosolids Digester Facilities Project (BDFP or project) on water supply and treatment, stormwater drainage facilities, wastewater treatment, and solid waste disposal. Mitigation measures are identified to avoid or reduce significant adverse impacts, as appropriate.

4.12.1 Setting

The subsections below describe existing water supply and demands at the SEP, San Francisco's wastewater and stormwater systems, solid waste disposal facilities within the greater San Francisco Bay Area and beyond that could receive construction- and operation-related wastes from the BDFP; and the current disposition of biosolids produced at the SEP.

4.12.1.1 Water Supply

The San Francisco Public Utilities Commission (SFPUC) provides potable water supply within San Francisco through its regional water system. This system collects water primarily from the Tuolumne River watershed, with additional supply from reservoirs in the East Bay and San Francisco peninsula.[1] In 2016, the SFPUC adopted the *2015 Urban Water Management Plan for the City and County of San Francisco* (2015 UWMP) in compliance with the California Urban Water Management Planning Act[2] (described in greater detail below in Section 4.12.2.2). The 2015 UWMP describes San Francisco's long-term strategy for ensuring that there is adequate water available from their regional and local water supplies to meet existing and future water demands over the 20-year planning horizon between 2020 and 2040.

The regional water system provides potable water to wholesale customers located outside of San Francisco as well as to retail customers that are located both within San Francisco and outside of San Francisco. Water for the proposed project would be obtained from the retail supply. **Table 4.12-1** summarizes the projected retail water supply and retail water demands from 2020 through 2040. As shown in this table, both retail water supplies and demand are projected to increase from 77.5 million gallons per day (mgd) in 2020 to 89.9 mgd in 2040, with no projected surplus or shortage. This retail water will be supplied primarily from the regional water system, supplemented by local groundwater supplies. In addition, planned recycled water projects in San Francisco will provide water for nonpotable uses and make more potable water available for the retail water supply. The increase in retail water supply through 2040 comes primarily from increased deliveries from the regional water system and construction of the Eastside Recycled Water Project by 2030.

1 SFPUC, *2015 Urban Water Management Plan for the City and County of San Francisco*, June 2016.
2 California Water Code Sections 10610-10656, as amended.

TABLE 4.12.1
PROJECTED SFPUC RETAIL WATER SUPPLIES AND WATER DEMANDS (MGD)

	2020. All Hydrologic Scenarios	2025, All Hydrologic Scenarios	2030, All Hydrologic Scenarios	2035, All Hydrologic Scenarios	2040	
					Normal Year, Dry Year, and Multiple Dry Years, Year 1	Multiple Dry Years, Years 2 and 3
Total Retail Demand	77.5	79.0	82.3	85.9	89.9	89.9
Total Retail Supply	77.5	79.0	82.3	85.9	89.9	88.8
Projected Surplus (Shortage)	0	0	0	0	0	-1.1

NOTES: See text for a description of hydrologic scenarios considered.

SOURCE: SFPUC, 2015 Urban Water Management Plan

Current water supply projections indicate that the SFPUC regional water system, supplemented by local groundwater and recycled water supplies, will meet San Francisco's needs to 2040 during wet years, a single dry year, and multiple dry years as summarized in Table 4.12-1, except during years 2 and 3 of a multi-year drought when there would be a 1.1 mgd shortfall in retail water supply due to restrictions on deliveries from the regional water supply. This shortfall is approximately 1.2 percent of the total projected (year 2040 during a multi-year drought) retail water demand.

Within San Francisco, potable water is distributed through five major pipelines, two of which provide water to the eastern portion of the city. A 12-inch-diameter pipeline under Jerrold Avenue supplies potable water to the existing SEP biosolids facilities.[3]

As described in Chapter 2, *Project Description* (Section 2.4.1.7, Water Systems and Pump Stations), the SEP currently uses three water systems for treatment processes and other uses: No. 1 water (potable water), No. 2 water (chlorinated and filtered secondary effluent [non-potable]) and No. 3 water (chlorinated secondary effluent [non-potable]). As shown in Table 2-6, in 2015, the SEP used about 43,200 gallons per day (gpd) of No. 1 water, 172,800 gpd of No. 2 water, and 1,108,800 gpd of No. 3 water.

4.12.1.2 Wastewater and Stormwater

The SFPUC operates a combined sanitary sewer and stormwater system in San Francisco, and freshwater flow to San Francisco Bay from the city has been almost entirely diverted to this combined system. However, for portions of the waterfront, including Piers 94 and 96, the Port of San Francisco (Port) manages separated stormwater systems that discharge stormwater directly to the Bay and Islais Creek, while the SFPUC manages the sanitary sewage in these areas.

[3] SFPUC, *Application for Environmental Evaluation for the Biosolids Digester Facilities Project*, January 29, 2015.

Stormwater from the SEP, Asphalt Plant, Central Shops, and staging areas at the Southeast Greenhouses site and 1550 Evans Avenue drains to the combined sewer system, while stormwater at the Piers 94 and 96 staging areas drains to separate storm drain systems operated by the Port and stormwater at the Pier 94 Backlands infiltrates to the ground or runs off to the Bay. Both the combined sewer system operated by the SFPUC and the separate storm drain systems operated by the Port are discussed below. All sanitary (wastewater) flows from the project site as well as the staging areas discharge to the City's combined sewer system.

SFPUC Combined Sewer System

Overview

The SFPUC operates a combined sanitary sewer and stormwater system in San Francisco that is roughly divided into two major drainages: the Bayside and Westside basins. The project site is within the Bayside drainage basin, which covers the east side of San Francisco. The Bayside drainage basin includes a system of 653 miles of pipe to convey stormwater and wastewater to the SEP for treatment year-round. As discussed in Chapter 2, the average dry weather flow to the SEP for years 2012 to 2014 ranged from 58 to 61 mgd. The average dry weather design flow capacity of the SEP is 85 mgd; therefore, the existing dry weather flows are about 72 percent of the treatment capacity, and all dry weather wastewater flow is treated to a secondary level at the SEP.

During the wet season, the North Point Wet Weather Facility (NPF) also treats a portion of the wet weather flows. The combined sewer system includes storage and transport boxes that, during wet weather, retain the combined stormwater and sewage flows that exceed the capacities of the SEP and the NPF for later treatment. When rainfall intensity results in combined flows that exceed the total capacity of the SEP, the NPF, and the 125-million-gallon capacity of the storage and transport structures, the excess flows are discharged through 29 combined sewer discharge (CSD) structures located along the city's bayside waterfront from the Marina Green to Candlestick Point. All discharges from the combined sewer system to the Bay, through either the outfalls or the CSD structures, are operated in compliance with the National Pollutant Discharge Elimination System (NPDES) permit for discharges from the SEP, the NPF, and all of the Bayside wet weather facilities, including CSDs to the Bay (referred to as the Bayside NPDES Permit). Both the combined sewer system and the Bayside NPDES Permit are described in more detail in Section 4.16, Hydrology and Water Quality.

Wastewater and Stormwater Collection at SEP, Asphalt Plant, and Central Shops

A network of 8,000 linear feet of gravity combined sewer mains conveys wastewater and stormwater from within the SEP to the SEP Headworks.[4] Stormwater from all buildings, parking lots, and roadways in the SEP, Asphalt Plant, and Central Shops drains to a 36-inch-diameter combined sewer within the SEP and to other combined sewers in Jerrold Avenue, Phelps Street, and Evans Avenue. Wastewater and stormwater flows from the Asphalt Plant and Central Shops are conveyed to the SEP for treatment before eventual discharge to San Francisco Bay.[5]

4 SFPUC, *Southeast Water Pollution Control Plant Condition Assessment*, November 2013.
5 SFPUC, *Wastewater Enterprise Bayside System Operations Plan Summary Baseline Report*, October 2013.

Port Stormwater Management

The Port manages approximately 7.5 miles of San Francisco's waterfront from Hyde Street Pier on the north to India Basin on the south.[6] The vast majority of this area is served by separate storm drain systems operated by the Port, and stormwater either drains directly to the Bay without treatment, is treated with landscape swales and directed to the Bay, or infiltrates to the ground in areas without a separate drain system. The State Water Resources Control Board (SWRCB) classifies these areas where stormwater drains to the Bay as a municipal separate storm sewer system (or MS4). Accordingly, stormwater discharges from areas managed by the Port are regulated under the SWRCB Water Quality Order No. 2013-0001-DWQ, NPDES General Permit for Waste Discharge Requirements (WDRs) for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (the Small MS4 General Stormwater Permit discussed in Section 4.16, Hydrology and Water Quality, under State Regulations).

The Pier 96 staging area drains directly to the Bay via separate storm drain systems. The easterly, paved portion of the Pier 94 staging area drains via a different separate storm drain system to Islais Creek. The Pier 94 Backlands is comprised of unpaved surfaces, and stormwater is treated through a system of landscape swales that collect, treat and convey stormwater. The stormwater, once treated, is released to the Bay through an outfall.

4.12.1.3 Solid Waste Disposal

Residential, Commercial, and Municipal Solid Waste

San Francisco generated approximately 498,430 tons of solid waste during 2014.[7] Recology collects and processes all residential and commercial waste, recycling, and composting for San Francisco through its subsidiaries: San Francisco Recycling and Disposal, Golden Gate Disposal and Recycling, and Sunset Scavenger. All materials are taken to the San Francisco Solid Waste Transfer and Recycling Center where it is sorted for transport to composting and recycling facilities and landfills. Waste that is not composted or recycled is currently taken to the Hay Road Landfill in Solano County. Under its contract with Recology, the City and County of San Francisco (CCSF or City) will dispose of its municipal solid waste at the Recology Hay Road Landfill through at least 2025. The Hay Road Landfill's design capacity is 37 million cubic yards, and the landfill is permitted to accept up to 2,400 tons per day of solid waste. The remaining capacity as of 2010 was over 30 million cubic yards.[8]

With respect to the SEP, a small amount of municipal solid waste is generated and collected by Recology.

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6 Port of San Francisco, *Storm Water Management Plan 2003-2004*, December 2003.

7 California Department of Resources Recycling and Recovery (CalRecycle), Jurisdiction Diversion/Disposal Rate Detail for San Francisco, reporting year 2014. Available online at http://www.calrecycle.ca.gov/LGCentral/Reports/DiversionProgram/JurisdictionDiversionDetail.aspx?JurisdictionID=438&Year=2014. Accessed on July 6, 2016.

8 California Department of Resources Recycling and Recovery (CalRecycle), Facility/Site Summary Details: Recology Hay Road (48-AA-0002). Available online at http://www.calrecycle.ca.gov/SWFacilities/Directory/48-AA-0002/Detail/. Accessed on July 6, 2016.

Construction Wastes

Individual project sponsors and their construction contractors are responsible for managing and disposing of construction wastes. The San Francisco Environment Code Section 708 and Chapter 14 (described in Section 4.12.2.3, below) require recycling and reuse of construction wastes produced in San Francisco.

4.12.1.4 Disposition of Biosolids

As described in Chapter 2 (Section 2.2.2.2, Operating Characteristics), the wastewater treatment process at the SEP currently produces Class B biosolids that are suitable for some land application and beneficial reuse such as use as an alternative daily cover at a landfill or composting. In 2015, the SEP produced approximately 13,000 dry tons of biosolids, which were beneficially reused off-site at the locations listed in **Table 4.12-2**.[9] As summarized in this table, during the dry season, the biosolids were hauled to Sonoma County and Solano County for land application and throughout the year, additional biosolids were transported to Sacramento County for land application. During the wet season, the biosolids were hauled to Sacramento County for land application and also to the Hay Road Landfill (Solano County), Potrero Hills Landfill (Solano County), and Altamont Landfill (Alameda County) for beneficial reuse. Some of the Class B biosolids were also sent to a composting facility near Dos Palos in Merced County for further processing to Class A quality**.** The SFPUC does not have long-term contracts for the off-site disposition of biosolids; therefore, other facilities could be used depending on future contracting arrangements.

TABLE 4.12-2
DISPOSITION OF SOUTHEAST WATER POLLUTION CONTROL PLANT (SEP) BIOSOLIDS IN 2015

Destination	Disposition	Season	Estimated Closure Date
Sonoma and Solano Counties	Land Application	Dry (April to October)	n/a
Sacramento County	Land Application	All seasons	n/a
Hay Road Landfill	Alternative Daily Cover	Wet	2077
Potrero Hills Landfill	Alternative Daily Cover	Wet	2048
Altamont Landfill	Alternative Daily Cover	Wet	2025
Composting Facility in Merced County	Composting	All seasons	n/a

NOTES:
n/a = not applicable
See Chapter 2, *Project Description*, for discussions of land application and alternative daily cover.

SOURCE: SFPUC, City and County of San Francisco Biosolids Annual Summary Report. February 19, 2016; CalRecycle, Facility/Site Summary Details: Recology Hay Road (48-AA-0002), available online at http://www.calrecycle.ca.gov/SWFacilities/Directory/48-AA-0002/Detail/, accessed August 26, 2016; CalRecycle, Facility/Site Summary Details: Potrero Hills Landfill (48-AA-0075), available online at http://www.calrecycle.ca.gov/SWFacilities/Directory/48-AA-0075/Detail/, accessed September 8, 2016; CalRecycle, Facility/Site Summary Details: Altamont Landfill & Resource Recovery (01-AA-0009), available online at http://www.calrecycle.ca.gov/SWFacilities/Directory/01-AA-0009/Detail/, accessed September 8, 2016.

[9] SFPUC, City and County of San Francisco Biosolids Annual Summary Report. February 19, 2016.

4.12.2 Regulatory Framework

This section describes the regulatory framework related to water supply planning as well as disposition of biosolids and solid wastes. Section 4.16, Hydrology and Water Quality, describes federal and state regulations regarding stormwater and wastewater.

4.12.2.1 Federal Regulations

Title 40 Part 503 of the Code of Federal Regulations (40 CFR Part 503) regulates the use or disposal of treated sewage sludge (or biosolids). This rule establishes the requirements for final use or disposal of biosolids when biosolids are applied to land to condition the soil or fertilize vegetation, placed on a surface disposal site for final disposal, or fired in a biosolids incinerator.[10] The rule contains numerical limits for metals in biosolids, pathogen reduction standards, site restrictions, crop harvesting restrictions and monitoring, and record-keeping and reporting requirements for land-applied biosolids as well as similar requirements for biosolids that are surface-disposed or incinerated.[11] As noted in Table 2-1 in Chapter 2, *Project Description,* 40 CFR Part 503 and related guidance documents categorize treated sewage sludge with respect to pathogens as either Class A or Class B, as follows:

- **Class A** biosolids contain no detectable levels of pathogens and do not attract vectors and other potential disease-carrying organisms. According to the United States Environmental Protection Agency (USEPA) Guide to Part 503 Rule, Class A biosolids that meet the USEPA's metals pollutant limits are labeled "Exceptional Quality (EQ)" biosolids and have the fewest restrictions for land applications such as soil conditioning and fertilizer.

- **Class B** biosolids are treated but still contain detectible levels of pathogens. Reuse of Class B biosolids requires buffers and public access and crop harvesting restrictions.

4.12.2.2 State Regulations

California Water Code – Beneficial Reuse of Biosolids

The beneficial reuse of biosolids in California generally must comply with the California Water Code in addition to 40 CFR Part 503 (described above), but California does not have delegated authority to implement the Part 503 rule. SWRCB Water Quality Order No. 2004-12-DWQ implements requirements of the California Water Code.[12] This order prescribes general waste discharge requirements for the use of biosolids as a soil amendment.[13] While the order discusses generators of biosolids (such as the SEP), the order only applies to dischargers (entities that apply

[10] United States Environmental Protection Agency (USEPA), *Guide to Part 503 Rule,* Chapter 1, Use or Disposal of Sewage Sludge Biosolids, June 28, 2002.
[11] USEPA, Water: Sewage Sludge (Biosolids), Frequently Asked Questions. Available online at http://water.epa.gov/polwaste/wastewater/treatment/biosolids/genqa.cfm. Accessed on June 5, 2015.
[12] SWRCB, Biosolids, 2013. Available online at http://www.waterboards.ca.gov/water_issues/programs/biosolids/. Accessed on September 11, 2015.
[13] SWRCB, Water Quality Order No. 2004-0012-DWQ, General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities (General Order), July 22, 2004.

the biosolids to the land).[14] The standard operating procedures applicable to dischargers must include a spill response and contingency plan, vector and odor control, avoidance of introduction of any materials that could cause upset of the treatment process, and operation and maintenance procedures. Without securing coverage under Order No. 2004-12-DWQ, application of biosolids as soil amendment at agricultural, horticultural, silvicultural, or land reclamation sites is not permitted. The order does not preempt or supersede the authority of local agencies to prohibit, restrict, or control the use of biosolids subject to their control as allowed under current law.

The Bayside NPDES Permit requires compliance with federal and state regulations for management of SEP biosolids. The permit specifies that the biosolids must be pre-treated and monitored to determine the concentration of organic compounds, selected metals, and cyanide. The permit also indicates that the biosolids must be disposed of, managed, or used in a municipal solid waste landfill; through land application; as a Class A compost; through a waste-to-energy facility or another recognized and approved technology; in a sludge-only landfill; or in a sewage sludge incinerator in accordance with 40 CFR Part 503.

Senate Bill 610 – Water Supply Assessments

Senate Bill (SB) 610[15] requires local water providers to conduct a water supply assessment (WSA) for projects proposing over 500 housing units, 250,000 square feet of commercial office space (or more than 1,000 employees), a shopping center or business establishment with over 500,000 square feet (or more than 1,000 employees), or equivalent usage. Guidance from the Department of Water Resources regarding this law states that the city or county in which a project would occur would need to work with the water supplier to determine if the demand associated with a project would be equivalent to or greater than the demand for a 500-unit residential project in that jurisdiction. Pursuant to this guidance, in 2013 the SFPUC provided its determination of the threshold value for identifying equivalent projects in San Francisco, described below in Section 4.12.2.3.

California Urban Water Management Planning Act – Water Supply Planning

The 1983 California Urban Water Management Planning Act[16] requires every urban water supplier to prepare and adopt a UWMP and update it every five years. The UWMP must describe demographic factors affecting water management planning (such as projected population changes), describe and quantify (if possible) existing and planned sources of water available to the supplier in five-year increments to 20 years or as far as data are available, and describe the reliability and vulnerability of the water supply. The UWMP must include all water supply projects and programs that may be undertaken by the urban water supplier to meet the total projected water demand.

14 Ibid.
15 SB 610 is codified in California Public Resources Code Sections 10910-10915.
16 California Water Code Sections 10610-10656, as amended.

California Integrated Waste Management Act – Waste Diversion

The California Integrated Waste Management Act of 1989,[17] enacted through Assembly Bill (AB) 939 and modified by subsequent legislation, requires all California cities and counties to implement programs to divert at least 50 percent of all solid waste generated by the year 2000 and establishes the goal of diverting at least 75 percent of generated waste (based on per capita disposal rates) by 2020. A jurisdiction's diversion rate is the percentage of its total waste that it diverts from disposal through reduction, reuse, recycling, and composting programs. The law requires all California counties in coordination with their respective cities to develop and implement integrated waste management plans. As part of their integrated waste management plans, counties must ensure that a minimum of 15 years of disposal capacity is available to serve the county and its cities. Since 2007, the achievement of waste diversion rates has been measured based on per capita disposal rates, expressed in pounds per person per day of wastes disposed of in landfills. To achieve the target waste diversion rates, the California Department of Resources Recycling and Recovery (CalRecycle) has established a target disposal rate of 6.6 pounds per person per day in San Francisco in 2014.[18]

In 2011, California's Mandatory Commercial Recycling Law (AB 341) established a policy goal for California to source-reduce, recycle, or compost not less than 75 percent of the solid waste generated by 2020 and requires businesses and public entities that generate 4 cubic yards (cy) or more of commercial solid waste per week, and multi-family entities with five units or more, to arrange for recycling services.

4.12.2.3 Local Regulations

SFPUC Water Code Section 10912(a)(7) – Equivalent Project Threshold

Pursuant to SB 610, any project that would require potable water usage equivalent to or greater than the demand associated with a 500-unit residential project is required to prepare a WSA to determine whether water supplies would be adequate to serve the project. Based on citywide demand analysis, the SFPUC determined that an equivalent project in San Francisco would be any project using an average of 50,000 gpd or 18.25 million gallons per year.[19] The increase in potable water use under the BDFP would be more than 50,000 gpd; therefore, a WSA is required for the project.

[17] California Public Resources Code Division 30, Sections 40000-49620.
[18] CalRecycle, Jurisdiction Diversion/Disposal Rate Detail for San Francisco, Reporting Year 2014, 2015. Available online at http://www.calrecycle.ca.gov/LGCentral/Reports/DiversionProgram/JurisdictionDiversionDetail.aspx?JurisdictionID=438&Year=2014. Accessed on October 13, 2015.
[19] SFPUC, Memorandum to Sarah Jones, Acting Environmental Review Officer, San Francisco Planning Department – Environmental Planning: Water Code Section 10912(a)(7) "Equivalent" Project Threshold, March 8, 2013.

San Francisco Public Works Code, Article 21 – Restriction of Use of Potable Water for Soil Compaction and Dust Control Activities

Article 21 of the San Francisco Public Works Code prohibits the use of potable water supplies for soil compaction and dust control in conjunction with construction or demolition project when alternative supplies are available. Non-potable water used for these purposes must be transported and used in accordance with state and local standards and regulations. Projects subject to this ordinance may use recycled water produced at the SEP that is dispensed via a truck-fill station to contractors, city departments, and other interested parties. Between 2014 and 2015, the annual volume of recycled water dispensed from this station increased from about 300,000 to 739,000 gallons (an average of 0.001 to 0.002 mgd).[20]

Recycled water is limited to the following activities within City boundaries: dust control, soil compaction, street cleaning, roadway landscape irrigation, and sewer flushing. In accordance with the SWRCB General Waste Discharge Requirements for Recycled Water Use (Order WQ 2014-00900-DWQ), aerial spraying is not allowed.

San Francisco Public Works Code, Article 4.2 Section 147 – Stormwater Management

Development projects that discharge stormwater to either the combined sewer system or a separate stormwater system must comply with Article 4.2 of the San Francisco Public Works Code, Section 147 (last updated in April, 2016). The SFPUC and the Port have developed the San Francisco Stormwater Management Requirements and Design Guidelines in accordance with the requirements of Article 4.2, Section 147 and the Small MS4 General Stormwater Permit.

Stormwater Management Requirements and Design Guidelines

In accordance with the San Francisco Stormwater Management Requirements and Design Guidelines, developers of projects that create and/or replace 5,000 square feet or more of impervious surfaces and discharge to the combined sewer system or 2,500 square feet or more of impervious surface in separate sewer areas must implement best management practices (BMPs) to manage the flow rate and volume of stormwater entering the combined sewer system by achieving Leadership in Energy and Environmental Design (LEED®) Sustainable Sites Credit 6.1 (Stormwater Design: Quantity Control). This credit includes two standards for post-construction stormwater controls depending on the amount of existing impervious surfaces. For covered projects with 50 percent existing impervious surfaces or less, the stormwater management approach must prevent the stormwater runoff flow rate and volume from exceeding existing conditions for the one- and two-year 24-hour design storm. For covered projects that include more than 50 percent existing impervious surfaces, the stormwater management approach must reduce the existing stormwater runoff flow rate and volume by 25 percent for a two-year 24-hour design storm.

[20] SFPUC, *2015 Urban Water Management Plan for the City and County of San Francisco*, June, 2016.

Modified Compliance Program

The City has developed the Modified Compliance Program to allow development projects with proven site challenges and limitations to modify the standard stormwater performance requirements set by the Stormwater Management Requirements and Design Guidelines. The Modified Compliance Program applies only to projects served by the combined sewer system. In order to qualify for modified compliance, a site owner must submit a modified compliance application to the SFPUC that documents existing and proposed site features that limit infiltration such as high groundwater, shallow depth to bedrock, poorly infiltrating soils, steep slopes, contamination, or limited space for infiltration. The application also requires the applicant to estimate the non-potable demand for the project if the project is subject to the City's Recycled Water Ordinance. Based on this information, the SFPUC can decrease the amount the applicant must reduce the stormwater runoff volume, and would increase the required flow rate reduction by the same percentage.

San Francisco Construction and Demolition Debris Management

The requirements described below apply to the BDFP.

Section 708 of the San Francisco Environment Code mandates the reduction and recycling of construction and demolition debris generated at City-owned facilities. This section applies to all construction and demolition projects implemented by City agencies, regardless of size, and requires that contractors on City projects divert at least 75 percent of construction and demolition debris from landfill disposal. The contractor is also prohibited from sending any construction or demolition debris to a landfill without receiving approval from the San Francisco Department of the Environment (SFDE). The City's construction contract for the project must require implementation of a Construction and Demolition Debris Management Plan. The plan must demonstrate how the 75 percent diversion rate will be accomplished and is subject to approval by the City. The construction contract must also require that the contractor submit a Final Diversion Report documenting the diversion rate for the project.

Chapter 14 of the Environment Code also mandates the recycling of construction and demolition debris generated from both private and City-sponsored projects in San Francisco. This chapter affects all construction projects that would generate one cubic yard or more of construction and demolition debris and requires that all construction and demolition wastes be taken to a registered facility that is certified by the SFDE to receive these wastes. These facilities must recycle or reuse at least 65 percent of all construction waste received. The SFDE maintains a list of registered transporters and facilities.

San Francisco Zero Waste Policy

Achieving zero waste means diverting all wastes from landfills and incineration. In 2002, the San Francisco Board of Supervisors set goals of achieving 75 percent diversion by 2010 and zero solid waste by a date determined once the 50 percent diversion goal was met (Ordinance 679-02). The goal of 50 percent landfill diversion was met in 2001, and the San Francisco Commission on the Environment accordingly established a goal of achieving zero solid waste by 2020 in

Resolution 002-03-COE.[21] This resolution directs the SFDE to develop policies and programs to achieve zero waste by methods such as increasing producer and consumer responsibility. The goal of 75 percent landfill diversion was met in 2008 through the implementation of numerous programs and efforts by the City.

To further the City's progress towards achieving zero waste, San Francisco Ordinance No. 1009, the Mandatory Recycling and Composting Ordinance passed by the San Francisco Board of Supervisors in 2009, requires all of San Francisco to separate recyclables, compostables, and trash to be landfilled. Under this ordinance, it is unlawful to mix recyclables, compostables, or trash, or to deposit refuse of one type in a collection container designated for another type of waste.

4.12.3 Impacts and Mitigation Measures

4.12.3.1 Significance Criteria

The project would have a significant effect on utilities and service systems if it were to:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Have insufficient water supply available to serve the project from existing entitlements and resources, or require new or expanded water supply resources or entitlements;
- Result in a determination by the wastewater treatment provider that would serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs; or
- Affect compliance with federal, state, and local statutes and regulations related to solid waste.

The following topics are not analyzed further in this section for the reasons described below:

- ***Exceedance of Wastewater Treatment Requirements of the Applicable Regional Water Quality Control Board.*** Section 4.16, Hydrology and Water Quality, addresses this criterion.

[21] San Francisco Commission on the Environment, Resolution No. 002-03-COE, Resolution Adopting a Date of 2020 for San Francisco to Achieve the Goal of Zero Waste to Landfill and Directing the Department of the Environment to Develop Policies and Programs to Increase Producer and Consumer Responsibility in Order to Achieve the Zero Waste Goal, March 6, 2003. Available online at http://sfenvironment.org/sites/default/files/editor-uploads/zero_waste/pdf/resolutionzerowastedate.pdf. Accessed on December 28, 2015.

- ***Require or Result in the Construction of New Water or Wastewater Treatment Facilities or Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects.***

  – Regarding water facilities, Impact UT-4, below, addresses the sufficiency of existing water supplies as well as the need for new water treatment facilities during operation of BDFP facilities. The bullet below addressing the sufficiency of existing water supplies during construction also addresses the need for new water treatment facilities during construction of BDFP facilities.

  – Regarding wastewater facilities, the project itself proposes the construction of wastewater treatment facilities. However, neither construction nor operation of BDFP facilities would substantially increase the number of employees at the SEP or otherwise result in conditions that would increase in wastewater flows at the SEP. Refer to other sections in this environmental impact report (EIR) for a description of impacts and mitigation measures associated with construction and operation of the BDFP.

- ***Require or Result in the Construction of New Stormwater Drainage Facilities or Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects.*** The project includes construction of new stormwater drainage facilities at the project site and would reduce the volume of stormwater flows to the combined sewer system by up to 25 percent in accordance with the Stormwater Management Requirements and Design Guidelines. Refer to other sections in this EIR for a description of impacts and mitigation measures associated with construction and operation of the BDFP. In the future, runoff from roadways and new structures would be routed to existing combined sewer system infrastructure. There would be no change in stormwater runoff volumes at the staging areas; therefore, there would be no need for additional stormwater drainage capacity.

- ***Have Insufficient Water Supply Available from Existing Entitlements and Resources, or Require New or Expanded Water Supply Resources or Entitlements During Construction.*** During construction, the project would intermittently use non-potable water for dust control in accordance with Article 21 of the San Francisco Public Works Code and would use relatively small amounts of potable water for some site needs such as drinking water, on-site sanitary needs, pressure washing, and cement mixing. The small increase in potable water use would be temporary, terminating with the completion of construction. Water supplies are planned such that short-term spikes in potable use can be accommodated and there would be no need for new or expanded water supplies or water treatment facilities. For these reasons, this criterion is not applicable to project construction. Potable water use during operation is addressed in Impact UT-4.

- ***Result in a Determination by the Wastewater Treatment Provider that Would Serve the Project that it has Inadequate Capacity to Serve the Project's Projected Demand in Addition to the Provider's Existing Commitments during Operation.*** The project consists of the replacement of solids handling and related facilities at the SEP. The project would not increase the number of employees at the SEP and would not increase wastewater or stormwater flows to the SEP. For these reasons, this criterion is not applicable to project operations. Impacts related to wastewater capacity during construction are addressed in Impact UT-1.

4.12.3.2 Approach to Analysis

Construction and Operational Impacts

This section provides an analysis of the potential for project implementation to adversely affect wastewater treatment capacity, landfill capacity, compliance with solid waste regulations, and water supply. With respect to wastewater treatment capacity, the analysis compares the quantity of wastewater that would be generated during construction to available treatment capacity. For landfill capacity and compliance with solid waste regulations, the analysis compares the quantity of solid waste that would be generated, adjusted to reflect applicable waste diversion regulations, with available landfill capacity. For water supply, the analysis relies on the Water Supply Assessment (WSA) that was prepared for the project and approved by the SFPUC to characterize whether supplies are sufficient to meet the potable water demand associated with BDFP facilities operations, which in turn relies on the latest approved 2015 UWMP.

Cumulative Impacts

Section 4.1.3, Approach to Cumulative Impact Analysis and Cumulative Projects, describes the overall approach to the cumulative analysis for those topics using a list-based approach and summarizes reasonably foreseeable future projects in the vicinity of the project that could contribute to a cumulative impact; please refer to Table 4.1-1 and Figure 4.1-1 for a description and location of potential cumulative projects in the vicinity of the BDFP.

For impacts related to water supply, the analysis relies on the project's WSA and considers whether the water demand of the project is accommodated within the projections of the 2015 UWMP, consistent with CEQA Guidelines 15130(b)(1)(B). For all other impacts, the cumulative analysis for Utilities and Service Systems uses a list-based approach to analyze the effects of the project in combination with other past, present, and probable future projects in the immediate vicinity, consistent with CEQA Guidelines 15130(b)(1)(A). The cumulative impact analysis assumes that construction and operations of other projects in the geographical area would be required to comply with the same regulatory requirements as the project, which would serve to avoid and reduce many impacts to less-than-significant levels on a project-by-project basis. The analysis then considers whether or not there would be a significant, adverse cumulative impact associated with project implementation in combination with past, present, and probable future projects in the geographical area, and if so, whether or not the project's incremental contribution to the cumulative impact would be considerable. Both conditions must apply in order for a project's contribution to cumulative effects to be deemed cumulatively considerable (significant). If so, then mitigation measures are identified to reduce the project's contribution to the extent feasible.

4.12.3.3 Impact Evaluation

Construction Impacts

Impact UT-1: Project construction would not result in a determination by the wastewater treatment provider that would serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments. (Less than Significant)

During the five years of project construction, new sources of wastewater discharges to the City's combined sewer system would include wastewater resulting from sanitary needs of construction workers at the Piers 94 and 96 staging areas and SEP construction site as well as groundwater pumped from excavations at the SEP during construction-related dewatering. As described in Chapter 2, *Project Description*, Table 2-10, the maximum construction work force would be approximately 550 workers per day. Assuming that each worker would generate 2.81 gallons per day of wastewater,[22] the total increase in wastewater volumes would be about 0.001 mgd. This volume represents a miniscule increase in the 61 mgd of wastewater treated at the SEP, and this increase would be well within the 85 mgd dry weather capacity of the existing wastewater system.

Most of the excavations at the project site would be within the artificial fill materials and young bay mud that underlie the project site. These shallow excavations would be completed below the water table. Shoring systems used in the shallow excavations would minimize the amount of groundwater flow into the excavations. Alternatively, the sidewalls of the shallow excavations could be sloped to ensure slope stability, which would allow more groundwater flow into the excavation. In either case, limited dewatering would be required to maintain a dry working area within these shallow excavations.

Deeper excavations such as for the Anaerobic Digesters would extend into the upper-layered sediments that underlie the young bay mud. As discussed in Section 4.16, Hydrology and Water Quality, groundwater within this geologic unit occurs under artesian pressure and these deeper excavations could require more extensive groundwater dewatering to provide a dry work area and to reduce groundwater within the excavations. While the shoring systems used in these excavations would limit groundwater infiltration into the excavations, the volume of groundwater produced during dewatering is not known. The groundwater would be discharged to the combined sewer system, adding to the total amount of wastewater requiring treatment at the SEP. As discussed in the Setting, the remaining dry weather capacity of the SEP is about 24 mgd, and any dewatering discharge would be within this available capacity.

Based on the above analysis, discharges of both wastewater from the sanitary needs of construction workers and groundwater from construction-related excavation dewatering would be well within the remaining dry weather treatment capacity of the SEP and associated conveyance infrastructure.

[22] This calculation is based on compliance with the 2013 California Green Building Code water use baseline values provided in Table 5.3003.2.2 of the code. Construction workers are assumed to flush twice per day and the water use includes 1.28 gallons per flush and use of 0.125 gallons per flush for handwashing. The total per construction worker water use for sanitary purposes is 2.81 gallons per day.

Therefore, project construction would not require the construction or expansion of wastewater treatment facilities and would not result in a determination by the wastewater treatment provider that would serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments. As a result, this impact would be ***less than significant***.

Mitigation: None required.

Impact UT-2: Project construction would not result in a substantial adverse effect related to landfill capacity. (Less than Significant)

Construction of the BDFP would generate multiple types of construction and demolition debris. As summarized in Chapter 2, Table 2-13, demolition of the Asphalt Plant (subsurface) and Central Shops structures, select structures within SEP North, and the structures at 1550 Evans Avenue would generate an estimated 27,000 cubic yards (cy) of demolition debris. As indicated in Table 2-13, approximately one-third (about 9,000 cy) of demolition debris would consist of lead-containing materials or asbestos-containing waste (ACW). Site preparation would also generate excavated soil. As indicated in Chapter 2, Table 2-14, the SFPUC estimates that approximately 145,000 cy of this soil would be non-hazardous, and that another 45,000 cy of excavated soil would be considered hazardous waste. Section 4.17, Hazards and Hazardous Materials, addresses disposal of lead- and asbestos-containing demolition debris and soil classified as hazardous waste. The non-hazardous demolition debris and soil (approximately 163,000 cy) would be considered construction and demolition debris and is considered in this analysis.

Construction and demolition debris would be managed in compliance with Section 708 and Chapter 14 of the San Francisco Environment Code, and the SFPUC would comply with the specified diversion rates under these codes to reduce the amount of material for landfill disposal. In accordance with Section 708 of the San Francisco Environment Code, the SFPUC would require the construction contractor to submit a Construction and Demolition Debris Management Plan for approval; the plan would demonstrate how the project would meet the required minimum diversion rates for the 163,000 cy of project-related construction and demolition debris. The SFPUC would meet the diversion goal by recycling a portion of the non-hazardous demolition debris and beneficially reusing a portion of the soil. Approximately 9,000 cubic yards of demolition debris would be recycled at the Republic Ox Mountain disposal facility, which accepts both recyclable and non-recyclable material, and much of the non-hazardous soil would be beneficially reused. The remaining demolition debris would be landfilled at the Republic Ox Mountain disposal facility and, if beneficial uses for all of the soil are not identified by the SFPUC, the remaining non-hazardous soil could be landfilled at the Altamont Landfill or Recology Hay Road Landfill.

As shown in **Table 4.12-3**, the landfills designated by the SFPUC for this project have sufficient capacity to accommodate the identified solid waste disposal needs during construction. As a result, the impact of the BDFP on landfill capacity would be ***less than significant***.

TABLE 4.12-3
REMAINING DISPOSAL SITE CAPACITIES AND VOLUME OF WASTES REQUIRING DISPOSAL DURING PROJECT CONSTRUCTION

Landfill Name	Remaining or Permitted Capacity	BDFP Materials Type	Waste Generated by Project Requiring Disposal (cubic yards)
Recology Hay Road, ACW Disposal Site, Solano County	Maximum Permitted Capacity: 20,656,000 cy	Lead/asbestos	9,000
Altamont ACW Disposal Site, Alameda County	Maximum Permitted Capacity 40,000,000 cy		
Republic Ox Mountain, San Mateo County	Remaining Capacity: 22,180,000 cy	Non-recyclable waste	9,000[a]
Recology Hay Road, Solid Waste, Solano County	Remaining Capacity: 30,433,000 cy	Non-hazardous excavated soil	48,050[a]
Altamont Landfill, Alameda County	Remaining Capacity: 45,720,000 cy		

NOTE:

[a] The project would generate an estimated 163,000 cy of non-hazardous construction and demolition waste; at a minimum, 65% of this waste (105,950 cy) would be recycled, and the remainder (including 9,000 cy of non-hazardous demolition debris and 48,050 cy of soil) is assumed to require disposal.

SOURCE: CalRecycle, Facility/Site Summary Details: Recology Hay Road (48-AA-0002), available online at http://www.calrecycle.ca.gov/SWFacilities/Directory/48-AA-0002/Detail/, accessed September 4, 2015; CalRecycle, Facility/Site Summary Details: Corinda Los Trancos Landfill (Ox Mtn) (41-AA-0002), available online at http://www.calrecycle.ca.gov/SWFacilities/Directory/41-AA-0002/Detail/, accessed October 6, 2016; CalRecycle, Facility/Site Summary Details: Altamont Landfill & Resource Recovery (01-AA-0009), available online at http://www.calrecycle.ca.gov/SWFacilities/Directory/01-AA-0009/Detail/, accessed September 8, 2015; E-mail from David Huffman, Industrial Account Manager for Waste Management Solutions to Mary McDonald of Orion Environmental Associates, Altamont Landfill Capacity Information, July 12, 2016.

Mitigation: None required.

Impact UT-3: Project construction would not result in a substantial adverse effect related to compliance with federal, state, or local statutes and regulations related to solid waste. (Less than Significant)

All disposal facilities identified by the SFPUC for disposal and recycling of construction and demolition debris are permitted for the types of waste generated by project construction. As discussed in Section 4.12.2, the California Integrated Waste Management Act of 1989 (AB 939) requires municipalities to divert at least 50 percent of all solid waste generated by the year 2000 and establishes the goal of diverting at least 75 percent of generated waste (based on per capita disposal rates) by 2020. In addition, San Francisco's Zero Waste Policy establishes a goal of zero waste by 2020, which entails diverting all wastes from landfills. Reports filed by the SFDE show that the City

generated approximately 870,000 tons of waste material in 2000.[23] By 2010, that figure decreased to approximately 455,000 tons.[24] As of 2015, San Francisco disposed of 568,200 tons of waste (or 3.7 pounds per person per day), well below the California Integrated Waste Management Act target rate for San Francisco of 6.6 pounds per person per day.[25]

Recycling construction and demolition debris helps local jurisdictions meet state and local waste diversion goals. As described under Impact UT-2, the SFPUC or its construction contractor would prepare a Construction and Demolition Debris Management Plan demonstrating how the project would achieve the diversion requirement. The plan would include a list of all material types and volumes anticipated during demolition, the market or destination for the material, the estimated landfill diversion, and the anticipated transporter for the material. With the implementation of the plan, BDFP construction would be in compliance with state or local statutes related to solid waste, and this impact would be ***less than significant***.

Mitigation: None required.

Operational Impacts

Impact UT-4: The City's water supply provider would have sufficient water supply available to serve project operations from existing entitlements and resources, and the project would not require new or expanded water distribution or treatment facilities. (Less than Significant)

As described above, the SEP receives potable water (No. 1 water) from the SFPUC water system and also uses non-potable No. 2 and No. 3 water produced on site. As indicated in Table 2-6 in Chapter 2, *Project Description*, with implementation of the BDFP, potable water demand for biosolids handling would increase from 43,200 gpd to 205,300 gpd (2045), an increase of approximately 162,100 gpd (0.16 mgd). This increase would largely be due to proposed changes in processes (in particular, the cooling tower for the thermal hydrolysis process, energy recovery facilities, and heating, ventilation, and air cooling systems). Maintenance Shops 1 and 2 would also require potable water service connections for employee use such as toilet and urinal flushing and hand washing. Pursuant to SB 610 and the SFPUC's guidance on equivalent water usage under this law (described in Section 4.12.2), if a project requires at least 50,000 gpd of potable water, then a WSA must be prepared for the project.

[23] CalRecycle, Single Year Countywide Origin Detail, County of: San Francisco, Year: 2000. Available online at http://www.calrecycle.ca.gov/LGCentral/Reports/Viewer.aspx?P=ReportName%3deDRSCountyWideOrigin%26CountyID%3d38%26ReportYear%3d2000, accessed on December 9, 2016.

[24] CalRecycle, Single Year Countywide Origin Detail, County of: San Francisco, Year: 2010. Available online at http://www.calrecycle.ca.gov/LGCentral/Reports/Viewer.aspx?P=ReportName%3deDRSCountyWideOrigin%26CountyID%3d38%26ReportYear%3d2010, accessed on December 9, 2016.

[25] CalRecycle, Jurisdiction Diversion/Disposal Rate Detail for San Francisco, Reporting Year 2014, 2015. Available online at http://www.calrecycle.ca.gov/LGCentral/reports/diversionprogram/JurisdictionDiversionDetail.aspx?JurisdictionID=438&Year=2015. Accessed on December 9, 2016.

The SFPUC approved and adopted the WSA for the BDFP (included in **Appendix WSA**) in March, 2017. The WSA concluded that the 0.16 mgd increase in demand attributable to the project is not reflected in the retail water demands estimated in the 2015 UWMP, but the demands are incremental and would not substantiate the need for additional supplies. The increased demand is projected to result in a shortfall of 0.2 mgd in most year types (i.e., normal year, single dry year) beginning in 2025; by 2040, the shortfall is projected to be 1.3 mgd during a multi-year drought. These shortages represent less than 0.5 percent of the water supplies during most years, and approximately 1.4 percent of the water supply during a multi-year drought in 2040 and could be offset through increases in deliveries from the regional water system, implementation of voluntary conservation measures, or water rationing. Therefore, as confirmed by the SFPUC, existing water supplies serving the City would be sufficient to meet the projected increase in water demand for the project, and the project would not trigger the need for new or expanded water supply resources or entitlements, or the need for new water treatment facilities. Impacts related to water supply and the need for new or expanded water treatment facilities would be ***less than significant***.

To assess the need for improvements to the existing water distribution systems, the SFPUC City Distribution Division would conduct a hydraulic analysis to confirm that the existing system is adequate to meet the project's water demands, including fire suppression system pressure and flow demands. If the infrastructure is inadequate to meet the project's demand, the SFPUC would modify the water conveyance system, such as upsizing the water mains and appurtenances. The construction of larger facilities could require a limited amount of excavation, trenching, soil movement, and other activities typical of construction of development projects in San Francisco and generally within public rights-of way. These activities, if determined to be required, would be similar to those associated with construction of the project, and these activities would not result in significant environmental effects not already disclosed in this EIR for the BDFP. Therefore, impacts related to requiring the construction of new water treatment facilities or expansion of existing facilities would be ***less than significant***.

Mitigation: None required.

Impact UT-5: Project operations would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs. (Less than Significant)

As indicated in Chapter 2 (Section 2.5.2, Plant Capacity, Operating Hours, and Work Force), no increase in the existing operating staff levels for the SEP is anticipated for the project. Therefore, the amount of municipal solid waste generated by SEP staff would not be expected to increase.

Operation of the proposed digester gas treatment facilities would regularly produce two types of solid waste: approximately 140 cy or 10 truckloads of iron sponge media waste every year and approximately 680 cy or 48 truckloads of siloxane media waste (granulated activated carbon or an alternative media) every year. In general, the spent media are classified as non-hazardous

waste based on pre-disposal sampling.[26] However, occasionally, the spent media exhibit a low pH resulting in classification as a hazardous waste. Spent media that are not hazardous waste would be trucked to an appropriate landfill for disposal, such as the Recology Hay Road, Altamont, or Republic Ox Mountain landfills. The approximately 820 cy of spent media requiring disposal that would be produced each year would constitute a small fraction of available landfill capacity in the study area. The approximately 24,600 cy that would be generated over 30 years represents much less than 1 percent (0.03 percent) of the combined 76 million cy remaining capacity of the three potential landfills, and 0.1 percent of the remaining capacity of the landfill with the least remaining capacity (Ox Mountain). Therefore, the volume of wastes produced during operation of the project would not exceed the capacity of these landfills. The disposal of hazardous wastes is addressed in Section 4.17, Hazards and Hazardous Materials.

The project would also generate Class A biosolids for beneficial reuse. The SEP produced about 13,000 dry tons of Class B biosolids in 2015. Without the project, this production rate would increase to 27,700 dry tons of Class B biosolids annually by the year 2045 as summarized in Chapter 2. With implementation of the BDFP, the SEP would produce up to 24,000 dry tons of biosolids per year as summarized in Table 2-1 in Chapter 2. This is less volume than would be produced without the project, but an increase of about 11,000 dry tons of biosolids per year compared to existing production. The quality would also be upgraded to Class A biosolids. As described in Section 4.12.1.4, Class B biosolids produced at the SEP are currently beneficially reused primarily as alternative daily cover at landfills or, with certain restrictions, for land application in agricultural areas. Under the project, the Class A biosolids would have no detectable levels of pathogens and would not attract vectors, thereby expanding the options for beneficial reuse of these materials. Depending on market conditions, the Class A biosolids could be reused at sites throughout the San Francisco Bay Area. One of the objectives of the BDFP is to beneficially reuse 100 percent of biosolids generated at the SEP in the future. The production of Class A biosolids would increase the potential uses and marketability of the biosolids to support this project objective because the biosolids could be used for more purposes such as fertilizer and soil conditioning. As this is an objective of the project, it is presumed for purposes of this analysis that the biosolids produced in the future would all be beneficially reused. For this reason, the production of biosolids under the BDFP would not affect permitted capacity of solid waste disposal facilities.

Based on the discussions above, the volume of wastes produced under the project would be well within the remaining capacity of the landfills proposed for waste disposal, and the Class A biosolids produced under the project would not be landfilled but would be beneficially reused. Therefore, impacts related to exceeding the capacity of a landfill would be ***less than significant.***

Mitigation: None required.

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[26] SFPUC, *BDFP Conceptual Engineering Report*, Appendix F, March 2016.

Impact UT-6: Project operations would not result in a substantial adverse effect related to compliance with federal, state, or local statutes and regulations related to solid waste. (Less than Significant)

Once the project is operational, solid waste generated by the BDFP, including non-hazardous spent media, would be sent to permitted landfills for disposal as described in Impact UT-5. This disposal would not result in an inconsistency or violation of permit conditions at these facilities because the facilities are permitted and have adequate capacity to accept these non-hazardous wastes. SFPUC operations would also sort recyclables, compostables, and trash according to the Mandatory Recycling and Composting Ordinance consistent with the City's zero waste goal.

Regarding biosolids regulations, SFPUC would apply current practices for ensuring compliance with federal and state statutes to BDFP's production of Class A biosolids. The SFPUC currently uses multiple contractors to handle biosolids produced at the SEP and has implemented a Biosolids Management System.[27] As part of this system, the SFPUC has identified a Biosolids Management Coordinator who maintains an active role in ensuring that its biosolids handling contractors are complying with legal requirements. The SFPUC is required to submit an annual report to USEPA Region 9 in compliance with federal regulations. The SFPUC also inspects contractor application of biosolids in Solano County monthly to ensure compliance with regulations.[28] During land application season, the Biosolids Management Coordinator and staff from the SFPUC perform inspections to ensure compliance with all legal requirements.[29] The SFPUC also implements operational controls to ensure that biosolids are produced and handled in ways that are compliant with federal, state, and local laws. These controls include a spill control plan for biosolids at load-out, visual inspections at load-out to ensure proper tarp covering of biosolids, and use of certified scales at the SEP to limit the potential for trailers to overturn as a result of overfilling.[30]

Disposal of spent media during operation of the BDFP would not violate the permit conditions of the landfills used for disposal for the reason cited above, and the SFPUC would sort recyclables, compostables, and trash according to San Francisco's Mandatory Recycling and Composting Ordinance. In addition, beneficial reuse of the biosolids produced during operation would continue to comply with 40 CFR Part 503 as ensured with implementation of the SFPUC's Biosolids Management System. Therefore, impacts related to compliance with solid waste regulations would be ***less than significant.***

Mitigation: None required.

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27 SFPUC, *Biosolids Management System (BMS) Manual: SFPUC Wastewater Enterprise*, April 2015.
28 Bay Area Clean Water Agencies, *Annual Report to the Solano County Board of Supervisors Land Application of Biosolids in Solano County*, December 2014.
29 SFPUC, *Biosolids Management System (BMS) Manual: SFPUC Wastewater Enterprise*, April 2015.
30 Ibid.

Cumulative Impacts

Impact C-UT-1: The project, in combination with past, present, and probable future projects, would not result in significant cumulative impacts on utilities and service systems. (Less than Significant)

Adequacy of Wastewater Treatment Capacity

The geographic scope of impacts on wastewater treatment capacity is the area served by the SEP (in general, the east side of San Francisco). As discussed in Impact UT-1, the project would temporarily increase wastewater flows to the SEP during construction, resulting from the sanitary needs of construction workers and excavation dewatering. While other projects proposed in the city (including those listed in Table 4.1-1) could also involve construction-related discharges, these discharges are temporary in nature and do not typically involve the discharge of large volumes of wastewater. Many of the development projects listed in Table 4.1-1 (e.g., the Candlestick Point-Hunters Point Shipyard Phase I and II Development Project, Event Center and Mixed Use Development at Mission Bay Blocks 20-32, and Pier 70 Waterfront Site) would increase wastewater flows to the combined sewer system year-round as a result of planned population growth. However, the SFPUC projects that total wastewater flows to the SEP will increase to 69 mgd by the year 2045 and the planned growth under these cumulative projects is encompassed within this projection. With respect to the wastewater system as a whole, the Sewer System Improvement Program is being implemented to ensure the long-term reliability of the system. Because the projected wastewater flows are well within the existing 85 mgd dry weather treatment capacity of the SEP, cumulative impacts related to a determination that the SEP would have inadequate wastewater treatment capacity would be ***less than significant***.

Landfill Capacity and Compliance with Federal, State, or Local Statutes and Regulations Related to Solid Waste

For landfill capacity, the geographic scope includes the service areas of San Francisco, Alameda, Solano, and San Mateo Counties, where recycling, reuse, and disposal of wastes could occur. For compliance with solid waste statutes and regulations, the geographic area encompasses San Francisco and the overall San Francisco Bay Area.

As discussed in Impact UT-2, Chapter 14 and Section 708 of the San Francisco Environment Code would require the SFPUC to prepare a Construction and Demolition Debris Management Plan demonstrating how project-related construction and demolition debris would be diverted from landfill disposal. During operation, the project would also implement measures to achieve zero waste in accordance with San Francisco's Zero Waste Policy as discussed in Impact UT-6. All San Francisco projects would be required to implement these or similar regulatory requirements, and there is sufficient landfill capacity as discussed in Impacts UT-2 and UT-5. Further, one of the objectives of the BDFP is to produce Class A Exceptional Quality biosolids, which have fewer restrictions for land applications such as soil conditioning and fertilizer. Accordingly, 100 percent of the biosolids produced by wastewater treatment processes at the SEP would be beneficially reused at sites throughout the San Francisco Bay Area. Therefore, cumulative impacts related to exceeding landfill capacity and compliance with federal, state, or local statutes and regulations related to solid waste would be ***less than significant.***

Water Supply

The geographic scope of impacts on water supply is the water service area of the SFPUC. As described in Impact UT-4, the SFPUC has approved and adopted a WSA for the BDFP concluding that there are adequate potable water supplies in the regional water system to serve the project's estimated water demand of 0.16 mgd (average) and cumulative demand during normal years, single dry years, and multiple dry years from 2020 through 2040 based on water demand and supply projections in the SFPUC's 2015 UWMP.[31] Because the 2015 UWMP incorporates projections for future cumulative development in the city and the WSA determined that the project would be consistent with the 2015 UWMP, the cumulative impacts on water supply and the need for new or expanded water treatment facilities would be ***less than significant***, and no mitigation is necessary.

Mitigation: None required.

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[31] Public Utilities Commission, City and County of San Francisco, *Resolution No. 16-0095 approving May 24, 2016 Water Supply Assessment for the Pier 70 Project*, May 24, 2016.

4.13 Public Services

This section describes the existing conditions and regulatory setting for public services (law enforcement, fire protection, emergency, and school services) in the vicinity of the Biosolids Digester Facilities Project (BDFP or project) and assesses potential impacts on public services that could result from implementation of the project. Mitigation measures are identified to avoid or reduce significant adverse impacts, as appropriate. Public services addressed in this section include law enforcement services, fire protection services, and emergency services. Regarding impacts to parks, refer to Section 4.11, Recreation. Regarding emergency access, refer to Section 4.6, Transportation and Circulation.

4.13.1 Setting

4.13.1.1 Law Enforcement Services

Both the San Francisco Police Department (SFPD) and San Francisco Sheriff's Department provide law enforcement services in San Francisco. The SFPD is mandated by City Charter to maintain a full-duty sworn staff of 1,971, excluding officers assigned to the San Francisco International Airport and officers on temporary modified duty or leave.[1] In 2014 the SFPD had 1,691 full-duty sworn officers and a total full time staff of 2,581.[2] Since 2012 the City and County of San Francisco (CCSF) has been implementing a six-year plan to add officers annually through 2018 to reach the charter-mandated level.[3] The project site and off-site staging areas are located in the 7.4-square-mile Bayview Police District, which covers the southeastern part of San Francisco.[4] The Bayview Police District is bounded by Cambridge Street to the west, San Francisco Bay to the east, Mariposa Street to the north, and the San Mateo County line to the south.[5,6] The Bayview Police Station is located at 201 Williams Avenue, less than one mile from the project site. Officers may be dispatched from other nearby stations during an emergency. **Table 4.13-1** lists the Bayview Police Station and nearest surrounding police stations.

The SFPD maintains a relationship with the San Francisco Public Utilities Commission (SFPUC) through the SFPUC Liaison, who provides site inspections and makes recommendations for safeguarding water supplies.[7]

1 San Francisco Police Department, *San Francisco Police Department 2014 Annual Report Together We Can*, 2014.
2 Ibid.
3 City and County of San Francisco, Mayor Lee Announces Long Term and Comprehensive Hiring Plan for City's Police and Fire. Available online at http://sfmayor.org/mayor-lee-announces-long-term-comprehensive-hiring-plan-city%E2%80%99s-police-fire-0. Accessed January 9, 2017.
4 Public Safety Strategies Group LLC, *District Station Boundary Analysis Report*, Table 23: Proposed District Boundary Lines – Data, Submitted to City and County of San Francisco Controller's Office, March 3, 2015.
5 San Francisco Police Department, Bayview Station, 2015. Available online at http://sf-police.org/index.aspx?page=798. Accessed on August 28, 2015.
6 San Francisco Police Department Crime Analysis Unit, *City and County of San Francisco Bayview District*, July 23, 2015. Available online at http://sanfranciscopolice.org/Modules/ShowDocument.aspx?documentID=27555. Accessed January 9, 2017.
7 San Francisco Police Department, *San Francisco Police Department 2014 Annual Report Together We Can*, 2014.

TABLE 4.13-1
POLICE STATIONS IN PROJECT VICINITY

Police Station	Address	Approximate Location Relative to Project Site
Bayview	201 Williams Avenue	< one mile south
Ingleside	1 Sgt. John V. Young Lane	three miles southwest
Southern	1251 Third Street	two miles north
Mission	630 Valencia Street	two miles northwest

SOURCE: San Francisco Police Department, District Stations and Map, 2015. Available online at http://sf-police.org/index.aspx?page=796. Accessed on October 27, 2015.

The San Francisco Sheriff's Department manages the San Francisco County Jail, protects City-owned critical infrastructure, and augments law enforcement at the request of the SFPD.

4.13.1.2 Fire Protection Services

The San Francisco Fire Department (SFFD) provides fire protection services in San Francisco. The SFFD also responds to other emergency situations, including hazardous materials incidents, and provides medical aid and fire prevention and safety training. In the event of a fire emergency within the project vicinity, the SFFD would be dispatched as the first response team. **Table 4.13-2** summarizes the SFFD stations within one mile of the project site or off-site staging areas. Station No. 9 is located on Jerrold Avenue approximately one-half mile northwest of the project site.

TABLE 4.13-2
FIRE STATIONS IN PROJECT VICINITY

Fire Station No.	Address
9	2245 Jerrold Avenue at Upton Street
17	1295 Shafter Avenue at Ingalls Street
25	3305 Third Street at Cargo Way
37	798 Wisconsin Street at 22nd Street
42	2430 San Bruno Avenue at Silver Avenue
49	1415 Evans Avenue at Mendell Street

SOURCE: San Francisco Fire Department, Fire Station Locations, 2015. Available online at http://www.sf-fire.org/index.aspx?page=176. Accessed on October 14, 2015.

In 2012 the City initiated a six-year hiring plan to restore SFFD staffing levels that have been reduced due to retired personnel.[8] The SFFD expects to increase the number of staff in the area, and to request the opening of one to two new fire stations to serve the southeastern part of San Francisco, due to

[8] City and County of San Francisco, Mayor Lee Announces Long Term and Comprehensive Hiring Plan for City's Police and Fire. Available online at http://sfmayor.org/mayor-lee-announces-long-term-comprehensive-hiring-plan-city%E2%80%99s-police-fire-0. Accessed January 9, 2017.

overall growth in the city[9] (although the additional planned stations are not within the vicinity of the project site). The average response time of the SFFD during the past year in the vicinity of the project site is just over five minutes.[10]

4.13.1.3 Emergency Services

The San Francisco Department of Emergency Management (DEM) leads the City in planning, preparedness, and communication for, and response to and recovery from, daily emergencies, large-scale citywide events, and major disasters.[11] DEM has three divisions: Emergency Communications, Emergency Services, and Administration and Support. DEM's public safety dispatchers answer incoming 911 emergency and non-emergency calls and dispatch police, fire, and medical responders. Emergency managers and planners work with disaster preparedness coordinators from numerous San Francisco departments and liaisons from regional, state, and federal partners in the response to and recovery from any type of emergency or planned event. DEM's services also include management of San Francisco's Emergency Medical Services Agency and the Emergency Operations Center. In general, emergency managers, planners, and disaster preparedness coordinators in the Emergency Operations Center are responsible for monitoring events, supporting field operations, coordinating citywide resources, and providing public information.[12]

4.13.1.4 Schools and Other Services

Three schools or childcare facilities are within one-quarter mile of the project site and off-site staging areas. These include two City College of San Francisco campuses, located at 1800 Oakdale Avenue (Southeast campus) and 1400 Evans Avenue (Evans campus). The City College of San Francisco is a multi-campus community college that offers overs a variety of academic and occupational programs.[13] In addition, the Wu Yee South East Child Development Center is located at 1300 Phelps Street, and provides childcare services.[14]

The San Francisco Public Library manages several libraries throughout San Francisco including the Bayview/Linda Brooks-Burton Branch Library on 5075 Third Street, approximately one-half mile from the project site.[15]

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9 San Francisco Fire Department, personal communication between Mindy Talmadge and Karen Lancelle, September 1, 2015.
10 Ibid.
11 San Francisco Department of Emergency Management, Emergency Services, 2015. Available online at http://sfdem.org/index.aspx?page=364. Accessed on October 14, 2015.
12 San Francisco Department of Emergency Management, *Annual Report FY 2013-2014*, 2014.
13 City College of San Francisco, An Overview of City College, 2016. Available online at https://www.ccsf.edu/en/about-city-college/aboutccsf.html. Accessed on June 24, 2016.
14 Wu Yee Children's Services, Early Care and Education, 2016. Available online at http://www.wuyee.org/center-based-care/. Accessed on June 24, 2016.
15 San Francisco Public Library, Bayview/Linda Brooks-Burton. Available online at http://sfpl.org/index.php?pg=0100000401. Accessed on June 27, 2016.

4.13.2 Regulatory Framework

4.13.2.1 Federal Regulations

There are no federal public services regulations or policies relevant to this analysis.

4.13.2.2 State Regulations

California Master Mutual Aid Agreement

The California Master Mutual Aid Agreement is a framework agreement between the State of California and local governments for aid and assistance by the interchange of services and facilities, including but not limited to fire, police, medical and health, communication, and transportation services and facilities to cope with the problems of rescue, relief, evacuation, rehabilitation, and reconstruction.

California Fire Code

State fire regulations are set forth in Sections 13000, et seq. of the California Health and Safety Code, which includes regulations concerning building standards (as set forth in Title 24 of the California Code of Regulations, the California Building Code), fire protection and notification systems, fire protection devices (such as fire extinguishers and smoke alarms), high-rise building and child care facility standards, and fire suppression training.

4.13.2.3 Local Regulations

San Francisco General Plan

The *San Francisco General Plan* provides general policies and objectives to guide land use decisions and development throughout the city, as described in Chapter 3, *Plans and Policies*. The Community Facilities Element of the General Plan contains objectives and policies that help meet the city's need for community facilities including police facilities and firehouses.

San Francisco Police Code

The San Francisco Police Code contains regulations for various types of activities such as automobile use, permitting and licensing, and disorderly conduct. The City's noise ordinance is also part of the Police Code (Article 29) and is relevant to this project. (Refer to the discussion of regulatory framework in Section 4.7, Noise and Vibration, of this environmental impact report [EIR].)

San Francisco Administrative Code

San Francisco Administrative Code Section 2A.86, Boundaries of Police Department District Stations, requires the Police Commission in consultation with the Chief of Police to conduct a comprehensive review of police district boundaries every 10 years and adjust those boundaries, if warranted. The goal of this requirement is to "to maximize the effectiveness of police operations and the efficient use

of police resources" taking into account population data, proposed developments, the number, type and frequency of police activities, and anticipated needs for police resources, among other factors. Accordingly, in 2015 the SFPD and CCSF Controller's Office completed a police district boundary analysis and implemented new police district boundaries.[16] In addition to this municipal code requirement, the analysis was motivated by anticipated population and commercial growth throughout the city, imbalanced workloads between the police districts, and the location of the new Southern District police station.[17] As a result of the boundary analysis, the northern boundary of the Bayview District was shifted south, from Canal Street to Mariposa Street.[18]

San Francisco Fire Code

The San Francisco Fire Code was revised in 2013 to regulate and govern the safeguarding of life and property from fire and explosion hazards arising from the storage, handling, and use of hazardous substances, materials, and devices, and from conditions hazardous to life or property in the occupancy of buildings and premises; to provide for the issuance of permits, inspections, and other SFFD services; and to provide for the assessment and collection of fees for those permits, inspections, and services. The SFFD reviews building plans to ensure that fire and life safety is provided and maintained in the buildings that fall under its jurisdiction. SFFD building plan review applies to many occupancy types, including the following that apply to the Southeast Water Pollution Control Plant (Southeast Plant or SEP):

- All Hazardous Occupancies (including repair garages, body shops, fuel storage, and emergency generator installation)
- All Storage Occupancies where potential exists for high-piled storage as defined by Fire Code
- All fire alarm and fire suppression systems

The SFFD conducts plan checks to ensure that all structures, occupancies, and systems outlined above are designed in accordance with the San Francisco Building Code. While the SFPUC is not required to obtain a building permit, the SFFD would conduct an inspection of the BDFP.

4.13.3 Impacts and Mitigation Measures

4.13.3.1 Significance Criteria

The project would have a significant impact on public services if it were to:

- Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response

[16] Public Safety Strategies Group LLC, *District Station Boundary Analysis Report*, submitted to the City and County of San Francisco Controller's Office, March 3, 2015.
[17] Ibid.
[18] San Francisco Police Department Crime Analysis Unit, *City and County of San Francisco Bayview District*, July 23, 2015. Available online at http://sanfranciscopolice.org/Modules/ShowDocument.aspx?documentID=27555. Accessed January 9, 2017.

times, or other performance objectives for any public services such as fire protection, police protection, schools, parks, or other services.

Regarding impacts on parks, refer to Section 4.11, Recreation. Section 4.6, Transportation and Circulation, evaluates emergency access during construction.

4.13.3.2 Approach to Analysis

Construction and Operational Impacts

The BDFP could have a significant impact on public services if (1) it would require the construction of new or physically altered governmental facilities in order to maintain acceptable levels of public services, *and* (2) the construction or alteration of such facilities would result in one or more substantial adverse impacts on the environment.

The impact analysis below first considers whether the project would require the construction of new or altered governmental facilities (beyond those included in the project) in order to maintain acceptable performance standards for public services. If new or altered public service facilities are determined to be required to serve the project, then the analysis evaluates whether construction of such facilities would have a substantial adverse physical effect on the environment. For example, if the SFFD determined that a new fire station would need to be constructed to maintain adequate service levels for fire protection, the impact analysis would evaluate whether construction or operation of the new fire station would have significant impacts on the physical environment.

For purposes of the impact analysis, project improvements are assumed to be designed and constructed in compliance with all applicable building and fire codes, which include requirements for fire alarms, smoke detectors, sprinkler systems, fire extinguishers, and the number and location of exits.

Cumulative Impacts

Section 4.1.3, Approach to Cumulative Impact Analysis and Cumulative Projects, describes the overall approach to the cumulative analysis for those topics using a list-based approach and summarizes reasonably foreseeable future projects in the vicinity of the project that could contribute to a cumulative impact; please refer to Table 4.1-1 and Figure 4.1-1 for descriptions and locations of potential cumulative projects in the vicinity of the BDFP. The cumulative analysis for public services uses a list-based approach to analyze the effects of the project in combination with other past, present, and probable future projects in the immediate vicinity. For the public services cumulative impact analysis, future development projects considered in the analysis include those that would require the construction or physical alteration of facilities for law enforcement services, fire protection/emergency medical services, or other public services, and are in the same service district as the project. Because operation of the BDFP would not increase the existing operations staff levels, the BDFP would not have operational cumulative effects; for this reason, cumulative construction and operations impacts are analyzed together. The cumulative impact analysis assumes that construction and operation of other projects in the geographical area, listed in Table 4.1-1, would be required to comply with the same regulatory requirements as the project, which would serve to avoid and reduce many impacts to less-than-significant levels on a project-by-project basis. The analysis then considers whether or not there

would be a significant, adverse cumulative impact associated with project implementation in combination with past, present, and probable future projects in the geographical area, and if so, whether or not the project's incremental contribution to the cumulative impact would be considerable. Both conditions must apply in order for a project's contribution to cumulative effects to be deemed cumulatively considerable (significant). If so, then mitigation measures are identified to reduce the project's contribution to the extent feasible.

4.13.3.3 Impact Evaluation

Construction and Operational Impacts

Impact PS-1: Construction and operation of the BDFP would not increase demand for public services to an extent that would require new or physically altered governmental facilities in order to maintain acceptable service ratios, response times, or other performance objectives for public services. (Less than Significant)

Construction Impacts

The project area currently receives services from the service providers identified in Section 4.13.1, Setting. As described in Chapter 2, *Project Description*, construction of the BDFP would occur over a period of about 60 months and would employ an average of 333, and as many as 550, construction workers concurrently on site. Construction workers likely would come from San Francisco and other Bay Area counties. Construction workers who are residents of San Francisco are currently being served by City services and thus would not represent an increase in demand for City services. While it is possible that some workers might temporarily relocate from other areas, the project is not expected to result in a substantial increase in the local population (as described in Section 4.4, Population and Housing) and thus not expected to result in increased response times such that new or physically altered facilities would be required to maintain service. Incidents could occur during construction requiring law enforcement, fire protection, or emergency medical services. However, this analysis presumes that any incremental increase in demand for these services during construction would be temporary, could be accommodated by existing services, and would not require construction of new or physically altered facilities to maintain service. Therefore, the impact of BDFP construction on public services would be less than significant.

Operational Impacts

The BDFP does not involve the construction of residences, and the existing number of employees at the SEP (280) would remain the same with implementation of the project; consequently, the project would not result in a permanent increase in the local population (see Section 4.4, Population and Housing). The project facilities would be constructed in compliance with all applicable fire codes and public safety standards. The operation of the BDFP thus would not result in substantial increases in demand for public services, including law enforcement, fire protection, emergency medical services, schools or libraries. Therefore, operation of the BDFP would not require new or physically altered governmental facilities, and the project would have no impact on public services.

Because project construction would not result in a substantial increase in the local population and project operation would not result in any permanent increase in the local population, the impact of construction and operation of the BDFP on public services would be ***less than significant***.

Mitigation: None required.

Cumulative Impacts

Impact C-PS-1: The project, in combination with past, present, and probable future projects, would not substantially contribute to cumulative impacts related to public services. (Less than Significant)

Section 4.1.3, Approach to Cumulative Impact Analysis and Cumulative Projects, describes the approach to the cumulative analysis used throughout this EIR and summarizes cumulative projects in the vicinity of the project. The cumulative analysis is based on a list of past, present, and probable future projects.

Operation of the BDFP would not cause or contribute to a potential significant cumulative impact on public services for the reasons discussed in Impact PS-1; consequently, the scope of this analysis is limited to the potential for project construction, in conjunction with other projects, to contribute to a significant cumulative impact related to public services. The project would contribute to a significant cumulative effect if (1) the temporary increase in demand during project construction would make a cumulatively considerable contribution to the public service demands of other past, present, and future projects described in Section 4.1.3 of this EIR that, in combination, would require the construction of new or physically altered governmental facilities (i.e., fire or police stations); *and* (2) the construction of such facilities would have a significant adverse impact on the environment. Based on the construction schedules presented in Table 4.1-1 in Section 4.1, there are 20 cumulative projects near the project site that could be under construction during some portion of the five-year construction period of the BDFP.[19] As discussed in Section 4.13.1, the City has initiated six-year hiring plans for both the SFPD and SFFD. The SFPD hiring plan is expected to reach charter-mandated staffing levels in 2018, and the SFFD hiring plan is expected to restore staffing levels that have been reduced by staff retirements. As noted in Section 4.13.2.3, the SFPD has completed a police district boundary analysis and implemented new district boundaries based, in part, on anticipated growth, and as noted in Section 4.13.1, the SFFD has identified the need for two additional fire stations to serve the southeastern part of San Francisco due to growth in the city.

[19] Note that among these 20 projects, 13 are proposed by the SFPUC. A Southeast Area Program Construction Manager would be hired by the SFPUC prior to the start of construction of major SEP projects, and would manage implementation of plans and lead coordination efforts between projects and SEP operations throughout construction (see Chapter 2 *Project Description* for complete description). Consistent with the SFPUC's standard construction measures, the SFPUC would prepare Traffic Control Plans for each of these projects requiring (among other things) coordination with emergency responders to maintain emergency access during construction. **Appendix SCM** presents SFPUC's Standard Construction Measures.

Given that recent planning efforts by the SFPD and SFFD anticipate future growth and considering the ongoing efforts by each department to increase staffing levels, the increased need for law enforcement or fire protection services resulting from the proposed project and reasonably foreseeable projects is not expected to exceed levels anticipated by the SFFD or SFPD or require the construction of new or physically altered governmental facilities that are not already planned. Therefore, the BDFP in combination with other projects in the cumulative scenario would have ***less than significant*** cumulative impacts related to public services.

Mitigation: None required.

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4.14 Biological Resources

This section describes existing biological resources near the Southeast Water Pollution Control Plant (Southeast Plant or SEP) and off-site staging areas and evaluates the potential impacts on these resources resulting from implementation of the Biosolids Digester Facilities Project (BDFP or project). Topics analyzed in this section include effects on natural communities of wildlife and plants, special-status species, state or federally listed wildlife, and designated critical habitat. The analysis provides mitigation measures to reduce significant impacts, where appropriate. Refer to Section 4.16, Hydrology and Water Quality, regarding potential adverse effects on water quality, and by extension marine-based biological resources, related to changes in SEP discharge characteristics. The information on natural communities, plant and animal species, and sensitive biological resources used in the preparation of this section was obtained from the following sources:

- The California Natural Diversity Database (CNDDB);[1]
- California Native Plant Society (CNPS) Electronic Inventory;[2]
- The United States Fish and Wildlife Service (USFWS);[3]
- Standard biological literature; and
- Reconnaissance-level site visits (described below).

Biological reconnaissance-level surveys of the project site, off-site staging areas, and vicinity were conducted on July 30 and September 23, 2015, and tree inventories were conducted on July 30, 2015, August 7, 2015, March 7, 2016, and July 19, 2016, in order to characterize existing conditions, assess habitat quality, and assess the potential presence of special-status species and sensitive natural communities.[4]

4.14.1 Setting

4.14.1.1 Regional Setting

The project would be located in the Bay Area-Delta Bioregion,[5] as defined by the State of California's Natural Communities Conservation Program. This bioregion consists of a variety of natural communities that range from the open waters of San Francisco Bay and Delta to salt and brackish

[1] California Department of Fish and Wildlife (CDFW), California Natural Diversity Database (CNDDB) Summary Table Report for 7.5-minute topographic quadrangles San Francisco North, San Francisco South, Hunters Point, Montara Mountain, Oakland West, San Mateo. Commercial Version, September 16, 2015 and September 28, 2016.

[2] California Native Plant Society (CNPS), Rare Plant Program, Inventory of Rare and Endangered Plants (online edition, v8-02), California Native Plant Society, Sacramento, CA, 2015. Available online at http://www.rareplants.cnps.org. Accessed on September 16, 2015.

[3] United States Fish and Wildlife Service (USFWS), Endangered Species Act Species List for the SFPUC Biosolids Digester Facilities Project, 2015. Available online at http://ecos.fws.gov/ipac/. Accessed on September 16, 2015.

[4] Refer to subsections *Special-Status Species* and *Sensitive Natural Communities* in Section 4.14.1.2 for detailed definitions of these terms.

[5] A bioregion is an area defined by a combination of ecological, geographic, and social criteria and consists of a system of related, interconnected ecosystems. The Bay Area-Delta Bioregion is considered the immediate watershed of the Bay Area and the Delta, not including the major rivers that flow into the Delta. It is bounded on the north by the northern edge of Sonoma and Napa Counties and the Delta, and extends east to the edge of the valley floor; on the south, it is bounded by the southern edge of San Joaquin County, the eastern edge of the Diablo Range, and the southern edge of Santa Clara and San Mateo Counties.

marshes to grassland, chaparral, and oak woodlands. The temperate climate is Mediterranean in nature, with relatively mild, wet winters and warm, dry summers. The high diversity of vegetation and wildlife found in the region is a result of soil, topographic, and microclimate variations that combine to promote relatively high levels of endemism.[6] This, in combination with a long history of uses that have altered the natural environment and the increasingly rapid pace of development in the region, has resulted in a substantial amount of endangerment to some of the local flora and fauna.

The San Francisco Bay-Delta is the second-largest estuary in the United States and supports numerous aquatic habitats and biological communities. It encompasses 479 square miles, including shallow mudflats, tidal marshes, and open waters. The San Francisco Bay-Delta is an important wintering and migratory stopover site on the Pacific Flyway. San Francisco Bay is a critical stopover point along the Pacific Flyway migration route of shorebirds and waterfowl, which number over one billion birds at the height of migration.[7]

4.14.1.2 Local Setting

Section 4.2, Land Use, presents a general description of land uses at the project site and staging areas. With respect to biological resources, the project site and adjacent staging areas (Quint Street, 1550 Evans and Southeast Greenhouses) are fully developed, almost entirely paved, and contain no habitat for sensitive species or rare plants. The limited biological resources largely consist of non-native landscaping, ruderal vegetation, and street trees, with minimal presence of native vegetation. The off-site staging areas (Pier 94/96 and Pier 94 Backlands) are within highly disturbed, partially paved, non-native grassland, and ruderal areas used for parking, stockpiling soil and aggregate, construction staging for other projects, and storage of flatbed trailers, vehicles, and equipment. In general, the off-site staging areas have been built upon fill and provide limited native vegetation that could support sensitive plants or wildlife. Five acres of upland and northern coastal salt marsh habitat have been restored with native vegetation directly north of the Pier 94 staging area[8]; this area, herein referred to as the Pier 94 wetland, provides isolated northern coastal salt marsh habitat for shorebirds such as green winged teal (*Anas carolinensis*) and American avocet (*Recurvirostra americana*).

Project Area Vegetation Communities and Wildlife Habitats

A vegetation community is a recognizable collection of plant species that interact with each other and the elements of their environment and are distinct from adjacent vegetation communities.[9] Wildlife habitat types are based on the dominant plant species within vegetation communities.[10] The

6 Endemism refers to the degree to which organisms or taxa are restricted to a geographical region or locality and thus are individually characterized as endemic to that area.

7 Audubon, The Flyways: Pacific Flyway, 2016. Available online at http://www.audubon.org/pacific-flyway. Accessed on October 3, 2016.

8 Pickett, Mallory, Bay Nature: *Pier 94: By the People, For the Birds*, December 2, 2014. Available online at http://baynature.org/article/pier-94-people-birds/. Accessed on October 3, 2016.

9 Holland, R.F., *Preliminary Descriptions of the Terrestrial Natural Communities of California*, California Department of Fish and Game, Sacramento, CA, 1986.

10 Mayer, Kenneth E. and William F. Laudenslayer, Jr., editors, *A Guide to Wildlife Habitats of California*. State of California Resources Agency, California Department of Fish and Game, Sacramento, CA, 1988.

vegetation/habitat classification presented herein is based on field observations and the California Department of Fish and Wildlife (CDFW) *List of California Terrestrial Natural Communities Recognized by the CNDDB*.[11] Descriptions of the vegetation communities within the project site, staging areas, and immediate vicinity follow.

Developed and Ornamental Landscaping

Landscaped areas supporting a variety of ornamental trees, shrubs, and non-native vegetation are present throughout the project site, nearby staging areas, and the 1550 Evans Avenue staging area. While some of these areas are irrigated, most rely on seasonal precipitation.

Appendix BIO presents the results of tree surveys (e.g., location, tree type, and condition) conducted by a certified arborist at and near the project site and 1550 Evans Avenue on July 30, 2015, August 7, 2015, March 7, 2016, and July 19, 2016.[12]

Landscaped areas can provide cover, foraging, and nesting habitat for a variety or bird species as well as reptiles and small mammals, especially those that are tolerant of disturbance and human presence. Birds commonly found in such areas include non-native species such as English sparrow (*Passer domesticus*) and European starling (*Sturnus vulgaris*) as well as birds native to the area, including American robin (*Turdus migratorius*), house finch (*Carpodacus mexicanus*), dark-eyed junco (*Junco hyemalis*), western scrub jay (*Aphelocoma californica*), mourning dove (*Zenaida macroura*), and Anna's hummingbird (*Calypte anna*). Reptiles using this type of habitat may include native species such as western fence lizard (*Sceloporus occidentalis*). Other wildlife present in these urban landscaped areas include striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), and roosting bats as well as the non-native Virginia opossum (*Didelphis virginiana*).

Barren/Ruderal Land[13]

Ruderal vegetation occurs in areas that are subject to repeated or otherwise profound disturbance, in addition to opportunistic species that easily colonize disturbed areas. Ruderal vegetation may include some native species, but is typically dominated by non-native and often highly invasive species, including bristly ox-tongue (*Helminthotheca echioides*). Portions of the Piers 94 and 96 staging areas are characterized by this community and have been primarily cleared of vegetation to make room for stockpiled material and debris or Port of San Francisco parking lots or structures. Ruderal areas provide limited foraging or nesting habitat for a few birds and small mammals. Wildlife species occurring in ruderal areas are generally those that tolerate human activity and disturbance. Within the project site and Piers 94 and 96 staging areas, wildlife using adjacent higher quality habitats may forage and occasionally nest within ruderal areas.

[11] CDFW, List of Vegetation Alliances and Associations, Vegetation Classification and Mapping Program, California Department of Fish and Game. Sacramento, CA, September 2010.

[12] A reconnaissance survey of the Piers 94 and 96 staging areas indicated that no trees are present in areas that could be affected by the project; thus, no tree survey was conducted at that location.

[13] "Barren" and "developed" habitats are not natural vegetation communities, as they lack natural vegetation. These terms are used in this analysis to describe land cover types that provide very limited habitat for some wildlife that are adapted to the urban environment.

Annual Grassland

Annual grasslands (identified as coyote brush on **Figure 4.14-1**) exist in patches of the Pier 94 Backlands. Grasslands in these areas are dominated by non-native annual species including wild oats (*Avena barbata*), ripgut brome (*Bromus diandrus*), Italian ryegrass (*Festuca perennis*), and fennel (*Foeniculum vulgare*). Native plant species, such as California poppy (*Eschscholzia californica*) and coyote brush (*Baccharis pilularis*), can also be found in this community. Grassland habitats can support a variety of wildlife including Botta's pocket gopher (*Thomomys bottae*), California ground squirrel (*Spermophilus beecheyi*), western harvest mouse (*Reithrodontomys megalotis*), gopher snakes (*Pituophis catenifer catenifer*), and garter snakes (*Thamnophis elegans* spp.), all known to regularly forage or nest in open annual grasslands. Numerous bird species including turkey vulture (*Cathartes aura*), western meadowlark (*Sturnella neglecta*), and savannah sparrow (*Passerculus sandwichensis*) forage or breed in grassland habitats. Additionally, bird species known to frequent nearby saline emergent wetlands, such as snowy egret (*Egretta thula*), western gull (*Larus occidentalis*), American avocet (*Recurvirostra americana*), western sandpiper (*Calidris mauri*), killdeer (*Charadrius vociferous*), willet (*Catoptrophorus semipalmatus*), and Canada geese (*Branta canadensis*), could be found in this habitat on a transitional basis.[14]

Off-Site Wetlands and Other Waters

No potential wetland habitat occurs within 100 feet of the project site or off-site staging areas.[15] The Pier 94 wetland, consisting of restored northern coastal salt marsh, occurs approximately 100 feet north of the Pier 94 staging area (refer to Figure 4.14-1) and is separated from it by a concrete curb. In 2006, the Port of San Francisco and Golden Gate Audubon Society, in cooperation with the USFWS, initiated an extensive local re-introduction of the federally endangered California seablite (*Suaeda californica*) in the Pier 94 wetland and in Heron's Head Park.[16,17] Northern coastal salt marsh provides food and nesting habitat for a wide variety of bird species, such as Ridgway's rail (*Rallus obsoletus*), California black rail (*Laterallus jamaicensis coturniculus*), saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*), and Alameda song sparrow (*Melospiza melodia pusillula*).

A drainage feature (identified as a disturbed drainage on Figure 4.14-1) situated about 100 feet north of the Pier 94 Backlands appears to have been excavated for industrial purposes. Vegetation along the sides of the drainage includes saltgrass (*Distichlis spicata*) and pickleweed (*Salicornia* sp.), both typical of salt marsh vegetation but also occasionally found in non-tidal areas with saturated soil and residual salinity. Ruderal species, including bristly ox-tongue (*Helminthotheca echioides*) and fennel (*Foeniculum vulgare*), also grow along or near the channel. This drainage has been heavily disturbed by activities from adjacent land uses and provides limited habitat for wetland-dependent sensitive plants and wildlife.

[14] City and County of San Francisco, Port of San Francisco. *Wetland Restoration*, 2015. Available online at http://www.sfport.com/index.aspx?page=219. Accessed on September 28, 2015.
[15] The ponded water appearing within the Pier 94 staging area on Figure 4.14-1 is not a natural water feature.
[16] City and County of San Francisco, Port of San Francisco. *Wetland Restoration*, 2015. Available online at http://www.sfport.com/index.aspx?page=219. Accessed on September 28, 2015.
[17] City and County of San Francisco, Port of San Francisco, *Heron's Head Park*, 2015 Available online at http://www.sfport.com/index.aspx?page=210. Accessed on September 28, 2015.

SOURCE: City and County of San Francisco, Port of San Francisco Wetland Restoration, http://www.sfport.com/index.aspx?page=219, accessed September 28, 2015; National Agriculture Imagery Program, Imagery from 2014

SFPUC Biosolids Digester Facilities

Figure 4.14-1

Biological Resources in the Vicinity of Piers 94 and 96

Sensitive Natural Communities

As indicated above, northern coastal salt marsh, identified as a sensitive natural community by the CNDDB, is found in the Pier 94 wetland and south of Pier 96 in Heron's Head Park. Northern coastal salt marsh is formed by salt-tolerant plants forming dense vegetation cover. Plants grow vigorously in the summer and typically go dormant in the winter. Hydric soils[18] are subject to regular tidal inundation for at least part of the year. This vegetation community is found along sheltered inland margins of bays, lagoons, and estuaries, and is distributed extensively throughout the San Francisco Bay Area.

Potentially Jurisdictional Waters within Project Area

Although no formal wetland delineation has been verified by the United States Army Corps of Engineers, no jurisdictional[19] features were observed or are known to occur within the project site or staging areas. Jurisdictional tidal waters are located in San Francisco Bay, more than 100 feet north and east of Piers 94/96. The industrial disturbed linear ditch north of the Pier 94 Backlands displays the presence of saturated soil during some portion of the growing season and/or displays the potential to support a plant species identified with seasonal wetlands, such as pickleweed. No documentation of this industrial ditch has been submitted to regulatory agencies for review or verification of jurisdictional status; however, the linear nature of the feature, and industrial effluent supporting the saturated soil within its boundaries, indicate it was likely constructed for dry land-based industrial purposes to transport stormwater off-site. This ditch has been and will continue to be heavily disturbed by industrial activities in the area.

Wildlife Movement Corridors

Wildlife movement corridors link areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or areas of human disturbance or urban development. The San Francisco Bay Estuary, which provides important habitat for fish and bird species traveling through the region, is approximately 100 feet from the Piers 94 and 96 staging areas; however, the project site and staging areas do not contain any wildlife corridors.

Special-Status Species

Multiple species known to occur near the San Francisco Bay shoreline are protected pursuant to federal and/or state endangered species laws, or have been designated as species of concern by the USFWS or species of special concern by CDFW. In addition, Section 15380(b) of the California Environmental Quality Act (CEQA) Guidelines provides a definition of rare, endangered, or threatened species that are not included in any listing. Species recognized under these terms area collectively referred to as "special-status species." For purposes of this environmental impact report (EIR), special-status species include:

[18] Hydric soils are soils that are permanently or seasonally saturated by water, resulting in anaerobic conditions.
[19] As used in this EIR, "jurisdictional" refers to waters or wetlands subject to the jurisdiction of the U.S. Army Corps of Engineers, Regional Water Quality Control Board, or CDFW pursuant to the federal Clean Water Act, Porter Cologne Water Quality Act, or California Fish and Game Code.

- Plant and wildlife species listed as rare, threatened, or endangered under the federal or state endangered species acts;
- Species that are candidates for listing under either federal or state law;
- Species currently or formerly designated by the USFWS as a species of concern or by CDFW as a species of special concern;
- Species (such as candidate species) that may be considered rare or endangered pursuant to Section 15380(b) of the CEQA Guidelines;
- Non-listed fish species included in Essential Fish Habitat and of regional importance for harvest; or
- Species on the CDFW Watch List, i.e., species that were previously species of special concern but no longer merit that status or do not meet the CDFW species of special concern criteria but for which there is concern and a need for additional information to clarify status.

A search of CNDDB databases and literature review identified 70 special-status plant species and 60 special-status wildlife species with known occurrences in the six-quadrangle search surrounding the project area. These special-status plants and wildlife were evaluated based on local habitat conditions and the specifics of documented occurrence records to determine the likelihood that suitable habitat was present to support these species. Appendix BIO identifies special-status plant and wildlife species and indicates their potential to occur on the project site or staging areas or to otherwise be affected by project activities. Most of the species investigated have a low potential either to occur or otherwise be affected by the project, and therefore are not discussed in detail below; those with a moderate or higher potential to occur or otherwise be affected are described below. Appendix BIO includes the special-status plant and wildlife species reported to occur in the project area based on information from the following sources: CNDDB,[20] CNPS Electronic Inventory,[21] USFWS,[22] and biological literature of the region.

Special-Status Plants

One special-status plant, California seablite (a federally endangered species) occurs near a project staging area. The Port of San Francisco and Golden Gate Audubon Society, in cooperation with the USFWS, initiated an extensive local re-introduction of California seablite to a reconstructed sand beach ecotone along the salt marsh at Pier 94, approximately 100 feet north of Pier 94 staging area, and Heron's Head Park, south of the Pier 96 staging area.[23,24]

[20] CDFW, California Natural Diversity Database CNDDB Summary Table Report for 7.5-minute topographic quadrangles San Francisco North, San Francisco South, Hunters Point, Montara Mountain, Oakland West, San Mateo. Commercial Version, September 16, 2015, and September 28, 2016.

[21] CNPS, Rare Plant Program, Inventory of Rare and Endangered Plants (online edition, v8-02), California Native Plant Society, Sacramento, CA, 2015. Available online at http://www.rareplants.cnps.org. Accessed on September 16, 2015.

[22] USFWS, Endangered Species Act Species List for the SFPUC Biosolids Digester Facilities Project, 2015. Available online at http://ecos.fws.gov/ipac/. Accessed on September 16, 2015.

[23] City and County of San Francisco, Port of San Francisco, *Wetland Restoration*, 2015. Available online at http://www.sfport.com/index.aspx?page=219. Accessed on September 28, 2015.

[24] City and County of San Francisco, Port of San Francisco, *Heron's Head Park*, 2015. Available online at http://www.sfport.com/index.aspx?page=210. Accessed on September 28, 2015.

Special-Status Wildlife

The following special-status wildlife species have a moderate or higher potential to occur and could be affected by the project:

- **Saltmarsh common yellowthroat** (*Geothlypis trichas sinuosa*)**.** Saltmarsh common yellowthroat, a state species of special concern, inhabits brackish and saline tidal marsh around San Francisco Bay associated with a high coverage of bulrush (*Schoenoplectus* spp.), broadleaved pepperweed (*Lepidium latifolium*), and rush (*Juncus* sp.). Saltmarsh common yellowthroat occurred historically on the San Francisco Peninsula, particularly near water features on the west side of the city. The nearest CNDDB record of the species is over five miles from the project site.[25] Stands of perennial pepperweed north of the Pier 94 staging area could provide suitable foraging habitat for saltmarsh common yellowthroat.

- **Double-crested cormorant** (*Phalacrocorax auritus*). The double-crested cormorant is a former state species of special concern and its nesting colonies are still considered a resource of conservation concern by CDFW. A yearlong resident along the entire coast of California, the species is fairly common along the coast and in estuaries and salt ponds. The species forages mainly on fish, crustaceans, and amphibians. It sometimes feeds cooperatively in flocks of up to 600, often with pelicans, and nests in colonies of a few to hundreds of pairs.[26] Double-crested cormorants have adapted to nesting on power transmission towers, bridges, and sometimes trees. There are breeding colonies on Yerba Buena Island (approximately five miles north of the project site) and near Lake Merced (over five miles from the project site).[27] Although no documented nesting sites occur on the project site or off-site staging areas, the species could forage in the Bay waters or roost within cargo crane facilities on the eastern edge of Pier 96.

- **Snowy egret** (*Egretta thula*). Snowy egret feed on small fish, crustaceans, and large insects in shallow water and along shores of wetlands and aquatic habitats. San Francisco Bay colonies nest at ground level on gumweed (*Grindelia humilis*), pickleweed, and most commonly on coyote brush; the nearest snowy egret nesting colony to the BDFP is on Brooks Island, over 10 miles northeast of the project site/staging areas. Coyote brush in the Pier 94 Backlands could provide low-quality nesting habitat for this species. Snowy egret nesting colonies are named resources on the California Special Animals List.[28]

- **Special-status bat species.** Townsend's big-eared bat (*Corynorhinus townsendii*) has the potential to occur in the vicinity of the project site and off-site staging areas. This species is currently a state species of special concern and is under review for being removed as a state "threatened" candidate. This analysis considers the Townsend's big-eared bat a protected species. The nearest local CNDDB occurrence for Townsend's big-eared bat is Twin Peaks, approximately three miles west of the project site.[29] Preferred roosting habitats for Townsend's big-eared bat include open indoor areas where roosts can hang from walls and ceilings, protected from human

[25] CDFW, CNDDB Summary Table Report for 7.5-minute topographic quadrangles San Francisco North, San Francisco South, Hunters Point, Montara Mountain, Oakland West, San Mateo. Commercial Version, September 16, 2015, and September 28, 2016.

[26] Zeiner et al., California's Wildlife Volume III: Mammals, 1990. Editors Zeiner, D., Laudenslayer, Jr., W., Mayer, K., White, M. CDFW. April 1990.

[28] "Special Animals" is a broad term used to refer to all the animal taxa tracked by CDFW's CNDDB, regardless of their legal or protection status. This list is also referred to as the list of "species at risk" or "special-status species."

[29] CDFW, CNDDB Summary Table Report for 7.5-minute topographic quadrangles San Francisco North, San Francisco South, Hunters Point, Montara Mountain, Oakland West, San Mateo. Commercial Version, September 16, 2015, and September 28, 2016.

disturbance.[30] Nursery colonies begin in the late summer and can last until early fall. Although unlikely, bats could roost in the inactive areas on or near the project site and off-site staging areas, due to the presence of underutilized buildings.

Designated Critical Habitat

The USFWS and National Marine Fisheries Service (NMFS) designate critical habitat with the purpose of contributing to the conservation of federally listed threatened and endangered species and the habitats upon which they depend. The designation of an area as critical habitat provides additional protection to habitat only when there is a federal nexus with regard to some aspect of the project—for example, when a federal agency is implementing or issuing a permit for a project. Critical habitat protection is only relevant when other statutory or regulatory protections, policies, or other factors relevant to agency decision-making would not prevent the destruction or adverse modification of habitat. Designation of critical habitat triggers the prohibition of destruction or adverse modification of that habitat. The Bay waters are considered critical habitat for Sacramento River winter-run Chinook salmon (*Oncorhynchus tshawytscha*), Central Valley spring-run Chinook salmon (*O. tshawytscha*), Central Valley fall-run/late fall-run Chinook salmon (*O. tshawytscha*), Central California coast Coho salmon (*O. kisutch*), Central Valley steelhead trout (*O. mykiss*), Central California coast steelhead trout (*O. mykiss*), and green sturgeon (*Acipenser medirostris*). There is no designated upland critical habitat near (within two miles of) the project site or off-site staging areas.

4.14.2 Regulatory Framework

4.14.2.1 Federal Regulations

Federal Endangered Species Act

The federal Endangered Species Act (FESA) protects the fish and wildlife species and their habitats that the USFWS or NMFS has identified as threatened or endangered. The term "endangered" refers to species, subspecies, or distinct population segments that are in danger of extinction through all or a significant portion of their range. The term "threatened" refers to species, subspecies, or distinct population segments that are likely to become endangered in the near future.

The USFWS and NMFS administer the FESA. In general, the NMFS is responsible for protecting FESA-listed marine species and anadromous fishes (those that live in the sea but migrate upstream to spawn), whereas listed, proposed, and candidate wildlife, plant species, and fish species are under USFWS jurisdiction. "Take"[31] of listed species can be authorized through either the Section 7[32] consultation

[30] Pierson, E. and Rainey, W., Distribution, Status, and Management of Townsend's Big-Eared Bat (Corynorhinus townsendii) in California. Wildland Resources Center, prepared for the Department of Fish and Game, May 1998.

[31] The FESA defines the term "take" as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

[32] Under Section 7, the federal lead agency must consult with the USFWS to ensure that the proposed action would not jeopardize endangered or threatened species or destroy or adversely modify designated critical habitat. If a project "may affect" a listed species or designated critical habitat, the lead agency is required to prepare a biological assessment evaluating the nature and severity of the expected effect. The USFWS then issues a biological opinion determining that (1) the proposed action may either jeopardize the continued existence of one or more listed species or result in the destruction or adverse modification of critical habitat, or (2) the proposed action would not jeopardize the continued existence of any listed species or result in adverse modification of critical habitat.

process (for actions by federal agencies, such as the U.S. Army Corps of Engineers) or the Section 10 permit process (for actions by non-federal agencies). Federal agency actions include activities on federal land or that are conducted by, funded by, or authorized by a federal agency (including issuance of federal permits and licenses).

Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (16 United States Code [USC], Section 703) prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act applies to whole birds, parts of birds, and bird nests and eggs. Marine birds that are covered by provisions of the Migratory Bird Treaty Act with the potential to be present in the project area include the double-crested cormorant and western gull, among others.

4.14.2.2 State Regulations

California Endangered Species Act

Under the California Endangered Species Act (CESA), CDFW maintains lists of threatened and endangered species (California Fish and Game Code Section 2070). CDFW also maintains a list of "candidate species," species that CDFW has formally recognized as being under review for addition to either the list of endangered species or the list of threatened species. CDFW also maintains lists of "Species of Special Concern," which are certain designated species with declining population levels, limited ranges, and/or continuing threats that have made them vulnerable to extinction. Pursuant to the requirements of the CESA, an agency reviewing a project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present in the project area and determine whether the project would have a potentially significant impact on such species. In addition, CDFW encourages informal consultation on any project that may affect a candidate species.

California Fish and Game Code Sections 3503, 3511, 4150, 4700, and 5050

Under Section 3503 of the California Fish and Game Code, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.3 of the California Fish and Game Code prohibits take, possession, or destruction of any raptor (birds of prey) in the orders Falconiformes (hawks) or Strigiformes (owls), or of their nests and eggs. Any loss of fertile eggs or nesting raptors, or any activities resulting in nest abandonment, would constitute a take.

California Fish and Game Code Section 4150 states that all non-game mammals or parts thereof may not be taken or possessed except as otherwise provided in the code or in accordance with regulations adopted by the California Fish and Game Commission. This section applies to all bat species.

CDFW Fully Protected Species may not be taken or possessed at any time without a permit from CDFW (Section 3511 Birds, Section 4700 Mammals, and Section 5050 Reptiles and Amphibians).

Refer also to Section 4.16.2.2 in Section 4.16, Hydrology and Water Quality, for a description of the National Pollutant Discharge Elimination System (NPDES) Waste Discharge Regulations. NPDES

requirements (implemented in California at the state level) are designed to protect water quality in receiving waters, including water quality for beneficial uses associated with protection of habitats and biological resources.

4.14.2.3 Local Regulations

San Francisco General Plan

The Environmental Protection Element of the *San Francisco General Plan* contains the following objectives and policies related to biological resources protection that are relevant to the project:

- **General**

  ***Objective 1*:** Achieve a proper balance among the conservation, utilization, and development of San Francisco's natural resources.

  Policy 1.1: Conserve and protect the natural resources of San Francisco.

  Policy 1.2: Improve the quality of natural resources.

  Policy 1.3: Restore and replenish the supply of natural resources.

  Policy 1.4: Assure that all new development meets strict environmental quality standards and recognizes human needs.

- **Bay, Ocean, and Shorelines**

  ***Objective 3*:** Maintain and improve the quality of the bay, ocean, and shoreline areas.

  Policy 3.1: Cooperate with and otherwise support regulatory programs of existing regional, State, and Federal agencies dealing with the Bay.

  Policy 3.2: Promote the use and development of shoreline areas consistent with the General Plan and the best interest of San Francisco.

- **Flora and Fauna**

  ***Objective 8*:** Ensure the protection of plant and animal life in the City.

  Policy 8.1: Cooperate with and otherwise support the California Department of Fish and Game [CDFW] and its animal protection programs.

  Policy 8.2: Protect the habitats of known plant and animal species that require a relatively natural environment.

  Policy 8.3: Protect rare and endangered species.

San Francisco Public Works Code Article 16

The San Francisco Urban Forestry Ordinance (Article 16 of the San Francisco Public Works Code) was enacted to protect several categories of trees: street trees, significant trees, and landmark trees (collectively referred to herein as "protected trees") in areas under San Francisco Public Works jurisdiction and trees located on City and County of San Francisco (City)-owned property. The three categories of trees protected by the ordinance are defined as follows:

- **Street trees** are "any tree growing within the public right-of-way, including unimproved public streets and sidewalks, and any tree growing on land under the jurisdiction of the Department [of Public Works]" as defined in Section 802 of the ordinance. The removal of street trees by persons other than the Department of Public Works is restricted by Section 806(b). There are street trees within the proposed staging area along Jerrold Avenue, and along Phelps Street adjacent to the Southeast Greenhouses site.

- **Significant trees** are defined in Section 810A of the ordinance as (1) trees on property under the jurisdiction of the Department of Public Works or on privately owned property with any portion of its trunk within 10 feet of the public right-of-way, and (2) trees that satisfy at least one of the following criteria: (a) a diameter at breast height in excess of 12 inches, (b) a height in excess of 20 feet, or (c) a canopy in excess of 15 feet. Section 806(b) contains restrictions regarding the removal of significant trees by persons other than the Department of Public Works. Some trees near the project site and off-site staging areas meet the criteria for significant trees.

- **Landmark trees** are trees that have been designated as such by ordinance approved by the Board of Supervisors based on a nomination and recommendation process.[33] There are no designated landmark trees in the project area.

Section 808 of the article pertains to protection of such trees and states the following:

- **Injury to or Destruction of Trees Prohibited.** It shall be unlawful for any person to … injure or destroy a street tree, any tree on City property, a significant tree, or a landmark tree. Removal of a tree under City order or removal in accordance with a [tree removal] permit is exempt from this prohibition.

- **Injury to or Destruction of Landscape Materials Prohibited.** It shall be unlawful for any person to … injure or destroy any landscape material in any street median, center strip, or other landscaped portion of a public right-of-way under the City's jurisdiction, except as authorized by the Department [of Public Works].

- **Construction Work: Protection of Trees Required.** It shall be unlawful for any person to engage in any construction work on private or public property without first taking steps to protect street trees, significant trees, and landmark trees from damage, including damage caused by soil compaction or contamination, excavation, or placement of concrete or other pavement or foundation material. If excavation, construction, or street work is planned within the dripline of a significant tree, a landmark tree or a tree on any street or other publicly owned property said tree(s) shall be adequately protected.

Appendix BIO indicates street trees and significant trees identified during the tree survey conducted for the BDFP (no landmark trees were identified). The proposed tree removal and landscaping as well as the tree protection plan described in Chapter 2, *Project Description*, are designed to conform with the requirements of San Francisco Public Works Code Article 16 with respect to replacement of trees removed during construction and, for trees to be retained, tree protection measures.

[33] Trees that have been nominated and are undergoing review are protected according to the same standards as designated landmark trees while going through the review process, according to Section 810 of the ordinance.

San Francisco Public Works Code Article 4.2

Discharges of construction-related stormwater runoff in San Francisco are subject to the construction site runoff requirements of Article 4.2 of the San Francisco Public Works Code, Section 146. In accordance with these requirements, any project that disturbs more than 5,000 square feet of land is subject to a Construction Site Runoff Control Permit. Covered land-disturbing activities include building demolition, clearing, grading, grubbing, filling, stockpiling, excavating, and transporting soil. The permit specifically requires easements for drainage facilities, provision of adequate dust controls in conformance with applicable air pollution laws and regulations, and improvement of any existing grading, ground surface, or site drainage to meet the requirements of Article 4.2. The application for the permit must also include an Erosion and Sediment Control Plan. Refer to Section 4.16.2.3 in Section 4.16, Hydrology and Water Quality, for more information on San Francisco Public Works Code Article 4.2.

San Francisco Standards for Bird-Safe Buildings

The San Francisco Planning Department adopted *Standards for Bird-Safe Buildings* in 2011, adding San Francisco Planning Code Section 139. The standards impose requirements for certain new construction and additions in order to reduce bird mortality from collisions with buildings. The requirements apply to two types of bird hazards. "Location-related hazards" are buildings located inside of, or within a clear flight path of less than 300 feet from, an Urban Bird Refuge.[34] Requirements for location-related hazards include bird-safe glazing treatments, lighting controls, and wind generator controls. The location-related standards do not apply because the project would not be located in or near an Urban Bird Refuge. "Feature-related hazards" include free-standing glass walls, wind barriers, skywalks, balconies, and greenhouses on rooftops that have unbroken glazed segments 24 square feet and larger in size. Structures that include these elements must treat 100 percent of the glazing on feature-specific hazards. The feature-related standards do not apply to the project because the BDFP would not contain any feature-related hazards.

San Francisco Public Utilities Commission Standard Construction Measure 7

The San Francisco Public Utilities Commission (SFPUC) would implement standard construction measures for the BDFP (described in **Appendix SCM**), including the following measure applicable to biological resources:

- All project sites and the immediately surrounding area will be screened to determine whether biological resources may be affected by construction. A qualified biologist will also carry out a survey of the project site, as appropriate, to note the general resources and identify whether habitat for special-status species and/or migratory birds are present. In the event further investigation is necessary, the SFPUC will comply with all local, State, and federal requirements for surveys, analysis, and protection of biological resources (e.g., Migratory Bird Treaty Act, federal and State Endangered Species Acts, etc.). If necessary, measures will be implemented to protect biological resources, such as installing wildlife exclusion fencing, establishing work

[34] An Urban Bird Refuge is defined in the *Standards for Bird-Safe Buildings* as any area of open space two acres or larger that is dominated by vegetation, including vegetated landscaping, forest, meadows, grassland, water features, or wetlands; open water; and some green rooftops.

buffer zones, installing bird deterrents, monitoring by a qualified biologist, and other such measures. If tree removal is required, the SFPUC would comply with any applicable tree protection ordinance.

4.14.3 Impacts and Mitigation Measures

4.14.3.1 Significance Criteria

The project would have a significant impact related to biological resources if the project were to:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Due to the nature of the proposed project, there would be no impact related to the following topics for the reasons described below:

- ***Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.*** Project-related activities at the Pier 94 staging area would not affect the restored northern coastal salt marsh (Pier 94 wetlands), approximately 100 feet to the north, since all activities would be restricted to the staging area and separated from the Pier 94 wetlands by a curb along the northern perimeter. Additionally, implementation of best management practices, including sediment and water barriers, would be employed to prevent any construction-related material from leaving the staging area and entering the marsh. Refer to Section 4.16, Hydrology and Water Quality, for more information regarding best management practices implementation. For these reasons, this significance criterion is not discussed further in this EIR.
- ***Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.*** As discussed above, the project site and off-site staging areas

are within the urbanized Bayview-Hunters Point community and do not contain any wildlife corridors; therefore, this significance criterion is not discussed further in this EIR.

- ***Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.*** Neither the project site nor the off-site staging areas are within areas covered by either a habitat conservation plan or a Natural Community Conservation Plan. The project would be constructed and would operate within an active industrial area, and would occupy Port of San Francisco property only temporarily. Therefore, this significance criterion is not discussed further in this EIR.

4.14.3.2 Approach to Analysis

Construction Impacts

The analysis discusses special-status plants and wildlife that could occur on or in the vicinity of the project site and off-site staging areas and identifies the potential temporary impacts, such as those that could affect species or their habitat only during the construction period, and permanent impacts, including substantial alteration or loss of habitat, on these species as a result of construction. The analysis was based on the results of the CNDDB database search and technical reports, and describes applicable regulations and project construction activities and operations. In many cases, laws and regulations require actions that would reduce the adverse effects of the project construction on biological resources.

Operational Impacts

Upon completion of the project, all operations would be restricted to the expanded, modernized SEP, and no activities would occur within the staging areas. The project would replace and relocate the solids treatment facilities at the SEP, and long term operation of the BDFP would replace the existing solids handling operations. Due to limited biological resources found within and near the project site, continuation of ongoing solids handling operations at these new SEP facilities would not significantly affect biological resources over the long term. Project operations would modify the secondary-treated effluent discharged from the SEP to San Francisco Bay during dry weather, Impact HY-5 in Section 4.16, Hydrology and Water Quality, addresses potential effects on receiving waters from changes in discharge characteristics. For these reasons, operational impacts on biological resources are not discussed in the impact analysis below.

Cumulative Impacts

The analysis of cumulative biological resources impacts uses a list-based approach to analyze the effects of project construction in combination with other past, present, and probable future projects in the immediate vicinity of the BDFP. Section 4.1.3, Approach to Cumulative Impact Analysis and Cumulative Projects, describes the overall approach to the cumulative analysis and summarizes reasonably foreseeable future projects in the vicinity of the BDFP that could contribute to a cumulative construction impact. Refer to Table 4.1-1 and Figure 4.1-1 for descriptions and locations of potential cumulative projects in the vicinity of the BDFP. Construction and operations of other projects in the geographical area considered in the cumulative analysis would have to comply with

the same regulatory requirements as the project, and these requirements would serve to avoid and reduce many impacts to less-than-significant levels on a project-by-project basis. The analysis then considers whether there would be a significant, adverse cumulative impact associated with project implementation in combination with past, present, and probable future projects in the geographical area, and if so, whether the project's incremental contribution to the cumulative impact would be considerable. Both conditions must apply in order for a project's contribution to cumulative effects to be deemed cumulatively considerable (significant). If so, then mitigation measures are identified to reduce the project's contribution to the extent feasible.

4.14.3.3 Impact Evaluation

Construction Impacts

Impact BI-1: Project construction could have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service. (Less than Significant with Mitigation)

Special-Status Bats

The project could directly affect Townsend's big-eared bat during construction activities. Bats and other non-game mammals are protected in California under the state Fish and Game Code (described above in Section 4.14.2). Under the Fish and Game Code, the following activities are prohibited and would be considered a significant impact: (1) destruction of an occupied, non-breeding bat roost, resulting in the death of bats; (2) disturbance that causes the loss of a maternity colony of bats (resulting in the death of young); or (3) destruction of hibernacula[35] (although hibernacula are generally not formed by bat species in the Bay Area due to sufficiently high temperatures year-round). Maternity roosts are those that are occupied by pregnant females or females with non-flying young. Non-breeding roosts are day roosts without pregnant females or non-flying young.

Disturbance could result from building demolition (including demolition of the Central Shops structures and the buildings at 1550 Evans Avenue) or tree removal if roosts are located in those building or trees. Construction-associated noise or vibration or increased human activity in the area could also disturb bat roosts. Increased noise, vibration, or lights or the reconfiguration of large objects can also lead to the disturbance of roosting bats, which may lead to behavioral alterations. Human disturbance can also lead to a change in humidity, temperature, or the approach to a roost that could force the bats to change their mode of egress and/or ingress to a roost. Although temporary, such disturbance can lead to the abandonment of a maternity roost, which in most cases would be considered a significant impact.[36]

[35] Hibernaculum refers to the winter quarters of a hibernating animal.
[36] H.T. Harvey & Associates, California Bat Mitigation Techniques, Solutions, and Effectiveness, 2004. Prepared by H.T. Harvey & Associates, with Tatarian, G. and Pierson, E., for California Department of Transportation (Caltrans) and California State University Sacramento Foundation. December 29, 2004.

The nearest confirmed occurrence of Townsend's big-eared bat is approximately three miles away. Although there is an existing high level of disturbance in the project area and SEP operations generate ongoing operational noise, suitable roosting habitat could be present in inactive buildings and other structures; therefore, structure demolition and related construction activities could directly destroy bat roosts or disturb maternity colonies, a potentially significant impact. **Mitigation Measure M-BI-1 (Protective Measures for Special Status Bats and Maternity Roosts)** would reduce this impact by protecting bats during construction. The implementation of Mitigation Measure M-BI-1 would reduce impacts on roosting bats to a less-than-significant level.

Nesting Birds

Migratory birds could forage and/or nest on the ground or in vegetation found at the restored northern coastal salt marsh north of the Pier 94 staging area, at the project site, at the Pier 94 Backlands, and on manmade structures on the eastern border of Pier 96. As discussed in Section 4.14.1.2, the following special status birds could nest or forage near the Piers 94 and 96 staging areas: common yellowthroats, double-crested cormorant, and snowy egret. Construction of the BDFP would result in noise and visual disturbances, would include vegetation removal, and would generate stormwater runoff affected by construction activities. These activities could adversely affect nesting bird species within 0.25 mile of the project site and off-site staging areas during the nesting season (February 1 – August 31).

Although ground-nesting species may be present near the off-site staging areas, the presence of concrete curbs separating the Piers 94 and 96 staging areas from sensitive wildlife habitats would provide a suitable barrier to prevent any construction-related material from indirectly affecting these habitats. Additionally, protection of ground nesting birds would be provided by the City's Construction Site Runoff Ordinance, the requirements of which are in Article 4.2 of the San Francisco Public Works Code, Section 146. These requirements would control the discharge of pollutants to the local storm drain system or to San Francisco Bay, and thus would reduce impacts on sensitive wildlife habitats outside the Piers 94 and 96 staging areas (e.g., in Bay water and restored Pier 94 salt marsh) through implementation of best management practices contained in a Stormwater Pollution Prevention Plan (SWPPP) or an Erosion and Sediment Control Plan. As described in Section 4.16, Hydrology and Water Quality, either of these plans is required in order to comply with the Construction Site Runoff Control Permit. Compliance with the Construction General Stormwater Permit would ensure that the effects of construction site runoff on adjacent ground nesting bird habitat would be less than significant.

Although high ambient noise levels exist at the SEP and Port of San Francisco facilities, noise and visual disturbance from project construction activities could still affect nesting efforts at and around the project site and off-site staging areas. Construction activities that may alter the ambient noise environment or introduce short-term loud noise events include but are not limited to building demolition, grading, and the use of heavy machinery. Noise pollution can be detrimental to wildlife, and bird populations are particularly susceptible because they rely on acoustic signals for mating, predator evasion, and communication between adults and offspring, among other behaviors. A single stimulus event could have an effect on bird behavior, and studies suggest that short-term

loud noises can affect foraging and roosting birds by temporarily disturbing these behaviors, and may deter bird use of an area (including nesting) if such noises persist over the long term.[37]

As described in more detail below in Impact BI-3, BDFP construction activities would result in removal of and damage to trees, some of which provide nesting bird habitat; vegetation at the Pier 94 backlands (including coyote brush) could also be removed. Removal of trees, vegetation at the Pier 94 backlands, and structures (refer to Figure 2-17 in Chapter 2, *Project Description*) during the nesting season (conservatively interpreted by CDFW as between February 1 and August 31) could disturb nesting birds if present.

However, as described in Section 4.14.2.3, above, the SFPUC would implement Standard Construction Measure (SCM) 7 during construction, which would reduce the potential impacts to nesting birds caused by project noise, visual disturbance, and vegetation and structure removal. SCM 7 would be incorporated into the project construction specifications and would require that a qualified biologist survey the project site and staging areas to identify the presence of special-status species and/or nesting birds. The biologist would identify specific measures needed to protect biological resources (to comply with the Migratory Bird Treaty Act), and the SFPUC, through its contractors, would be required to implement those site-specific measures (such as establishing work buffer zones, installing bird deterrents, and conducting biological monitoring as needed during construction) to ensure compliance with the Migratory Bird Treaty Act. With the implementation of site-specific biological resources protection measures as identified as part of SCM 7 ensuring compliance with the Migratory Bird Treaty Act, the project's impacts on nesting birds would be less than significant.

Special-Status Plants

As discussed in Section 4.14.1.2, known populations of California seablite, a federally endangered species, occur over 100 feet north of Pier 94. Due to the distance and the physical barriers between the Pier 94 off-site staging area and the seablite population, as well as the historic industrial operations and existing human disturbance on the project site and other off-site staging areas, no special-status plants would be affected by project construction.

Summary of Impact BI-1

Implementation of SFPUC Standard Construction Measures, which requires compliance with state and federal regulations, would avoid or reduce adverse effects on nesting birds, and project impacts on nesting birds would be therefore be less than significant. However, the removal of underutilized buildings, trees, and other structures that could serve as bat roosting sites could adversely affect bat species at the project site and construction staging areas, and would be a potentially significant impact. Implementation of Mitigation Measure M-BI-1, Protective Measures for Special Status Bats and Maternity Roosts, would protect bats during construction and reduce the impact to less than significant. This impact would be ***less than significant with mitigation***.

[37] Ellis, D.H., C.H. Ellis, and D.P. Mindell, Raptor Responses to Low-Level Jet Aircraft and Sonic Booms, Environmental Pollution 74:53-83, 1981.

Mitigation Measure M-BI-1: Protective Measures for Special Status Bats and Maternity Roosts

The San Francisco Public Utilities Commission (SFPUC) shall engage a qualified biologist to conduct a pre-construction survey of buildings and other structures to be demolished, vacant buildings within 100 feet of construction activities, trees to be removed, and trees located within 100 feet of construction activities to locate potential roosting habitat for special-status bats and active maternal colonies. The pre-construction surveys shall occur no more than two weeks in advance of initiation of building demolition or renovation activities on-site or initiation of construction. No activities that could disturb active roosts of special-status bats or maternal roosts shall proceed prior to the completed surveys. The pre-construction survey shall include at a minimum:

- Identification of potential direct and indirect project-related bat- disturbing activities; and
- Locations of active roosting habitat and maternal colonies.

If the pre-construction survey does not identify signs of potentially active bat roosts (e.g., guano, urine staining, dead bats, etc.) then no further action is required. If the pre-construction survey identifies signs of potentially active bat roosts, the following measures shall be implemented:

- Removal of structures and trees shall occur when bats are active, approximately between the periods of March 1 to April 15 and August 15 to October 15; outside of bat maternity roosting season (approximately April 15 to August 31); and outside of months of winter torpor (approximately October 15 to February 28). On structures where bats were observed during the pre-construction survey, exclusion devices (i.e., one-way doors) shall be installed prior to removal of the structures. Exclusion devices shall be left in place for a minimum of four nights prior to demolition of the structures.

- If removal of structures and trees during the periods when bats are active is not feasible and active bat roosts being used for maternity or hibernation purposes are found on or in the immediate vicinity of the project site where structure demolition or renovation is planned, a no-disturbance buffer of 100 feet or less if determined adequate by a qualified biologist in coordination with the California Department of Fish and Wildlife (CDFW) based on site-specific conditions shall be established around the roost sites until they are determined to be no longer active or volant by a qualified biologist.

- The qualified biologist shall be present during structure and tree disturbance if active bat roosts are present. Structures and trees with active roosts shall be removed only when no rain is occurring or is forecast to occur for three days and when daytime temperatures are at least 50 degrees Fahrenheit (°F).

- Structures or trees containing or suspected to contain active bat roosts shall be dismantled or removed under the supervision of the qualified biologist in the evening and after bats have emerged from the roost to forage. Structures shall be partially dismantled to significantly change the roost conditions, causing bats to abandon and not return to the roost.

- If significant bat roosting habitat (e.g., maternity roosts or special-status non-maternity roost sites) is destroyed during structure or tree removal, artificial bat roosts shall be constructed in an undisturbed area in the project site vicinity away from human activity and at least 200 feet from project demolition/construction activities. The design and location of the artificial bat roost(s) shall be determined by a qualified bat biologist.

- Bat roosts that begin during construction are presumed to be unaffected, and no buffer would be necessary.

Impact BI-2: Project construction would not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means. (Less than Significant)

As described in Section 4.14.1.2, there are no known jurisdictional features within the project site or construction staging areas. The Pier 94 wetlands area is located approximately 100 feet north of the Pier 94 staging area and is isolated from proposed staging area activities, separated by a concrete curb. Due to the existing physical barriers and distance, the Pier 94 wetland would not be affected by the project.

Although jurisdictional status is not formalized, the ditch north of the Pier 94 Backlands displays non-jurisdictional attributes. Ephemeral effluent from the adjacent rendering plant industrial operations results in incidental aquatic characteristics in this ditch. Even if this feature has state or federal status, activities proposed by the project would not directly or indirectly affect this feature, as grading and excavation for new utilities for the staging areas at these piers would be subject to both Article 4.2 of the San Francisco Public Works Code (Section 146) and the State Water Resources Control Board's Construction General Stormwater Permit. Article 4.2 requires implementation of an Erosion and Sediment Control Plan for projects that disturb more than 5,000 square feet of land, and the Construction General Stormwater Permit requires implementation of a SWPPP for projects that disturb one or more acres of land (refer to Section 4.16, Hydrology and Water Quality, for additional discussion of these requirements). Article 4.2 provides that projects subject to both regulatory requirements may prepare a SWPPP in lieu of the Erosion and Sediment Control Plan. Implementation of the best management practices contained in either of these plans, such as silt fence and fiber wattles, in all areas of the project site and off-site staging areas would prevent sediment-laden runoff from exiting these areas. These measures would be required through the project's adherence with Article 4.2, the project's SWPPP, and regulatory agency approval requirements.

For these reasons, the project's effect on federally protected wetlands would be ***less than significant***.

Mitigation: None required.

Impact BI-3: Construction activities would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (Less than Significant)

Appendix BIO presents the results of the tree surveys conducted at and near the project site and the 1550 Evans Avenue staging area. Jerrold Avenue, the 1550 Evans Avenue staging area, and other areas in and around the project site contain trees that are either proposed for removal or could be adversely affected by the project. Figures 1, 2, and 3 in Appendix BIO identify the trees surveyed for this analysis. The areas surveyed include those areas that could be directly affected by project construction as well as areas that could be affected if construction staging were to occur in these areas. The tree surveys documented 172 trees, 42 of which are street trees or significant trees under Article 16 of the San Francisco Public Works Code. No landmark trees were identified during the surveys. Appendix BIO also indicates the approximately 90 trees that would be removed during construction, seven of which are significant trees. (No street trees are proposed for removal.) Absent more specific information regarding staging locations within the SEP, this analysis conservatively assumes that any of the trees surveyed within those areas could be removed or damaged.

As indicated in Chapter 2, *Project Description*, Sections 2.4.2.3, Architecture and Landscaping, and 2.6.5.5, Tree Removal and Tree Protection Plan, the SFPUC proposes to plant trees and other landscaping to replace trees to be removed along Jerrold Avenue (refer to Figure 2-11 in Chapter 2) as part of the project. Remaining trees on or adjacent to the project site and off-site staging areas that would not be removed could nevertheless be damaged by project construction activities unless proper precautions are implemented; such damage could include mechanical damage to tree trunks and canopies, root damage resulting from grading and excavation activities, and root damage resulting from soil compaction. Under the BDFP, these trees would be protected through implementation of requirements of Article 16 of the San Francisco Public Works Code, including a Tree Protection Plan, as described in Section 2.6.5.5 of Chapter 2, which would be submitted to San Francisco Public Works prior to construction. The Tree Protection Plan would be prepared by a certified arborist and would document procedures for protecting trees, including but not limited to identification of tree protection zones, tree protection fencing at the dripline of the tree or as directed by a certified arborist to preclude work in this area including any staging of heavy equipment or materials, and monitoring requirements. The project's commitment to tree replacement and protection would conform to Article 16 of the San Francisco Public Works Code. For these reasons, the impact would be ***less than significant.***

Mitigation: None required.

Cumulative Impacts

Impact C-BI-1: The project, in combination with past, present, and probable future projects, could substantially contribute to cumulative impacts on biological resources. (Less than Significant with Mitigation)

The geographic scope for potential cumulative impacts on biological resources encompasses the species occurrences, habitats, and sensitive natural communities in the vicinity of the project site and off-site staging areas (refer to Figure 4.1-1 in Section 4.1). Projects from Table 4.1-1 that are within the geographic scope would affect biological resources similar to those of the project if they were to:

- Demolish or remove buildings or structures that could be used as bat roosts;
- Remove trees or other nesting substrate or generate substantial noise (resulting in adverse effects on nesting birds); or
- Have a substantial adverse effect on federally protected wetlands.

Bats

Regarding bats, numerous projects identified in Table 4.1-1 would include demolition and/or tree removal and could generate substantial noise during construction. Examples include the Southeast Plant Headworks Replacement Project, Central Shops Relocation and Land Reuse, Southeast Greenhouses Demolition, and San Francisco Gateway. Demolition of BDFP structures along with building demolition associated with other cumulative projects could have a substantial adverse effect on roosting bats, a potentially significant cumulative impact. Implementation of Mitigation Measure M-BI-1 (Protective Measures for Special-status Bats and Maternity Roosts) would reduce the BDFP's impacts on roosting bats by preferentially removing structures when bats are active, establishing no-disturbance buffers around roost sites, constructing artificial roosts, and removing structures containing active bat roosts under the oversight of a qualified biologist and in a manner that encourages the bats to abandon the roost. After mitigation, the BDFP's remaining contribution to this cumulative impact would be less than cumulatively considerable, and the cumulative impact would be ***less than significant with mitigation***.

Nesting Birds

Regarding disturbance of nesting birds, like the BDFP, most of the projects identified in Table 4.1-1 would generate noise during construction and several of the projects (e.g., Southeast Greenhouses Demolition) would require tree and vegetation removal, resulting in a potentially significant cumulative impact on nesting birds. For all cumulative projects implemented by the SFPUC at and near the SEP, the SFPUC would implement SCM 7 (described in Section 4.14.2.3, and Impact BI-1, above) pertaining to biological resources that includes steps to ensure compliance with the Migratory Bird Treaty Act, including appropriate monitoring and protection of nesting birds.

In the vicinity of Piers 94 and 96, the proposed Asphalt and Concrete Recycling and Production Plant at Pier 94 and the Pier 96 Bulk Export Terminal projects could also generate noise during construction and operation. The Pier 90-94 Backlands Improvements Project would remove vegetation at the Pier 94 Backlands. While the BDFP project-level analysis above assumed that vegetation would be present at the Pier 94, if the Pier 90-94 Backlands Project is implemented prior to

BDFP, coyote brush would no longer be present at the Pier 94 Backlands when the BDFP is constructed. Either way, the impact would not be additive. In addition, as described above in Impact BI-1, the BDFP's potential impacts on ground nesting birds in these areas would be less than significant because of the concrete curbs separating the BDFP staging areas from these sensitive wildlife habitats and because of the stormwater runoff controls that would be implemented. Therefore, for these reasons and with implementation of SCM 7, the BDFP's contribution to this cumulative impact on ground nesting birds would be less than significant (i.e., not cumulatively considerable). Overall, with implementation of SCM 7 and compliance with state and federal regulations for protection of nesting birds, the BDFP's contribution to potential cumulative impacts on nesting birds would be less than cumulatively considerable, and the cumulative impact would be less than significant.

Wetlands

With respect to potential cumulative impacts on wetlands, as discussed in Impact BI-2, the jurisdictional status of the industrial ditch north of Pier 94 Backlands is not formalized. Projects such as the Pier 90-94 Backlands Improvements Project, the Asphalt and Concrete Recycling and Production Plant at Pier 94, and the Candlestick Point-Hunters Point Shipyard Phase I and II Development Project could also affect drainage to potential wetlands along San Francisco Bay. All cumulative development in San Francisco would be subject to the same regulatory framework as would the project for the control of construction stormwater runoff; for this reason, wetland impacts associated with the BDFP, when combined with those of these cumulative projects, would be less than significant with the implementation of the City's Construction Site Runoff Ordinance, the project's SWPPP, and regulatory agency approval requirements.

Summary of Impact C-BI-1

With implementation of SCM 7 and compliance with construction stormwater runoff regulatory requirements, the BDFP's contribution to potential cumulative impacts on nesting birds and wetlands would not be cumulatively considerable and therefore less than significant. While the BDFP could contribute to cumulative adverse effects on special-status bats or maternal roosts in the vicinity of the project site and construction staging areas, after mitigation the cumulative contribution of the BDFP would not be considerable and the cumulative impact on biological resources would be ***less than significant with mitigation***.

> **Mitigation Measure M-BI-1: Protective Measures for Special-Status Bats and Maternity Roosts** (see Impact BI-1)

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4.15 Geology, Soils, and Paleontological Resources

This section addresses the geologic and soils impacts that could result from construction and operation of the Biosolids Digester Facilities Project (BDFP or project) and identifies mitigation measures to avoid or reduce significant adverse impacts, as appropriate. It includes an evaluation of seismic impacts related to fault rupture; seismically induced ground shaking, ground failure (e.g., liquefaction), and landslides; soil erosion and loss of topsoil; construction on unstable soil or geologic units; and the potential to encounter unique paleontological resources. Regarding erosion issues, refer also to Section 4.16, Hydrology and Water Quality.

4.15.1 Setting

4.15.1.1 Regional Setting

San Francisco is located in the northern portion of the San Francisco Peninsula, part of the geologically complex California Coast Ranges geomorphic province.[1] The Coast Ranges province is characterized by a series of northwest-trending ridges and valleys that run roughly parallel to the San Andreas fault zone and can be further divided into the northern and southern ranges that are separated by San Francisco Bay. San Francisco Bay lies within a broad depression created from an east-west expansion between the San Andreas and the Hayward fault systems. The tectonic forces that dominate the region developed from the margin between the Pacific Plate and the North American Plate where the Pacific Plate slowly creeps northward past the North American Plate on the San Andreas, Hayward, and associated subsidiary faults. The Bay and northern portion of the San Francisco Peninsula are within a structural down-dropped block between the northern Santa Cruz Mountains to the west and Diablo Mountain Range to the east. Much of the Coast Ranges province is composed of marine sedimentary deposits and volcanic rocks. The relatively thick marine sediments dip east beneath the alluvium of the Great Valley.

The northwesterly trend of ridges and valleys characteristic of the Coast Ranges is obscured in San Francisco, except for features such as Russian Hill, Telegraph Hill, Hunters Point, and Potrero Hill. These relatively rugged hills are formed by Jurassic- to Cretaceous-aged bedrock of the Franciscan Complex that underlies San Francisco.[2] Fluctuating sea levels during the Quaternary period (the last 1.8 million years) have resulted in alternating sequences of terrestrial[3] and estuarine[4] sediments over the eroded bedrock surface in San Francisco. Historical development of San Francisco resulted in the placement of artificial fill over portions of the Bay in an effort to reclaim land.

1 Norris, Robert M. and Robert W. Webb, *Geology of California*, second edition, 1990.

2 The Jurassic and Cretaceous periods spanned the time period from approximately 160 to 70 million years ago. Franciscan Complex rocks formed during that time include volcanic rocks such as basalt, radiolarian cherts, greywacke sandstones, limestones, serpentinite, shale, and high-pressure metamorphic rocks such as blueschist. The rocks have been deformed and metamorphosed over time as a result of tectonic activity along the California coastal margin.

3 Terrestrial sediments consist of mixtures of gravel, sand, silt, and clay deposited by rivers and streams, and are generally referred to as alluvial deposits.

4 Estuarine sediments generally consist of silts and clays deposited in inland marine areas affected by fresh water. These sediments are often rich in organic matter and sometimes contain sand. San Francisco Bay and its adjacent tidal marshlands are estuarine environments.

4.15.1.2 Geology of Project Site and Off-Site Staging Areas

Project Site

The project site is located in a stream-cut valley along ancestral Islais Creek that eroded the northwest-trending bedrock ridge that is evident to the north and south of the site.[5] Within the Islais Creek basin, the surface deposits are mapped as artificial fill overlying tidal flat deposits. These units are underlain by 200 feet of alluvial and marine deposits, and then Franciscan Complex bedrock. The bedrock ridge is known as the Hunters Point shear zone.

As reported in the geotechnical interpretive report for the project, the Hunters Point shear zone is part of a major structural zone marked by shallow bedrock that extends southwesterly across the peninsula and extends into the Bay. The shear zone bedrock predominantly consists of a regionally extensive serpentinite body surrounded by a shale matrix mélange. The Hunters Point shear zone is a structural feature within the Franciscan Complex bedrock related to ancient subduction at the western North American plate margin from the Late Jurassic through the Miocene; it is not an active seismologic feature and is not considered an active fault by the California Geological Survey (CGS).

The specific geologic units beneath the project site are as follows (from shallowest to deepest):

> ***Artificial Fill:*** Artificial fill depths across the project site range from approximately 10 to 18 feet below ground surface (bgs). The elevation of the bottom of the artificial fill ranges from -8 to -16 feet San Francisco City Datum (SFD).[6] Some isolated areas of the BDFP site are underlain by deeper pockets of fill (on the order of 22 to 25 feet bgs), which appear to be backfilled trenches/excavations. The artificial fill is highly variable, ranging from gravels and sands to silty, sandy, and gravelly clay and silt. The fill includes gravel, cobbles, and boulders composed of Franciscan Complex sandstone, shale, and serpentinite. Many borings encountered rubble and debris including brick, asphalt, concrete, and wood. At the BDFP site, the fill contains pockets of loose, liquefiable sand.
>
> ***Young Bay Mud.*** Young bay mud under the project site is soft, highly compressible, and low strength, and has very low permeabilities. The elevation of the top of young bay mud is consistent beneath the site at approximately -8 to -16 feet SFD. The thickness of young bay mud beneath the site ranges from about 2 to 37 feet, with the thickest deposits at the north end and the thinnest to the south. The young bay mud is generally about 15 to 20 feet thick at most of the proposed structure sites.
>
> ***Upper Layered Sediments.*** The upper layered sediments, consisting of interbeds of sand and clay, were deposited along the margins of San Francisco Bay during the Pleistocene age glacial period (between 11,500 and 1.8 million years ago) while the bay mud (clay) was deposited further offshore. In the project area, the upper layered sediments generally consist of interbedded sand and clay layers. Except for a 5- to 10-foot-thick layer of loose to medium-dense sand immediately below the young bay mud, referred to as the transition zone, the sand layers are dense to very dense, fine to medium grained, poorly graded sand, silty sand, and clayey sand. The clay layers consist of lean to fat clay with minor sandy clay layers that is stiff

[5] Brown and Caldwell with CH2M and Black & Veatch, Geotechnical Interpretive Report, February 2017.
[6] San Francisco City Datum establishes the city's zero point for surveying purposes at approximately 8.6 feet above the mean sea level established by 1929 United States Geological Survey datum, and approximately 11.35 feet above the 1988 North American Vertical Datum.

to very stiff. The thickness of the upper layered sediments encountered beneath the project site ranges from about 135 feet at the south end of the site to 95 feet at the north end. The top of the upper layered sediments occurs at an elevation of about -12 to -54 feet SFD.

Old Bay Clay. The old bay clay consists of very stiff to hard lean clay or fat clay, with thin interbeds of gravelly clay, silty sand, silty sand to poorly graded sand, and clayey sand. The thickness of the old bay clay ranges from 32 to 59 feet, with the greatest thickness measured in the north-central part of the site.

Older Colluvium. Older colluvium represents slope debris formed on the underlying weathered bedrock. Typically, the older colluvium measures 6 to 18 feet thick, although unusually thick and thin units were present in the west and east ends of the site, respectively. The variation in thickness likely reflects the local topographic relief on the underlying bedrock surface. The older colluvium generally consists of dense gravelly clay and clayey gravel with fragments of distinctly Franciscan Complex rock types (sandstone, chert, shale).

Franciscan Complex. The deep borings encountered Franciscan complex bedrock at depths of greater than 200 feet bgs. The bedrock predominantly consists of sandstone and shale. The uppermost layer is weathered and grades downward to slightly weathered rock. The bedrock is soft to moderately hard, intensely fractured, and contains interbedded sandstone and shale. Melange and sheared shale were encountered below sandstone and shale at a depth of 233 feet in one boring. Serpentinite bedrock was identified in two borings at depths of 225 and 227 feet bgs. The top of bedrock is generally encountered at 200 to 215 feet bgs throughout the project site, although shallow bedrock (184 feet bgs) in one boring and deep bedrock (220 to 235 feet bgs) in four borings reflect the northwest slope from the bedrock ridge along the Hunters Point shear zone toward the center of the Islais Creek basin.

Groundwater levels at the project site are monitored in five piezometers[7] installed within the project site. Shallow groundwater within the artificial fill materials is encountered at approximately 8 to 12 feet bgs, and the peak high groundwater depth is as shallow as 5 feet bgs.[8] Groundwater within the upper layered sediments occurs under confined conditions, and the groundwater surface rises to approximately 1 foot to 4 feet bgs in piezometers installed in these materials.[9] These groundwater levels vary seasonally, and the SFPUC is conducting groundwater monitoring to establish seasonal fluctuations in groundwater levels.

Off-Site Staging Areas

The off-site staging areas at Pier 94 Backlands and Pier 94/96 are in areas underlain by artificial fill materials, then clay to depths of between 70 and 75 feet bgs. Old Bay Clay is encountered beneath the clay. There is also a debris dike near the bank of Islais Creek Channel.[10] As described in a 2012 geotechnical report for the site, a regulated landfill is within the Pier 94 Backlands, underlying the

7 A piezometer is a type of well installed to monitor groundwater levels below the ground surface.
8 Brown and Caldwell with CH2M and Black & Veatch, Geotechnical Interpretive Report, February 2017.
9 Confined groundwater conditions occur when a water-bearing zone is overlain by relatively impermeable materials such as clay and the groundwater is under pressure. Groundwater levels may rise above the top of the aquifer when it is penetrated by a piezometer.
10 Bonilla, M.G., Preliminary Geologic Map of the San Francisco South 7.5′ Quadrangle and Part of the Hunters Point 7.5′ Quadrangle, San Francisco Bay Area, California, 1998. Digital database prepared by Carl Wentworth, Marjorie Lucks, Heather Schoonover, Scott Graham, and Thomas May, United States Geological Survey Open File Report 98-354.

northern portion of the Pier 94 staging areas (refer to Figure 4.17-1 in Section 4.17, Hazards and Hazardous Materials).[11] The landfill is covered with a soil cap consisting of 2.5 to 8 feet of loose to very dense sands and gravels with variable amounts of clay and silt, and occasional concrete, brick, and serpentinite fragments. The cap is underlain by construction debris and municipal waste, dredge spoils that were placed before the landfill began operation, and clay.

4.15.1.3 Geologic Hazards

Settlement

The young bay mud (which underlies the project site) is saturated, soft, and compressible, and the thickness of this geologic unit is about 5 to 35 feet. While the placement of the existing fill at the SEP would have already consolidated the young bay mud to some degree, it is likely that the site is still undergoing some settlement from continued consolidation of the young bay mud.[12] The geotechnical interpretive report for the project estimates that the young bay mud has undergone approximately 90 percent to nearly 100 percent of its primary consolidation due to the historical placement of fill. Ongoing settlement as a result of loading from the artificial fill is estimated to be on the order of 1 inch in the southern portion of the project site to 4 inches or more in the northern portion of the project site over the next 10 to 50 years.

When new loads such as buildings are placed on it, the soft young bay mud could compress and settle even more than estimated above. Placement of the loads could also result in plastic deformation and lateral movement, sometimes accompanied by upthrusting in adjacent areas (creation of so-called "mud waves") or underwater landsliding. The young bay mud has low shear strength (i.e., low resistance to downslope movement of rock and soil). For these reasons, the young bay mud is not considered suitable material for bearing foundations of anything but very light structures and is usually not relied upon to support vertical loads.

Slope Failure

Slope failures, commonly referred to as landslides, include many phenomena that involve the downslope displacement and movement of material, triggered either by static (i.e., gravity) or dynamic (i.e., earthquake) forces. Exposed rock slopes undergo rockfalls, rockslides, or rock avalanches, while soil slopes experience soil slumps, rapid debris flows, or deep-seated rotational slides. Slope stability can depend on a number of complex variables, including site geology, soil structure, amount of groundwater, and external processes such as climate, topography, slope geometry, and human activity. The factors that contribute to slope movements include those that decrease the resistance in the slope materials and those that increase the stresses on the slope (e.g., excavation at the bottom of a slope). Landslides can occur on slopes of 15 percent or less, but the probability is greater on steeper slopes that exhibit old landslide features such as scarps (a line of cliffs formed by faulting or fracturing) and slanted vegetation.

[11] Treadwell & Rollo/RYGC, a Joint Venture, Geotechnical Investigation, Pier 94 Backland Improvements, San Francisco, California. July 5, 2012.
[12] Brown and Caldwell with CH2M and Black & Veatch, Geotechnical Interpretive Report, February 2017.

The best available predictor of where slides and earth flows might occur is the distribution of past movements.[13] In 1997, the United States Geological Survey (USGS) released a preliminary map and geographic information system (GIS) database that provides a summary of the distribution of landslides evident in the landscape of the San Francisco Bay region.[14] The map is a digitized nine-county compilation of existing landslides that has been used to divide the area into four landslide zones: "mostly landslides," "many landslides," "few landslides," and "flatlands." The project site and off-site staging areas are located within an area identified as "flatlands," defined as areas of gentle slope at low elevation that have little or no potential for the formation of slumps, translational slides (a downslope movement of material that occurs along a distinctive surface of weakness such as a fault, joint, or bedding plane), or earthflows (a downslope flow of fine-grained materials that have been saturated with water and move under the pull of gravity), except along stream banks and terrace margins.

Soil Hazards

In urbanized areas, such as the project site and off-site staging areas, native soils have commonly been removed or have been reworked and combined with imported fill materials as a result of earthwork activities associated with development. The soils mapped by the federal Natural Resources Conservation Service (NRCS) at the project site and off-site staging areas are Urban land-Orthents-reclaimed complex (0 to 2 percent slopes) that are derived from tidal flats.[15,16] This classification indicates that the soils present in the project site and off-site staging areas are disturbed and mostly covered by streets, parking lots, buildings, and other structures.

Problematic soils, such as those that are expansive or corrosive, can damage structures and buried utilities and increase maintenance requirements. Expansive soils are characterized by their ability to undergo significant volume change (i.e., to shrink and swell) due to variations in moisture content. Changes in soil moisture can result from rainfall, landscape irrigation, utility leakage, roof drainage, and/or perched groundwater.[17] Expansive soils are typically very fine grained and have a high to very high percentage of clay. Expansion and contraction of expansive soils in response to changes in moisture content can lead to differential and cyclical movements that can cause damage and/or distress to structures and equipment. The artificial fill beneath the project site is predominantly sandy and gravelly and not likely expansive. The young bay mud is below the water table and is permanently saturated, and therefore it would not be subject to moisture changes that would cause expansion and contraction of the clay materials.

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13 Nilsen, T.H. and B.L. Turner, *Influence of Rainfall and Ancient Landslide Deposits on Recent Landslides (1950-71) in Urban Areas of Contra Costa County, California*, U.S. Geological Survey Bulletin 1388, 1975.

14 United States Geological Survey (USGS), *Summary Distribution of Slides and Earth Flows in the San Francisco County, California,* Open File Report 97-745 Part C, by C.M. Wentworth, S.E. Graham, R.J. Pike, G.S. Beukelman, D.W. Ramsey, and A.D. Barron, 1997. Available online at http://pubs.usgs.gov/of/1997/of97-745/sf-sef.pdf. Accessed on August 9, 2016.

15 United States Department of Agriculture, Natural Resources Conservation Service (NRCS), Custom Soil Resource Report for San Mateo County, Eastern Part, and San Francisco County, California, Southeast Plant and Surrounding Areas October 8, 2015.

16 United States Department of Agriculture, Natural Resources Conservation Service (NRCS), Custom Soil Resource Report for Staging Areas, San Mateo County, Eastern Part, and San Francisco County, California, October 8, 2015.

17 Perched groundwater is a local saturated zone above the water table that typically exists above an impervious layer (such as clay) of limited extent.

The corrosivity of soils is commonly related to several key parameters, including soil resistivity, the presence of chlorides and sulfates, oxygen content, and pH. Typically, the most corrosive soils are those with the lowest pH and highest concentration of chlorides and sulfates. Alternating wet and dry conditions can result in a concentration of chlorides and sulfates that can break down the protective corrosion films and coatings on the surfaces of building materials. High-sulfate soils are also corrosive to concrete and may prevent complete curing, reducing the strength of the concrete considerably. Low pH and/or low-resistivity soils can corrode buried or partially buried metal structures. The effects of corrosion can potentially require increased maintenance or eventually lead to structural failure. The geotechnical interpretive report for the BDFP reports that the young bay mud and upper layered sediments, due to their chloride and sulfate content, may be corrosive to underground structures.[18] Resistivity measurements indicate that the soils underlying the site are moderately to severely corrosive to uncoated ferrous materials, which could include steel, cast iron, or ductile iron.

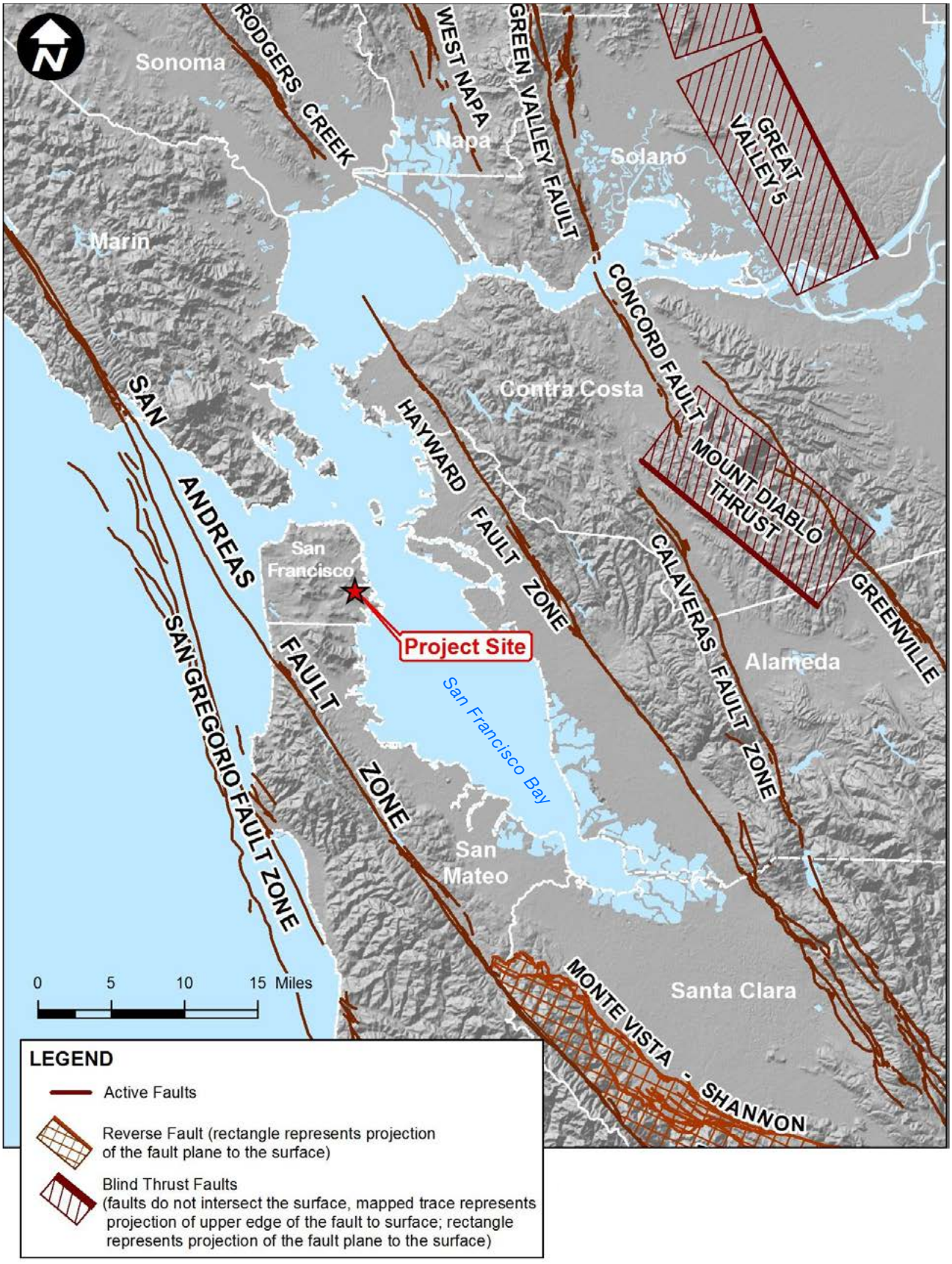
4.15.1.4 Regional Faulting and Seismic Hazards

The San Francisco Bay Area is situated near the boundary between two major tectonic plates, the Pacific Plate to the southwest and the North American Plate to the northeast. Since the Miocene epoch (approximately 23 million years ago), about 200 miles of right-lateral movement[19] have occurred along the San Andreas fault zone to accommodate the relative movement between these two plates. The movement between the Pacific Plate and the North American Plate generally occurs across a 50-mile-wide zone extending from the San Gregorio fault in the southwest to the Great Valley Thrust Belt to the northeast. In addition to the right-lateral slip movement between the two tectonic plates, portions of the North American Plate have moved toward each other during the last 3.5 million years, resulting in compressional forces at the latitude of San Francisco Bay.[20]

Active and Potentially Active Faults

Figure 4.15-1 shows the locations of active[21] and potentially active[22] faults in the San Francisco Bay region. The San Andreas, San Gregorio, Hayward-Rodgers Creek, Calaveras, Concord-Green Valley, and Marsh Creek-Greenville strike-slip faults[23] are active faults of the San Andreas system that predominantly accommodate lateral movement between the North American and Pacific tectonic plates. Active blind- and reverse-thrust faults[24] in the San Francisco Bay region that accommodate

18 Brown and Caldwell with CH2M and Black & Veatch, Geotechnical Interpretive Report, February 2017.
19 The Pacific Plate and the North American Plate are moving past each other along the San Andreas fault zone; "right-lateral movement" means that they are moving to the right relative to each other.
20 Fenton, C.H. and C.S. Hitchcock, *Recent geomorphic and paleoseismic investigations of thrust faults in Santa Clara Valley, California*, in H. Ferriz and R. Anderson (eds.), Engineering Geology Practice in Northern California: California Division of Mines and Geology Bulletin 210, 2001.
21 An active fault is one that shows geologic evidence of movement within Holocene time (approximately the last 11,000 years).
22 A potentially active fault is one that shows geologic evidence of movement during the Quaternary (approximately the last 1.8 million years).
23 Strike-slip faults involve the two blocks moving parallel to each other without a vertical component of movement.
24 A reverse fault is one with predominantly vertical movement in which the upper block moves upward in relation to the lower block; a thrust fault is a low-angle reverse fault. Blind-thrust faults are low-angled subterranean faults that have no surface expression.



SOURCE: SFPUC, Brown and Caldwell with CH2MHILL
and Black & Veatch, Geotechnical Interpretive Report, February 2017

SFPUC Biosolids Digester Facilities

Figure 4.15-1
Regional Fault Map

compressional movement include the Monte Vista–Shannon and Mount Diablo faults. The significant active and potentially active faults in the San Francisco Bay Area are the San Andreas, Hayward-Rodgers Creek, San Gregorio, Calaveras, Green Valley, and Mount Diablo faults. **Table 4.15-1** summarizes the distance from the project site to the fault, and the estimated maximum earthquake magnitude (M_w)[25] for each of these faults. The maximum earthquake magnitudes have been determined by the USGS based on several fault parameters such as the slip rate, depth, orientation, and length of the fault.[26]

TABLE 4.15-1
SIGNIFICANT ACTIVE AND POTENTIALLY ACTIVE FAULTS IN SAN FRANCISCO BAY AREA

Fault Name	Age[a]	Maximum Earthquake Magnitude (Mw)[b]	Approximate Distance from Project Site
San Andreas	Historic	7.9	7 miles
Hayward-Rodgers Creek	Historic	7.3	11 miles
San Gregorio	Holocene	7.5	11 miles
Calaveras	Historic	7.0	21 miles
Mount Diablo Thrust	Quaternary (possibly active)	6.7	21 miles
Green Valley	Historic	6.8	24 miles

NOTES:

[a] Holocene faults are those that have shown geologic evidence of movement within Holocene time (approximately the last 11,000 years). Historic faults are Holocene faults that have also demonstrated fault movement within the last 200 years. Quaternary faults have demonstrated displacement within last 1.8 million years. The Mount Diablo fault is a blind fault, meaning there is no surface expression of the fault, making dating its pre-historic activity difficult.

[b] Mw = moment magnitude, which is a measurement of the amount of energy produced by an earthquake and is directly related to the average slip rate and fault rupture area Because of the logarithmic basis of the scale, each whole number increase in magnitude represents a tenfold increase in the measured amplitude of an earthquake wave. As an estimate of energy, each whole number step in the magnitude scale corresponds to the release of about 31 times more energy than the amount associated with the preceding whole number value.

SOURCE: Brown and Caldwell with CH2M and Black & Veatch, Geotechnical Interpretive Report, February 2017.

[25] An earthquake is classified by the amount of energy released, expressed as the magnitude of the earthquake. Traditionally, magnitudes have been quantified using the Richter scale. However, seismologists now use a moment magnitude (Mw) scale because it provides a more accurate measurement of the size of major and great earthquakes. Moment magnitude is directly related to the average slip and fault rupture area. Because of the logarithmic basis of the scale, each whole number increase in moment magnitude represents a tenfold increase in the measured amplitude of an earthquake wave. As an estimate of energy, each whole number step in the magnitude scale corresponds to the release of about 31 times more energy than the amount associated with the preceding whole number value.

[26] United States Geological Survey, Uniform California Earthquake Rupture Forecast, Version 3 (UCERF3) – The Time Independent Model, USGS Open File Report 2013-1165, CGS Special Report 228, Southern California Earthquake Center Publication 1792, 2013.

Since 1800, four major earthquakes have been recorded on the San Andreas fault. In 1836, an earthquake with an estimated M_w of 6.4 occurred east of Monterey Bay (San Juan Bautista) on the San Andreas fault.[27] Shortly thereafter, in 1838, an earthquake with an M_w of about 7.4 occurred on the San Andreas fault. The San Francisco earthquake of 1906 caused the most significant damage in the history of the Bay Area in terms of loss of lives and property damage. This earthquake created a surface rupture approximately 290 miles in length along the San Andreas fault from Shelter Cove to San Juan Bautista. It had an M_w of about 7.8 and was felt 350 miles away in Oregon, Nevada, and Los Angeles. The most recent large earthquake to affect the Bay Area was the Loma Prieta earthquake on October 17, 1989. The epicenter of this earthquake was approximately 60 miles from the project site in the Santa Cruz Mountains. The earthquake had an M_w of 6.9.

On the Hayward fault, an earthquake with an estimated M_w of 7.0 occurred in 1868 on the southern segment (between San Leandro and Fremont). In 1861, an earthquake of unknown magnitude (probably an M_w of about 6.5) was reported on the Calaveras fault. The most recent significant earthquake on this fault was the 1984 Morgan Hill earthquake with an M_w of 6.2.

The USGS estimates that it is nearly certain that a Mw 6.7 or higher earthquake will occur on one of the California regional faults in the 30-year period between 2014 and 2044, with a 72 percent likelihood in the San Francisco Region.[28] The likelihood of a Mw 6.7 or higher earthquake occurring on the North San Andreas fault before 2044 is 33 percent.[29] The likelihood of such an event on the Hayward-Rodgers Creek fault and Calaveras fault is 32 and 25 percent, respectively.

Fault Rupture

Fault rupture (a break in the ground along the fault line during an earthquake) almost always follows pre-existing faults, which are zones of weakness. Surface rupture occurs when movement on a fault deep within the earth breaks through to the surface. Surface ruptures associated with the 1906 San Francisco earthquake extended for more than 180 miles, with displacements of up to 21 feet.[30] There is a very low potential for fault rupture within the project site because no active faults cross the site.[31]

Ground Shaking

The intensity of the seismic shaking, or strong ground motion, in the project site during an earthquake depends on the distance between the project site and the epicenter of the earthquake, the magnitude of the earthquake, and the geologic conditions underlying and surrounding the project site. Earthquakes occurring on faults closest to the project site would most likely generate the largest ground motions.

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[27] California Geological Survey, Regional Geologic Mapping Program, Significant California Earthquakes, 2015. Available online at http://www.consrv.ca.gov/cgs/rghm/quakes/Pages/eq_chron.aspx. Accessed on August 9, 2016.

[28] United States Geological Survey (USGS) and United States Department of the Interior, UCERF3: A New Earthquake Forecast for California's Complex Fault System. Fact Sheet 2015–3009, March 2015.

[29] Brown and Caldwell with CH2M and Black & Veatch, Geotechnical Interpretive Report, February 2017.

[30] United States Geological Survey (USGS), Earthquake Hazards Program, Historic Earthquakes, San Francisco, California. Available online at http://earthquake.usgs.gov/earthquakes/states/events/1906_04_18.php. Accessed on August 9, 2016.

[31] Brown and Caldwell with CH2M and Black & Veatch, Geotechnical Interpretive Report, February 2017.

The peninsula segment of the San Andreas fault and Hayward fault are the closest to the project site. Based on regional shaking hazard maps contained in the Community Safety Element of the *San Francisco General Plan* (which uses shaking hazard mapping done by the Association of Bay Area Governments [ABAG] in 2003), the project site could experience very strong to violent ground shaking due to an earthquake along one of these faults. More recent mapping developed by ABAG in 2013 in conjunction with the USGS indicates the project site could be subjected to very strong ground shaking.[32] The intensity of earthquake-induced ground motions and the potential forces affecting structures within the project site can also be described in terms of "peak ground acceleration," which is represented as a fraction of the acceleration of gravity (g).[33] Site-specific analyses indicate that peak ground accelerations of 0.51g could occur at the project site; and this value correlates with severe ground shaking.[34,35]

Liquefaction

Liquefaction is a phenomenon in which saturated granular sediments temporarily lose their shear strength during periods of earthquake-induced, strong ground shaking. The susceptibility of a site to liquefaction is a function of the depth, density, and water content of the granular sediments, as well as the magnitude of an earthquake. Saturated, unconsolidated silts, sands, silty sands, and gravels within 50 feet of the ground surface are most susceptible to liquefaction. Liquefaction-related phenomena include vertical settlement from densification, lateral spreading, ground oscillation, flow failures, loss of bearing strength, subsidence, and buoyancy effects.

The project site is located in a potential liquefaction hazard zone identified by the CGS.[36] The liquefaction map of the Community Safety Element of the *San Francisco General Plan* also indicates that the project site is within a potential liquefaction hazard zone. The two geologic units beneath the project site that are considered to have a liquefaction potential are the artificial fill that occurs to depths of 10 to 18 feet bgs and the 5- to 10-foot-thick transition zone of the upper layered sediments immediately beneath the young bay mud deposits.[37] The geotechnical interpretive report for the project concludes that much of the artificial fill includes enough clayey fine materials to preclude widespread liquefaction at the project site, although localized liquefaction is likely to occur within zones of loose to medium dense sandy soils within the artificial fill. The transition zone of the upper layered sediments has a low potential for widespread liquefaction, but may contain some isolated regions with a low to moderate potential for liquefaction. The consequences of liquefaction of these isolated pockets within the transition zone are expected to be limited.

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32 Association of Bay Area Governments, Resilience Program, San Francisco County Earthquake Hazard, 2015. Available online at http://resilience.abag.ca.gov/earthquakes/sanfrancisco/. Accessed on October 8, 2015.

33 Acceleration of gravity (g) = 980 centimeters per second squared. 1.0 g of acceleration is a rate of increase in speed equivalent to a car traveling 328 feet from rest in 4.5 seconds.

34 Brown and Caldwell with CH2M and Black & Veatch, Geotechnical Interpretive Report, February 2017.

35 Wald, David, Quitoriano, Vincent, Heaton, Thomas H., and Kanamori, Hiroo, Relationships between Peak Ground Acceleration, Peak Ground Velocity, and Modified Mercalli Intensity in California, Earthquake Spectra, Volume 15, No. 3, August 1999.

36 California Division of Mines and Geology, Seismic Hazard Zones, San Francisco Quadrangle, California Division of Mines and Geology, Official Map, effective November 17, 2001.

37 Brown and Caldwell with CH2M and Black & Veatch, Geotechnical Interpretive Report, February 2017.

Lateral Spreading

Of the liquefaction hazards, lateral spreading generally causes the most damage. This is a phenomenon in which large blocks of intact, non-liquefied soil move downslope on a liquefied substrate of large aerial extent.[38] When lateral displacement occurs, the mass moves toward an unconfined area, such as a descending slope or stream-cut bluff. Slopes ranging between 0.3 and 3 percent can displace the surface by several meters to tens of meters. Areas of observed lateral spreading in San Francisco are mainly limited to areas where fill has been placed over marsh and bay mud deposits.[39] After the 1906 earthquake on the San Andreas fault, lateral movements of approximately 2 feet were observed at the waterfront, near the foot of Market Street, and some lateral movement apparently occurred near the foot of Market Street as a result of the 1868 earthquake on the Hayward fault.[40] The potential for lateral spreading at the project site is considered low because of the lack of a continuous layer of liquefiable soils, the level topography of the site, and the distance to the Islais Creek banks.[41]

Earthquake- Induced Settlement

Settlement of the ground surface can be accelerated and accentuated by groundshaking from earthquakes. During an earthquake, settlement can occur as a result of recompaction of the sediments below the water table and dynamic settlement of the dry sediments above the groundwater table. In both cases, settlement can occur both uniformly and differentially (i.e., where adjoining areas settle at different rates). Areas are susceptible to differential settlement if underlain by compressible sediments, such as poorly engineered artificial fill or bay mud. Near the foot of Market Street, settlements of as much 4 feet occurred during the 1906 earthquake on the San Andreas fault, and some settlement was also reported during the 1868 earthquake on the Hayward fault.[42]

The geotechnical interpretive report for the project concludes that zones of loose to medium-dense sand within the fill could experience localized liquefaction, which could result in uneven settlement across the site in the event of a major earthquake.[43] Seismically induced post-liquefaction settlement of saturated fill below the groundwater table would range from about 0 inch to about 4 inches, with the exception of one location where settlement could be up to about 8 inches. Dynamic settlement of unsaturated sand above the groundwater table would range from 0 inch to about 0.5 inch. In addition, there could be limited settlement of the sediments within the transition zone of the upper layered sediments immediately beneath the young bay mud.

[38] Youd, T.L. and D.M. Perkins, "Mapping Liquefaction Induced Ground Failure Potential," Proceedings of the American Society of Civil Engineers, Journal of the Geotechnical Engineering Division, 1978.
[39] Youd, T.L., and S.N. Hoose, "Historic Ground Failures in Northern California Triggered by Earthquakes," Geological Survey Professional Paper 993, 1978.
[40] Ibid.
[41] Brown and Caldwell with CH2M and Black & Veatch, Geotechnical Interpretive Report, February 2017.
[42] Youd, T.L., and S.N. Hoose, "Historic Ground Failures in Northern California Triggered by Earthquakes," Geological Survey Professional Paper 993, 1978.
[43] Brown and Caldwell with CH2M and Black & Veatch, Geotechnical Interpretive Report, February 2017.

Earthquake-Induced Landslides

Earthquake motions can also induce substantial stresses in slopes, causing earthquake-induced landslides or ground cracking when the slope fails. Earthquake-induced landslides can occur in areas with steep slopes that are susceptible to strong ground motion during an earthquake. The 1989 Loma Prieta earthquake triggered thousands of landslides over an area of 770 square miles.

The project site and vicinity are relatively flat, and there are no mapped zones of potential earthquake-induced landslides identified by the California Department of Conservation under the Seismic Hazards Mapping Act of 1990 at or immediately adjacent to the project site.[44] The landslide susceptibility map of the Community Safety Element of the *San Francisco General Plan* also indicates that the project site is not located within a potential landslide hazard area.

4.15.1.5 Paleontological Resources

Paleontological resources are the fossilized remains of plants and animals, including vertebrates (animals with backbones), invertebrates (e.g., starfish, clams, ammonites, and marine coral), and fossils of microscopic plants and animals (microfossils). The age and abundance of fossils depend on the location, topographic setting, and particular geologic formation in which they are found. Fossil discoveries provide a historical record of past plant and animal life and can assist geologists in dating rock formations. In addition, fossil discoveries can expand the understanding of the time periods and geographic range of existing and extinct flora or fauna.

Assessment Standards

The Society of Vertebrate Paleontology (SVP) has established guidelines for the identification, assessment, and mitigation of adverse impacts on non-renewable paleontological resources.[45] The SVP has helped define the value of paleontological resources and, in particular, states the following:

- Vertebrate fossils and fossiliferous (fossil-containing) deposits are considered significant non-renewable paleontological resources and are afforded protection by federal, state, and local environmental laws and guidelines.
- A paleontological resource is considered to be older than recorded history, or 5,000 years B.P., and is not to be confused with archeological resource sites.
- Invertebrate fossils are not significant paleontological resources, unless they are present with an assemblage of vertebrate fossils or they provide previously unknown information on the origin and character of the plant species, past climatic conditions, or the age of the rock unit itself.
- A project paleontologist, special interest group, lead agency, or local government can designate certain plant or invertebrate fossils as significant.

[44] California Department of Conservation, Division of Mines and Geology, State of California Seismic Hazard Zones, City and County of San Francisco, Official Map, November 17, 2001.

[45] Society of Vertebrate Paleontology (SVP), Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources, 2010.

Based on these principles, the SVP has outlined criteria for screening the paleontological potential of rock units and has established assessment and mitigation procedures tailored to accommodating such potential. High- and low-potential rocks are determined by applying the following criteria:

- **High Potential.** Geologic units from which vertebrate or significant invertebrate or plant fossils have been recovered in the past, or rock formations that would be lithologically and temporally suitable for the preservation of fossils. Only invertebrate fossils that provide new information on existing flora or fauna or on the age of a rock unit would be considered significant.
- **Low Potential.** Geologic units that are not known to have produced a substantial body of significant paleontological material, as demonstrated by paleontological literature and prior field surveys, and that are poorly represented in institutional collections.

Although not discussed in SVP standards, artificial fills and soils are materials with little or no potential to contain paleontological resources. While such materials were originally derived from rocks, they have been weathered or reworked such that fossils would not likely be preserved.

Paleontological Sensitivity of Geologic Units at Project Site

A search of the paleontological locality database of the University of California Museum of Paleontology (UCMP) identified 13 vertebrate fossil localities in Pleistocene-aged sediments within San Francisco, including one locality near Islais Creek.[46] Species represented include the ground sloth, mammoth, horse, mastodon, and camel. In accordance with SVP criteria for assigning paleontological potential ratings to rock units, the Pleistocene-aged upper layered sediments would have a high paleontological potential because vertebrate fossils have been recovered from similarly aged sediments in the project site vicinity.

As discussed above, fossil remains would be unlikely in the artificial fill of the project site. Although plant and invertebrate fossil remains have been found in young bay mud, which occurs at variable depths throughout the project site, these fossils are abundant and their occurrence would not be noteworthy. Further, no vertebrate fossils have been identified in the young bay mud in San Francisco. Therefore, the artificial fill and young bay mud are considered to have a low paleontological potential.

4.15.2 Regulatory Framework

4.15.2.1 Federal Regulations

There are no federal regulations that apply directly to addressing the seismic and geotechnical aspects of the project.

[46] University of California Museum of Paleontology, UCMP Specimen Search. Available online at http://ucmpdb.berkeley.edu/. Accessed on June 15, 2016.

4.15.2.2 State Regulations

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting in structures for human occupancy. In accordance with this act, the state geologist established regulatory zones, called "earthquake fault zones," around the surface traces of active faults and has published maps showing these zones. Within these zones, buildings for human occupancy cannot be constructed across the surface trace of active faults and must be set back from the fault (generally 50 feet). Each earthquake fault zone extends approximately 200 to 500 feet on either side of the mapped fault trace because many active faults are complex and consist of more than one branch that may experience ground surface rupture. The act does not apply to the project because no active faults cross the project site, or anywhere else in San Francisco.[47]

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act was passed in 1990 following the Loma Prieta earthquake to reduce threats to public health and safety and to minimize property damage caused by earthquakes. The act directs the CGS to identify and map areas prone to the earthquake hazards of liquefaction and earthquake-induced landslides (referenced on CGS maps as zones of required investigation). For structures intended for human occupancy (inhabited for 2,000 hours per year or more),[48] the act requires that project sponsors perform site-specific geotechnical investigations to identify potential seismic hazards and formulate mitigation measures prior to permitting of most developments within the zones of required investigation. The project would not be subject to this act because none of the proposed structures would be occupied full time (2,000 hours per year).[49]

California Building Code

The California Building Code (CBC) has been codified in the California Code of Regulations (CCR) as Title 24, Part 2. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under state law, all building standards must be centralized in Title 24 or they are not enforceable. The purpose of the CBC is to establish minimum standards to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all buildings and structures within its jurisdiction. The CBC is based on the International Building Code (IBC), previously known as the Uniform Building Code. The 2013 CBC is based on the 2012 IBC published by the International Code Conference. In addition, the CBC contains necessary California amendments, which are based on reference standards obtained from various technical committees

47 California Geological Survey, Table 4, Cities and Counties Affected by Alquist-Priolo Earthquake Fault Zones as of January 2010, 2010. Available online at http://www.conservation.ca.gov/cgs/rghm/ap/pages/affected.aspx. Accessed on August 9, 2016.

48 Title 14 of the California Code of Regulations, Section 3601(e), defines buildings intended for human occupancy as those that would be inhabited for more than 2,000 hours per year.

49 California Division of Mines and Geology, Seismic Hazard Zones, San Francisco Quadrangle, California Division of Mines and Geology, Official Map, effective November 17, 2001.

and organizations such as the American Society of Civil Engineers/Structural Engineering Institute (ASCE/SEI), American Society of Mechanical Engineers/American National Standards Institute (ASME/ANSI), American Institute of Steel Construction (AISC), American Concrete Institute (ACI), and American Water Works Association (AWWA). ASCE/SEI "Minimum Design Loads for Building and Other Structures" (ASCE/SEI 7-10) provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (flood, snow, wind, etc.) for inclusion into building codes. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

Public Resources Code

Several sections of the Public Resources Code (PRC) protect paleontological resources. PRC Section 5097.5 prohibits "knowing and willful" excavation, removal, destruction, injury, and defacement of any paleontological feature on public lands (lands under state, county, city, district, or public authority jurisdiction, or the jurisdiction of a public corporation), except where the agency with jurisdiction has granted permission.

4.15.2.3 Local Regulations

San Francisco General Plan

The Community Safety Element of the *San Francisco General Plan* includes Objective 1, which requires the City to "reduce structural and non-structural hazards to life safety and minimize property damage resulting from future disasters." The Community Safety Element contains the following relevant seismic and geologic policies in support of this objective:

> ***Policy 1.3:*** Assure that new construction meets current structural and life safety standards.
>
> ***Policy 1.5:*** Support development and amendments to buildings code requirements that meet City seismic performance goals.
>
> ***Policy 1.6:*** Consider site soils conditions when reviewing projects in areas subject to liquefaction or slope instability.
>
> ***Policy 1.7:*** Consider information about geologic hazards whenever City decisions are made that will influence land use, building density, building configurations or infrastructure are made [sic].
>
> ***Policy 1.15:*** Abate structural and non-structural hazards in City-owned structures.
>
> ***Policy 1.18:*** Identify and replace vulnerable infrastructure and critical service lifelines in high-risk areas.

San Francisco Building Code

The full 2013 San Francisco Building Code consists of the 2012 IBC as amended by the 2013 CBC with amendments that address local requirements. The San Francisco amendments have been adopted by the San Francisco Board of Supervisors. Section 1803 of the San Francisco Building Code requires

implementation of a site-specific geotechnical investigation to characterize the geologic and seismic conditions at a project site that are used as the basis for the design requirements for the building. The investigation must address the depth to groundwater, soil strength, the presence and adequacy of load-bearing soils, the effects of moisture on the adequacy of soil-bearing capacity, slope stability, compressibility, corrosive and expansive soils, and other geological conditions potentially present at the site. Section 1803.5.8 of the San Francisco Building Code also requires that the geotechnical investigation address requirements for the placement of compacted fill materials, including specifications for the fill material and the minimum in-place density.

The earthquake design requirements of the San Francisco Building Code take into account the occupancy category of the structure (risk category), site class (based on soil properties), soil classifications, and various seismic coefficients, which are used to determine a Seismic Design Category (SDC) for a project. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site. The classifications range from SDC A (very low seismic vulnerability) to SDC E (very high seismic vulnerability and near a major fault). SDC F classification is for facilities such as hospitals, police stations, and emergency control centers with a very high seismic vulnerability. Design specifications are determined based on the SDC.

For sites with an SDC of C through F, the investigation must also address seismic slope instability; liquefaction; total and differential settlement; and surface displacement due to faulting or seismically induced lateral spreading or lateral flow. For sites with an SDC of D through F, the investigation must also address lateral earth pressures, the potential for liquefaction, and the potential consequences of liquefaction including total and differential settlements as well as the effects of lateral soil movement and flotation. Recommendations must be included for the appropriate foundation type, structural systems, ground stabilization, or any combination of these to address the effects of liquefaction and related phenomena.

SFPUC General Seismic Design Requirements

While not a codified regulatory requirement, the SFPUC's General Seismic Design Requirements for Design of New Facilities and Upgrade of Existing Facilities (Seismic Design Requirements) set forth consistent criteria for the seismic design and retrofit of San Francisco's water and wastewater infrastructures.[50] In accordance with these design requirements, every project that includes modifications to an existing facility or construction of a new facility must assign the facility a Seismic Performance Class (SPC) based on the seismic environment at the site and importance of the facility in meeting level of service goals for the water or wastewater system. The basic level of service criterion for the wastewater system is to reestablish dry-weather primary treatment levels within 72 hours after a major earthquake. The SPC for a specific facility is determined based on its importance in meeting this basic goal. The three SPCs are SPC-I (Standard), SPC-II (Important), and SPC-III (Critical). Facilities of each SPC must provide life-safety protection for an earthquake likely to affect the site. In addition, the level of service required for each SPC is as follows:

[50] San Francisco Public Utilities Commission (SFPUC), General Seismic Design Requirements for Design of New Facilities and Upgrade of Existing Facilities, Revision 3, June 2014.

- SPC I (Standard): These facilities may not be economically repairable in the event of a major earthquake.
- SPC II (Important): These facilities may experience damage but should be capable of restoration to service within 30 days after a major earthquake.
- SPC III (Critical): These facilities must provide a reasonable expectation of post-earthquake operability and should be capable of restoration to service within 72 hours after a major earthquake.

The General Seismic Design Requirements define a major earthquake as an earthquake with a moment magnitude of Mw 7.8 or more on the San Andreas fault, Mw 7.1 or more on the Hayward fault, or Mw 6.8 or more on the Calaveras fault.

The CBC and ASCE/SEI 7-10 provide similar designations for structures but define them in terms of Risk Categories I through IV. According to Table 5-1 of the SFPUC's General Seismic Design Requirements, SPC I is equivalent to Risk Categories I and II, SPC II is equivalent to Risk Category III, and SPC III is equivalent to Risk Category IV. These risk categories are important in determining the code-based seismic design requirements for the planned structure.

> The BDFP would include critical facilities classified as SPC III, such as the Thermal Hydrolysis Process facilities, anaerobic digesters, and Energy Recovery. The SPC for other individual facilities to be constructed under the BDFP would be determined on the basis of their importance in meeting the level of service goals for the SFPUC's wastewater system.

4.15.3 Impacts and Mitigation Measures

4.15.3.1 Significance Criteria

The project would have a significant effect related to geology, soils, and paleontological resources if it were to:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (refer to Division of Mines and Geology Special Publication 42);
  - Strong seismic ground shaking;
  - Seismic-related ground failure, including liquefaction; or
  - Landslides;
- Result in substantial soil erosion or the loss of topsoil;
- Be located on geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- Be located on expansive soil, as defined by the San Francisco Building Code, creating substantial risks to life or property;

- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater;
- Change substantially the topography or any unique geologic or physical features of the site; or
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Due to the nature of the project, there would be no impact related to the following topics for the reasons described below:

- ***Risk of Loss, Injury, or Death Involving Fault Rupture and Landslides.*** The project site is not traversed by an active fault[51] and is not within an area of mapped earthquake-induced landslide susceptibility identified by the California Department of Conservation under the Seismic Hazards Mapping Act of 1990.[52] Therefore, impacts related to fault rupture and earthquake-induced landslides are not discussed further.
- ***Substantial Loss of Top Soil.*** The project site is built out, and most of the area is covered with impervious surfaces and has a long history of industrial uses. The previous construction of the existing features has removed any top soil (a fertile soil horizon that typically contains a seed base). Soils at the Piers 94/96 staging areas either have been removed as part of development or have not developed a topsoil horizon. Therefore, impacts related to loss of top soil are not discussed further.
- ***Substantial Risks to Life or Property Due to Expansive Soil.*** The artificial fill beneath the project site is sandy and gravelly and would not be expansive. The young bay mud is below the water table and is permanently saturated, and therefore it would not be subject to moisture changes that would cause expansion and contraction of the clay materials. Further, any backfill materials used for the project would be engineered to have a low expansion potential and would be adequately compacted in accordance with the recommendations of the geotechnical report for the project. Therefore, there would be no impact related to expansive soil.
- ***Soils Incapable of Adequately Supporting Use of Septic Tanks or Alternative Wastewater Disposal Systems.*** The project would connect to the combined sewer system and would not use septic tanks or other on-site wastewater disposal systems. Therefore, there would be no impact related to the adequacy of soils to support such systems.
- ***Substantial Change in Topography or Any Unique Geologic or Physical Features.*** The project site and vicinity are completely built out; they have no unique topographic, geologic, or physical features. Construction of the proposed digesters and other facilities would not substantially alter the topography of the area. Following construction of all proposed facilities, the remaining site would be returned to existing grade. Therefore, there would be no impact related to alteration of topography.

[51] Brown and Caldwell with CH2M and Black & Veatch, Geotechnical Interpretive Report, June 2016.
[52] California Department of Conservation, Division of Mines and Geology, State of California Seismic Hazard Zones, City and County of San Francisco, Official Map, November 17, 2001.

4.15.3.2 Approach to Analysis

Project Impacts

This analysis evaluates the project's potential construction and operational effects related to geology, soils, and paleontological resources. Potential seismic impacts are assessed with respect to exposure of people or structures to geologic hazards, including ground shaking and liquefaction and other earthquake-related ground failures. In addition, the impact analysis assesses potential impacts related to soil erosion as well as unstable geologic units. The impact analysis assumes that all structures would be completed in compliance with applicable regulations, including the San Francisco Building Code, ASCE/SEI 7-10 "Minimum Design Loads for Buildings and Other Structures," the SFPUC General Seismic Design Requirements, other applicable design standards, and stormwater permitting requirements. For the purposes of this analysis, it is assumed that compliance with these standards would ensure that impacts related to geology and soils would be less than significant, and no mitigation would be required.

Impacts on paleontological resources are assessed with respect to the potential to encounter unique or uncommon paleontological resources such as vertebrate fossils. If unique or uncommon fossils have historically been identified at the project site or vicinity in the geologic units that would be disturbed during construction, the potential to encounter paleontological resources is considered high. In such cases, impacts related to paleontological resources are considered significant and mitigation would be required to reduce impacts to a less-than-significant level.

Cumulative Impacts

Although the entire Bay Area is located within a seismically active region with a high risk of seismic hazards and a wide variety of geologic conditions, the geographic scope of potential geology and soils impacts is restricted to the project site, off-site staging areas, and immediate vicinity because related risks are relatively localized or even site-specific. The cumulative analysis for geology, soils, and paleontological impacts uses a list-based approach to analyze the effects of the project in combination with past, present, and probable future projects in the immediate vicinity. Similar to the analysis for project impacts, the cumulative impact analysis assumes that construction and operation of other projects in the immediate vicinity would also be completed in compliance with applicable building codes and design standards as well as stormwater permitting requirements, which would serve to avoid and reduce many impacts to less-than-significant levels on a project-by-project basis. For paleontological resources, the cumulative impact analysis considers whether the cumulative projects in the Islais Creek area could also encounter rock units with a high potential for paleontological resources. The cumulative analysis then considers whether or not there would be a significant, adverse cumulative impact associated with project implementation in combination with past, present, and probable future projects in the immediate vicinity, and if so, whether or not the project's contribution to the cumulative impact would be considerable. Both conditions must apply in order for a project's contribution to cumulative effects to be deemed cumulatively considerable (significant). If so, then mitigation measures are identified to reduce the project's contribution to the extent feasible.

4.15.3.3 Impact Evaluation

Construction and Operational Impacts

Impact GE-1: The project would not expose people or structures to the risk of loss, injury, or death involving seismic ground shaking or seismically induced ground failure. (Less than Significant)

Seismic Ground Shaking

On the basis of regional earthquake hazard mapping by ABAG, the project site could experience very strong ground shaking due to an earthquake on one of the regional faults.[53] The site-specific geotechnical interpretive report for the project estimated that the expected peak ground acceleration at the project site would be 0.51 g; this value correlates with severe ground shaking.

All of the proposed facilities including the digesters would be constructed according to current engineering standards, which would serve to limit damage as a result of seismic ground shaking. These standards include the San Francisco Building Code, ASCE/SEI 7-10 "Minimum Design Loads for Buildings and Other Structures," and the SFPUC's Seismic Design Guidelines. These standards provide definitions of seismic sources and specify the procedures to calculate seismic forces on structures during ground shaking. The Building Seismic Safety Council acknowledges that facilities such as the digesters, buried utility lines, and their appurtenances, are not typical structures and require technical considerations beyond the scope of the CBC.[54] However, these structures are covered by other well-established industry design criteria that are incorporated into the SFPUC's Seismic Design Requirements, such as the ASCE "Design of Municipal Wastewater Treatment Plant" (ASCE Manuals and Reports on Engineering Practice No. 76), ASME/ANSI B.31.2 "Process Piping," ACI 350.3 "Seismic Design of Liquid-Containing Concrete Structures and Commentary," AWWA M11 "Steel Water Pipe: A Guide for Design and Installation, and ACI 318 "Building Code Requirements for Structural Concrete."

In accordance with the SFPUC's General Seismic Design Requirements, the proposed facilities would be designated as SPC I, II, or III depending on their importance in reestablishing dry-weather primary treatment levels within 72 hours after a major earthquake. The design would follow a performance-based approach determined on the basis of the geotechnical condition of the site, with the objective of providing life safety protection for earthquakes likely to affect the site and to be capable of restoring service within 30 days or 72 hours for facilities classified as SPC II or III, respectively.

In its contract specifications, the SFPUC would require design and construction of the proposed facilities in accordance with the San Francisco Building Code and ASCE/SEI 7-10 as well as the SFPUC's Seismic Design Requirements, which incorporate other well-established industry design criteria (such as those described above). Incorporation of the appropriate engineering and design features would ensure both that the proposed facilities would be able to withstand the calculated

[53] Association of Bay Area Governments, Resilience Program, San Francisco County Earthquake Hazard, 2015. Available online at http://resilience.abag.ca.gov/earthquakes/sanfrancisco/. Accessed on August 9, 2016.

[54] Building Seismic Safety Council of the National Institute of Building Sciences (BSSC), NEHRP Recommended Seismic Provisions for New Buildings and Other Structures (FEMA P-750), 2009 Edition.

seismic forces and that they would not be substantially damaged in the event of a major earthquake. Moreover, project implementation would result in a substantial improvement related to seismic safety because it would replace the digesters and many other existing SEP solids treatment facilities that are over 60 years old and were not built to withstand a major earthquake. Therefore, impacts related to ground shaking would be ***less than significant***.

Seismically Induced Ground Failures

The project site is in an area of mapped liquefaction susceptibility identified by the California Department of Conservation under the Seismic Hazards Mapping Act of 1990.[55] The geotechnical interpretive report for the project concluded that localized liquefaction in the artificial fill could result in uneven ground settlement throughout the project site.[56] Liquefaction of the isolated areas of loose to medium-dense sands in the transition zone of the upper layered sediments could result in loss of soil strength and limited settlement. However, this settlement would not likely result in ground surface settlements. Regardless, the proposed facilities would not be subjected to substantial damage due to liquefaction or seismic settlement because they would be constructed in accordance with the San Francisco Building Code and ASCE/SEI 7-10 as well as the SFPUC's General Seismic Design Requirements that incorporate other well-established industry design criteria such as those described above for ground shaking. These standards require that the proposed structures be designed to withstand the expected seismic forces and the effects of liquefaction.

Accordingly, many of the proposed at-grade structures would be supported on deep foundations including piles or drilled shafts that would derive their support from the density of the upper-layered sediments, as described in Chapter 2, *Project Description*. For buildings with foundations at grade or near the transition zone of the upper layered sediments, the geotechnical interpretive report also recommends over-excavating to remove the liquefiable soils and replacing the soils with compacted backfill materials. The geotechnical interpretive report also concludes that lightly loaded equipment pads and other non-essential facilities may be supported on mat foundations designed to accommodate uneven settlement. All structures would be designed to withstand settlement and lateral pressures as a result of liquefaction and related effects as described above. Further, as described in Section 4.15.1, Setting, the geotechnical interpretive report concludes that there is a low potential for lateral spreading at the project site. Therefore, impacts related to liquefaction, earthquake-induced settlement, and lateral spreading would be ***less than significant***.

Mitigation: None required.

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[55] California Department of Conservation, Division of Mines and Geology, State of California Seismic Hazard Zones, City and County of San Francisco, Official Map, November 17, 2001.

[56] Brown and Caldwell with CH2M and Black & Veatch, Geotechnical Interpretive Report, June 2016.

Impact GE-2: The project would not result in substantial erosion. (Less than Significant)

Soil movement for excavation and construction of the proposed improvements could result in wind- and water-borne soil erosion. The proposed BDFP would disturb more than 5,000 square feet of land at the project site and nearby staging areas and more than one acre of land at the Pier 94 Backlands and Piers 94/96 staging areas. In compliance with Article 4.1 of the Public Works Code (discussed in Section 4.16, Hydrology and Water Quality), the SFPUC would require the construction contractor to implement an erosion and sediment control plan for all construction activities in accordance with Article 4.1 of the San Francisco Public Works Code (discussed in Section 4.16, Hydrology and Water Quality) to reduce the impact of erosion as a result of storm water runoff from the construction sites. Grading activities at the staging areas would also be subject to the State Water Resources Control Board Construction General Permit (also discussed in Section 4.16, Hydrology and Water Quality), which requires implementation of a Stormwater Pollution Prevention Plan (SWPPP) that addresses erosion during construction. The City must review and approve the erosion and sediment control plan and/or SWPPP prior to implementation, and would conduct periodic inspections to ensure compliance with the either or both plans. With implementation of the approved controls, subject to approval and inspection by the City, substantial erosion would not occur, and impacts related to soil erosion during construction would be ***less than significant***.

Once the proposed improvements are constructed, the staging areas would no longer be used and the entire project site (with the exception of proposed landscaping along Jerrold Avenue and the rail spur and Caltrain tracks) would be paved, which would preclude the opportunity for substantial erosion to occur (refer to Figure 2-11, Landscaping Improvements, in Chapter 2, *Project Description*). Thus, there would be no impacts related to erosion during the operation of the BDFP.

Mitigation: None required.

Impact GE-3: The project site is not located on a geologic unit or soil that is unstable, and the site would not become unstable as a result of the project. (Less than Significant)

The project could induce ground settlement as a result of construction activities including excavation, dewatering, and pile driving. The potential settlement effects of these activities are described below followed by a description of the monitoring program that would be implemented to ensure that settlement does not result in adverse effects. The project would not include any operational activities that would cause any geologic units at the site to become unstable.

Excavation

Project Site. Construction of the digesters would entail excavation to a depth of about 41 feet bgs, which could create unstable slope conditions near the rail spur and Caltrain tracks and in the vicinity of the excavation. However, as discussed in Chapter 2, *Project Description*, the excavation would be supported with a secant pile retaining wall constructed to a depth of approximately 75 feet and secured with tie back anchors to prevent slope failure. The tiebacks for the secant pile walls in the digester excavations would extend 16 feet beyond the SFPUC property line, under the adjacent rail spur and Caltrain right-of-way at a depth of approximately to 60 feet below the Caltrain tracks.

Buildings with basements, the Solids Pretreatment Facility, Solids Odor Control Facility, and the utility tunnel and pipe chases would also require excavation and would be supported on piles. In accordance with the recommendations of the geotechnical interpretive report for the project and California Occupational Safety and Health Administration (Cal/OSHA) regulations pertaining to temporary shoring in Title 8 of the California Code of Regulations, these shallower excavations would be appropriately sloped or supported by conventional shoring methods such as soldier piles and lagging, which would prevent the excavation sidewalls from becoming unstable.

Pier 94 Backlands and Piers 94 and 96 Staging Areas. Installation of new underground utilities at the off-site staging areas at the Pier 94 Backlands and Piers 94 and 96 would entail excavation to approximately 3 feet, which would not be expected to induce settlement because of the shallow depth of excavation.

Construction Dewatering

Shallow groundwater at the project site is encountered at depths ranging from 8 to 12 feet bgs and has been observed as high as 5 feet bgs. The shallow excavations would be sloped or shored. If shored, the shoring systems would extend into the young bay mud, which would limit groundwater inflow to the excavations. In either case, active dewatering systems such as use of a sump pump may be required to maintain a dry working space in these excavations.

Confined groundwater occurs within the upper layered sediments that are encountered at a depth of 35 feet bgs in the vicinity of the proposed digesters.[57] Excavation for the digesters would extend to 41 feet and would encounter confined groundwater within the upper layered sediments which has been observed at depths of as little as 1 foot bgs because the groundwater is under pressure. The secant pile retaining walls constructed as part of the digester excavation would limit groundwater inflow to the excavation; however, the volume of groundwater that would be produced during dewatering is unknown. If other excavations also extended into the upper layered sediments, they would encounter confined groundwater. These excavations would be shored with a system such as a flexible wall system supported with tie backs or internal bracing. However, these deeper excavations could require more extensive groundwater dewatering than the shallow excavations to provide a stable and dry work area and to reduce groundwater. The dewatering may be accomplished with a sump pump or internal dewatering wells. Although unlikely, at sufficient rates, this groundwater dewatering could result in some subsidence in the vicinity of the excavations, which in turn could damage existing nearby structures, including existing streets and sidewalks. However, the SFPUC would conduct monitoring for settlement as discussed below, and would implement corrective actions as needed to ensure that settlement would remain within acceptable levels.

Pile Driving

The current project design estimates the BDFP would require approximately 1,200 piles overall, drilled or driven to a maximum depth of 75 feet bgs. The piles would be installed by drilling shafts (cast-in-drilled-hole piles) or driving (likely pre-stressed concrete piles). If driven, pile driving during project construction may cause the ground to heave up to several inches, and the heave could

[57] Brown and Caldwell with CH2M and Black & Veatch, Geotechnical Interpretive Report, February 2017.

adversely affect features in the vicinity of pile-driving activities. However, the SFPUC would conduct monitoring for settlement as discussed below, and would implement corrective actions as needed to ensure that settlement would remain within acceptable levels.

Required Monitoring

As part of project construction activities, the SFPUC would implement a monitoring program in accordance with the recommendations of the geotechnical interpretive report for the project. The monitoring program would include a survey of existing structures, including the rail spur and Caltrain rail tracks, to document any signs or distress prior to beginning construction. The survey would include, but not be limited to, identifying (1) evidence of any existing settlement (e.g., floors, doorways, etc., that are out of level/plumb) and (2) other clear evidence of distress or dilapidation including stress cracks to concrete, masonry, timber, and building facing; cracked or broken windows; and cracks in driveways and walkways. The monitoring program would include placing settlement markers on the ground surface between the excavations and sensitive structures, and regularly monitoring them during construction. Should the amount of settlement exceed pre-determined action trigger levels, corrective action would be taken to halt the settlement. These requirements, consistent with the geotechnical interpretive report, would be incorporated into the construction specifications for the proposed project.

Summary of Impact GE-3

The recommendations of the geotechnical interpretive report for the project and excavation safety requirements specified in Title 8 of the California Code of Regulations, would be incorporated into the construction specifications for the project. Implementation of these requirements in accordance with the construction specifications would ensure that excavation, dewatering, and pile-driving activities undertaken for the project would not result in unstable soils or geologic units. The project would not include any operational activities that would cause any geologic units at the site to become unstable. Therefore, this impact would be ***less than significant***.

Mitigation: None required.

Impact GE-4: The project could directly or indirectly destroy a unique paleontological resource. (Less than Significant with Mitigation)

As discussed in Section 4.15.1, Setting, the Pleistocene-aged upper layered sediments at the project site have a high paleontological sensitivity. Therefore, any excavations that extend into these sediments would have the potential to encounter paleontological resources. Without mitigation, excavation activities could damage or destroy a unique paleontological resource, a significant impact. Implementation of Mitigation Measure M-GE-4, Paleontological Resources Monitoring and Mitigation Program, which requires that excavation activities within the upper layered sediments be monitored by a qualified paleontologist and that any substantial find be adequately curated, would reduce this impact to a ***less-than-significant*** level. Monitoring need not be conducted for construction activities conducted within the artificial fill and young bay mud. During operation, the project would not include any excavation or other ground disturbing activities that could encounter

paleontological resources. Therefore, there would be no impact related to paleontological resources during operation.

Mitigation Measure M-GE-4: Paleontological Resources Monitoring and Mitigation Program

The SFPUC shall retain the services of a qualified paleontological consultant having expertise in California paleontology to design and implement a Paleontological Resources Monitoring and Mitigation Program (PRMMP) for construction activities that would disturb the upper layered sediments that are sensitive for paleontological resources. The PRMMP shall not require monitoring in shallower excavations that do not encounter the upper layered sediments.

The PRMMP shall include a description of when and where construction monitoring would be required; emergency discovery procedures; sampling and data recovery procedures; procedure for the preparation, identification, analysis, and curation of fossil specimens and data recovered; pre-construction coordination procedures; and procedures for reporting the results of the monitoring program.

The PRMMP shall be consistent with the Society for Vertebrate Paleontology (SVP) Standard Guidelines for the mitigation of construction–related adverse impacts on paleontological resources and the requirements of the designated repository for any fossils collected. During construction, earth-moving activities shall be monitored by a qualified paleontological consultant having expertise in California paleontology in the areas where these activities have the potential to disturb the upper layered sediments. Monitoring need not be conducted for construction activities that would disturb only artificial fill material and/or young bay mud.

The consultant's work shall be conducted in accordance with this measure and at the direction of the City's Environmental Review Officer (ERO) in coordination with the SFPUC. Plans and reports prepared by the consultant shall be submitted first and directly to the ERO for review and comment and concurrently to the SFPUC for review and comment, and shall be considered draft reports subject to revision until final approval by the ERO. Paleontological monitoring and/or data recovery programs required by this measure could suspend construction of the project in an appropriate buffer zone around a discovered paleontological resource or area determined in the PRMMP to be sensitive for paleontological resources for up to a maximum of four weeks. At the direction of the ERO and in coordination with the SFPUC, the suspension of construction may be extended beyond four weeks for a reasonable time required to implement appropriate measures in accordance with the PRMMP only if such a suspension is the only feasible means to reduce potential effects on a significant paleontological resource as previously defined to a less-than-significant level.

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Cumulative Impacts

Impact C-GE-1: The project, in combination with past, present, and probable future projects, would not substantially contribute to cumulative impacts on geology or soils. (Less than Significant)

Section 4.1.3, Approach to Cumulative Impact Analysis and Cumulative Projects, describes the overall approach to the cumulative analysis used throughout this EIR and summarizes cumulative projects in the vicinity of the project. Although the entire Bay Area is located within a seismically active region with a high risk of seismic hazards and a wide variety of geologic conditions, the geographic scope of cumulative geology and soils impacts is restricted to the project site and adjacent areas because related risks are relatively localized or even site-specific.

Table 4.1-1 and Figure 4.1-1 summarize cumulative projects in the vicinity of the BDFP. Those projects that are at or adjacent to the SEP, involve construction, but have not yet been constructed include the following (project sponsor is shown in parentheses following project name):

- SEP Southeast Plant Headworks Replacement Project (SFPUC)
- SEP Existing Digester Gas Handling Improvements (SFPUC)
- SEP Building 521 Replacement/ 522 Disinfection Upgrade (SFPUC)
- SEP Power Feed and Primary Switchgear Upgrades (SFPUC)
- SEP Primary/Secondary Clarifier Upgrades (SFPUC)
- SEP Seismic Reliability and Condition Assessment Improvements (SFPUC)
- SEP Oxygen Generation Plant Replacement (SFPUC)
- SEP Repair and Replacement (R&R) Projects (SFPUC)
- Demolition of the Existing SEP Digesters and Southside Renovation Project (SFPUC)
- Eastside Recycled Water Project (SFPUC)
- Central Shops Relocation and Land Reuse (SFPUC and General Services Agency)
- Southeast Greenhouses Demolition (SFPUC)
- Central Bayside System Improvement Project (SFPUC)
- Quint Street Lead Track (Port of San Francisco and Federal Railroad Administration)
- Peninsula Corridor Electrification Project (Caltrain Peninsula Corridor Joint Powers Board)

As shown, most of these projects are proposed by the SFPUC and would involve construction within and adjacent to the SEP property. With regard to seismic hazards, the project area is subject to very strong ground shaking, and the project site could experience liquefaction and related effects in the event of an earthquake on a nearby fault. However, as discussed in Impact GE-1, all of the project components would be designed and constructed in accordance with the most current building code requirements, the SFPUC Seismic Design Guidelines, and applicable engineering standards for seismic safety, which would minimize the potential for damage. All of the SFPUC-sponsored projects would be engineered and designed according to the same or similar building code and engineering standard requirements and the Quint Street Lead Track and Peninsula Corridor Electrification

projects would be subject to similar requirements which would minimize safety risks related to seismic hazards. Therefore, cumulative impacts related to seismic hazards would be ***less than significant***.

The proposed project and all of the cumulative projects would also be required to implement the requirements of Article 4.1 of the San Francisco Public Works Code (discussed in more detail in Section 4.16, Hydrology and Water Quality) which would ensure that cumulative impacts of erosion from the construction sites would be ***less than significant*** (see in Impact GE-2 for a discussion of these requirements).

As discussed in Impact GE-3, implementation of the recommendations of the geotechnical reports for each project and excavation safety requirements specified in CCR Title 8 would ensure that construction activities undertaken for the cumulative projects and the BDFP would not result in unstable soils or geologic units. Therefore, cumulative impacts related to unstable soils and geologic units would be ***less than significant***.

Impact C-GE-2: The project, in combination with past, present, and probable future projects, could substantially contribute to cumulative impacts on paleontological resources. (Less than Significant with Mitigation)

The geographic scope of cumulative impacts to paleontological resources includes the Islais Creek area where the upper layered sediments and other Pleistocene-aged sediments could be disturbed. As discussed in Impact GE-4, project-related excavation would encounter the upper layered sediments at several locations, and this geologic unit has a high paleontological sensitivity based on the identification of several vertebrate fossils in similarly aged sediments in the Islais Creek Area. If other construction projects in the project vicinity would disturb upper layered sediments or other Pleistocene-aged sediments, cumulative impacts on paleontological resources could be significant. However, with implementation of Mitigation Measure M-GE-4, Paleontological Resources Monitoring and Mitigation Program, any paleontological resources encountered during excavation associated with the BDFP would be recovered and appropriately curated. Therefore, the project's contribution to this cumulative impact would not be cumulatively considerable, and the impact would be ***less than significant with mitigation***.

> **Mitigation Measure M-GE-4: Paleontological Resources Monitoring and Mitigation Program** (see Impact GE-4)

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4.16 Hydrology and Water Quality

This section describes existing hydrology and water quality in the project area, including wastewater and stormwater management, existing and future flooding, groundwater conditions, and the existing regulatory framework governing these topics. Potential impacts that could result from construction and operation of the project and mitigation measures to avoid or reduce significant adverse impacts are then discussed, as appropriate. The impact assessment includes an evaluation of water quality issues related to construction activities as well as operation of the project, including changes in effluent water quality. **Appendix HYD** presents supporting information for the water quality analysis.

4.16.1 Setting

4.16.1.1 Climate

San Francisco has a Mediterranean climate, with cool, dry summers and mild, wet winters. The mean annual precipitation in San Francisco is approximately 24 inches per year, with most of the rainfall occurring between November and March.[1] The average annual temperature is 57.3 degrees Fahrenheit, with the minimum average monthly temperature occurring in January and December (46 degrees Fahrenheit) and maximum average monthly temperature occurring during September (70 degrees Fahrenheit).

4.16.1.2 San Francisco Bay

The project site is located within the natural drainage area of Islais Creek, which is located approximately 1,200 feet north of the site. Islais Creek flows to Lower San Francisco Bay, more than 5,000 feet east of the project site. The Bay is an estuarine environment that receives saltwater inputs from the Pacific Ocean through the Golden Gate, and freshwater inputs from the Sacramento-San Joaquin Delta to the northeast and from various other tributary rivers and creeks located around the Bay.

4.16.1.3 Wastewater and Stormwater Management

The San Francisco Public Utilities Commission (SFPUC) operates a combined sanitary sewer and stormwater system. Freshwater flow to the Bay from San Francisco has been almost entirely diverted to the City and County of San Francisco's (CCSF's or City's) combined system. However, for portions of the waterfront, including Piers 94 and 96, the Port of San Francisco (Port) manages separated stormwater systems that discharge stormwater directly to the Bay. Both the City's combined sewer system and the Port's separate stormwater systems are described below. All sanitary flows from the project site as well as the staging areas discharge to the City's combined sewer system as described in Section 4.12, Utilities and Service Systems.

[1] U.S. Climate Data, San Francisco. Available online at http://www.usclimatedata.com/climate/san-francisco/california/united-states/usca0987. Accessed on August 29, 2016.

SFPUC Combined Sewer System

The City's combined sewer system is roughly divided into two major drainages: the Bayside and Westside basins, located on either side of the drainage basin boundary shown on **Figure 4.16-1**.[2] The project site is located within the Bayside drainage basin, which covers the east side of San Francisco and consists of three distinct regulatory receiving water basins and their associated watersheds: North Shore (North Shore watershed), Central (Channel watershed in its entirety and a portion of Islais Creek watershed), and South (remainder of the Islais Creek watershed and the entirety of the Yosemite and Sunnydale watersheds). Combined stormwater and wastewater flows from the Bayside drainage basin are transported for treatment to the Southeast Water Pollution Control Plant (Southeast Plant or SEP).

Wastewater Treatment at SEP

As described in Chapter 2, Section 2.2.2, Southeast Water Pollution Control Plant, the SEP includes facilities to provide both primary and secondary treatment of wastewater flows. All discharges from the SEP, whether treated to a primary or secondary level, are disinfected using sodium hypochlorite and dechlorinated with sodium bisulfite to remove any chlorine residual prior to discharge.

During dry weather (typically May through September), wastewater flows consist mainly of industrial wastewater and sanitary sewage. Average dry weather flows to the SEP for years 2012 to 2014 ranged from 58 to 61 million gallons per day (mgd).[3,4] The average dry weather design flow capacity of the SEP is 85 mgd; therefore the existing flows are up to about 72 percent of the treatment capacity, and all dry weather wastewater flow is treated to a secondary level at the SEP. During dry weather, the treated wastewater is discharged to the Bay through the deep water outfall at Pier 80, referred to as the Southeast Bay Outfall and located immediately to the north of the Islais Creek Channel.

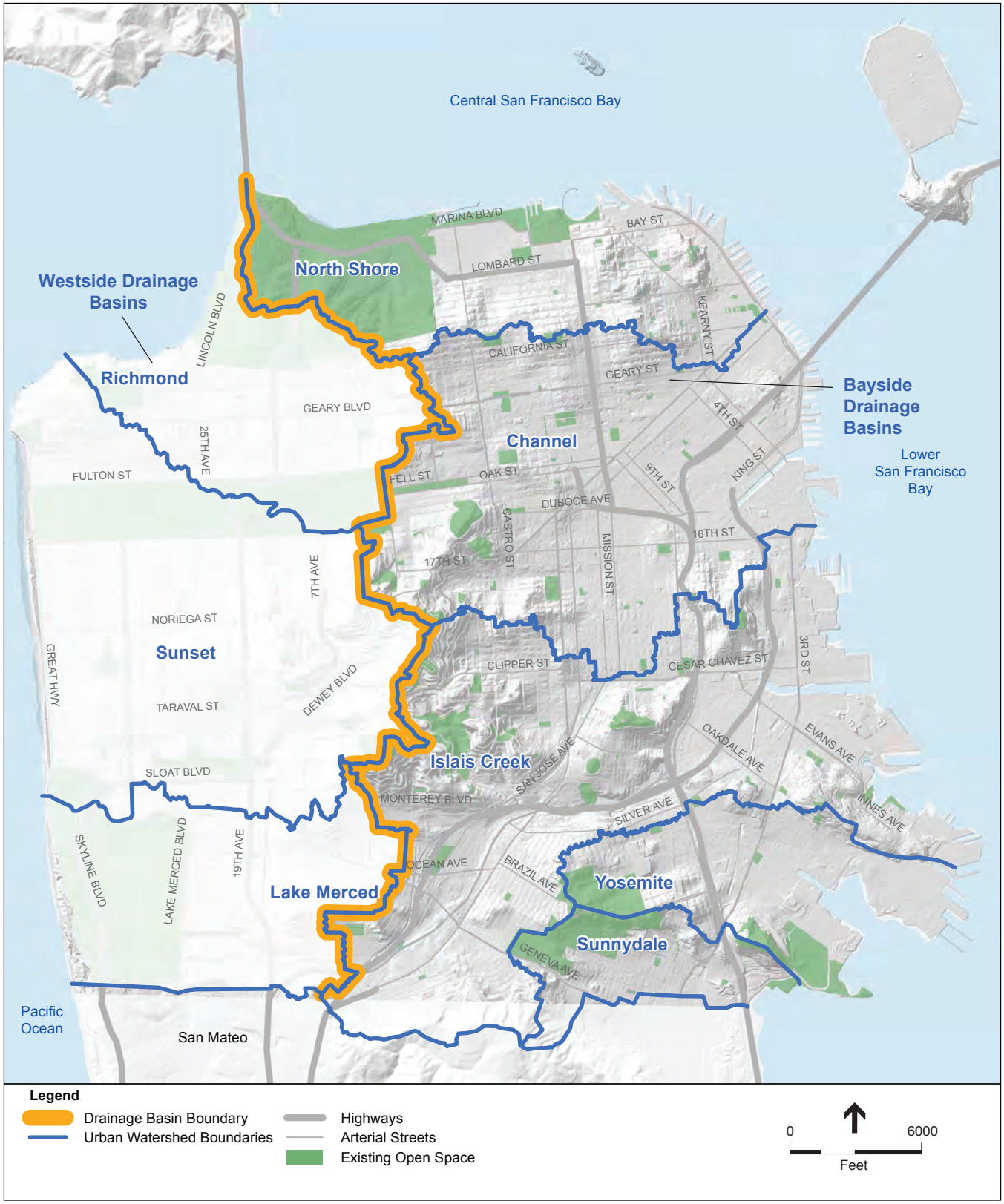
During wet weather (generally October through April), the combined sewer system collects large volumes of stormwater runoff in addition to wastewater; the combined stormwater runoff and wastewater are referred to as wet weather flows. Depending on the amount of rainfall, wet weather flows are treated to varying levels before discharge to the Bay. Up to 150 mgd of wet weather flows receive secondary treatment at the SEP.

The SEP can also treat up to an additional 100 mgd to a primary treatment standard plus disinfection for a total wet weather treatment capacity of 250 mgd. Treated wet weather discharges of up to 250 mgd from the SEP occur through the Southeast Bay Outfall directly to the Bay or through the Quint Street outfall to the Islais Creek Channel on the south bank of Islais Creek.

[2] Regional Water Quality Control Board, San Francisco Bay Region, National Pollutant Discharge Elimination System (NPDES) Permit No. CA0037664, Order No.R2-2013-0029, for City and County of San Francisco Southeast Water Pollution Control Plant, North Point Wet Weather Facility, Bayside Wet Weather Facilities and Wastewater Collection System, adopted August 14, 2013.

[3] SFPUC, *Wastewater Flow and Load Projections Technical Memorandum*, 2014. Prepared for San Francisco Public Utilities Commission Sewer System Improvement Program. Updated February 2014.

[4] SFPUC, personal communication from Sue Chau to Karen Lancelle et al. regarding RFI and Action Item Responses, September 9, 2015.



SFPUC Biosolids Digester Facilities

Figure 4.16-1

Bayside Basin Urban Watershed Basins

SOURCE: Office of Community Investment and Infrastructure, Subsequent Environmental Impact Report, Event Center and Mixed-Use Development at Mission Bay Black 29 to 32, State Clearinghouse No. 2012112045, June 5, 2015

Up to an additional 150 mgd of wet weather flows receive primary treatment plus disinfection at the North Point Wet Weather Facility (NPF), which operates only during wet weather.

The combined sewer system includes underground, concrete storage and transport boxes that, during wet weather, temporarily retain for later treatment the combined stormwater and sewage flows that exceed the total 400-mgd capacity of the SEP and the NPF. When rainfall intensity results in combined flows that exceed the total capacity of the SEP, the NPF, and the 120-million-gallon capacity of the storage and transport structures, the excess flows are discharged through 29 combined sewer discharge (CSD) structures located along the city's bayside waterfront from the Marina Green to Candlestick Point. Discharges from these structures receive "flow-through treatment," which is similar to primary treatment, to remove settleable solids and floatable materials. Wet weather flows are intermittent throughout the rainy season, and combined sewer discharge events vary in nature and duration, depending largely on the intensity of individual rainstorms.

All discharges from the combined sewer system to the Bay, through either the outfalls or the CSD structures, are operated in compliance with the federal Clean Water Act and the state Porter-Cologne Water Quality Control Act through the National Pollutant Discharge Elimination System (NPDES) permit for discharges from the "Southeast Water Pollution Control Plant, North Point Wet Weather Facility, Bayside Wet Weather Facilities, and Wastewater Collection System" (referred to as the Bayside NPDES Permit and described below in Section 4.16.2.2, State Regulations).

Stormwater Runoff at SEP

Stormwater runoff from the SEP is directed to a 15-inch-diameter combined sewer within the SEP and to other combined sewers in Jerrold Avenue, Phelps Street, and Evans Avenue. This runoff is treated at the SEP and discharged via the SEP outfalls.

Port Stormwater Management

The Port manages approximately 7.5 miles of San Francisco's waterfront from Hyde Street Pier on the north to India Basin on the south.[5] The vast majority of this area is served by a separate storm drain system operated by the Port, and stormwater either drains directly to the Bay without treatment, is treated with landscape swales and directed to the Bay, or infiltrates to the ground in areas without a separate drain system. The State Water Resources Control Board (SWRCB) classifies these areas where stormwater drains to the Bay as a municipal separate storm sewer system (or MS4). Accordingly, stormwater discharges from areas managed by the Port are regulated under the SWRCB Water Quality Order No. 2013-0001-DWQ, NPDES General Permit for Waste Discharge Requirements (WDRs) for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (the Small MS4 General Stormwater Permit discussed below in Section 4.16.2.2, State Regulations).

Piers 94 and 96 are served by several individual separate stormwater systems that are maintained by the Port and discharge to San Francisco Bay.[6] The Pier 94 Backlands is comprised of unpaved

[5] Port of San Francisco, *Storm Water Management Plan 2003-2004*, December 2003.
[6] Treadwell and Rollo & Watershed Resources Collaboration Group, *Stormwater Management Study for Port of San Francisco Southern Waterfront, Pier 70 to Pier 96*, September 2002.

surfaces, and stormwater is treated through a system of landscape swales that collect, treat and convey stormwater. Once treated, the stormwater flows to the bay through an outfall.

4.16.1.4 Existing Flooding

Some low-lying areas along San Francisco's Bay shoreline are subject to flooding during periods of extreme high tides, storm surge, and waves, although these occurrences are relatively rare in San Francisco compared to areas prone to hurricanes or other major coastal storms or with developed areas near or below sea level. In 2008, the CCSF adopted interim flood maps depicting the 100-year flood zone[7] along the city's Bay shoreline. In November 2015, the Federal Emergency Management Agency (FEMA) issued Preliminary Flood Insurance Rate Maps (FIRMs) for the CCSF, as part of the National Flood Insurance Program's San Francisco Bay Area Coastal Study, and the CCSF subsequently revised its interim flood maps to reflect the Preliminary FIRMs. As shown on **Figure 4.16-2**, the near-shore areas of Piers 94 and 96 are located within a 100-year flood zone but the remaining staging areas and the project site are not located in an existing 100-year flood zone.[8]

4.16.1.5 Flooding as a Result of Sea Level Rise

Flooding conditions along San Francisco's Bay shoreline will be exacerbated with projected sea level rise over the remainder of the century due to climate change. This section discusses the factors contributing to coastal flooding and the potential for increased flooding at the project site in the future as a result of sea level rise.

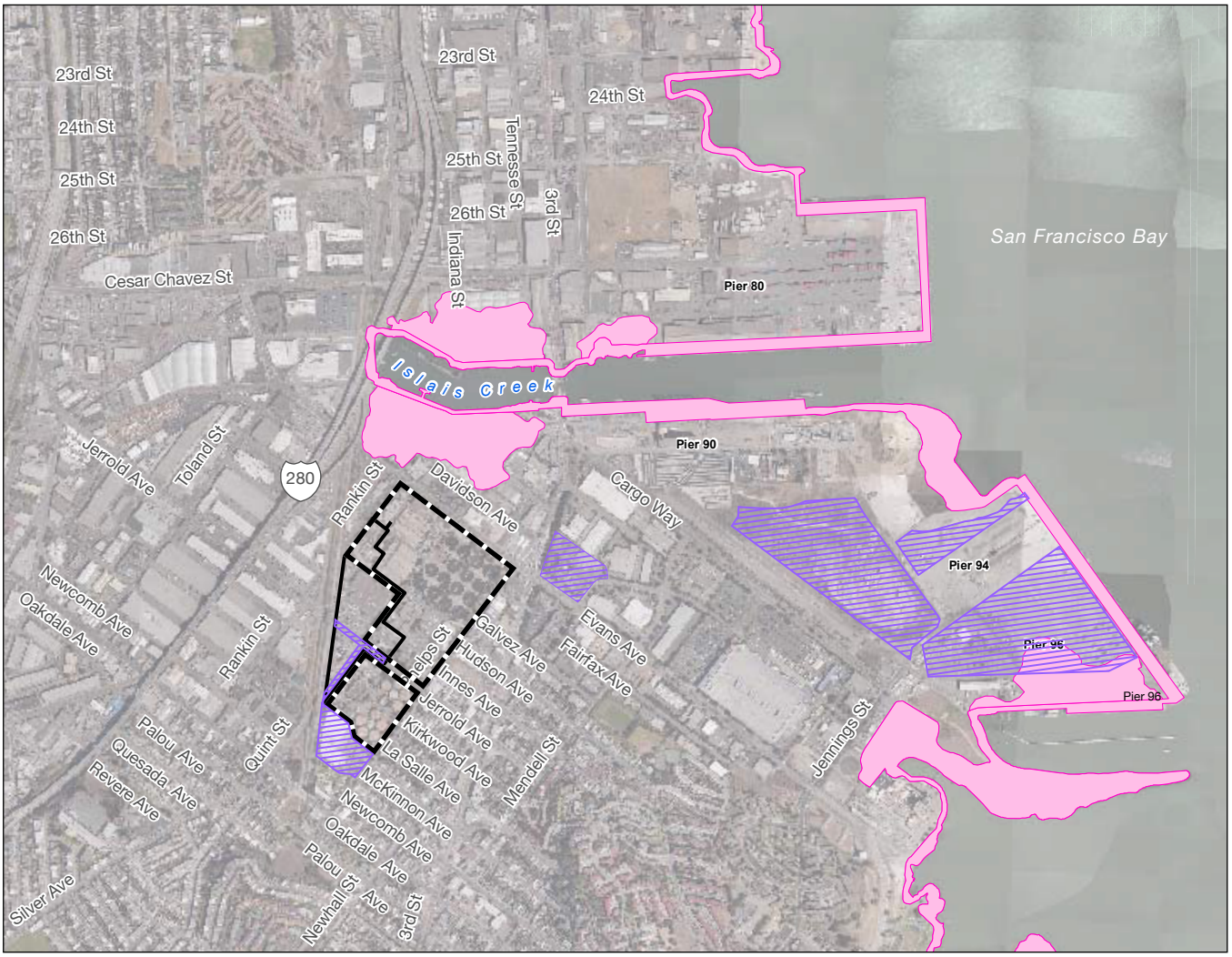
Factors Contributing to Coastal Flooding

Coastal areas are vulnerable to periodic flooding due to extreme tides, storm surge, storm waves, and El Niño storm events. These conditions can result in many effects including severe flooding of low-lying areas, such as roads, boardwalks and waterfront promenades; storm drain backup; wave damage to coastal structures; and erosion of natural shorelines. Rising sea level due to climate change has the potential to increase the frequency, severity, and extent of flooding as a result of these conditions, each of which is described below.

Extreme Tides

Diurnal (twice daily) high tides along San Francisco's bay shoreline typically range from approximately -4 to -6 feet San Francisco City Datum (SFD) or 5 to 7 feet North American Vertical Datum of 1988 (NAVD88).[9] Annual maximum tides may exceed 7 feet NAVD88.[10] The twice yearly extreme high and low tides are called "king tides." These occur each year during the winter and summer at times when the earth, moon, and sun are aligned, and the winter event may be amplified

[7] The 100-year flood has a 1 percent chance of being equaled or exceeded in any given year (shown in pink on Figure 4.16-2 and identified as the "1% Annual Chance Flood Hazard").
[8] City and County of San Francisco, San Francisco Interim Floodplain Map, SE San Francisco, November 12, 2015.
[9] San Francisco City Datum (SFD) establishes the City's zero point for surveying purposes at approximately 11.35 feet above the 1988 North American Vertical Datum.
[10] SFPUC, *Climate Stressors and Impact: Bayside Sea Level Rise Mapping, Final Technical Memorandum*, June 2014 (hereinafter "*Bayside Sea Level Rise Mapping*"), p. 10.



SOURCE: City and County of San Francisco,
San Francisco Interim Floodplain Map, East, July 2008

SFPUC Biosolids Digester Facilities

Figure 4.16-2

Existing 100-Year Flood Zones

by winter weather. A portion of The Embarcadero Promenade near Pier 14 and the Marina area in San Francisco experience inundation under current king tide conditions.[11]

Storm Surge

Storm surge occurs when persistent high winds and changes in air pressure push water toward the shore, which can raise the water level near the shoreline by several feet and may persist for several days. Along San Francisco's bay shoreline, storm surge typically raises the surface water elevation 0.5 to 3 feet during major winter storms several times a year.[12] The degree of storm surge depends on the severity of the storm as well as tidal levels at the time of the storm. Storm surge is characterized using a return period that represents the expected frequency of a storm event occurring based on historical information. One-year storm surge is expected to occur each year, while 100-year storm surge (which represents more extreme conditions) has a 1 percent chance of occurring in any year.

Storm Waves

Waves and wave run-up primarily affect a narrow band along the shoreline where wave energy can damage structures and overtop both natural embankments and shoreline protection structures such as seawalls and levees. The influence of waves diminishes inland as wave energy dissipates. In addition, the Pacific Ocean waves, which are generally larger than those originating in the Bay, are substantially dampened along the Bay shoreline due to transformation processes within San Francisco Bay. Along San Francisco's bay shoreline, storm waves typically raise the surface water elevation 1 to 4 feet during major winter storms several times a year.[13]

El Niño Winter Storms

During El Niño events,[14] atmospheric and oceanographic conditions in the Pacific Ocean bring warm, higher waters to the Bay Area and may produce severe winter conditions that bring intense rainfall and storm conditions to the Bay Area. Tides are often elevated 0.5 to 1.0 feet above normal along the coast for months at a time, and additional storm surge and wind setup[15] during storm events can elevate water levels even further. El Niño conditions prevailed in 1977-1978, 1982-1983, 1997-1998, 2009-2010,[16] and 2015-2016.[17]

Sea Level Rise

Sea levels are rising globally due to climate change, and they are expected to continue to rise at an accelerating rate for the foreseeable future. The sea level at the San Francisco tidal gauge has

11 SFPUC, *Bayside Sea Level Rise Mapping*, p. 7.
12 SFPUC, *Bayside Sea Level Rise Mapping*, p. 10.
13 SFPUC, *Bayside Sea Level Rise Mapping*, p. 10.
14 El Niño–Southern Oscillation (ENSO) is a natural oceanic-atmospheric cycle. El Niño conditions are defined by prolonged warming in the Pacific Ocean sea surface temperatures. Typically, this happens at irregular intervals of two to seven years, and can last anywhere from nine months to two years.
15 Setup is the increase in mean water level due to the presence of waves.
16 SFPUC, *Bayside Sea Level Rise Mapping*, p. 8.
17 National Oceanic and Atmospheric Administration, Climate.gov, El Nino and La Nina (El-Nino-Southern Oscillation. Available online at https://www.climate.gov/enso. Accessed on August 9, 2016.

- risen approximately 0.08 inch per year since 1897, resulting in about 0.8 foot of sea level rise between that time and 2015.[18] The National Research Council (NRC) 2012 report titled *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (the NRC Report) provides a scientific review of sea level rise for the West Coast and provides the most recent regional sea level rise predictions for 2030, 2050, and 2100, relative to the year 2000 sea level.[19] In this report, the NRC projects that sea levels in the San Francisco Bay area will rise 11 inches by 2050 and 36 inches by 2100 as presented in **Table 4.16-1**. As presented in the NRC Report, these sea level rise projections represent likely sea level rise values based on the current understanding of global climate change and assuming a moderate level of greenhouse gas (GHG) emissions[20] as well as extrapolation of continued accelerating land ice melt patterns.

TABLE 4.16-1
SEA LEVEL RISE ESTIMATES FOR
SAN FRANCISCO BAY RELATIVE TO THE YEAR 2000

Year	Projection	Upper Range
2030	6 inches	12 inches
2050	11 inches	24 inches
2100	36 inches	66 inches

SOURCE: National Research Council, *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*. 2012

The NRC Report also includes ranges of sea level rise that could occur based on different estimates of GHG emissions and ice melt patterns. The extreme upper limit of the ranges represents unlikely but possible levels of sea level rise that are based on very high GHG emissions scenarios and significant ice melt that is not currently anticipated but could occur. Assuming the maximum level of GHG emissions and ice melt, the NRC anticipates that sea levels in the San Francisco Bay area could rise up to 24 inches by 2050 and 66 inches by 2100 as presented in Table 4.16-1.

These estimates represent the long-term increase in Mean Sea Level and the associated average daily high tide conditions (represented by Mean Higher High Water, or MHHW)[21] that could result from sea level rise; they do not take into account extreme tides, storm surge, storm waves,

[18] National Oceanic and Atmospheric Administration, Mean Sea Level Trend 9414290 San Francisco, California. Available online at https://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?stnid=9414290. Accessed on August 29, 2016.

[19] National Research Council, *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*. Washington, DC: The National Academies Press, 2012. Available online at http://www.nap.edu/catalog.php?record_id=13389. Accessed on November 28, 2015.

[20] Future emissions of GHGs depend on a collection of human decisions at local, regional, national, and international levels as well as potential unknown technological developments. For this reason, future changes in GHG emissions cannot be accurately estimated, and a range of emissions levels is considered in the NRC Report. Estimates of sea level rise relative to thermal expansion of the oceans were formulated using the mid-level, or moderate level, of predicted changes in GHG emissions (from a combination of fossil and non-fossil fuels), as well as an assumption of high economic growth; this represents scenario "A1B" as described by the Intergovernmental Panel on Climate Change (IPCC).

[21] MHHW is the average elevation of the higher of the day's two high tides. MHHW is calculated as the average elevation of the daily high water levels observed over a 19-year period known as the "tidal epoch."

or El Niño storm events, all of which can temporarily result in water levels that exceed MHHW, as discussed above.

In March 2013, the California Ocean Protection Council updated its 2010 statewide sea level rise guidance to adopt the NRC Report as the current, best available science on sea level rise for California.[22] The California Coastal Commission supports the use of the NRC Report as the best science currently available in its *Sea Level Rise Policy Guidance*, which it adopted in 2015.[23] The California Coastal Commission guidance emphasizes the importance of regularly updating sea level rise projections as the science continues to advance. The San Francisco Bay Conservation and Development Commission (BCDC) also considers the NRC Report to be the best available science-based prediction of sea level rise for San Francisco Bay. Accordingly, the San Francisco Planning Department considers the NRC Report to be the best science currently available on sea level rise affecting San Francisco for both California Environmental Quality Act (CEQA) and planning purposes.

Although the NRC Report provides the best available sea level rise projections for San Francisco Bay at this time, scientific uncertainty remains regarding the rate and magnitude of sea level rise. Sea level rise projections beyond 2050 are highly dependent on assumptions regarding future global GHG emissions and future changes in the rate of land ice melting. In recognition of this uncertainty, the *State of California Sea-Level Rise Guidance* recommends an adaptive management approach for development in areas that may be subject to sea level rise beyond 2050. Adaptive management is an iterative process that involves monitoring conditions to evaluate whether an area could be inundated as a result of sea level rise, and identifying actions to be implemented to ensure that the area and existing structures are resilient to future flooding conditions.

Sea Level Rise Inundation Mapping

The SFPUC, as part of the Sewer System Improvement Program (SSIP), developed a series of maps published in 2014 that represent areas of inundation along both the bay and ocean shorelines of San Francisco.[24] These maps use a 1-meter horizontal grid resolution[25] based on the 2010/2011 California Coastal Mapping Program LiDAR.[26] The inundation maps synthesize data

[22] State of California Sea-Level Rise Guidance Document. Developed by the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT), with science support provided by the Ocean Protection Council's Science Advisory Team and the California Ocean Science Trust. March 2013 Update. Available online at http://www.opc.ca.gov/2013/04/update-to-the-sea-level-rise-guidance-document/. Accessed on November 28, 2015.

[23] California Coastal Commission, Sea Level Rise Policy Guidance, Interpretive Guidelines for Addressing Sea Level Rise in Local Coastal Programs and Coastal Development Permits, Unanimously Adopted August 12, 2015. Available online at http://documents.coastal.ca.gov/assets/slr/guidance/August2015/0_Full_Adopted_Sea_Level_Rise_Policy_Guidance.pdf. Accessed on November 28, 2015.

[24] SFPUC, *Climate Stressors and Impact: Bayside Sea Level Rise Mapping, Final Technical Memorandum*, June 2014.

[25] The horizontal grid resolution of a digital elevation model defines the scale of the features that are modeled; this is generally the minimum resolution necessary to depict levees, berms, and other topographic features important to diverting floodwaters.

[26] LiDAR (Light Detection and Ranging) is a remote sensing technology that measures distance by illuminating a target with a laser and analyzing the reflected light. LiDAR is commonly used to create high-resolution terrain models, topography data sets, and topographic maps.

from the FEMA California Coastal Mapping and Analysis Project, which includes detailed coastal engineering analyses and mapping of the San Francisco Bay shoreline.

The SFPUC inundation maps depict a range of scenarios representing projected future sea level rise conditions in combination with the effects of storm surge. The NRC sea level rise projections are used to represent the projected change in tide elevations relative to 2000 conditions (e.g., the MHHW in 2050 is projected to be 12 inches higher than MHHW in 2000).

Storm surge conditions can cause elevated water levels above typical tide levels. Flooding due to storm surge occurs much less frequently than daily tidal inundation and is typically caused by infrequent meteorological events that result in flooding that lasts for a few tide cycles and then returns to normal tidal conditions. The SFPUC maps represent the infrequent, elevated tidal inundation that could occur from extreme tides and from a 1-year,[27] 2-year, 5-year, 25-year, 50-year, and 100-year storm surge event. Flooding resulting from storm surge would occur on a temporary basis, during and immediately after a storm event or extreme tide.

The following scenarios are representative of the projected increase in tidal elevations that could occur by the year 2050 and the year 2100, based on the NRC's projected level of sea level rise and considering a 100-year (1 percent annual chance) storm surge event:

- 12 inches above year 2000 MHHW (representative of the NRC's projected sea level rise by 2050, no storm surge);
- 36 inches above year 2000 MHHW (representative of the NRC's projected sea level rise by 2100, no storm surge);
- 52 inches above year 2000 MHHW (representative of the NRC's projected sea level rise by 2050 in combination with a 100-year storm surge); and
- 77 inches above year 2000 MHHW (representative of the NRC's projected sea level rise by 2100 in combination with a 100-year storm surge).

The following scenarios are representative of the maximum Bay water elevations that could occur by the year 2100, based on the NRC's upper range of sea level rise and considering 100-year storm surge:

- 66 inches above year 2000 MHHW (representative of the NRC's upper range of sea level rise by 2100, no storm surge); and
- 107 inches above year 2000 MHHW (representative of the NRC's upper range of sea level rise by 2100 in combination with a 100-year storm surge).

The SFPUC cautions that its maps represent a "do nothing" scenario, in which no site-specific measures are taken to prevent future flooding and no area-wide measures such as waterfront protection structures are constructed. In the event that the City undertakes area-wide measures to

[27] A 1-year storm surge event represents the size of storm surge event that is expected to occur on average once per year. A 2-year storm surge would be expected to occur on average once every 2 years (50 percent probability of occurring in any given year).

protect against inundation in the future, the mapping would need to be revised to reflect the modified inundation areas with implementation of these measures. In addition, because the SFPUC sea level rise maps are based on 2010/2011 topographic mapping, they do not account for any changes in site elevations that could result from site development activities.

The SFPUC inundation maps indicate that under existing conditions, the project site would not be inundated with water level rises of 12 inches, which is expected by 2050 according to NRC, even when the effects of 100-year storm surge are considered as shown on **Figure 4.16-3**. Similarly, the project site would not be permanently inundated with 36 inches of sea level rise, which is expected by 2100. However, when the effects of 100-year storm surge are considered in addition to 36 inches of sea level rise, areas within the northern part of the project site could be temporarily subjected to shallow flooding as shown on **Figure 4.16-4**. In the event of worst-case sea-level rise based on the NRC's upper range of sea level rise in combination with 100-year storm surge, the majority of the site could be subject to shallow flooding as shown on **Figure 4.16-5**.

As shown on Figures 4.16-3 through 4.16-5, portions of the staging areas at Piers 94 and 96 and 1550 Evans Avenue could also be temporarily inundated under each of these scenarios due to sea level rise in combination with 100-year storm surge.

MHHW near the project site is at an elevation of -4.9 feet SFD (6.5 feet NAVD88).[28] **Table 4.16-2** presents water elevations near the project site associated with each of the sea level rise scenarios discussed above, based on the existing MHHW elevation.

TABLE 4.16-2
WATER ELEVATIONS ASSOCIATED WITH SEA LEVEL RISE PROJECTIONS

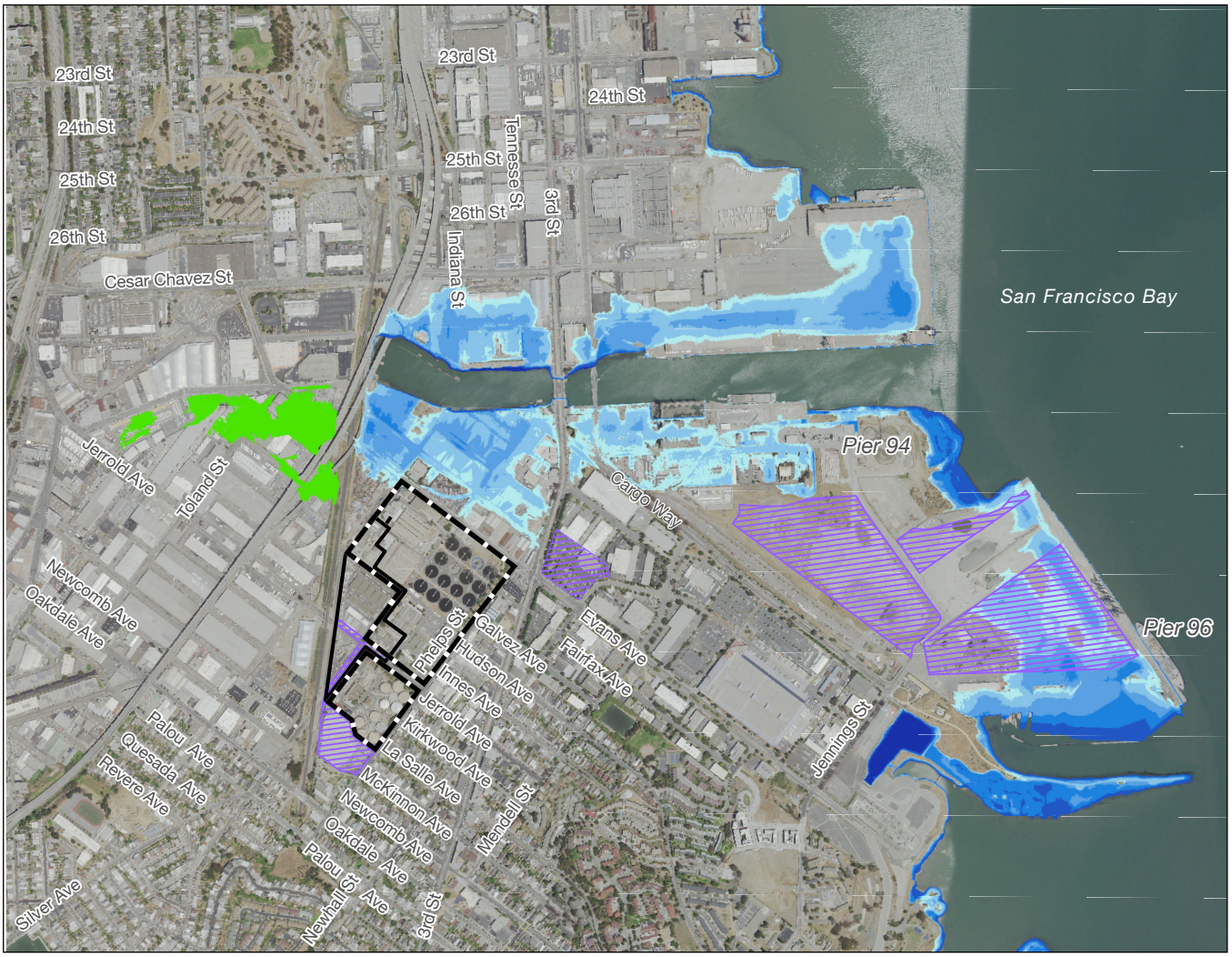
Sea Level Rise Scenario	Elevation (feet, San Francisco City Datum)	Elevation (feet, NAVD88)
2000 MHHW with no sea level rise	-4.9	6.5
2000 MHHW plus 100-year storm surge	-1.5	9.9
2000 MHHW plus 11 inches of sea level rise	-4.0	7.4
2000 MHHW plus 11 inches of sea level rise and 100-year storm surge	-0.6	10.8
2000 MHHW plus 36 inches of sea level rise	-1.9	9.5
2000 MHHW plus 36 inches of sea level rise and 100-year storm surge	1.5	12.9
2000 MHHW plus 66 inches of sea level rise (upper range)	0.6	12.0
2000 MHHW plus 66 inches of sea level rise (upper range) and 100-year storm surge	4.0	15.4

NOTES:

MHHW = Mean Higher High Water
NAVD88 = North American Vertical Datum of 1988
San Francisco City Datum is approximately 11.35 feet above NAVD88

SOURCE: SFPUC, *Climate Stressors and Impact: Bayside Sea Level Rise Mapping Final Technical Memorandum,* 2014; Orion Environmental Associates, Data developed in 2016 for BDFP

[28] SFPUC, *Climate Stressors and Impact: Bayside Sea Level Rise Mapping. Final Technical Memorandum.* June 2014.

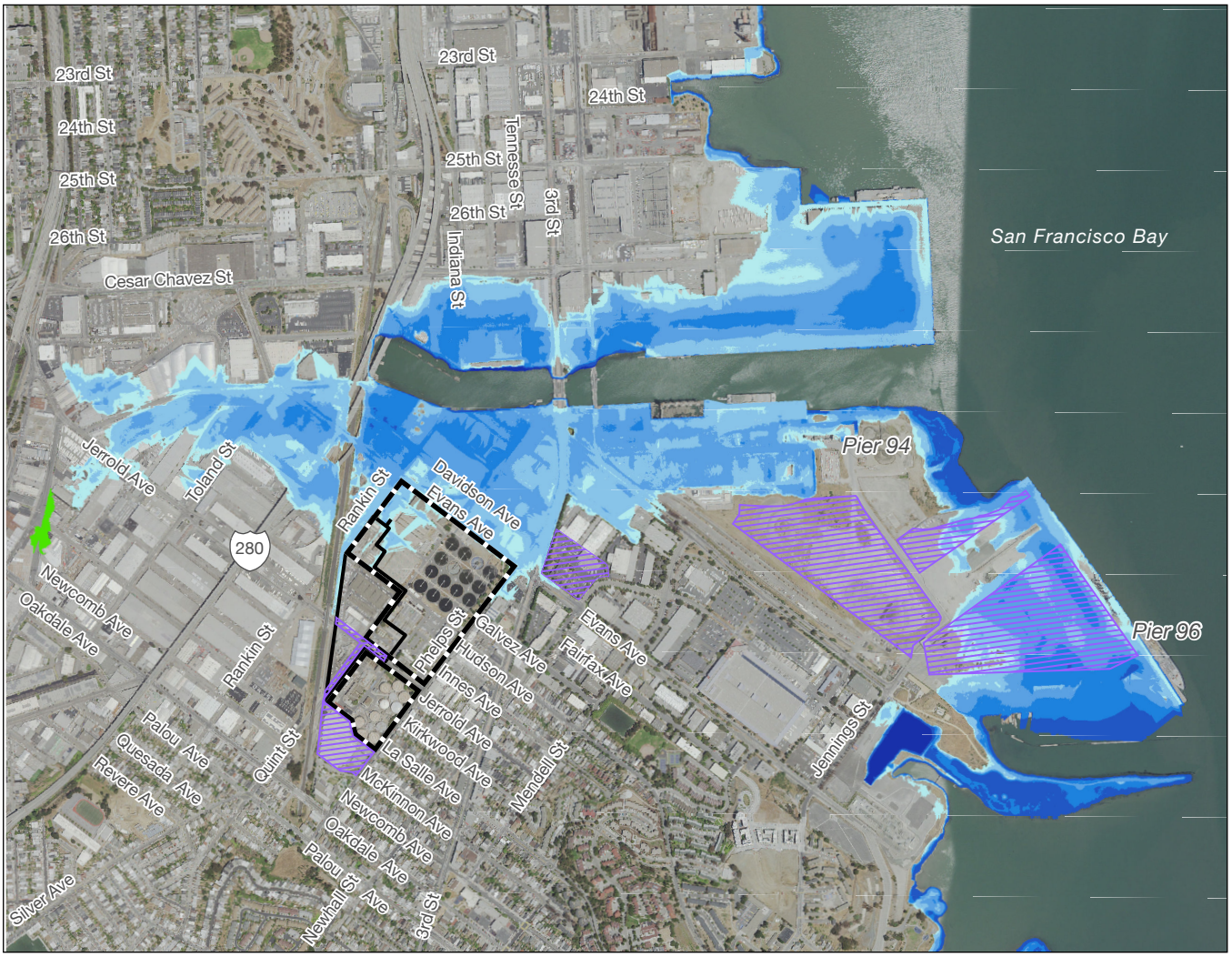


SFPUC Biosolids Digester Facilities

Figure 4.16-3

Potential Inundation Areas with 12-inches of Sea Level Rise plus 100-year Storm Surge

SOURCE: National Agriculture Imagery Program, Imagery from 2014; SFPUC, *Climate Stressors and Impact: Bayside Sea Level Rise Mapping, Final Technical Memorandum,* June 2014; SFPUC, *Climate Change Guidance for SSIP Projects memo,* March 23, 2015; ESA+Orion, data developed for BDFP, 2016



Depth in Feet

- 0-2
- 2-4
- 4-6
- 6-8
- 8-10
- 10-12
- 12+
- Disconnected Area >1 Acre

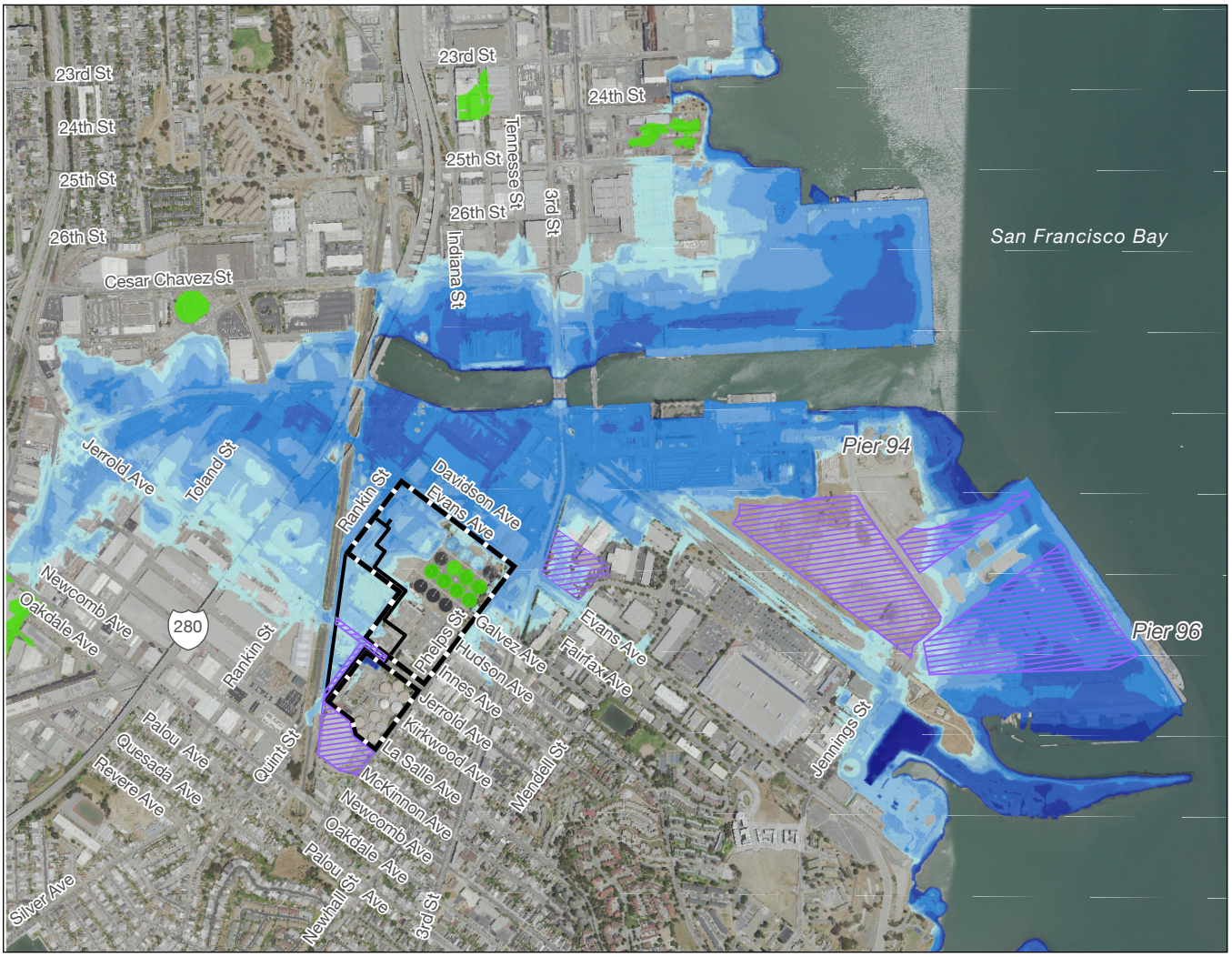
- SFPUC Southeast Plant (SEP) Boundary
- Project Site (Limited work at SEP North is also proposed to integrate liquid treatment facilities with BDFP facilities. In addition, street improvements would occur along Jerrold Avenue west of Phelps Street)
- Potential Off-Site Construction Staging Areas (Staging may also occur within the existing SEP boundary)

0 2000
Feet

SOURCE: National Agriculture Imagery Program, Imagery from 2014; SFPUC, *Climate Stressors and Impact: Bayside Sea Level Rise Mapping, Final Technical Memorandum,* June 2014; SFPUC, *Climate Change Guidance for SSIP Projects memo,* March 23, 2015; ESA+Orion, data developed for BDFP, 2016

SFPUC Biosolids Digester Facilities

Figure 4.16-4
Potential Inundation Areas with 36-inches of Sea Level Rise plus 100-year Storm Surge



SOURCE: National Agriculture Imagery Program, Imagery from 2014; SFPUC, *Climate Stressors and Impact: Bayside Sea Level Rise Mapping, Final Technical Memorandum,* June 2014; SFPUC, *Climate Change Guidance for SSIP Projects memo,* March 23, 2015; ESA+Orion, data developed for BDFP, 2016

SFPUC Biosolids Digester Facilities

Figure 4.16-5

Potential Inundation Areas with 66-inches of Sea Level Rise plus 100-year Storm Surge

4.16.1.6 Planning for Sea Level Rise in San Francisco

The City has convened an inter-agency Climate Adaptation Working Group to identify ways to make sure that it is prepared to adapt to effects of sea level rise. Participating agencies include the Department of the Environment, SFPUC, Planning Department, City Administrator's office, Port, San Francisco International Airport (SFO), San Francisco Public Works (SFPW), San Francisco Municipal Transportation Agency (SFMTA), San Francisco Department of Public Health (SFDPH), and San Francisco Recreation and Parks Department (SFRPD).

The working group is focusing its effort on the City's most imminent adaptation concerns, including sea level rise along Ocean Beach and shores, flooding from storm surge and extreme rain events, an increased likelihood of extreme heat, and decreased fog that supports local ecosystems such as redwoods. To address sea level rise and flooding, the working group is focusing on efforts to improve the existing coastal flood protection infrastructure in time to prevent significant flooding impacts from sea level rise. The working group will establish requirements addressing proper flood insurance for structures in low-lying areas, flood-resilient construction of new developments within inundation areas, and a low carbon footprint for new developments. The working group is also assessing the use of natural solutions such as wetlands to protect the shoreline.

Mayor Edwin M. Lee also established two interdepartmental committees to manage the City's efforts on addressing sea level rise: the Sea Level Rise (SLR) Coordinating and SLR Technical Committees. The SLR Coordinating Committee was established in February 2005 and is a director-level committee co-chaired by the Director of Citywide Planning at the Planning Department and the City Engineer and Deputy Director at SFPW. SLR Coordinating Committee members also include the Chief Resiliency Officer, and senior staff from the Mayor's Office, the City Administrator's Office, SFO, the Port, the SFPUC, the SFMTA, the Department of Building Inspection (DBI), the Office of Community Investment and Infrastructure (OCII), the Office of Economic and Workforce Development (OEWD), and the Capital Planning Committee. The responsibilities of the SLR Coordinating Committee are as follows:

1. Coordinate the efforts of City departments and advise the Mayor's Office on policies, strategies, initiatives, and resolutions to deal with and plan for potential impact on San Francisco from sea level rise;

2. Coordinate local efforts and initiatives with the work of other governmental entities and various stakeholders at the regional, state, and national levels such as U.S. Environmental Protection Agency (USEPA), U.S. Department of Housing and Urban Development (HUD), Department of the Interior, California Coastal Commission, California Ocean Protection Council, Bay Conservation and Development Commission, etc.;

3. Provide guidance and specific recommendations to City departments with regard to land use and strategies to protect assets and communities along the shoreline;

4. Oversee and guide the existing SLR Technical Committee and implementation of the Capital Planning Guidance to address vulnerability and risks, and adaptability of the City's physical infrastructure; and

5. Promote coordination and collaboration among City departments, private utility providers, and other stakeholders.

The SLR Coordinating Committee is first charged with assessing San Francisco's risk to sea level rise. Once the data analysis phase is complete, the SLR Coordinating Committee will coordinate the City's sea level rise vulnerability assessment and adaptation planning efforts with local, regional, and national governmental and non-governmental organizations and with community stakeholders, as needed. Key to this effort will be determining how to best involve the community.

The SLR Technical Committee was established in February 2015 and is comprised of the same membership that developed the Capital Planning Committee's Sea Level Rise Guidance, including the SFPUC, Port, SFPW, SFO, SFMTA, Capital Planning, and Planning Department. This committee is charged with assisting all City agencies with consistent implementation of the Guidance, revising the Guidance as needed, and assisting the SLR Coordinating Committee as requested.

Guidance for Incorporating Sea Level Rise into Capital Planning

On September 14, 2014, the City's Capital Planning Committee adopted the *Guidance for Incorporating Sea Level Rise into Capital Planning in San Francisco: Assessing Vulnerability and Risk to Support Adaptation*, which was prepared by the SLR Coordinating Committee. The guidance document has been revised to simplify the analysis of specific sea level rise scenarios and clarify how to select the appropriate scenario for design and planning purposes. The revised document also provides a methodology for determining the design tide for use in project design and planning, and was adopted by the Capital Planning Committee on December 14, 2015.[29]

San Francisco Sea Level Rise Action Plan

In March 2016, the SLR Coordinating Committee released the *San Francisco Sea Level Rise Action Plan*.[30] The Action Plan is intended to guide City departments in their understanding of and adaptation to the impacts of sea level rise, and also identifies what long-term sea level rise means for San Francisco's residents, visitors, economy, and waterfront.

The Action Plan is the first step in the development of the Citywide Sea Level Rise Adaptation Plan, expected to be complete in 2018, which will incorporate the adaptation strategies identified in the Action Plan and help prioritize investments to best improve climate resilience while protecting economic and environmental value. The Adaptation Plan will also identify potential funding sources, governance structures, and implementation timelines.

[29] City and County of San Francisco Sea Level Rise Committee, *Guidance for Incorporating Sea Level Rise into Capital Planning in San Francisco: Assessing Vulnerability and Risk to Support Adaptation*, December 14, 2015. Available online at http://onesanfrancisco.org/wp-content/uploads/Guidance-for-Incorporating-Sea-Level-Rise-into-Capital-Planning1.pdf. Accessed on January 22, 2016.

[30] City and County of San Francisco, *Sea Level Rise Action Plan,* March 2016. Available online at: http://default.sfplanning.org/plans-and-programs/planning-for-the-city/sea-level-rise/160309_SLRAP_Final_ED.pdf.

The Action Plan establishes an overarching vision, goals, and a set of guiding principles for sea level rise planning; summarizes current climate science, relevant policies and regulations, and vulnerability and risk assessments conducted to date; identifies data gaps and establishes a framework for further assessment, adaptation planning, and implementation; and provides the foundation and guidance to develop a citywide Sea Level Rise Adaptation Plan.

Climate Change Guidance for SSIP Projects

The SFPUC has prepared guidance specifically designed to protect its three water pollution control facilities (the SEP and NPF on the bayside, and the Oceanside Water Pollution Control Plant and associated Westside Pump Station on the west side) from sea level rise.[31] The San Francisco Design Tides and Sea Level Rise Recommendations prepared by the SFPUC[32] provide guidance for incorporating the physical impacts of projected sea level rise into the design, construction, operation, and maintenance of wastewater facilities in San Francisco. These guidelines incorporate and expand on the Capital Planning Committee *Guidance for Incorporating Sea Level Rise into Capital Planning in San Francisco: Assessing Vulnerability, Risk, and Adaptation* discussed above.

The recommendations of the guidance document are:

1. Projects should use the 100-year extreme tide elevation (i.e., an extreme tide with an average return period of 100 years or a 1 percent chance of occurring in any given year) for design purposes for projects involving assets that may be sensitive to periodic flooding.

2. Projects should, at a minimum, design for the 100-year extreme tide elevation and "most likely" sea level rise scenario projected to occur at the end of the project's lifespan (functional working life), which may be greater than the project's design life.

3. Projects should, at a minimum, consider adaptation strategies that can account for increases in extreme tide elevations and/or sea level rise projections above and beyond the levels selected for design that are most likely to occur during the project lifespan.

4. A design tide of 10 years plus the "most likely" sea level rise scenario should be chosen by the designer for treatment plant deep water outfall calculations and for combined sewer discharge outflows. The designer should use this design tide in conjunction with maximum design outflows for treatment plants and with maximum design intensity storms for combined sewer discharges.

The guidelines also note that the American Society of Civil Engineers (ASCE) Standard 24-05, *Flood Resistant Design and Construction*,[33] requires buildings and structures in flood hazard areas to withstand the Design Flood Elevation. This requirement is to add freeboard from 1 to 3 feet to the base flood elevation for unknown factors that could increase the height above the base flood elevation.

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31 SFPUC, *Climate Change Guidance for SSIP Projects memo*, March 23, 2015.
32 SFPUC, *San Francisco Design Tides and Sea Level Rise Recommendations*, March 12, 2015.
33 The ASCE has subsequently adopted an updated version of this standard: 24-14-*Flood Resistant Design and Construction.*

The guidelines state that groundwater levels are also expected to increase relative to sea level rise. Accordingly, projects should be designed for a potential 3-foot increase in groundwater elevations by the year 2100.

4.16.1.7 Tsunami and Seiche

Tsunamis (seismic sea waves) are long-period waves that are typically caused by underwater seismic disturbances, volcanic eruptions, or submerged landslides. Tsunamis can travel at speeds up to 700 miles per hour and are typically only 1 to 3 feet high in open ocean water but may increase in height to up to 90 feet as they reach coastal areas, potentially causing large amounts of damage when they reach land.[34] Low-lying coastal areas such as tidal flats, marshlands, and former bay margins that have been artificially filled but are still at or near sea level are generally the most susceptible to tsunami inundation.

A seiche is caused by oscillation of the surface of an enclosed body of water such as San Francisco Bay due to an earthquake or large wind event. Seiches can result in long-period waves that cause run-up or overtopping of adjacent landmasses, similar to tsunami run-up.

Tsunamis in San Francisco Bay

Fifty-one tsunamis have been recorded or observed in San Francisco Bay between 1850 and early 2011.[35] Nine of these tsunamis originated in Alaska and were caused by an earthquake, earthquake and landslide, or volcano and earthquake. The 1906 earthquake generated a 4-inch wave run-up, recorded at the Presidio gage station. In more recent years, it is probable that wave impact occurred in and around the Bay Area resulting from a 1946 earthquake in the Aleutian Islands, a tsunami generated in 1960 that killed 61 people in Hawaii and damaged the West Coast, and a 1964 Alaskan earthquake that generated a tsunami and caused 12 deaths and 17 million dollars in damage in Crescent City. The earthquake that occurred in Japan in March 2011 initiated a tsunami that resulted in a run-up of 0.5 to 7.8 feet along the California coast with 2.2 feet of run-up observed at the San Francisco Marina.[36] There are no known recorded deaths from tsunami-related events in San Francisco County.

[34] City and County of San Francisco, Emergency Response Plan, an Element of the CCSF Emergency Management Program, Tsunami Response Annex, March 2011, p. 21. Available at http://www.sfdem.org/ftp/uploadedfiles/DEM/PlansReports/TsunamiAnnex-2008.pdf. Accessed on November 28, 2015.

[35] City and County of San Francisco, Emergency Response Plan, an Element of the CCSF Emergency Management Program, Tsunami Response Annex, March 2011, p. 4. Available online at http://www.sfdem.org/ftp/uploadedfiles/DEM/PlansReports/TsunamiAnnex-2008.pdf. Accessed on November 28, 2015.

[36] R. Wilson, L. Dengler, J Borrero, C. Synaloakis, B. Jaffe, A Barberopoulou, L. Ewing, M. Legg, A. Ritchie, P. Lynette, A. Admire, T. McCrink, J. Falls, J. Treiman, M. Manson, C. Davenport, J. Lancaster, B. Olson, C. Pridmore, C. Real, K. Miller, J. Goltz, The Effect of the 2011 Tohoku Tsunami on the California Coastline. Available online at http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Documents/ssa_2011_california_tohoku_small.pdf. Accessed on November 28, 2015.

In 2009, the California Geological Survey, California Emergency Management Agency, and the Tsunami Research Center at the University of California completed the state's official tsunami inundation maps. As shown on **Figure 4.16-6**, portions of the Piers 94 and 96 staging areas are located in a potential tsunami inundation zone; neither the project site nor the staging areas at the Southeast Greenhouses or 1550 Evans Avenue are within the tsunami inundation zone.

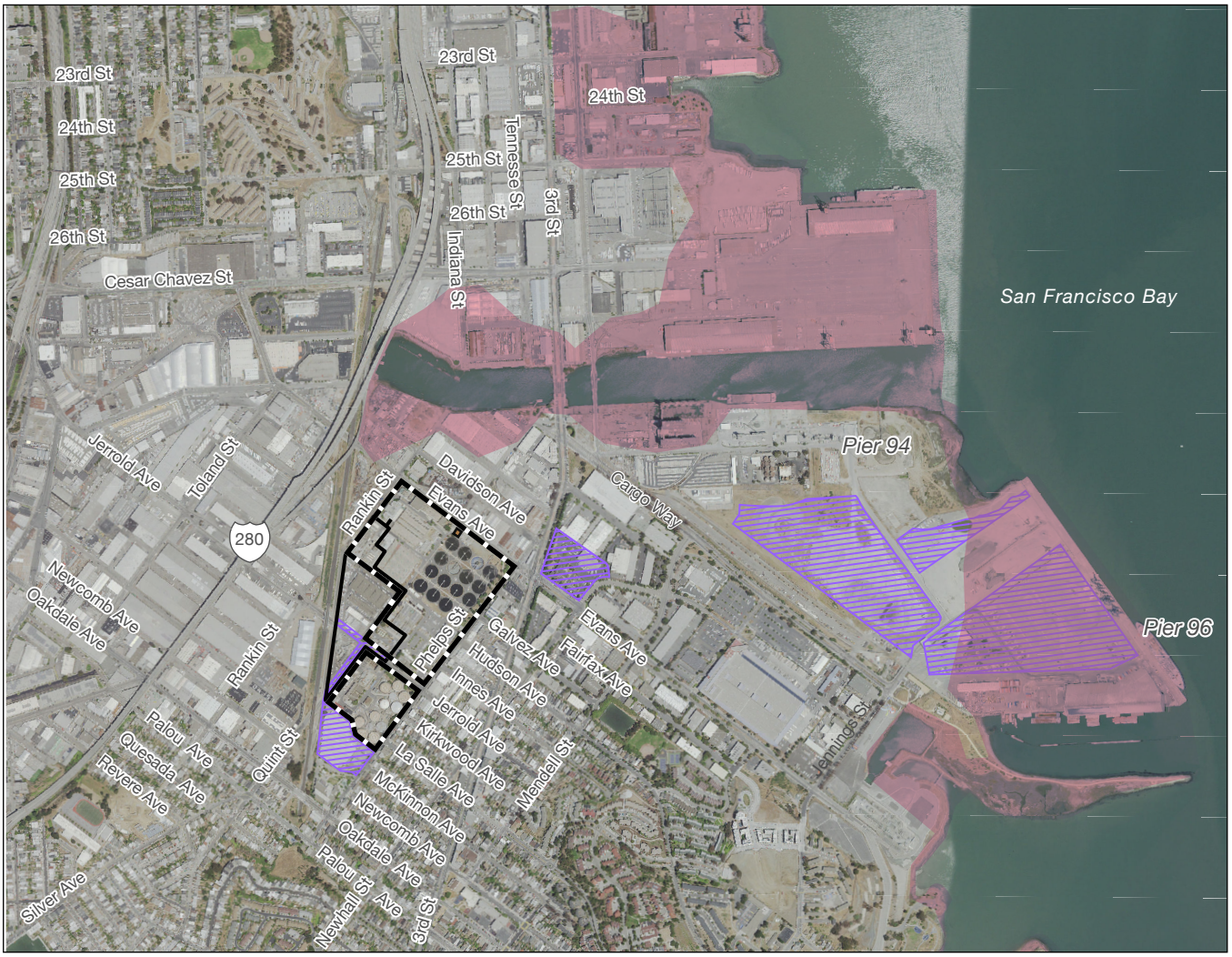
The potential tsunami and seiche wave height is approximately 3.8 feet at Piers 94 and 96, based on emergency response mapping conducted by the City.[37] When added to the Mean High Water level of -5.5 feet SFD (5.9 feet NAVD88) adjacent to the piers,[38] the maximum tsunami inundation elevation would be about -1.7 feet SFD (9.7 feet NAVD88) at Piers 94 and 96. Ground surface elevations within the potential inundation zones (mapped on a regional basis) range from about -3.4 to 0.7 feet SFD (8 to 12 feet NAVD 88), with some of the highest elevations occurring along the shoreline (which may protect the staging areas from tsunami inundation). Even if a tsunami were to encroach onto the staging areas, the maximum depth of inundation would be approximately 1.5 feet.

Tsunami Warning System

The National Oceanic and Atmospheric Administration (NOAA) operates the Pacific Tsunami Warning System with centers located in Hawaii and Alaska. These warning centers are linked to the Advanced National Seismic System that monitors earthquakes in the United States, to the international seismic monitoring systems, and to a system of tide gauges and buoys. The California Integrated Seismic Network also provides information regarding the magnitude and location of California earthquakes and a quick link to the NOAA/West Coast and Alaska Tsunami Warning Center. Based on the level of threat indicated by these systems, NOAA issues a Tsunami Advisory, Watch, or Warning.

The CCSF has prepared a Tsunami Response Annex as part of the City's Emergency Response Plan.[39] In accordance with this annex, the San Francisco Department of Emergency Management (DEM) would determine the appropriate plan of action based on the level of threat. In the event of a Tsunami Advisory or Watch, the DEM would issue a local Emergency Alert Message and evaluate the need to evacuate residents, schools, hotels, and people in the potential inundation zones, as well as the need to close the zoo, wharf, Marina area, and beaches. The DEM would also notify critical City departments and support agencies, and would monitor both the threat status and measured tide levels. If the Tsunami Watch is upgraded to a Tsunami Warning and measured tide levels confirm that the wave has the potential to create significant inundation in San Francisco, the Outdoor Public Warning System would be activated, including sirens, use of the public address system, and broadcast of public safety messages through the local media. The notification would

[37] City and County of San Francisco, *Emergency Response Plan,Tsunami Response Annex, Attachment B*, September 2008.
[38] SFPUC, *Climate Stressors and Impact: Bayside Sea Level Rise Mapping. Final Technical Memorandum.* June 2014.
[39] City and County of San Francisco, Emergency Response Plan, an Element of the CCSF Emergency Management Program, Tsunami Response Annex, March 2011. Available online at http://www.sfdem.org/ftp/uploadedfiles/DEM/PlansReports/TsunamiAnnex-2008.pdf. Accessed on November 28, 2015.



Potential Tsunami Inundation Area

SFPUC Southeast Plant (SEP) Boundary

Project Site (Limited work at SEP North is also proposed to integrate liquid treatment facilities with BDFP facilities. In addition, street improvements would occur along Jerrold Avenue west of Phelps Street)

Potential Off-Site Construction Staging Areas (Staging may also occur within the existing SEP boundary)

0 2000 Feet

SOURCE: National Agriculture Imagery Program, Imagery from 2014; California Emergency Management Agency, California Geological Survey, University of Southern California, Tsunami Inundation Map for Emergency Planning, San Francisco North Quadrangle/San Francisco South Quadrangle (SF Bay), June 15, 2009; ESA+Orion, data developed in 2016 for BDFP

SFPUC Biosolids Digester Facilities

Figure 4.16-6

Zones of Potential Tsunami Inundation

include instructions for walking to higher ground or evacuating and for obtaining basic services such as shelter, food, water, and medical services. The DEM would also coordinate response actions with appropriate local, state, and other emergency response agencies. Once the area is deemed safe for reentry, an all-clear public safety message would be broadcast.

The Tsunami Warning System takes an average of 7 to 10 minutes to identify a tsunami threat and communicate it to the media and state warning systems. The initial notification is based on seismic data. A tsunami's travel time is on the order of minutes (for local events) to hours (for distant events). During this time, the initial notification is normally updated once additional information is available, at least every 30 minutes. The status of an advisory, watch, or warning can be upgraded or downgraded or the impact area expanded based on the new information.

4.16.1.8 Groundwater Conditions

The project site is located within the boundaries of the Islais Valley Groundwater Basin. This groundwater basin has an area of approximately 9.2 square miles; it is bounded by San Bruno Mountain to the west and is separated from groundwater basins to the north and south by topographic highs in the underlying bedrock.[40] The entire eastern boundary of the Islais Valley Groundwater Basin is open to San Francisco Bay. Sources of recharge to this groundwater basin include rain water, irrigation return flows, and leakage from water and sewer pipes. The Water Quality Control Plan for the San Francisco Bay Basin identifies industrial process supply and industrial service supply as existing beneficial uses for the Islais Valley Groundwater Basin; municipal and domestic supply as well as agricultural supply are potential beneficial uses.[41]

Groundwater beneath the project site occurs in two zones.[42] The shallow groundwater is not confined and occurs within the artificial fill materials overlying young bay mud. As described in Section 4.15, Geology, Soils, and Paleontological Resources, shallow groundwater within the project site is encountered at approximately 8 to 12 feet below ground surface. The deeper groundwater occurs within the upper layered sediments located immediately beneath the young bay mud. Groundwater in this zone is confined by the overlying young bay mud and as a result, the groundwater is under pressure. While the upper layered sediments occur at depths of greater than 12 feet below ground surface beneath the site, groundwater levels rise to within 1 to 4 feet of the ground surface in monitoring wells completed in this zone as a result of the pressure.

Based on well records provided by the California Department of Water Resources, one well previously used for industrial purposes is located on Davidson Avenue approximately 800 feet north of the project site.[43] The current property manager at that location is not aware of any wells

[40] California Department of Water Resources, *California's Groundwater*, *Bulletin 118*, February 27, 2004.
[41] San Francisco Bay Regional Water Quality Control Board (RWQCB), *Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan)*, March 20, 2015. Available online at http://www.swrcb.ca.gov/rwqcb2/water_issues/programs/planningtmdls/basinplan/web/docs/BP_all_chapters.pdf. Accessed on January 27, 2016.
[42] Brown and Caldwell with CH2MHILL and Black & Veatch, Geotechnical Interpretive Report, February 2017.
[43] California Department of Water Resources, *Well Completion Reports, Biosolids Digester Facilities, ½ Mile Radius of 1800-1801 Jerrold Avenue, San Francisco, CA, San Francisco County, Township 02S, Range 05W, Sections 22, 23, 26, 27*, December 16, 2015.

on the property.[44] If present, this well is not currently in use. There are no other identified wells that could withdraw groundwater from the shallow groundwater zone or the upper layered sediments within one-half mile of the project site.

4.16.2 Regulatory Framework

4.16.2.1 Federal Regulations

Clean Water Act – Water Quality

In 1972, the Clean Water Act (CWA) established the basic structure for regulating discharges of pollutants into the waters of the United States and gave the USEPA the authority to implement pollution control programs. The CWA sets water quality standards for contaminants in surface waters. The statute employs a variety of regulatory and non-regulatory tools to reduce direct pollutant discharges into waterways, to finance municipal wastewater treatment facilities, and to manage polluted runoff. The USEPA has delegated responsibility for implementation of portions of the CWA, including water quality control planning and programs in California, to the SWRCB and the nine Regional Water Quality Control Boards (RWQCBs). Water quality standards applicable to the project are listed in the Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan), discussed further below in Section 4.16.2.2, State Regulations.

Clean Water Act Section 303(d) and Total Maximum Daily Loads

In accordance with Section 303(d) of the CWA, states must present the USEPA with a list of "impaired water bodies," defined as those water bodies that do not meet water quality standards. The CWA requires the development of total maximum daily loads (TMDLs) to improve water quality of impaired water bodies. Implementation of this program in the project area is conducted by the San Francisco Bay RWQCB and is discussed below in Section 4.16.2.2, State Regulations.

Clean Water Act Section 402

Section 402 of the CWA authorizes the USEPA to establish a nationwide surface water discharge permit program for municipal and industrial point sources. This program is known as the NPDES program. Under Section 402, the San Francisco Bay RWQCB has set standard conditions for each permittee in the Bay Area, including effluent limitation and monitoring programs. Discharges of stormwater and wastewater associated with the project would be subject to NPDES permits issued to the CCSF that are described below in Section 4.16.2.2, State Regulations.

Federal Combined Sewer Overflow Control Policy

In 1994, the USEPA adopted the Combined Sewer Overflow Control Policy (CSO Control Policy), which became part of the CWA in December 2000. This policy establishes a consistent national approach for controlling discharges from combined sewers to the nation's waters. Using the

[44] Response to San Francisco Public Utilities Commission Letter RE: Property at 1500 Davidson Avenue, San Francisco, CA 94124, September 20, 2016.

NPDES permit program, agencies operating combined sewer systems are the permittee and are required to implement the following nine minimum controls that constitute the technology-based requirements of the CWA and can reduce the frequency of combined sewer discharges (CSDs) and their effects on receiving water quality:

- Conduct proper operation and regular maintenance programs for the combined sewer system and CSD outfalls;
- Maximize the use of the collection system for storage;
- Review and modify pre-treatment programs to minimize the effect of non-domestic discharges to the collection system;
- Maximize flow to treatment plants;
- Prohibit CSDs during dry weather;
- Control solids and floatable materials in CSDs;
- Develop and implement a pollution prevention program focused on reducing the effect of CSDs on receiving waters;
- Notify the public of CSDs; and
- Monitor to effectively characterize CSD effects and the efficacy of CSD controls.

The City is currently implementing these controls as required by the CSO Control Policy and has also developed a long-term control plan to optimize operations of the City's combined sewer collection and treatment system and maximize pollutant removal during wet weather.

Consistent with the CSO Control Policy and the Long-Term Control Plan, the City captures and treats 100 percent of the combined wastewater and stormwater flow collected in the combined sewer system during precipitation events. Captured flows are directed first to the SEP and NPF for primary or secondary treatment and disinfection. Flows in excess of the capacity of these facilities are diverted to storage and transport boxes constructed around much of the city and receive "flow-through treatment" to remove settleable solids and floatable materials (the equivalent to primary treatment) prior to discharge to San Francisco Bay. The Long-Term Control Plan specifies operational parameters that must be met in each drainage basin before a CSD can occur and includes the following long-term average annual design goals for CSDs:

- Four CSD events along the North Shore
- Ten CSD events from the Central Basin (which includes the project site)
- One CSD event along the Southeast Sector

The City is currently meeting these long-term average design goals for the overall Bayside drainage basin.

4.16.2.2 State Regulations

California Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code) provides for protection of the quality of waters of the State of California for use and enjoyment by the people of California. The act also establishes provisions for a statewide program for the control of water quality, recognizing that waters of the state are increasingly influenced by interbasin water development projects and other statewide considerations, and that factors such as precipitation, topography, population, recreation, agriculture, industry, and economic development vary regionally within the state. The statewide program for water quality control is therefore administered most effectively on a local level with statewide oversight. Within this framework, the act authorizes the SWRCB and RWQCBs to oversee the coordination and control of water quality within California.

San Francisco Bay Water Quality Control Plan (Basin Plan)

San Francisco Bay waters are under the jurisdiction of the San Francisco Bay RWQCB, which established regulatory standards and objectives for water quality in the Bay in the Water Quality Control Plan for the San Francisco Bay Basin, commonly referred to as the Basin Plan.[45] The Basin Plan identifies existing and potential beneficial uses for surface and ground waters and provides numerical and narrative water quality objectives designed to protect those uses. The preparation and adoption of water quality control plans is required by the California Water Code (Section 13240) and supported by the federal CWA. Because beneficial uses, together with their corresponding water quality objectives, can be defined pursuant to federal regulations as water quality standards, the Basin Plan is a regulatory reference for meeting the state and federal requirements for water quality control. Adoption or revision of surface water standards is subject to the approval of the USEPA.

The project site is located approximately 1,200 feet south of Islais Creek, which drains to Lower San Francisco Bay, and the Southeast Bay Outfall also drains to Lower San Francisco Bay. Lower San Francisco Bay extends from approximately the Bay Bridge on the north to the Dumbarton Bridge on the south. Identified beneficial uses for Lower San Francisco Bay are industrial service supply, commercial and sport fishing, shellfish harvesting, estuarine habitat, fish migration, preservation of rare and endangered species, fish spawning, wildlife habitat, water contact recreation, non-contact water recreation, and navigation.

Impaired Water Bodies and Total Maximum Daily Loads

As described above, under Section 303(d) of the CWA, states must present the USEPA with a list of "impaired water bodies," defined as those water bodies that do not meet water quality standards. The San Francisco Bay RWQCB has listed Lower San Francisco Bay as an impaired

[45] San Francisco Bay Regional Water Quality Control Board (RWQCB), *Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan),* March 20, 2015. Available online at http://www.swrcb.ca.gov/rwqcb2/water_issues/programs/planningtmdls/basinplan/web/docs/BP_all_chapters.pdf. Accessed on January 27, 2016.

water body for chlordane, DDT, dieldrin, dioxins, furan compounds, mercury, polychlorinated biphenyls (PCBs), invasive species, and trash.[46]

As required by the CWA, the USEPA requires the development of TMDLs to improve water quality of impaired water bodies. The first step of the TMDL process is development of a TMDL report describing the water quality problem, detailing the pollutant sources, and outlining the solutions. An implementation plan, included in the TMDL report, describes how and when pollution prevention, control, or restoration activities will be accomplished and who will be responsible for these actions. The final step of the TMDL process is adopting and amending the Basin Plan to legally establish the TMDL and to specify regulatory requirements for compliance. As part of a Basin Plan amendment, waste load allocations are specified for entities that have permitted discharges.

TMDLs for PCBs and mercury in San Francisco Bay have been approved by the USEPA and officially incorporated into the Basin Plan. The San Francisco Bay RWQCB also adopted the San Francisco Bay Watershed Permit (Order No. R2-2012-0096), which implements the PCB and mercury TMDLs and includes specific effluent limitations and discharge specifications for mercury and PCBs in municipal and industrial wastewater discharges [47]

National Pollutant Discharge Elimination System Waste Discharge Regulations

As discussed in Section 4.16.2.1, Federal Regulations, Section 402 of the federal CWA established the NPDES program to protect water quality of receiving waters. The NPDES program requires all facilities that discharge pollutants into waters of the United States to obtain a permit. The permit provides two levels of control—technology-based limits and water quality-based limits—to control discharges of pollutants for the protection of water quality. Technology-based limits are based on the ability of dischargers in the same category to treat wastewater, while water quality-based limits are required if technology-based limits are not sufficient to protect the water body. Water quality-based effluent limitations required to meet water quality criteria in the receiving water are based on criteria specified in the National Toxics Rule, the California Toxics Rule, and the Basin Plan. NPDES permits must also incorporate TMDL waste load allocations when they are developed. In California, the SWRCB and the RWQCBs implement and enforce the NPDES program.

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46 State Water Resources Control Board, 2010 Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report) — Statewide. Available online at http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml. Accessed on November 28, 2015; San Francisco Bay Regional Water Quality Control Board (RWQCB), *Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan)*, March 20, 2015. Available online at http://www.swrcb.ca.gov/rwqcb2/water_issues/programs/planningtmdls/basinplan/web/docs/BP_all_chapters.pdf. Accessed on November 28, 2015.

46 State Water Resources Control Board, 2010 Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report) — Statewide. Available online at http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml. Accessed on November 28, 2015.

47 San Francisco Bay Regional Water Quality Control Board, *Waste Discharge Requirements for Mercury and PCBs from Municipal and Industrial Wastewater Discharges to San Francisco Bay, Order No. R2-2012-0096, NPDES No. CA0038849*, adopted December 12, 2012. Available online at http://www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2012/R2-2012-0096.pdf. Accessed on November 28, 2015.

Construction General Stormwater Permit (SWRCB Order No. 2009-09-DWQ)

Stormwater discharges associated with construction activities that disturb more than one acre of land and could discharge to the Bay directly or via a separate stormwater system would be subject to the SWRCB General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ as amended by Orders 2010-0014-DWQ and Order 2012-0006-DWQ (Construction General Stormwater Permit). Construction activities subject to this permit include clearing, grading, and disturbances to the ground, such as stockpiling or excavation. Under the Construction General Stormwater Permit, construction projects are characterized by the level of risk to water quality, which is determined by using a combination of the sediment risk of the project and the receiving water quality risk. Projects can be characterized as Level 1, Level 2, or Level 3, and the minimum best management practices (BMPs) and monitoring that must be implemented during construction are based on the risk level. The BMPs are designed to prevent pollutants from contacting stormwater and keep all products of erosion and stormwater pollutants from moving off-site into receiving waters. They are specified in a Stormwater Pollution Prevention Plan (SWPPP) that must be prepared by a Qualified SWPPP Developer and submitted to the San Francisco Bay RWQCB prior to beginning construction.

Sediment risk is determined based on the expected intensity of rainfall during the construction period, soil erodibility, and slope of the construction site. Therefore, the sediment risk for the project would depend on when the project is implemented; the project would have a higher sediment risk if it were implemented during the rainy season rather than the dry season. Receiving water risk is based on whether the project drains to a sediment-sensitive water body. A sediment-sensitive water body is one that appears on the most recent 303(d) list for water bodies as impaired for sediment, has a USEPA-approved TMDL implementation plan for sediment, or has the beneficial uses of cold freshwater habitat, fish migration, and fish spawning. Lower San Francisco Bay (the receiving water for stormwater runoff from Piers 94 and 96) is not considered a sediment-sensitive water body under the Construction General Stormwater Permit because it is not listed as impaired for sediment and does not have all three beneficial uses of cold freshwater habitat, fish migration, and fish spawning.

SEP, NPF, and Bayside Facilities NPDES Permit (RWQCB Order No. 2013-0029)

The City currently holds an NPDES permit (RWQCB Order No. R2-2013-0029), adopted by the San Francisco Bay RWQCB in August 2013, that covers the SEP, the NPF, and all of the Bayside wet weather facilities, including CSDs to the Bay.[48] The permit (referred to as the Bayside NPDES Permit) specifies discharge prohibitions, dry weather effluent limitations, wet weather effluent performance criteria, receiving water limitations, sludge management practices, and monitoring and reporting requirements. The permit prohibits overflows from the CSD structures during dry weather, and requires compliance with the nine minimum controls specified in the federal CSO Control Policy, described above, and the City's Long-Term Control Plan. Areas in the Bayside

[48] Regional Water Quality Control Board, San Francisco Bay Region, National Pollutant Discharge Elimination System (NPDES) Permit No. CA0037664, Order No.R2-2013-0029, for City and County of San Francisco Southeast Water Pollution Control Plant, North Point Wet Weather Facility, Bayside Wet Weather Facilities and Wastewater Collection System, adopted August 14, 2013.

drainage basin that drain to the City's combined sewer system are subject to this permit. This permit is renewed every five years, and the renewed permit incorporates any changes in operation of the SEP and applicable water quality standards and effluent limitations.

The NPDES permit does not explicitly regulate the number, volume, duration, or frequency of CSDs from the combined sewer system, but instead requires that the system meets the long-term average annual design goals for CSDs from each subbasin. Under the Long-Term Control Plan, the City must optimize operations of the combined sewer system to minimize CSD frequency, magnitude, and duration and maximize pollutant removal during wet weather and must also provide treatment of all discharges from the combined sewer system, including CSDs. The NPDES permit also requires the City to monitor the water quality of CSDs and the efficacy of wet weather discharge controls. If the CSDs cause a violation of water quality standards in the receiving water, the City must evaluate its Long-Term Control Plan and combined sewer system operation to ensure compliance with water quality standards.

Waste Discharge Requirements for Nutrients from Municipal Wastewater Discharges

The San Francisco Bay RWQCB issued Order No. R2-2014-0014 (Waste Discharge Requirements for Nutrients From Municipal Wastewater Discharges to San Francisco Bay) on April 19, 2014. This order addresses nutrients in municipal wastewater discharges, including nitrogen and phosphorus, but does not contain specific discharge limitations. Rather, the order acknowledges that nutrients in municipal wastewater discharges to San Francisco Bay are of concern because increased nutrient concentrations can result in an increase of algal blooms and reduction in dissolved oxygen levels in San Francisco Bay. Order No. R2-2014-0014 requires the municipal wastewater dischargers, including the CCSF, to evaluate the potential for reducing nutrients in their discharges by optimizing their current wastewater treatment facilities, incorporating minor upgrades, using alternative discharge scenarios, or including sidestream treatment to reduce nitrogen and phosphorus levels in the sludge dewatering stream. These dischargers must also evaluate the level of nutrient removal achieved with planned treatment upgrades. A report documenting the final evaluation is due to the San Francisco Bay RWQCB by July 1, 2018. In addition, the municipal wastewater dischargers must conduct studies to address the potential adverse effects of nutrients on San Francisco Bay beneficial uses. The Bay Area Clean Water Agencies (BACWA) is coordinating efforts needed to comply with this permit.[49]

Small MS4 General Stormwater Permit (SWRCB Order No. 2013-001-DWQ)

On February 5, 2013, the SWRCB adopted the General Permit for Waste Discharge Requirements (WDRs) for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s), Order No. 2013-001-DWQ (Small MS4 General Stormwater Permit). Areas that drain to separate stormwater collection systems in San Francisco, including the Port of San Francisco property at the Piers 94 and 96 staging areas, are subject to this permit. The Phase II General MS4 Permit identifies specific BMPs and management measures to be addressed and requires permittees to

[49] Bay Area Clean Water Agencies, Nutrients. Available online at http://bacwa.org/nutrients/. Accessed on August 9, 2016.

submit a guidance document to the SWRCB documenting their strategies for complying with permit requirements. The required program includes specific elements related to program management, education and outreach on stormwater impacts, public involvement/ participation, illicit discharge detection and elimination, construction site stormwater runoff and control, pollution prevention/good housekeeping for permittee operations, post-construction stormwater management for new development and redevelopment, water quality monitoring requirements, program effectiveness assessment, and annual reporting. For renewal permittees such as the Port, the guidance document must identify and describe BMPs included in their previous Stormwater Management Plan that may be more protective of water quality than the minimum requirements of the updated permit, and identify whether the permittee proposes to maintain, reduce, or cease implementation of the BMP.

4.16.2.3 Local Regulations

Stormwater and Wastewater Management

Stormwater Management Ordinance and Stormwater Management Requirements and Design Guidelines

Development projects that discharge stormwater to either the combined sewer system or a separate stormwater system must comply with the City's Stormwater Management Ordinance included in Article 4.2 of the San Francisco Public Works Code, Section 147, which was last updated on April 27, 2016. The SFPUC and the Port have developed the San Francisco Stormwater Management Requirements and Design Guidelines in accordance with the requirements of the Small MS4 General Stormwater Permit and Article 4.2, Section 147.

The Stormwater Management Requirements and Design Guidelines require compliance with specified stormwater management requirements and provide tools to help project developers achieve compliance with stormwater management requirements, including but not limited to:

- A set of stormwater BMP fact sheets
- A vegetation palette to assist in bioretention BMP-appropriate plant selection
- Sizing calculators to determine the required size of each BMP
- Illustrative examples of green infrastructure

In accordance with the San Francisco Stormwater Management Requirements and Design Guidelines, developers of projects that create and/or replace 5,000 square feet or more of impervious surfaces and discharge to the combined sewer system must implement BMPs to manage the flow rate and volume of stormwater going into the combined sewer system by achieving Leadership in Energy and Environmental Design (LEED®) Sustainable Sites Credit 6.1 (Stormwater Design: Quantity Control). This credit includes two different standards for post-construction stormwater controls depending on the amount of existing impervious surfaces. For covered projects with 50 percent or less existing impervious surfaces, the stormwater management approach must prevent the stormwater runoff flow rate and volume from exceeding existing conditions for the one- and two-year 24-hour design storm. For covered projects that include more

than 50 percent existing impervious surfaces, the stormwater management approach must reduce the existing stormwater runoff flow rate and volume by 25 percent for a two-year 24-hour design storm. The Stormwater Management Requirements and Design Guidelines require low-impact development measures to reduce the rate of stormwater runoff and to reduce and delay the volumes of discharge entering the combined sewer system, thereby reducing the frequency of combined sewer overflows, minimizing flooding effects, and protecting water quality. Examples of BMPs that may be implemented include rainwater harvesting, rain gardens, green roofs, and permeable paving.

Developers of projects that discharge to a separate stormwater system must also implement BMPs to reduce the flow rate and volume and improve the quality of stormwater going into the separate stormwater system. In areas served by separate stormwater systems, the Stormwater Management Requirements and Design Guidelines specify different performance requirements according to the following project size thresholds:

- Small Project: 2,500 to 5,000 square feet of impervious surface created and/or replaced.
- Large Project: 5,000 square feet or more of impervious surface created and/or replaced.

Small Projects that discharge to a separate stormwater system must implement one or more site design measure(s) (e.g., tree planting and preservation, permeable pavement, green roofs, vegetated swales, rainwater harvesting, etc.). Large Projects must implement source controls and BMPs to meet performance requirements and must manage the 85th percentile, 24-hour storm.

The Stormwater Management Requirements and Design Guidelines also require developers to use certain preferred BMPs to the maximum extent feasible before considering use of remaining BMPs. The preferred BMP hierarchy prioritizes infiltration-based BMPs, rainwater harvesting, and vegetated roofs followed by lined bioretention (e.g., lined bioretention materials with an underdrain, commonly known as a "flow-through planter"). If none of these BMPs are feasible on site, projects may be able to incorporate high-rate filtration BMPs (e.g., tree-box filters and media filters) into their site design pending approval by the SFPUC and Port. As the implementing agency, the SFPUC inspects stormwater BMPs once they are constructed, and any issues noted by the inspection must be corrected. The owner is responsible for completing an annual self-certification inspection and must submit completed checklists and maintenance logs for the year to the SFPUC. In addition, the SFPUC inspects all stormwater BMPs every third year. Any issues identified by either inspection must be resolved. SFPUC projects that are required to implement the San Francisco Stormwater Management Requirements and Design Guidelines are also subject to building codes that include provisions for managing drainage for new construction. Specifically, Section 1101.1.1 of the San Francisco Plumbing Code and Section 1503.4 of the San Francisco Building Code allow roofs and other building areas to drain to locations other than the combined sewer.

Modified Compliance Program

The City has developed the Modified Compliance Program to allow development projects with proven site challenges and limitations to modify the standard stormwater performance measures set

by the Stormwater Management Requirements and Design Guidelines. The Modified Compliance Program applies only to projects served by the combined sewer system.

In order to qualify for modified compliance, a site owner must submit a modified compliance application to the SFPUC that documents existing and proposed site features that limit infiltration such as high groundwater, shallow depth to bedrock, poorly infiltrating soils, steep slopes, contamination, and limited space for infiltration. The application also requires the applicant to estimate the non-potable demand for the project if the project is subject to the City's Recycled Water Ordinance. Based on this information, the SFPUC can decrease the amount the applicant must reduce the stormwater runoff volume; the required flow rate reduction is increased by the same percentage.

Construction-Related Stormwater Discharges

Discharges of construction-related stormwater runoff in San Francisco are subject to the construction site runoff requirements of Article 4.2 of the San Francisco Public Works Code, Section 146. In accordance with these requirements, any project that disturbs more than 5,000 square feet of land is subject to a Construction Site Runoff Control Permit. Covered land-disturbing activities include building demolition, clearing, grading, grubbing, filling, stockpiling, excavating, and transporting soil. The permit specifically requires easements for drainage facilities, provision of adequate dust controls in conformance with applicable air pollution laws and regulations, and improvement of any existing grading, ground surface, or site drainage to meet the requirements of Article 4.2. The application for the permit must also include an Erosion and Sediment Control Plan.

Under the Construction Site Runoff Control Permit, the site operator would be required to conduct daily inspections and maintenance of all erosion and sediment controls and must provide inspection and maintenance information to the SFPUC. The SFPUC would also conduct periodic inspections of the project site to ensure compliance with the plan. The project sponsor would be required to notify the SFPUC at least two days prior to the start of construction, completed installation of erosion and sediment control measures, completion of final grading, and project completion. At the SFPUC's discretion, sampling, metering, and monitoring may also be required.

Wastewater Discharges to the Combined Sewer System

Discharges of non-sewage wastewater to the combined sewer system are subject to the permit requirements specified in Article 4.1 of the San Francisco Public Works Code and supplemented by San Francisco Public Works Order No. 158170. The permit requires development and implementation of a pollution prevention program and specifies discharge limitations for specific chemical constituents as well as general conditions for the discharge. In addition, the discharge must meet the pre-treatment standards specified in Article 4.1, and the discharger must monitor the discharge quality for compliance with permit limitations. The discharger must also submit periodic reports to the SFPUC. The CCSF conducts periodic inspections to ensure compliance. Under Article 4.1, a Batch Wastewater Discharge Permit is required for non-routine and temporary discharges to the combined sewer system such as groundwater produced during construction-related dewatering.

San Francisco Reclaimed Water Use Ordinance

The CCSF Reclaimed Water Use Ordinance, which added Article 22 to the San Francisco Public Works Code, requires property owners to install recycled water systems in certain new construction, modified, or remodel projects. The goal of the ordinance is to maximize the use of recycled water. Buildings and facilities that are located within the designated recycled water use areas are required to use recycled water for all uses authorized by the State of California. Some of the common uses include irrigation, cooling, and/or toilet and urinal flushing. These systems must meet San Francisco Plumbing and Health Codes, which include specifications for pipe type, pipe separation, backflow prevention assemblies, water meters, and signage.

The requirements of the Recycled Water Ordinance apply to properties located within the designated recycled water use areas under the following circumstances:

- New construction or major alterations to a building totaling 40,000 square feet or more
- All subdivisions
- New and existing irrigated areas of 10,000 square feet or more

The project site is located within a designated recycled water use area,[50] and the proposed solids pre-treatment building would be greater than 40,000 square feet. Thus, the Reclaimed Water Use Ordinance would apply to the project. Accordingly, the SFPUC would design and construct all bathrooms in Biosolids Digester Facilities Project (BDFP) buildings with dual plumbing to allow for the use of recycled water (Title 22) if and when it becomes available in the future. Irrigation would be single-piped with a crossover/air gap connection such that recycled water could be used if and when available.

San Francisco Non-Potable Water Ordinance

In September 2012, the CCSF adopted the On-site Water Reuse for Commercial, Multi-Family, and Mixed Use Development Ordinance. Commonly known as the Non-Potable Water Ordinance, it added Article 12C to the San Francisco Health Code, allowing for the collection, treatment, and use of alternative water sources for non-potable applications. In October 2013, the CCSF amended the ordinance to allow district-scale water systems consisting of two or more buildings sharing non-potable water. The CCSF also amended the ordinance in July 2015, requiring new construction to use alternative water supplies for non-potable use. These amendments became effective on November 1, 2015, and specifically require that:

- All new buildings of 250,000 square feet or more of gross floor area (referred to as large development projects) located within the boundaries of San Francisco's designated recycled water use area be constructed, operated, and maintained using available alternative water sources for toilet and urinal flushing and irrigation;

[50] SFPUC, *Recycled Water Use*. Available online at http://sfwater.org/index.aspx?page=687. Accessed on January 26, 2016.

- All new buildings of 40,000 square feet or more of gross floor area (referred to as small development projects) in San Francisco prepare water budget calculations assessing the amount of rain water, gray water, and foundation water produced on-site and the planned toilet and urinal flushing and irrigation demands; and
- Subdivision approval requirements include compliance with Article 12C of the San Francisco Health Code.

The project site is located within a designated recycled water use area,[51] and the proposed Solids Pretreatment Facility total floor area would be greater than 40,000 square feet. Thus, this ordinance would apply to the BDFP.

San Francisco Floodplain Management

San Francisco's Floodplain Management requirements are specified in the San Francisco Administrative Code, Chapter 2A, Section XX. For buildings located within a flood-prone area, this code requires the following:

- The building must be adequately anchored to prevent flotation, collapse, or lateral movement.
- The building must be constructed with materials and utility equipment that are resistant to flood damage, and with methods and practices that minimize flood damage.
- Electrical, heating, ventilation, plumbing, and air conditioning equipment must be designed or located to prevent water from entering or accumulating within the components during flooding.
- All water supply and sanitary sewage systems must be designed to minimize or eliminate infiltration of flood waters into the system as well as discharges from the systems into floodwaters.

While portions of the Piers 94 and 96 staging areas are located within an existing flood zone, the project does not include any construction at the staging areas that would be subject to these requirements. The project site is not located in an existing flood zone, but portions could be subjected to flooding in the future as a result of sea level rise (refer to discussion in Section 4.16.1.5, Flooding as a Result of Sea Level Rise). Therefore, some of the project components would need to be resilient to future flood flows. While the floodplain management requirements do not directly apply, they help to inform measures considered suitable for flooding.

San Francisco Sea Level Rise Guidance

The CCSF has developed guidance for incorporating sea level rise into the planning of capital projects in San Francisco.[52] The guidance presents a framework for considering the effects of sea

[51] SFPUC, *Recycled Water Use*. Available online at http://sfwater.org/index.aspx?page=687. Accessed on January 26, 2016.

[52] City and County of San Francisco Sea Level Rise Committee, *Guidance for Incorporating Sea Level Rise into Capital Planning in San Francisco: Assessing Vulnerability and Risk to Support Adaptation*, December 14, 2015. Available online at http://onesanfrancisco.org/wp-content/uploads/Guidance-for-Incorporating-Sea-Level-Rise-into-Capital-Planning1.pdf. Accessed on January 22, 2016.

level rise on capital projects implemented by the CCSF and for selecting appropriate adaptation. measures based on site-specific information. The planning process described in the guidance includes six primary steps:

- Review sea level rise science
- Assess vulnerability
- Assess risk
- Plan for adaptation
- Implement adaptation measures
- Monitor

As of December 2015, the CCSF considers the NRC Report as the best available science on sea level rise in California. However, the guidance acknowledges that the science of sea level rise is continually advancing, and projections of sea level rise may need to be updated at some point to reflect the most updated science. Sea level rise inundation maps prepared by the SFPUC, described in Section 4.16.1.5, Flooding as a Result of Sea Level Rise, are considered the most up-to-date maps and take into account both water level rises and the temporary effects of storm surge along the shoreline based on existing topography and conditions. The guidance also includes a checklist for evaluating the vulnerability of a project to sea level rise during the life of the project, including permanent sea level increases, as well as periodic water level increases that would occur with storm surge and waves.

For those projects that cost 5 million dollars or more that could be flooded during their lifespan, the guidance requires a vulnerability assessment based on the degree of flooding that could occur, the sensitivity of the project to sea level rise, and the adaptive capacity of the project site and design (the ability to adjust to sea level rise impacts without the need for substantial intervention or modification). The risk assessment takes into consideration the likelihood that the project could be adversely affected by sea level rise and the related consequences of flooding. An adaptation plan is required for projects that are found to be vulnerable to sea level rise and have a potential for substantial consequences. The plan should focus on those aspects of the project that have the greatest consequences if flooded. It should include clear accountability and trigger points for bringing adaptation strategies online as well as a well-defined process to ensure that milestones are being met and the latest science is being considered.

The CCSF sea level rise guidance document also acknowledges that there is some flexibility in how to plan for adaptations, and it may not always be feasible or cost-effective to design and build for long-term potential sea level rise scenarios that are of a highly uncertain nature, such as the upper end of the NRC Report range for the year 2100 (66 inches of sea level rise). In this case, a capital project constructed by the City could be designed and constructed to be resilient to the likely mid-century sea level rise (11 inches by 2050). Under this guidance, an alternative approach for a City capital project would be to build the project to be resilient to the *likely* sea level rise by 2100 (36 inches), while including adaptive capacity to be resilient to the *upper range* of sea level rise estimates for 2100 (66 inches).

Under CEQA and Chapter 31 of the San Francisco Administrative Code, the San Francisco Planning Department considers City projects that could be vulnerable to 100-year flooding in combination with sea level rise during their lifespan to have a significant risk related to flooding.

4.16.3 Impacts and Mitigation Measures

4.16.3.1 Significance Criteria

The project would have a significant impact related to hydrology and water quality if the project were to:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted);
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site;
- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other authoritative flood hazard delineation map;
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.

Due to the nature of the project, there would be no impact related to the following topics for the reasons described below:

- ***Substantially alter the existing drainage pattern of the site or area.*** The project site, the Southeast Greenhouses site, and 1550 Evans Avenue are currently paved and would remain paved once construction is completed. There would be no grading or construction at the Southeast Greenhouses or 1550 Evans Avenue that would change the drainage patterns. Incorporation of stormwater management features at the project site in accordance with the

City's stormwater management requirements would ensure that drainage from the project site would not cause on- or off-site erosion, siltation, or flooding. The Port will be grading the Pier 94 Backlands to create a level area. Additional grading by the SFPUC, if any, would be minor and would not substantially alter the existing drainage pattern. Therefore, the two criteria related to alteration of existing drainage patterns and subsequent impacts (erosion, siltation, and flooding) are not applicable to the project and are not discussed further in this EIR.

- ***Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.*** During construction, the project would not change the amount of stormwater discharges to the combined sewer system. Any runoff would be managed in accordance with the required Construction Site Runoff Control Permit discussed in the analysis of water quality impacts under Impact HY-1. Therefore, during construction there would be no impact related to these topics. Impact HY-7 addresses stormwater impacts during project operation.

- ***Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map.*** The project site is not located in a 100-year flood zone[53] and would not include the construction of housing. While the near-shore areas of Piers 94 and 96 are located within a 100-year flood zone, these areas would be used for construction staging only and no housing would be constructed. Therefore, the criterion related to the placement of housing within a 100-year flood hazard zone is not applicable to the project and is not discussed further in this EIR.

- ***Expose people or structures to a significant risk of loss, injury, or death involving flooding due to failure of a levee or failure of a dam.*** The project is not in an area where there are levees or dams and is not located in a dam inundation zone as shown on Map 6 of the Community Safety Element of the *San Francisco General Plan*.[54] Therefore, these risks are not applicable to the project and are not discussed further in this EIR.

- ***Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.*** The project is not located near geologic conditions that would generate mudflow. As shown on Figure 4.16-6, the project site is not located within the potential tsunami inundation zone shown on Map 5 of the Community Safety Element of the *San Francisco General Plan*[55] or on statewide maps prepared by the California Emergency Management Agency.[56] While the Piers 94 and 96 staging areas are located within a potential tsunami inundation zone, they would not be used during operation of the project. Therefore, there would be no impact related to this topic resulting from operation of the BDFP. Impact HY-4 addresses tsunami and seiche inundation during construction.

53 City and County of San Francisco, San Francisco Interim Floodplain Map, East, July 2008.
54 City and County of San Francisco, *San Francisco General Plan*, Community Safety, an Element of the General Plan of the General Plan of the City and County of San Francisco, October 2012.
55 City and County of San Francisco, *San Francisco General Plan*, Community Safety, an Element of the General Plan of the General Plan of the City and County of San Francisco, October 2012.
56 California Emergency Management Agency, California Geological Survey, University of Southern California, Tsunami Inundation Map for Emergency Planning, San Francisco North Quadrangle/San Francisco South Quadrangle (SF Bay), June 15, 2009.

4.16.3.2 Approach to Analysis

Project Impacts

Construction Impacts

Construction-related effects on hydrology and water quality are direct or indirect impacts that could occur during construction, including construction and demolition activities as well as groundwater dewatering. The impact analysis considers whether compliance with regulatory requirements for these activities would ensure that these water quality-related impacts are less than significant during construction.

The analysis of flooding (including existing 100-year flooding and flooding associated with sea level rise) considers whether the project site or staging areas are located within a potential flood zone and whether construction-related activities would impede or redirect flood flows. Impacts related to inundation by tsunami are considered significant if the project site or staging areas are located within a potential tsunami inundation zone and whether construction-related activities would expose people or structures to a significant risk of loss, injury, or death.

Operational Impacts

Operational impacts are associated with long-term operation of the proposed facilities following completion of construction, including potential changes in SEP effluent quality, changes in stormwater runoff, depletion of groundwater resources, and flooding as a result of sea level rise. Changes in effluent quality from the SEP are considered significant if the changes would result in an exceedance of Basin Plan water quality objectives for San Francisco Bay or a violation of NPDES permit limitations for the SEP, or would otherwise degrade water quality. Impacts related to changes in stormwater runoff are considered significant if project-related runoff would exceed the capacity of the existing stormwater infrastructure at the SEP or provide a substantial additional source of stormwater pollutants. This impact is considered less than significant if the project-related stormwater flows would be within the capacity of the existing infrastructure and would not exceed waste discharge requirements. Depletion of groundwater resources is considered significant if the project would interfere with groundwater recharge, or withdraw groundwater in amounts that would substantially reduce the production rate of nearby groundwater wells.

Regarding operational flooding impacts, the California Supreme Court has determined that CEQA does not generally require lead agencies to consider how existing hazards or conditions might affect a project's users or residents, except where the project would exacerbate an existing environmental hazard.[57] Accordingly, hazards resulting from a project that places development in an existing or future flood hazard area are not considered impacts under CEQA unless the project would exacerbate the flood hazard or result in secondary water quality impacts as a result of flooding (e.g., disruption of wastewater treatment processes or a release of materials that could affect water quality). Thus, the analysis below evaluates whether the project would exacerbate existing or future flood hazards in the project area (including existing 100-year flooding and flooding associated with

[57] *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369.

sea level rise) and result in a substantial risk of loss, injury, or death or secondary water quality impacts. The impact is considered significant if the project could exacerbate existing or future flood hazards in the project area by increasing the frequency or severity of flooding or causing flooding to occur in an area that would not be subject to flooding without the project.

Cumulative Impacts

Section 4.1.3, Approach to Cumulative Impact Analysis and Cumulative Projects, describes the overall approach to the cumulative analysis for those topics using a list-based approach and summarizes probable future projects in the vicinity of the project that could contribute to a cumulative impact. Refer to Table 4.1-1 and Figure 4.1-1 for a description and location of potential cumulative projects near the BDFP. The cumulative impact analysis related to hydrology and water quality uses a list-based approach to analyze the effects of the project in combination with past, present, and probable future projects in the immediate vicinity. The cumulative impact analysis assumes that construction and operation of other projects in the geographical area would be subject to the same regulatory requirements as the project. The analysis then considers whether or not there would be a significant, adverse cumulative impact associated with project implementation in combination with past, present, and probable future projects in the geographical area, and if so, whether or not the project's contribution to the cumulative impact would be significant (i.e., cumulatively considerable). Both conditions must apply in order for a project's contribution to cumulative effects to be deemed cumulatively considerable (significant). If so, then mitigation measures are identified to reduce the project's contribution to the extent feasible.

4.16.3.3 Impact Evaluation

Construction Impacts

Impact HY-1: Construction of the project would not violate water quality standards or waste discharge requirements or otherwise substantially degrade water quality. (Less than Significant)

Water Quality Effects of Construction-Related Stormwater Runoff

Without proper controls, demolition of existing facilities, grading, and earthmoving for construction of utilities and infrastructure and construction of new facilities would expose soil during construction and could result in erosion and excess sediment carried in stormwater runoff. Stormwater runoff from temporary on-site use and storage of vehicles, fuels, wastes, and building materials during construction could also carry pollutants if these materials were improperly handled or stored.

However, the federal Clean Water Act effectively prohibits discharges of stormwater from construction projects unless the discharge is in compliance with an NPDES permit. During construction, stormwater from the project site and the staging areas at the Southeast Greenhouses, 1550 Evans Avenue, Jerrold Avenue, and Quint Street would drain to the City's combined sewer system. Stormwater from the Piers 94 and 96 and Pier 94 Backlands staging areas would drain to a separate stormwater system under jurisdiction of the Port. Implementation of regulatory requirements relating to stormwater discharges to the combined

sewer system and separate stormwater system would ensure that the water quality effects of construction-related stormwater runoff would be less than significant, as discussed below.

Construction-Related Stormwater Discharges to the Combined Sewer System

Construction and demolition activities at the project site, adjacent staging areas, and staging areas at the 1550 Evans Avenue and Southeast Greenhouses sites, would be subject to the Construction Site Runoff requirements of Article 4.2 of the San Francisco Public Works Code, Section 146 (refer to Section 4.16.2.3, Local Regulations). Proposed construction activities that are covered under this regulation include site grading; excavation for construction of utilities, roadways, other infrastructure, and buildings; and demolition of existing buildings.

Pursuant to this regulation, the SFPUC or its contractor must obtain a Construction Site Runoff Control Permit. This permit is required for any project that includes any land-disturbing activities such as building demolition, clearing, grading, grubbing, filling, stockpiling, excavating, and transporting soil. The permit application must include a site-specific Erosion and Sediment Control Plan that provides a vicinity map showing the location of the site in relationship to the surrounding area's water courses, water bodies, and other significant geographic features; a site survey; suitable contours for the existing and proposed topography, area drainage, proposed construction and sequencing, and drainage channels; proposed erosion and sediment controls; dewatering controls where applicable; soil stabilization measures where applicable; maintenance controls; sampling, monitoring, and reporting schedules; and any other information deemed necessary by the SFPUC as the administering agency. The requirements also specify that the contractor must provide adequate dust controls in conformance with applicable air pollution laws and regulations (including Article 22B of the San Francisco Health Code, described in Section 4.17, Hazards and Hazardous Materials, and Section 4.8, Air Quality, of this EIR). Improvements to any existing grading, ground surface, or site drainage must also meet the requirements of Article 4.2 for new grading, drainage, and erosion control.

Under the Construction Site Runoff Control Permit requirements, the construction contractor would be required to conduct daily inspections and maintenance of all erosion and sediment controls and must provide inspection and maintenance information to the SFPUC as the administering agency. The SFPUC would also conduct periodic inspections of the project site to ensure compliance with the plan. The construction contractor would be required to notify the SFPUC as the administering agency at least two days prior to the start of construction, completed installation of erosion and sediment control measures, completion of final grading, and project completion. As the administering agency, the SFPUC could also require sampling, metering, and monitoring at its discretion.

During construction, the SFPUC or its contractors could store hazardous materials and fuels at the on-site staging areas within Quint Street and Jerrold Avenue and off-site staging areas at the Southeast Greenhouses site or 1550 Evans Avenue site. The Erosion and Sediment Control Plan for construction activities at these sites would include the appropriate BMPs to prevent stormwater contact with these materials and limit the potential for a release of hazardous materials that could affect water quality.

Implementation of the Construction Site Runoff Control Permit requirements of Article 4.2 of the San Francisco Public Works Code, Section 146, would ensure that water quality impacts related to violation of water quality standards or degradation of water quality due to discharge of construction-related stormwater runoff from the project site and staging areas at 1550 Evans Avenue and the Southeast Greenhouses site would be less than significant.

Construction-Related Stormwater Discharges to Separate Stormwater System or to Bay

Stormwater from Piers 94 and 96 and the Pier 94 Backlands drains to separate stormwater systems that are under the jurisdiction of the Port and discharge to Lower San Francisco Bay. Up to 12 acres would be used for staging in these areas. Therefore, grading and excavation for new temporary utilities for the staging areas at these piers would be also be subject to both Article 4.2 of the San Francisco Public Works Code (Section 146) and the SWRCB's Construction General Permit. Article 4.2 requires implementation of an Erosion and Sediment Control Plan for projects that disturb more than 5,000 square feet of land, and the Construction General Stormwater Permit requires implementation of a Stormwater Pollution Prevention Plan (SWPPP) for projects that disturb one or more acres of land. Article 4.2 provides that projects subject to both regulatory requirements may prepare a SWPPP in lieu of the Erosion and Sediment Control Plan.

The Construction General Stormwater Permit characterizes construction activities by the level of risk to water quality. This is determined using a combination of the sediment risk of the project and the receiving water quality risk. Projects can be characterized as Risk Level 1, Risk Level 2, or Risk Level 3, with Risk Level 1 representing the lowest risk to receiving water quality. The minimum BMPs and monitoring that must be implemented during construction are based on the risk level. The BMPs are designed to prevent pollutants from coming in contact with stormwater and to keep any erosion and stormwater pollutants from moving off-site into receiving waters. The BMPs are specified in a SWPPP that must be prepared by a Qualified SWPPP Developer and submitted to the San Francisco Bay RWQCB before construction begins. Construction activities under the project would not be characterized as Risk Level 3, the highest risk level, because Lower San Francisco Bay is not considered a sediment-sensitive water body under the Construction General Stormwater Permit, as described in Section 4.16.2.2, State Regulations. Characterization as a Risk Level 1 or 2 site would depend on the sediment risk of construction activities. Sediment risk is based on the timing of construction, including the potential for rainfall to occur, as well as other project-related information such as the slope of the site and soil erodibility.

For Risk Level 1 sites, the Construction General Stormwater Permit specifies minimum BMPs to be implemented that address good housekeeping practices (including those for managing hazardous materials used during construction); non-stormwater management, erosion, and sediment control; and run-on and runoff control. A qualified professional must inspect the required BMPs weekly when there is no rain and daily during a qualifying rainstorm. For construction activities characterized as Risk Level 2, the minimum requirements identified for Risk Level 1 apply, as do some more stringent requirements. For instance, for Risk Level 2 construction activities, erosion controls must be implemented in conjunction with sediment controls in active construction areas, and linear sediment controls such as silt fences, gravel bag berms, or fiber rolls must be used along slopes. In addition, a Qualified SWPPP Developer must prepare a rain event action plan for Risk Level 2 construction activities. This plan would identify

the designated site stormwater manager, the provider of erosion and sediment controls, and the stormwater sampling agent, as well as the types of construction activities implemented at the site during all construction phases. The plan would include suggested actions for each construction phase.

Compliance with the Construction General Stormwater Permit, including the associated permit enforcement requirements, would ensure that water quality impacts related to violation of water quality standards or degradation of water quality due to discharge of construction-related stormwater runoff to the Bay via the separate stormwater systems at Piers 94 and 96, would be less than significant.

Water Quality Effects of Groundwater Dewatering

As noted above in Section 4.16.1.8, above, shallow groundwater levels at the project site are approximately 8 to 12 feet below ground surface.[58] In addition, confined groundwater occurs within the upper layered sediments encountered below the young bay mud. While the upper layered sediments occur at depths of greater than 12 feet below ground surface at the site, groundwater levels rise to within 1 to 4 feet of the ground surface in monitoring wells completed in this zone as a result of pressure on the confined groundwater.

Most of the excavations at the project site would be completed within the artificial fill materials and young bay mud that underlie the project site. These excavations would be completed below the shallow water table. Shoring systems used in the excavations would limit the amount of groundwater flow into the excavations. Alternatively, the sidewalls of the excavations could be sloped to ensure slope stability which would allow more groundwater flow into the excavation. In either case active dewatering systems such as use of a sump pump may be required to maintain a dry working space in these excavations, but only limited dewatering would be required to maintain a dry working area within these shallower excavations. Deeper excavations (e.g., for the Anaerobic Digesters) would extend into the upper-layered sediments. As discussed in Section 4.16,1.8, groundwater within this geologic unit occurs under pressure. Therefore, these deeper excavations could require more extensive groundwater dewatering to provide a stable and dry work area and to reduce groundwater within the excavations. The volume of groundwater that could be produced during dewatering is not currently known.

Groundwater from dewatering activities could contain contaminants related to past site activities, as discussed in Section 4.17, Hazards and Hazardous Materials, as well as sediment and suspended solids. Discharge of groundwater produced during construction-related dewatering would be subject to a Batch Wastewater Discharge Permit issued in accordance with Article 4.1 of the Public Works Code, as supplemented by Order No. 158170, which regulates the quantity and quality of discharges to the combined sewer system. Accordingly, groundwater produced during the limited dewatering would be pumped to baker tanks or other containment, tested, and treated to ensure compliance with the discharge limitations of Article 4.1 of the Public Works Code and Order No. 158170. Treatment could include methods such as using settling tanks to remove sediments,

[58] Brown and Caldwell with CH2MHILL and Black & Veatch, Geotechnical Interpretive Report, February 2017.

filters to remove suspended solids, and other methods to meet chemical-specific discharge limitations. The chemical-specific treatment method used would depend on the chemicals that exceed the specified discharge limitation but could include methods such as filtration or activated carbon treatment to reduce chemical concentrations as necessary to meet permit requirements prior to discharge. Installation of meters to measure the volume of the discharge may also be required.

With discharge to the combined sewer system in accordance with regulatory requirements, water quality impacts related to a violation of water quality standards or degradation of water quality due to discharge of groundwater produced during construction-related dewatering would be less than significant**.**

Summary of Impact HY-1

Impact HY-1 describes potential water quality impacts related to stormwater runoff during construction and discharge of groundwater produced during dewatering in order to provide safe and dry work area in project excavations. These impacts would be ***less than significant*** because construction would be subject to the regulatory requirements specified in Articles 4.1 and 4.2, Section 146, of the San Francisco Public Works Code as well as the SWRCB's Construction General Permit, and implementation of the required control measures would adequately protect water quality. No mitigation is required.

Mitigation: None required.

Impact HY-2: Construction of the project would not substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table. (Less than Significant)

As described in Impact HY-1, shallow groundwater at the project site occurs within the artificial fill materials overlying the young bay mud. Shallow groundwater levels at the project site are about 8 to 12 feet below ground surface.[59] In addition, confined groundwater occurs within the upper layered sediments encountered below the young bay mud. While the upper layered sediments occur at depths of greater than 12 feet below ground surface beneath the site, groundwater levels rise to within 1 to 4 feet of the ground surface in monitoring wells completed in this zone.

Most of the excavations at the project site would be completed within the artificial fill materials and young bay mud that underlie the project site. These excavations would be completed below the shallow water table. Active dewatering systems such as use of a sump pump may be required to maintain a dry working space in these excavations, but only limited dewatering would be required within these shallow excavations. Based on the limited dewatering required and because this dewatering would be conducted only during construction, this dewatering would not result in depletion of groundwater resources. Further, as described in Section 4.16.1.8, there are no wells that utilize groundwater from the shallow zone within 1/2 mile of the project site.

[59] Brown and Caldwell with CH2MHILL and Black & Veatch, Geotechnical Interpretive Report, February 2017.

Deeper excavations (e.g., for the Anaerobic Digesters) would extend into the upper-layered sediments, and groundwater within this geologic unit occurs under pressure. Therefore, these deeper excavations could require more extensive groundwater dewatering to provide a stable and dry work area and to reduce groundwater within the excavations. The volume of groundwater that could be produced during dewatering is not currently known.

Pumping of groundwater causes groundwater levels to decline in the area around the excavation which could interfere with the operation of nearby wells if present. However, as described in Section 4.16.1.8, there are no wells that utilize groundwater from the upper layered sediments within 1/2 mile of the project site. Because groundwater from the upper layered sediments is not used for any purposes in the vicinity of the project site, and because the duration of groundwater dewatering would be limited to the construction period, groundwater dewatering from the upper layered sediments would not result in groundwater depletion.

Construction activities would not result in an increase of impervious surfaces. Therefore, the project would not interfere with groundwater recharge, and impacts related to groundwater depletion and interference with groundwater recharge would be ***less than significant.***

Mitigation: None required.

Impact HY-3: Construction of the project would not place structures within a 100-year flood zone or expose people or structures to a significant risk of loss, injury, or death involving flooding under current conditions or future conditions resulting from sea level rise. (Less than Significant)

Project Site and Adjacent Staging Areas

The project site and adjacent staging areas (at the Southeast Greenhouses site and 1550 Evans Avenue) are not located within an existing 100-year flood zone, as shown on Figure 4.16-2. Therefore, there would be no impact related to flooding risk during construction within these areas. Impact HY-8 addresses impacts related to future flooding resulting from sea level rise that would occur during operation of the BDFP.

Staging Areas on Port Property

The Pier 94 Backlands is not within an existing 100-year flood zone and would not be subject to future flooding as a result of sea level rise as shown on Figures 4.16-2 through 4.16-5.

The near-shore areas of the Piers 94 and 96 staging areas are located within an existing 100-year flood zone, as shown on Figure 4.16-2.[60] However, these areas would be used for construction staging only and no employees would permanently work in these areas. The project would not

[60] City and County of San Francisco, San Francisco Interim Floodplain Map, SE San Francisco, November 12, 2015.

include the construction of any structures in the flood zone that could impede or redirect flood flows (or, consequently, exacerbate flood hazards).

Based on sea level rise mapping conducted by the SFPUC, a small area in the southern portion of the Pier 96 staging area could be permanently inundated by 2050, with a larger area inundated by 2100. Other portions of the Piers 94 and 96 staging areas could also temporarily flood as a result of 100-year storm surge under both scenarios as shown on Figures 4.16-3 and 4.16-4, and as a result of 100-year storm surge associated with the upper range of sea level rise estimated by the NRC as indicated on Figure 4.16-5. However, construction activities would be completed by 2023. If inundation occurred prior to this time, the SFPUC could move staging activities out of the inundation area to avoid adverse effects related to flooding.

Based on the above analysis, during construction, the project would not result in a significant risk due to flooding nor exacerbate flood hazards because the staging activities at Piers 94 and 96 would not include the placement of structures within the existing 100-year flood zone and the project would not expose structures or people to a significant risk of loss, injury, or death involving flooding. This impact would be ***less than significant*** and no mitigation is required.

Mitigation: None required.

Impact HY-4: Construction of the project would not expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche or tsunami. (Less than Significant)

Project Site and Adjacent Staging Areas

As shown on Figure 4.16-6, the project site and adjacent staging areas (at the Southeast Greenhouses site and 1550 Evans Avenue) are not located within the potential tsunami inundation zone shown on Map 5 of the Community Safety Element of the *San Francisco General Plan*[61] or on statewide maps prepared by the California Emergency Management Agency.[62] Therefore, there would no impact related to the potential of seiche or tsunami inundation during construction at the project site and adjacent staging areas.

Staging Areas on Port Property

A large part of the Piers 94 and 96 staging areas would be located within a potential tsunami inundation zone as shown on Figure 4.16-6. Based on the estimated tsunami height of about -1.7 feet SFD (9.7 feet NAVD88) at Piers 94 and 96, the maximum potential depth of inundation could be about 1.5 feet as described in Section 4.16.1.7, Tsunami and Seiche. However, other than temporary trailers with restroom facilities, the project would not include the construction of any structures in this area that could be damaged in the event of a tsunami.

[61] City and County of San Francisco, *San Francisco General Plan*, Community Safety, an Element of the General Plan of the General Plan of the City and County of San Francisco, October 2012.

[62] California Emergency Management Agency, California Geological Survey, University of Southern California, Tsunami Inundation Map for Emergency Planning, San Francisco North Quadrangle/San Francisco South Quadrangle (SF Bay), June 15, 2009.

Workers would only intermittently occupy the area before and after their work shifts. In the event that the National Warning System issues a tsunami warning, the CCSF would initiate its outdoor warning system and issue emergency instructions should the San Francisco waterfront be threatened. Use of this system would allow adequate warning time to avoid the area in the event of a tsunami and for evacuation of the area should workers be present when the warning is issued.

While the SFPUC could store construction-related hazardous materials such as fuels, lubricants, paints, and adhesives at the Piers 94 and 96 staging areas, the Port would require implementation of an operations plan as part of their lease, subject to approval by the Port, that addresses the safe storage of hazardous materials. This plan would specify BMPs for hazardous materials storage to reduce the potential for a release of hazardous materials in the event of a tsunami and spill response procedures to address a release of hazardous materials if one were to occur. Implementation of appropriate BMPs would ensure that adverse water quality effects would not occur in the event of a tsunami during the construction period.

The Pier 94 Backlands is not located within a potential tsunami inundation zone.

Based on this analysis, the project would not expose structures or people to a substantial risk of loss, injury, or death involving inundation by seiche or tsunami, and this impact would be ***less than significant*** for the construction staging areas on Port property.

Mitigation: None required.

Operational Impacts

Impact HY-5: Operation of the project would not violate water quality standards or waste discharge requirements or otherwise substantially degrade water quality. (Less than Significant)

The project would replace and relocate the solids treatment facilities at the SEP with modern technologies and facilities designed to produce Class A biosolids, which have no detectable pathogens. The proposed operational improvements would modify the existing biosolids treatment process to add a thermal hydrolysis process (THP), which includes heating undigested wastewater solids with steam under pressure and rapidly depressurizing them to make them more biodegradable. After pre-treatment and digestion, the solids would be dewatered prior to loadout, and the dewatering return stream (i.e., the reject water from the dewatering process) would be returned to the existing SEP liquid processing facilities. These liquid processing facilities ultimately discharge secondary-treated effluent from the SEP to Lower San Francisco Bay via the Southeast Bay Outfall during dry weather. While the proposed change in solids treatment process under the BDFP would not substantially increase the total load of any constituents, it could potentially increase the concentration of certain constituents in the plant's final effluent if the concentration in the dewatering return stream is sufficiently high and if those constituents are not otherwise removed by primary and/or secondary liquid treatment processes used at the SEP. The constituents of particular concern are ammonia and nitrogen because they are present in the wastewater solids,

and during the solids treatment process they are concentrated in the dewatering return stream. In addition, the SEP primary and secondary liquid treatment processes are not designed to remove or transform ammonia or remove nitrogen. These constituents could substantially degrade water quality at high concentrations.

Water Quality Objectives and Effluent Limitations

The Basin Plan includes the following water quality objectives for un-ionized ammonia[63] in Lower San Francisco Bay:

- An annual median of 0.025 milligram per liter (mg/L) as nitrogen; and
- A maximum of 0.4 mg/L as nitrogen.

The effluent limitations of the Bayside NPDES Permit consider the amount of dilution the effluent will receive when discharged to Lower San Francisco Bay and are established to ensure that effluent discharges will not cause the above water quality objectives to be exceeded in the Bay. Accordingly, the dry weather ammonia effluent limitations of the Bayside NPDES Permit are an average monthly effluent limit (AMEL) of 190 mg/L and a maximum daily effluent limit (MDEL) of 290 mg/L. During wet weather, the concentrations of ammonia would be expected to be much less because of the increased volumes of stormwater in the effluent.

The SFPUC Bayside NPDES Permit does not include any effluent limitations specifically for total nitrogen. However, most nitrogen in the SEP effluent occurs in the form of ammonia. Any increase in concentration of total ammonia results in a corresponding increase in total nitrogen concentration. Increased nitrogen concentrations in wastewater effluents have the potential to increase algal blooms and consequently decrease dissolved oxygen concentrations in San Francisco Bay. These changes can affect habitat for several estuarine species, including clams, which are filter feeders.

Summary of Water Quality Analysis

RMC Water and Environment (RMC) conducted a water quality analysis for the proposed solids treatment processes, included in this EIR as Appendix HYD and referred to below as the Water Quality Analysis. This analysis determined that the project's new THP process could increase the concentrations of both total ammonia and total nitrogen in the dewatering return stream relative to the existing digestion process.[64] The increase in total nitrogen concentrations is due almost entirely to the increase in ammonia concentration. While the dewatering return stream is typically less than 1 percent of raw plant flow (during dry weather), an increased concentration of ammonia or nitrogen in the dewatering return stream could result in an increase in the total ammonia or total nitrogen concentration in the final SEP effluent if concentrations in the dewatering return stream are very high. The water quality analysis assessed whether the

[63] Ammonia is a nutrient that contains nitrogen and hydrogen. Its chemical formula is NH_3 in the un-ionized state and NH_4^+ in the ionized form. Total ammonia is the sum of both un-ionized and ionized ammonia. Un-ionized ammonia is more toxic to fish and other aquatic life than ionized ammonia.

[64] RMC Water and Environment, Water Quality Analysis for the SEP Biosolids Digester Facilities Project, March 24, 2016.

increased ammonia and total nitrogen concentrations in the dewatering return stream would result in a violation of the Bayside NPDES Permit or otherwise substantially degrade water quality. The study also concluded that no other constituents in the dewatering stream would have a potential to exceed the Bayside NPDES Permit effluent limitations or water quality objectives for Lower San Francisco Bay, or otherwise substantially degrade water quality; for this reason, the analysis summarized below focuses on ammonia and nitrogen.

The Water Quality Analysis reported both the average and 95th percentile concentrations of ammonia and total nitrogen concentrations in the analysis. While the average is commonly used, the 95th percentile is a more conservative estimate of increases in concentration because it represents the value below which 95 percent of all concentrations would fall (with only 5 percent of the concentrations exceeding the stated value). The 95th percentile concentration is greater than the average and, for the purposes of this EIR, the discussion below conservatively analyzes impacts associated with the 95th percentile concentrations reported in the Water Quality Analysis.

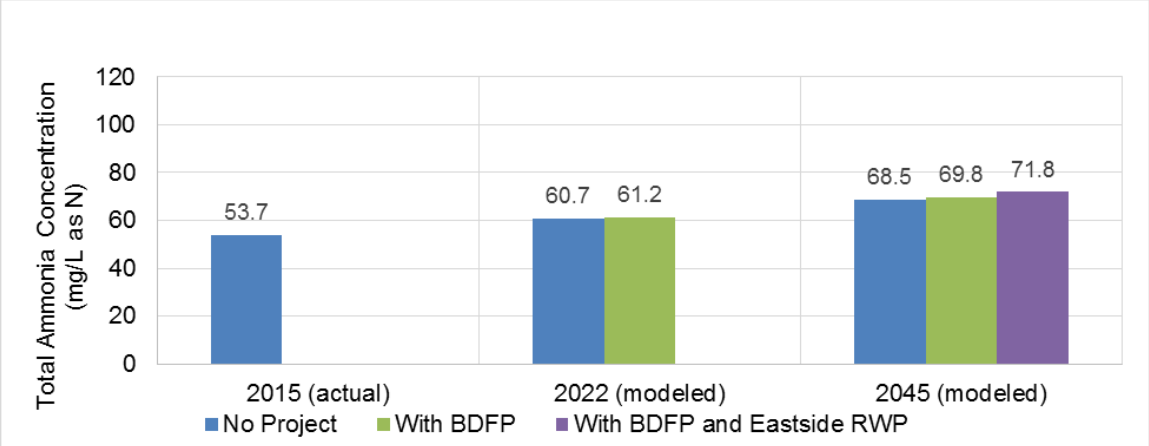
The Water Quality Analysis also analyzed measured concentrations of ammonia and nitrogen in the SEP effluent between 2008 and 2015 to evaluate existing effluent quality. Between 2008 and 2015, the concentrations of both ammonia and nitrogen have shown a gradual increase due to population growth and water conservation. Despite this increase, in 2015 the 95th percentile concentration of total ammonia in the SEP effluent was 53.7 mg/L, well below the NPDES most stringent effluent limitation of 190 mg/L. The 95th percentile concentration of nitrogen in the SEP effluent in 2015 was 65.1 mg/L. The increasing trend in ammonia and nitrogen concentrations in the SEP effluent is expected to continue, whether or not the BDFP is implemented, because the volume of solids discharged to the combined sewer system has been increasing and will continue to increase over time as a result of population growth in San Francisco. At the same time, ongoing water conservation efforts in San Francisco are lowering the per capita water use for purposes such as toilet flushing, bathing, dishwashing, and clothes washing, resulting in a corresponding reduction in the volume of wastewater discharges from these activities. As a result, the increase in solids and reduction in flows have increased total ammonia and nitrogen concentrations in the final SEP effluent over time, and this increasing trend is expected to continue, regardless of project implementation.

The study presents the results of modeling conducted by the BDFP Consultant Team for the SFPUC to estimate future ammonia and nitrogen concentrations in the SEP effluent with and without the project. The estimates were completed using the BioWin computer model, a wastewater treatment process simulator that ties together biological, chemical, and physical process models. The modeling used the trends associated with the measured ammonia and nitrogen concentrations for the years 2010 to 2012 to determine the projected ammonia and nitrogen concentrations for later years (including 2015, 2022, and 2045) for the existing treatment plant. The projected concentrations accounted for future per capita ammonia and nitrogen loading (based on pre-drought conditions), future population estimates, and future water conservation. Because the measured effluent concentrations in the 2014-2015 dataset were greater than the modeled concentrations for the baseline year due to drought conditions and associated water conservation efforts in San Francisco, the water quality analysis also considered a more

conservative condition based on higher per capita ammonia and nitrogen loading rates (reflecting drought conditions) calculated from the 2014-2015 dataset. This analysis is referred to as Analysis B in Appendix HYD and the estimated concentrations from this more conservative condition are used in this evaluation.

A total of five scenarios were evaluated to determine potential impacts of the project: measured effluent quality in 2015 for the existing plant (baseline) as well as estimated effluent quality with and without the project in 2022 (representative of when the project would become operational in early 2023) and in 2045 (the planning horizon for the project). A sixth scenario evaluated the contribution of the planned Eastside Recycled Water Project at the SEP (described in Table 4.1-1 in Section 4.1) to changes in ammonia and nitrogen concentrations, and the results of this scenario are discussed in Impact C-HY-2 below, which addresses cumulative water quality impacts.

Ammonia. As shown on **Figure 4.16-7** and in **Table 4.16-3**, between 2015 and 2022, the 95th percentile ammonia concentration is expected to increase from 53.7 to 60.7 mg/L without the project. By 2045, the 95th percentile ammonia concentration is projected to increase to 68.5 mg/L without the project. With implementation of the project, 95th percentile ammonia concentration is modeled to increase to 69.8 mg/L by 2045. This concentration is well below the NPDES limitations of an AMEL of 190 mg/L and an MDEL of 290 mg/L. With project implementation, the estimated increase in the 95th percentile ammonia concentration in 2045 would be about 2 percent greater than the concentration would be without the project, as shown in Table 4.16-3. Average ammonia levels would be much less than the 95th percentile concentrations.



NOTE: The Eastside Recycled Water Project (RWP) is discussed below under Impact C-HY-2 which addresses cumulative impacts related to water quality and hydrology.

SOURCE: RMC Water and Environment, Water Quality Analysis for the SEP Biosolids Digester Facilities Project, 2016

Figure 4.16-7
Measured 2015 and Estimated Future Total Ammonia SEP Effluent Concentrations, 95th Percentile

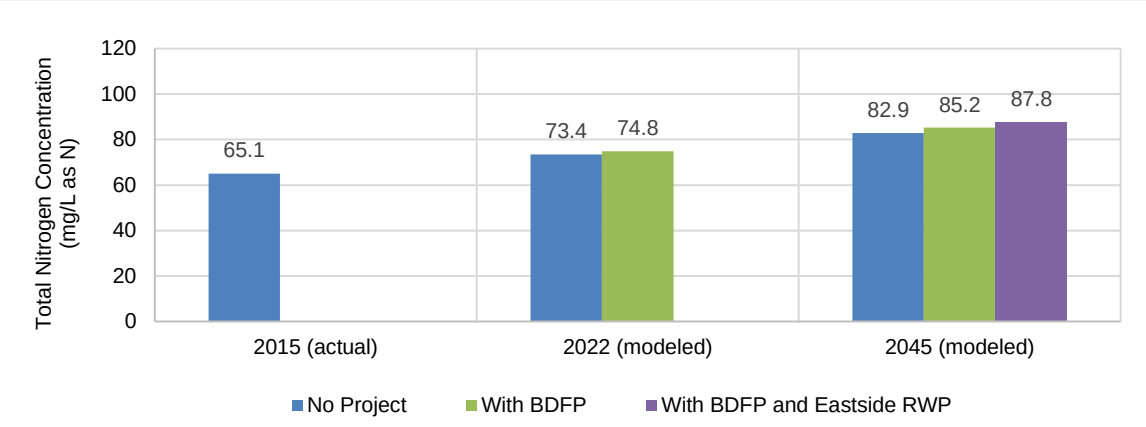
TABLE 4.16-3
PERCENT INCREASE IN TOTAL AMMONIA AND TOTAL NITROGEN SEP EFFLUENT CONCENTRATIONS

	Total Ammonia			Total Nitrogen		
	Approximate 95th Percentile Concentration, mg/L as N	Approximate Percent Increase Relative to 2015[1]	Approximate Percent Increase Relative to No Project	Approximate 95th Percentile Concentration, mg/L as N	Approximate Percent Increase Relative to 2015[1]	Approximate Percent Increase Relative to No Project
2015 No Project	53.7			65.1		
2022 No Project	60.7	13%		73.4	13%	
2022 With Project	61.2	14%	0.8%	74.8	15%	2.0%
2045 No Project	68.5	28%		82.9	27%	
2045 With Project	69.8	30%	1.8%	85.2	31%	2.9%

NOTES: mg/L as N = milligrams per liter as nitrogen
[1] Increase due to population growth and water conservation

SOURCE: RMC Water and Environment, Water Quality Analysis for the SEP Biosolids Digester Facilities Project, 2016; Orion Environmental Associates

Total Nitrogen. Between 2015 and 2022, the 95th percentile total nitrogen concentrations are expected to increase from 65.1 to 73.4 mg/L without the project, as shown on **Figure 4.16-8** and in Table 4.16-3. By 2045, the 95th percentile total nitrogen concentration is projected to increase to 82.9 mg/L without the project. With implementation of the project, 95th percentile total nitrogen concentration is modeled to increase to 85.2 mg/L by 2045. This represents approximately a 3 percent increase over the 95th percentile nitrogen concentrations without the project, as shown in Table 4.16-3. Average total nitrogen levels would be much less than the 95th percentile concentrations.



NOTE: The Eastside Recycled Water Project (RWP) is discussed below under Impact C-HY-2 which addresses cumulative impacts related to water quality and hydrology.

SOURCE: RMC Water and Environment, Water Quality Analysis for the SEP Biosolids Digester Facilities Project, 2016

Figure 4.16-8
Measured 2015 and Estimated Future Total Nitrogen Effluent Concentrations

NPDES Permit Requirements

The above analysis demonstrates that with implementation of the BDFP, total ammonia concentrations would increase slightly and would remain within the effluent limitations of the existing Bayside NPDES Permit issued in 2013. Nitrogen concentrations would also increase slightly. While the permit is scheduled to be renewed in 2018, the renewed permit would be expected to continue to specify effluent limitations for the SEP that are protective of the beneficial uses of Lower San Francisco Bay and to require the SFPUC to monitor for compliance with permit requirements. Any future permit renewals would involve coordination with the San Francisco Bay RWQCB and would consider any changes in SEP operations, including BDFP implementation and any associated changes in effluent water quality, to ensure that effluent limits remain protective of beneficial uses identified in the Basin Plan.

Summary of Impact HY-5

The project would not result in ammonia concentrations in the SEP effluent that exceed the NPDES permit effluent limitations, and total nitrogen concentrations would only increase slightly. NPDES permit effluent limitations are established to ensure that discharges comply with applicable water quality standards and do not degrade water quality, as discussed in Section 4.16.2, Regulatory Framework. With expected continued compliance with NPDES permit effluent limitations and requirements during long-term project operation, impacts related to a violation of water quality standards or waste discharge requirements or degradation of water quality would be ***less than significant*** with respect to changes in SEP effluent quality, and no mitigation is required.

Mitigation: None required.

Impact HY-6: Operation of the project would not substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table. (Less than Significant)

The project site overlies the Islais Valley Groundwater Basin. As described in Section 4.16.1, Setting, sources of recharge to this groundwater basin include rain water, irrigation return flows, and leakage from water and sewer pipes. The project site is currently covered by impervious surfaces that prevent groundwater recharge. With implementation of the BDFP, the project site would continue to be covered by impervious surfaces, and no new impervious surfaces would be constructed at the staging areas. Therefore, implementation of the project would not change groundwater recharge compared to existing conditions.

The project would not deplete groundwater resources in this basin because no long-term dewatering would be required and the project would not withdraw groundwater from this basin for any other purposes during operation.

For these reasons, impacts related to interference with groundwater recharge and depletion of groundwater resources would be ***less than significant***, and no mitigation is required.

Mitigation: None required.

Impact HY-7: Operation of the project would not exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. (Less than Significant)

As discussed in Section 4.16.1, Setting, stormwater runoff from the SEP is directed to a 15-inch-diameter combined sewer within the SEP and to other combined sewers in Jerrold Avenue, Phelps Street, and Evans Avenue. Runoff is treated at the SEP, and treated effluent is discharged through the Southeast Bay Outfall and Quint Street outfalls. Once the BDFP is constructed, runoff from the project area would be directed to this same infrastructure. The project would result in a decrease in stormwater flows to this infrastructure because the City's Stormwater Management Ordinance and Stormwater Management Requirements and Design Guidelines would require the project to reduce the existing stormwater runoff flow rate and volume by 25 percent for a two-year, 24-hour design storm.

Chapter 2, Section 2.4.2.3, Architecture and Landscaping, describes low-impact development features proposed for the project, including street tree plantings, a green roof for the Solids Pretreatment Facility, and flow-through planters. However, infiltration rates at the project site have not yet been measured. The SFPUC assumes that infiltration would be feasible based on soil types at the project site and the depth to groundwater. If further studies demonstrate that infiltration is infeasible, the SFPUC would apply for modified compliance with the Stormwater Management Ordinance and Stormwater Management Requirements and Design Guidelines to adjust the amount by which the project must reduce the stormwater runoff volume and flow rate relative to existing conditions.

The Stormwater Control Plan required to be prepared for the project in accordance with the Stormwater Management Requirements and Design Guidelines would describe BMPs that would be implemented to achieve the specified reduction in stormwater flow rates and volumes as well as a plan for post-construction operation and maintenance of the BMPs. The plan must be reviewed and approved by the SFPUC as the administering agency to certify compliance with the Stormwater Management Requirements and Design Guidelines, and as the administering agency, the SFPUC would inspect stormwater BMPs once they are constructed to confirm that they perform as designed.

With compliance with the Stormwater Management Ordinance and Stormwater Management Requirements and Design Guidelines, project-related stormwater discharges would not exceed the capacity of the new or existing stormwater system and would not constitute an additional source of polluted runoff. This impact would be ***less than significant***, and no mitigation is required.

Mitigation: None required.

Impact HY-8: Operation of the project would not include the construction of structures that would impede flood flows within an existing 100-year flood zone or 100-year flood zones resulting from sea level rise. (Less than Significant)

As discussed in Section 4.16.1, Setting, above, the project site is not located within an existing 100-year flood hazard area (refer to Figure 4.16-2), and would remain outside of the 100-year flood zone in 2050 assuming 12 inches of sea level rise (refer to Figure 4.16-3). The site would be partially within the 100-year flood zone in 2100 with 36 inches of sea level rise (refer to Figure 4.16-4). These future flood zones are based on the NRC's projected rate of sea level rise that is considered likely based on the current understanding of global climate change. In the event of worst-case conditions, based on the NRC's upper range of sea level rise (66 inches) in combination with 100-year storm surge, the majority of the site could be subject to shallow flooding (refer to Figure 4.16-5). This extreme upper limit of sea level is based on very high GHG emissions scenarios and significant land ice melt assumptions.

The following analysis describes the potential for the project to exacerbate future flood hazards, assuming that the CCSF does not implement area-wide measures in the interim to control the intrusion of floodwaters related to sea level rise.

Potential for Project Structures to Exacerbate Future Flood Hazards

The BDFP could exacerbate the anticipated future flood hazards in the project area if it were to increase the frequency or severity of flooding or cause flooding to occur in an area that would not be subject to flooding without the project.

Proposed finished grade elevations at the project site range from approximately 0.6 to 4.3 feet SFD (12 to 15.7 feet NAVD88), with the lowest elevations occurring in the northernmost portion of the site. The anticipated flood elevation related to the projected amount of sea level rise would be 1.5 feet SFD (12.9 feet NAVD88) in 2100. Therefore, only the northernmost portion of the site would be subject to shallow flooding under this scenario. Assuming worst-case estimates of sea level rise, flood elevations could reach 4.0 feet SFD (15.4 feet NAVD88) and larger amounts of the project site could be subject to flooding. As described in Chapter 2, Section 2.4.2, Other Project Features, proposed facilities that could be affected by future flooding due to sea level rise of 36 inches would include flood-proofing features (e.g., precluding wall penetrations such as doorways below 2.5 feet SFD for structures in the northernmost portion of the project site). Project design would also incorporate adaptive features (e.g., elevation of critical elements within affected buildings) to provide resilience to potential worst-case flood levels. The project would not exacerbate future flooding conditions under either the projected or worse-case scenarios described above because the project would not include any topographic changes or the construction of new structures that would increase the extent of storm surge-related flooding relative to existing conditions. The project would not result in an increase in impervious surfaces that would restrict infiltration of floodwaters, nor would it create any topographic changes that would redirect flood flows or alter their flow rate. The site is already developed, and construction of new structures under the project would not redirect flood flows relative to existing conditions. None of the proposed features of the BDFP includes additional stormwater discharges that could contribute to the frequency or severity of flooding. Further, flood proofing of the proposed

structures and incorporation of adaptive features would ensure that future operations of the BDFP would not be adversely affected by flooding such that there could be a disruption of wastewater treatment services, or damage to the proposed facilities that could result in a release of sewage or hazardous materials that could affect water quality. Therefore, impacts related to future flooding would be ***less than significant***, and no mitigation is required.

Mitigation: None required.

Cumulative Impacts

Impact C-HY-1: The project, in combination with past, present, and probable future projects in the site vicinity, would not result in significant adverse cumulative hydrology impacts. (Less than Significant)

Hydrology impacts are related to changes in groundwater storage and flooding. The geographic scope of cumulative impacts on groundwater storage includes the Islais Valley Groundwater Basin. Impacts related to existing and future flooding and inundation by tsunami could occur along the entire San Francisco waterfront. However, only projects in close proximity and within the same flood zones could cumulatively exacerbate flood conditions; therefore, the geographic scope for cumulative flooding impacts includes the project site and near vicinity.

Groundwater

As described in Impacts HY-2 and HY-6, the project would involve only limited dewatering from the shallow groundwater zone during construction, but could require more extensive dewatering of the upper layered sediments, including dewatering required for construction of the Anaerobic Digesters. No dewatering would be required during operation. Because no wells completed within the shallow or confined groundwater are within ½ mile of the project site, temporary project-related excavation dewatering would not result in substantial adverse effects on groundwater levels.

While the Southeast Plant Headworks Replacement project would also require excavation dewatering during construction, the Headworks project would implement measures to limit the amount of dewatering needed, such as water-impermeable shoring walls, localized sump pumps, and use of working pads made with crushed rock. The other cumulative projects at the SEP may require limited dewatering during construction. However, these projects would be required to implement controls to limit the amount of dewatering required, similar to the proposed project and the Headworks project. Due to the implementation of dewatering controls and the short durations of the cumulative projects, the cumulative effects of temporary groundwater dewatering would not result in depletion of groundwater resources. While the cumulative projects at the SEP would minimally increase the amount of impervious surfaces at the SEP, this minor increase would not affect groundwater recharge in the groundwater basin. Based on these factors, cumulative impacts related to groundwater depletion and recharge would be ***less than significant***.

Flooding

As described in Impacts HY-3 and HY-4, the near-shore areas of the Piers 94 and 96 staging areas are located within an existing 100-year flood zone and a large part of these staging areas is located within a potential tsunami inundation zone. However, the project would not expose structures to risk of loss involving flooding or inundation by seiche or tsunami during construction because no permanent structures would be constructed. Therefore, the project would not contribute to any cumulative impacts related to exposing structures to risk of loss due to flooding or tsunami inundation. While the Asphalt and Concrete Recycling and Production Plant at Pier 94 and the Pier 96 Bulk Export Terminal project would introduce new site occupants within the same tsunami inundation zone, cumulative impacts related to exposing people to injury or death as a result of tsunami inundation zone would be less than significant. This is because, as for the project, in the event that the National Warning System issues a tsunami warning, the CCSF would initiate its outdoor warning system and issue emergency instructions should the San Francisco waterfront be threatened. Use of this system would allow adequate warning time to avoid the area in the event of a tsunami and for evacuation of the area should workers be present when the warning is issued.

As described in Impact HY-8, a portion of the BDFP site could be subject to shallow flooding as a result of future climate change-induced sea level rise. Past, present, and probable future development in such areas could cumulatively exacerbate future flooding conditions if the development were to increase the frequency or severity of flooding or cause flooding in areas where it would not have otherwise occurred, resulting in a substantial risk of loss, injury, or death. Cumulative projects located in the northernmost portion of the SEP such as the Southeast Plant Headworks Replacement Project, SEP Chemical System Relocation and Facilities Upgrade, SEP Primary/Secondary Clarifier Upgrades, and SEP Oxygen Generation Plant Replacement Project are also located in the same future flood zone. However, these are all projects that would be implemented by the SFPUC and would be subject to the requirements of the City's Sea Level Rise Guidance as well as the sea level rise guidance for SSIP projects (the San Francisco Design Tides and Sea Level Rise Recommendations prepared by the SFPUC).[65] Further, none of these projects would result in substantial increases in impervious surfaces that would restrict infiltration of floodwaters, nor would they create any substantial topographic changes that would redirect flood flows or alter their flow rate. The SEP is already developed, and construction of new structures under the project would not redirect flood flows relative to existing conditions. None of the proposed features of the BDFP or the cumulative projects includes additional stormwater discharges that could contribute to the frequency or severity of flooding. The SFPUC Southeast Outfall Islais Creek Crossing Replacement project, Southeast Community Facility Revitalization, and Quint Street Lead Track area are also located in the future flood zone but would not include the construction of new structures or changes in runoff patterns that could exacerbate flooding. Therefore, cumulative impacts related to future flooding would be ***less than significant***.

Mitigation: None required.

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[65] SFPUC, *San Francisco Design Tides and Sea Level Rise Recommendations*, March 12, 2015.

Impact C-HY-2: The project, in combination with past, present, and probable future projects in the site vicinity, would not result in significant adverse cumulative water quality impacts. (Less than Significant)

Water quality impacts are related to changes in wastewater and stormwater flows to the Bayside Drainage Basin of the City's combined sewer system and changes in the SEP effluent composition. Therefore, the geographic scope of potential cumulative impacts on water quality encompasses the Bayside Drainage Basin of the combined sewer system where the project is located and Lower San Francisco Bay where the SEP effluent is discharged. As discussed above, compliance with applicable regulatory requirements designed to reduce the cumulative effects of development on water quality would ensure that the project would not result in any significant water quality impacts as a result of construction-related discharges (Impact HY-1) and operational stormwater discharges (Impact HY-7). All cumulative development in San Francisco would be subject to the same regulatory framework as described for the project for these impacts, and compliance with existing regulations would serve to ensure that any cumulative impacts on water quality as a result of the cumulative projects in combination with the BDFP would be ***less than significant***.

As discussed in Impact HY-5, operation of the project would not result in changes in effluent composition that would violate applicable water quality standards, violate the effluent limitations of the Bayside NPDES Permit, or otherwise substantially degrade water quality. The only cumulative project included in Table 4.1-1 that would also affect the composition of the SEP effluent water quality is the Eastside Recycled Water Project, which could be constructed beginning in 2026 and operational as of 2029. The Water Quality Analysis conducted for the BDFP (discussed above in Impact HY-5) considered the effects of the Eastside Recycled Water Project on effluent composition.[66] The analysis concluded, as shown on Figures 4.16-7 and 4.16-8, that with the addition of this project, 95th percentile ammonia concentrations in the SEP effluent would increase to 71.8 mg/L and 95th percentile total nitrogen concentrations would increase to 87.8 mg/L. The 95th percentile ammonia concentrations would be below the NPDES permit limitations of an AMEL of 190 mg/L and an MDEL of 290 mg/L and only approximately 2 percent higher than would occur without the project and the Eastside Recycled Water Project. The 95th percentile total nitrogen concentrations would be about 3 percent higher than would occur without the project and the Eastside Recycled Water Project. Therefore, the cumulative impact of these two projects on water quality would be ***less than significant***.

Mitigation: None required.

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[66] RMC Water and Environment, Technical Memorandum: Water Quality Analysis for the SEP Biosolids Digester Facilities Project, March 2016.

4.17 Hazards and Hazardous Materials

This section describes existing conditions in the Biosolids Digester Facilities Project (BDFP or project) vicinity with respect to hazards and hazardous materials, including the hazardous materials currently used at the Southeast Water Pollution Control Plant (Southeast Plant or SEP) for biosolids treatment. It discusses the potential for the BDFP to encounter hazardous materials in soil and/or groundwater in the project vicinity, the potential to encounter naturally occurring asbestos, the potential for hazardous materials proposed for future use under the BDFP to pose a hazard to the public or the environment, potential fire hazards, the potential to interfere with an emergency plan, and potential hazards related to proximity to schools and airports. Mitigation measures are identified to avoid or reduce significant adverse impacts, as appropriate.

4.17.1 Setting

4.17.1.1 Definition of Hazardous Materials

A *hazardous material*, defined in Section 25501(n) of the California Health and Safety Code, is a material that is listed by statute or one that "because of its quantity, concentration, or physical or chemical characteristics poses a significant present or potential hazard to human health and safety or to the environment if released to the workplace or environment." Hazardous materials have been and are commonly used in commercial, agricultural, and industrial applications as well as in residential areas to a limited extent.

A waste is any material that is discarded after primary use, recycled, or inherently waste-like (such as an unused by-product of an industrial process). Title 22 of the California Code of Regulations (CCR), Division 4.5, Chapter 11 (Identification and Listing of Hazardous Waste) contains regulations for the classification of hazardous wastes.[1] A waste is considered a hazardous waste if it is toxic (causes human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), or reactive (causes explosions or generates toxic gases) in accordance with the criteria established in Article 3 of Chapter 11. Articles 4 and 4.1 also list specific hazardous wastes and Article 5 identifies specific waste categories, including wastes considered hazardous under the federal Resource Conservation and Recovery Act (RCRA); wastes that are considered hazardous under state definitions but not under federal definitions (non-RCRA hazardous wastes); extremely hazardous wastes, classified based on their high toxicity levels or reactivity with water; hazardous wastes of concern; and special wastes. If improperly handled and if released to the soil, groundwater, or air (in the form of vapors, fumes, or dust), hazardous materials and wastes can result in public health hazards.

4.17.1.2 Existing Hazardous Materials Uses for Biosolids Processing

Chemicals used for existing biosolids handling processes at the SEP include polymers and ferric chloride (iron chloride). A polymer is a chemical that is used to promote thickening in the

[1] CCR 22 Sections 66261.1, et seq.

treatment process, and polymers are not considered hazardous materials. Common examples of polymers include polystyrene, neoprene, nylon, and silicone. Polymer use in dewatering increases solids content. The existing solids treatment facilities include seven storage tanks of polymer, with a total volume of 10,000 gallons. Ferric chloride, an iron salt, is used to control the buildup of struvite[2] in the digesters, pipes, and other equipment. This chemical is considered hazardous due to its corrosivity, and an irritant in case of skin contact, eye contact, or inhalation; the amount of tissue damage from exposure depends on length of contact. It would be toxic if ingested.[3] Ferric chloride reacts violently with metals, forming a flammable/explosive gas. A total of 16,000 gallons of ferric chloride solution is stored in aboveground tanks at the SEP.[4] In addition, a small quantity of diesel fuel (1,000 gallons) is stored for use in backup generators.

4.17.1.3 Digester Gas Management

Digester gas that is produced as a byproduct of the digestion process is comprised mostly of methane and carbon dioxide. As discussed in Chapter 2, *Project Description*, the 1.3 million cubic feet of digester gas currently produced by the biosolids treatment process is primarily used on-site to produce heat and power through the energy recovery process. Excess digester gas that cannot be used in the energy recovery process is flared. Methane, one of the primary components of digester gas, forms explosive mixtures in air. The lower explosive limit of methane is 5 percent by volume and the upper limit is 15 percent by volume. Methane is only explosive at concentrations greater than the lower explosive limit and less than the upper explosive limit.

4.17.1.4 Hazardous Materials in Soil and Groundwater

Based on the historic use of the SEP as a wastewater treatment plant and the Jerrold Avenue properties as an asphalt plant and vehicle maintenance facility, soil and/or groundwater contamination could exist at the project site. The results of regulatory agency database searches as well as environmental investigations and underground storage tank removals conducted at each site are discussed below to assess existing soil and groundwater contamination.

Regulatory Agency Database Search

On behalf of the San Francisco Planning Department, Environmental Data Resources (EDR) conducted a regulatory database search to identify permitted hazardous materials uses and environmental cases at the project site and in the vicinity.[5] The results of this database search are briefly discussed below, and a discussion of the existing soil and groundwater quality at the SEP, Central Shops, and Asphalt Plant, based on site-specific reports follows this discussion.

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2 Struvite forms when concentrations of soluble magnesium, ammonium, and orthophosphate exceed levels that promote the formation of crystals. Struvite can build up and clog wastewater treatment equipment.

3 National Institute for Occupational Safety and Health (NIOSH), International Chemical Safety Cards, Ferric Chloride (Anhydrous). July 22, 2015. Available online at http://www.cdc.gov/niosh/ipcsneng/neng1499.html. Accessed on October 28, 2015.

4 AEW Engineering, Inc., *Draft Hazardous Materials Business Plan, Southeast Treatment Plant, San Francisco, California,* July 2015.

5 EDR, *Summary Radius Map Report, Biosolids Digester Facilities Project, 1800 and 1801 Jerrold Avenue, San Francisco CA 94124*, August 20, 2015.

The regulatory agency databases identify three addresses for the SEP: 750 Phelps Street and 1700 and 1701 Jerrold Avenue. The SEP was identified in multiple regulatory agency lists as summarized in **Table 4.17-1**. The SEP has historical or current underground storage tanks (USTs) as indicated by inclusion in the Active UST Facilities (UST), Hazardous Substance Storage Container (HIST UST), Facility Inventory (CA FID UST), and Statewide Environmental Evaluation and Planning System (SWEEPS UST) databases. Identification in the Leaking Underground Storage Tank (LUST) and historic Cortese databases indicates that a petroleum release may have affected soil or groundwater conditions at the SEP.

TABLE 4.17-1
REGULATORY AGENCY DATABASE SEARCH FINDINGS FOR PROJECT SITE

Location	Database Listed In
1800 Jerrold Avenue–Central Shops	UST, HIST UST, CA FID UST, SWEEPS UST, LUST, RGA LUST, RCRA-NonGen, RCRA-SQG, HAZNET, EMI
1801 Jerrold Avenue–Asphalt Plant	HIST UST, CA FID UST, SWEEPS UST, HAZNET, EMI
1700 and 1701 Jerrold Avenue–San Francisco Public Utilities Commission (SFPUC) Southeast Water Pollution Control Plant (SEP)	UST, CA FID UST, SWEEPS UST, LUST, HIST CORTESE, RCRA-LQG
750 Phelps Street–SFPUC SEP	HIST UST, LUST, HIST CORTESE, CHMIRS, RCRA-SQG, EMI

NOTES:
CA FID UST = Facility Inventory Database, California Environmental Protection Agency (CalEPA), September 29, 1995.
CHMIRS = California Hazardous Material Incident Reporting System, Office of Emergency Services (OES), August 3, 2015.
EMI = Emissions Inventory Data, California Air Resources Board (CARB), April 28, 2014.
HAZNET = Facility and Manifest Data, CalEPA, November 19, 2014
HIST CORTESE = Hazardous Waste and Substance Site List, California Department of Toxic Substances Control (DTSC), April 8, 2009.
HIST UST = Hazardous Substance Storage Container Database, State Water Resources Control Board (SWRCB), October 15, 1990.
LUST = Leaking Underground Storage Tank Case Listing, California Regional Water Quality Control Board (RWQCB), May 21, 2001.
RCRA_LQG = Resource Conservation and Recovery Act-Large Quantity Generator, US Environmental Protection Agency (US EPA), March 10, 2015
RCRA NonGen = Resource Conservation and Recovery Act-Non Generator, US EPA, March 10, 2015
RCRA-SQG = Resource Conservation and Recovery Act-Small Quantity Generator, US EPA, March 10, 2015
RGA LUST = Recovered Government Archive Leaking Under Ground Storage Tank, SWRCB, no date
SWEEPS UST = Statewide Environmental Evaluation and Planning System Underground Storage Tank Listing, SWRCB, August 11, 2005.
UST = Active UST Facilities, SWRCB, June 15, 2015.

SOURCE: EDR, Summary Radius Map Report, Biosolids Digester Facilities Project, 1800 and 1801 Jerrold Avenue, San Francisco CA 94124, August 20, 2015.

Both the Central Shops and the Asphalt Plant have historical or current USTs as indicated by inclusion in the UST, HIST UST, CA FID UST, and SWEEPS UST databases. The Central Shops was also identified in the LUST and Recovered Government Archive Leaking Under Ground Storage Tank (RGA LUST) databases, indicating that a petroleum release may have affected soil or groundwater conditions at the Central Shops. In addition, there are five LUST sites within one-eighth mile of the SEP and 25 LUST sites within one-quarter mile. The relatively large number of LUST sites in the project vicinity suggests the potential for shallow groundwater contamination from nearby land uses.

The SEP is identified as a large quantity generator of hazardous wastes under the Resource Conservation and Recovery Act (RCRA-LQG). In addition, the Central Shops are identified as small

quantity generators of hazardous waste under RCRA (RCRA SQG), and the Central Shops site is identified in the RCRA Non Generator (RCRA NonGen) database, indicating that it is no longer regulated under RCRA. Both the Central Shops and the Asphalt Plant have manifested hazardous wastes for off-site disposal as indicated by inclusion in the Facility and Manifest Data (HAZNET) database. However, all of these are regulated activities related to management of hazardous wastes. Similarly, inclusion of the SEP, Central Shops, and Asphalt Plant in the Emissions Inventory Data (EMI) database indicates that all three sites have historically reported emissions of toxic and criteria air pollutants to the Bay Area Air Quality Management District (BAAQMD) as part of an emissions inventory. Inclusion of the sites in these databases is not indicative of potential soil or groundwater contamination.

The California Hazardous Material Incident Reporting System (CHMIRS) incident at 750 Phelps Street reported to the California Office of Emergency Services was recorded as a release of sewage in 2014. Further review by the SFPUC indicates that incident refers to a release of secondary treated wastewater (disinfected and dechlorinated) to Islais Creek through the Quint Street Outfall for less than three minutes during resumption of plant operation after shutdown in May 2014. This also is not indicative of potential soil and groundwater contamination.

Environmental Investigations and Underground Tank Removals

The San Francisco Public Utilities Commission (SFPUC) completed an environmental investigation of the project site in 2016. The Environmental Investigation Report provides a summary of previous investigations at the Central Shops and Asphalt Plant along with the results of sampling conducted in 2015 to evaluate soil and groundwater quality within the portion of the project site located on the existing SEP and at the Central Shops.[6] In the discussions below, the results of these environmental investigations are compared to two screening levels established by regulatory agencies responsible for the oversight of environmental site investigations and cleanups in the San Francisco Bay Area. These screening levels are conservative estimates of safe levels of a chemical that a person could be exposed to in soil or groundwater. If the concentration of a chemical in the soil or groundwater is below the screening level, then it can be assumed that the chemical would not pose a health risk to a person. The screening levels evaluated include:

- Environmental Screening Levels (ESLs) established by the Regional Water Quality Control Board – San Francisco Bay Region (RWQCB) for commercial/industrial land uses.[7]
- Screening Levels for Soil recommended by the Department of Toxic Substances Control (DTSC) (DTSC SLs) for commercial/industrial land uses.[8]

In general, the ESL is lower than the DTSC SL. Accordingly, the DTSC SL is only discussed where the concentration of a chemical exceeds the DTSC SL, but not the ESL.

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6 Biosolids Digester Facilities Project (BDFP) Consultant Team, Environmental Site Investigation Report for San Francisco Department of Public Health Article 22A Compliance, May 2016.

7 RWQCB, Environmental Screening Level Summary Tables, Rev. 3, February 2016. Available online at http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/ESL/ESL%20Workbook_ESLs_Interim%20Final_22Feb16_Rev3_PDF.pdf.

8 California Department of Toxic Substances Control, Human and Ecological Risk Office (HERO), *Human Health Risk Assessment (HHRA) Note, HERO HHRA Note Number: 3, DTSC-modified Screening Levels (DTSC-SLs)*, June 2016.

The analytical results of environmental investigations at the project site and staging areas on Port of San Francisco (Port) property are also compared to federal and California hazardous waste classification criteria to evaluate disposal options for the soil. These criteria include the state Total Toxicity Limit Concentration (TTLC) and Soluble Toxicity Limit Concentration (STLC) and the federal Toxicity Characteristic Leaching Procedure (TCLP) regulatory limit. All of these criteria are described in Section 4.17.2.2, State Regulations, below.

Groundwater results are also compared to the discharge limitations provided in Article 4.1 of the San Francisco Public Works Code to evaluate whether the groundwater would be suitable for discharge to the combined sewer system. (Refer to Section 4.16, Hydrology and Water Quality, of this EIR for a description of this regulation.)

1800 Jerrold Avenue Property (Central Shops)

Vehicle repair and maintenance activities at the Central Shops property have included the storage and use of fuels, lubricants, and solvents since the 1950s. As summarized in the Environmental Investigation Report, these six USTs have been removed from the Central Shops:

- March 1994 – One 1,000-gallon waste oil tank was removed from the site.
- June 1999 – Three 6,000-gallon gasoline USTs associated with the UST complex were removed and soil samples collected from the UST excavation. The San Francisco Department of Public Health (SFDPH) issued case closure for the waste oil tank and three gasoline USTs following abandonment of the monitoring wells in 2012.
- February 2012 – Two 10,000-gallon gasoline USTs were removed.

Based on the chemical analyses performed during a 2013 environmental investigation of this site and in 2015 as part of the environmental investigation, total petroleum hydrocarbons as gasoline (TPH-gasoline), total petroleum hydrocarbons as diesel (TPH-diesel), total petroleum hydrocarbons as motor oil (TPH-motor oil), benzene, antimony, arsenic, cadmium, cobalt, copper, lead, nickel, naphthalene and benzo(a)pyrene (a semi-volatile organic compound) were reported in at least one soil sample at a concentration above the respective commercial ESL or DTSC SL. Methyl tert-butyl ether (MTBE), a gasoline additive that is known to cause cancer, was not detected in any of the soil samples. The environmental investigation report indicates that all but two of the arsenic concentrations are within background levels for Bay Area soils, and therefore do not necessarily result from site activities, rather the presence is likely due to naturally occurring arsenic in the soil.

Based on the soil analytical results, the total or soluble metal concentrations for copper, lead, and zinc exceed the respective California and federal hazardous waste criteria. Several soluble concentrations of lead exceed the federal TCLP regulatory limit. However, statistical analysis of the analytical results in accordance with United States Environmental Protection Agency (USEPA) protocol indicates that these results are outliers and are not considered representative of the entire volume of soil that would be excavated. Classification of the soil as a California hazardous waste or federal hazardous waste would be determined based on a waste profile application prepared by the SFPUC, which would be used to select the appropriate disposal site for the soil.

The concentrations of several compounds detected in groundwater exceeded their respective SFPUC batch wastewater discharge requirements specified in Article 4.1 of the San Francisco Public Works Code. These include TPH-gasoline, TPH-diesel, TPH-motor oil, and five metals (chromium, copper, lead, nickel, and zinc).

1801 Jerrold Avenue Property (Asphalt Plant)

San Francisco Public Works (SFPW) operated an asphalt plant at 1801 Jerrold Avenue that was built in 1954[9] and decommissioned in 2009.[10] According to SFDPH files, the asphalt plant used four underground concrete tanks: one 6,000-gallon and one 10,000-gallon asphalt emulsion tank, and two 10,000-gallon liquid asphalt tanks.[11] The 6,000-gallon tank may also have been used for storage of diesel fuel in the past.[12] There are no records of tank removal; therefore, these USTs are believed to remain in the ground.

Based on soil sampling in 2013 and 2014, the concentrations of several compounds in the soil exceed the respective commercial ESLs, including TPH-diesel, TPH-motor oil, several semi-volatile organic compounds (SVOCs), arsenic, copper, lead, and nickel. As with the Central Shops site, the environmental investigation report indicates that all of the arsenic concentrations are within background levels for Bay Area soils, and would therefore not necessarily result from site activities.

Based on total and soluble lead concentrations, some of the soil would be considered a California hazardous waste. TPH-diesel, TPH-motor oil, lead, nickel, and zinc concentrations would exceed their respective SFPUC batch wastewater discharge requirements.[13]

Southeast Water Pollution Control Plant

As described in Chapter 2, *Project Description*, the project site includes two areas located within the north side of the existing SEP property at 750 Phelps Street and 1700 Jerrold Avenue. Soil and groundwater within these areas are described below.

The portion of the project site referred to as the SEP Boneyard in the environmental investigation report is currently used for storage of miscellaneous equipment and compressed gases.[14] Based on the soil investigation conducted in 2015, the concentrations of several compounds in the soil—including TPH-diesel, TPH-motor oil, naphthalene, polychlorinated biphenyls (PCBs), arsenic, cadmium, cobalt, copper, lead, mercury, and nickel—exceed their respective commercial ESL or

[9] San Francisco Public Works, The City and County of San Francisco Municipal Asphalt Plant Study, October 2006.
[10] BDFP Consulting Team, Environmental Site Investigation Report for San Francisco Department of Public Health Article 22A Compliance, May 2016.
[11] San Francisco Public Works, *Memorandum regarding Underground Storage Tanks at the Municipal Asphalt Plant*, June 10, 1991.
[12] Clayton Environmental Consultants, Inc., *Monitoring Plan for the Underground Diesel Tank at 1801 Jerrold Avenue, San Francisco, California*, January 12, 1990.
[13] BDFP Consulting Team, Environmental Site Investigation Report for San Francisco Department of Public Health Article 22A Compliance, May 2016.
[14] BDFP Consulting Team, Environmental Site Investigation Report for San Francisco Department of Public Health Article 22A Compliance, May 2016.

DTSC SL. MTBE was not detected in any of the soil samples. As with the Central Shops site, the environmental investigation report indicates that all of the average arsenic concentration is within background levels for Bay Area soils, and the presence is likely due to naturally occurring arsenic.

Based on total or soluble copper, lead, and zinc concentrations, some of the soil would be considered a California hazardous waste. TPH-motor oil, cadmium, copper, lead, nickel, and zinc concentrations also exceeded their respective SFPUC batch wastewater discharge requirements.[15]

The portion of the project site referred to as the SEP Maintenance Area in the environmental investigation report is currently used for various facility maintenance shops and chemical storage.[16]

Based on the soil investigation conducted in 2015, the concentrations of several compounds in the soil—including TPH-diesel, TPH-motor oil, benzo(a)pyrene, arsenic, lead, and nickel—exceed the respective ESLs. MTBE was not detected in any of the soil samples. As with the Central Shops site, the environmental investigation report indicates that all of the average arsenic concentration is within background levels for Bay Area soils, and the presence is likely due to naturally occurring arsenic. Based on soluble lead, some of the soil would be considered a California hazardous waste. In the groundwater, copper, lead, mercury, nickel, and zinc concentrations exceeded their respective SFPUC batch wastewater discharge requirements.[17]

Pier 94 Backlands and Pier 94

The 27-acre Pier 94 Backlands area was created during the 1960s and 1970s through filling of the area with dredge spoils and construction debris. Unauthorized municipal refuse was also used as fill material in a 14-acre area that partially underlies the Pier 94 Backlands and Pier 94. This area is referred to as the Pier 94 landfill. Regional water quality control boards regulate discharges of waste that could affect the quality of waters of the state, including discharges of solid waste to land, through the issuance of waste discharge requirements. Since 1987, the Pier 94 landfill has been regulated as a non-hazardous solid waste disposal site under Waste Discharge Requirements (WDRs) issued by the RWQCB.[18] **Figure 4.17-1** shows the extent of the regulated landfill. Within the regulated landfill, the fill material is covered by a soil cap. A geotechnical investigation conducted in 2012 concluded that for the most part, the existing cover meets or exceeds the cover requirements specified in Title 27 of the California Code of Regulations because the annual percolation through the existing cover would be less than would occur through a cover designed as specified in the regulations, except at three locations.[19]

[15] BDFP Consulting Team, Environmental Site Investigation Report for San Francisco Department of Public Health Article 22A Compliance, May 2016.
[16] BDFP Consulting Team, Environmental Site Investigation Report for San Francisco Department of Public Health Article 22A Compliance, May 2016.
[17] BDFP Consulting Team, Environmental Site Investigation Report for San Francisco Department of Public Health Article 22A Compliance, May 2016.
[18] California Regional Water Quality Control Board, San Francisco Bay Region, Updated Waste Discharge Requirements and Rescission of Order N. 87-061 for: City and County of San Francisco, San Francisco Port Commission, Pier 94 Class III Landfill, San Francisco, San Francisco County, Order No. R2-2003-0055.
[19] T&R/RYCG, *Geotechnical Investigation, Pier 94 Backland Improvements, San Francisco, California*, July 5, 2012.

SOURCE: T&R/RYCC, Site Investigation Report, Pier 94 Backland Improvements and Amador Street Sanitary Pump Station, San Francisco, California, June 15, 2012, adapted by ESA+Orion

SFPUC Biosolids Digester Facilities

Figure 4.17-1

Area of Regulated Landfill at Pier 94 and Pier 94 Backlands

Order No. R2-2003-0055 implements the waste discharge requirements for the landfill. In accordance with this order, groundwater beneath the landfill and surrounding bay waters has been sampled on a quarterly to semi-annual basis since 1989. Historic sampling indicates that landfill materials have not affected groundwater or surface water quality. No volatile organic compounds (VOCs) or SVOCs have been detected in groundwater or surface water, and metals concentrations are below water quality criteria. TPH-diesel has been detected at concentrations of up 6.4 milligrams per liter (mg/L) in groundwater samples from an area near an aboveground fuel tank formerly located at the aggregate processing facility. The WDRs required additional evaluation and monitoring of TPH-diesel in the groundwater.

Landfill investigations conducted in 1989 and 1990 identified several VOCs in subsurface soil gas samples from within the regulated area.[20] None of the concentrations exceed the ESL and methane was not detected in any of the soil gas samples. However, the geotechnical report for previously proposed improvements in the Pier 94 Backlands recommends that a soil gas investigation be conducted if enclosed structures or structures for human occupancy are proposed within the landfill.

The WDRs prohibit any excavation or reconfiguration within the regulated landfill without prior RWQCB approval. Under the WDRs, RWQCB would require (1) submittal of a technical report describing any proposed changes to site development that may affect the water quality, (2) maintenance of the integrity of the landfill cap, and (3) verification that water quality impacts are not occurring.[21]

On the basis of the analytical results for one soil sample collected from within the regulated landfill and an additional six samples from around the perimeter of the Pier 94 Backlands in 2012, only the concentrations of arsenic and lead in the soil exceed ESLs for commercial/industrial land uses.[22] However, as for soil samples from the project site, the arsenic concentration is within background levels for Bay Area soils, and the presence is likely due to naturally occurring arsenic. No other constituents were detected at concentrations greater than ESLs. In addition, some portions of the soil would be classified as a California hazardous waste based on total or soluble lead concentrations. Field screening during this investigation did not detect organic vapors.

1550 Evans Avenue

Based on a Phase I Environmental Site Assessment conducted in 2007[23] and a Phase II Environmental Site Assessment conducted in 2012,[24] the property at 1550 Evans Avenue was historically used for meat packing and tannery operations. The buildings associated with these uses were removed in the early 1970s. The two buildings currently present at the site were built in 1978;

[20] T&R/RYCG, *Geotechnical Investigation, Pier 94 Backland Improvements, San Francisco, California*, July 5, 2012.
[21] RWQCB, *Pier 94 Landfill Order No. R2-2003-0055. Updated waste Discharge Requirements and Rescission of Order No. 87-061 for: City and County of San Francisco, San Francisco Port Commission, Pier 94 Class III Landfill, San Francisco County*, June 18, 2003.
[22] T&R/RYCG, *Site Investigation Report, Pier 94 Backland Improvements and Amador Street Sanitary Pump Station, San Francisco, California*, June 15, 2012.
[23] Fugro West, Inc., *Phase I Environmental Site Assessment, 1550 Evans Avenue and 330 Newhall Street, San Francisco, California*. January 2007.
[24] AEW Engineering, Inc., *Phase II Environmental Site Assessment Report, 1550 Evans Avenue and 330 Newhall Street*. August 2012.

one was used as an office building and the other was used as a warehouse. Hazardous building materials surveys for the buildings identified asbestos-containing materials in both buildings and lead in the ceramic tile of one building. Soil sampling conducted as part of the Phase II Environmental Assessment indicates that a small portion of the soil beneath the site would be classified as a California hazardous waste based on soluble lead concentrations, but the remainder of the soil would be non-hazardous waste. None of the constituents analyzed exceeded background levels or ESLs current at the time of the investigation.

Naturally Occurring Asbestos

In 1986, the California Air Resources Board (CARB) identified naturally occurring asbestos, which is present in many parts of California, as a toxic air contaminant (TAC). Naturally occurring asbestos is commonly associated with serpentine[25] and ultramafic[26] rock types such as serpentinite of the Franciscan Complex. Serpentinite rock is apple green, brown, reddish brown, and gray to black and has a waxy or shiny appearance. The usual appearance of serpentine is fine grain and compact, but it can be flaky or fibrous. Chrysotile asbestos (a form of asbestos from the serpentine mineral group) and amphibole asbestos (including crocidolite) are naturally occurring asbestos minerals that may present a human health hazard if they become airborne and are inhaled.

The environmental investigations for each portion of the project site on the SEP, Central Shops, and Asphalt Plant included selected analysis of the fill materials for naturally occurring asbestos.[27] The samples were analyzed by CARB Method 435 for the determination of asbestos content of serpentine aggregate, which has a detection limit of 0.25 percent asbestos. None of the soil samples analyzed contained asbestos at concentrations greater than 0.25 percent.[28] Naturally occurring asbestos was not identified in the near-surface soil samples from within the Pier 94 Backlands collected during a 2012 site investigation.[29]

4.17.1.5 Hazardous Building Materials

Hazardous materials, such as asbestos, lead, and PCBs, may also be contained in building materials and released during demolition activities. The likelihood of hazardous materials in building components can be generally assessed based on the age of the buildings, as these materials were phased out of use during the 1970s and 1980s. As shown in Table 2-12 in Chapter 2, *Project Description*, the project would demolish three Central Shops buildings constructed in 1959; Building 870 at the SEP constructed in 1952; belowground structures at the

[25] Serpentine is a naturally occurring group of minerals that can be formed when ultramafic rocks are metamorphosed during uplift to the earth's surface. Serpentinite is a rock consisting of one or more serpentine minerals. This rock type is commonly associated with ultramafic rock along earthquake faults. Small amounts of chrysotile asbestos, a fibrous form of serpentine minerals, are common in serpentinite.

[26] Ultramafic rocks are one type of igneous rock (formed at high temperatures well below the surface of the earth) that is rich in iron and magnesium.

[27] BDFP Consulting Team, Environmental Site Investigation Report for San Francisco Department of Public Health Article 22A Compliance, May 2016.

[28] BDFP Consulting Team, Environmental Site Investigation Report for San Francisco Department of Public Health Article 22A Compliance, May 2016.

[29] T&R/RYCG, *Site Investigation Report, Pier 94 Backland Improvements and Amador Street Sanitary Pump Station, San Francisco, California*, June 15, 2012.

former Asphalt Plant site constructed in 1954; and two structures located at 1550 Evans Avenue constructed in 1978. In addition, water pump stations and an electrical substation constructed in the early 1980s would be removed. Because of the age of these structures, the hazardous building materials described below are likely to be present.

Asbestos

Asbestos is a naturally occurring fibrous material that was used as a fireproofing and insulating agent in building construction materials before such uses were banned by the USEPA in the 1970s, although some use of non-friable[30] asbestos in roofing materials still exists. Asbestos can be found in such materials as ducting insulation, wallboard, shingles, ceiling tiles, floor tiles, insulation, plaster, floor backing, and many other building materials. Asbestos and asbestos-containing materials are considered both a hazardous air pollutant and a human health hazard. The risk to human health is from inhalation of airborne asbestos, which commonly occurs when asbestos-containing materials are disturbed during demolition and renovation activities.

Lead

Lead and lead compounds have been historically added to paint as pigment and to speed drying, increase durability, retain a fresh appearance, and resist moisture (which causes corrosion). The CCR defines lead-based paint as paint that contains 1.0 milligram of lead per square centimeter of paint, or 5,000 milligrams per kilogram (mg/kg) of lead.[31] In 1978, the United States Consumer Product Safety Commission set the allowable lead levels in paint used for residential purposes and public buildings at 0.06 percent by weight in a dry film of newly applied paint. The Consumer Products Safety Improvement Act of 2008 changed the limit to 0.009 percent lead. However, lead-based paint may still be used in some applications today, such as coatings used to refinish industrial or agricultural equipment; building and equipment maintenance coatings; products marketed solely for use on billboards, road signs, and similar products; touch-up coatings for agricultural equipment, lawn and garden equipment, and appliances; and catalyzed coatings marketed solely for use on radio-controlled model powered airplanes.[32]

Lead is toxic to humans and can cause a range of human health effects depending on the level of exposure. Lead dust is of special concern, because the smaller particles are more easily absorbed by the body. Common methods of paint removal, such as sanding, scraping, and burning as well as torch cutting of equipment can create excessive amounts of dust.

Lead-based paints are likely present in the buildings and structures that would be demolished.

[30] Non-friable asbestos refers to asbestos-containing materials that include asbestos fibers in a solid matrix that does not allow for them to become crumbled or reduced to powder or be easily released.
[31] CCR 17 §35033.
[32] United States Consumer Product Safety Commission, Office of Compliance, Ban of Lead-Containing Paint and Certain Consumer Products Bearing Lead-Containing Paint, 16 CFR 1303, November 2011.

Polychlorinated Biphenyls (PCBs)

PCBs are oils that were formerly placed in many types of electrical equipment, such as transformers and capacitors, primarily as electrical insulators. They may also be found in hydraulic fluid used for hoists, elevators, and other features. Years after widespread and commonplace installation, it was discovered that exposure to PCBs may cause various health effects and that PCBs are highly persistent in the environment. The USEPA has listed these substances as carcinogens. Under the Toxic Substances Control Act, the USEPA began to impose bans on PCB manufacturing and sales and on most PCB uses in 1978, but some electrical transformers in use today use oils that contain PCBs. The Toxic Substances Control Act requires incineration or an alternative destruction method for oils containing PCB concentrations greater than 50 parts per million, and requires that free liquids be drained from electrical equipment prior to disposal and that the liquids be appropriately disposed of. In California, PCB wastes are regulated as hazardous waste if the PCB concentration exceeds 50 parts per million or the soluble concentration exceeds 5 parts per million as oily liquid.

Most fluorescent light ballasts manufactured before 1978 contain PCBs. Ballasts manufactured after January 1, 1978, do not contain PCBs and should be labeled as such on the ballast. Approved disposal methods for PCB-containing ballasts depend on the condition of the ballast and the PCB content. If the PCB concentration is less than 50 parts per million and the ballast contains a small, intact, non-leaking capacitor, the ballast may be disposed of at a municipal landfill. In general, all leaking ballasts and ballasts containing PCB concentrations greater than or equal to 50 parts per million must be incinerated or destroyed by alternative methods, disposed of in a hazardous waste landfill, or decontaminated using approved methods.

Di (2-ethylhexyl) Phthalate (DEHP)

Between 1979 and the early 1990s, DEHP was used in place of PCBs as a dielectric fluid in some fluorescent light ballasts and other electrical equipment.[33] DEHP is classified as a probable human carcinogen by the United States Department of Health and Human Services and as a hazardous substance by the USEPA. Because of this, ballasts containing DEHP must be legally disposed of; ballast incineration or a combination of ballast recycling and incineration are recommended for complete destruction of DEHP.

Mercury

Spent fluorescent lamps and tubes commonly contain mercury vapors and are considered a hazardous waste in California.[34] Regulations adopted in 2004 classified all fluorescent lamps and tubes in California as a hazardous waste because they contain mercury. Because they are considered a hazardous waste, all fluorescent lamps and tubes must be recycled or taken to a universal waste handler.

[33] Green Lights Recycling, Inc., "Ballasts Facts." Available online at www.greenlightsrecycling.com/ballast%20Facts.htm. Accessed on August 29, 2016.
[34] CCR 22 Section 66261.50.

4.17.1.6 Wildfire Hazards

Based upon fire hazard mapping by the California Department of Forestry and Fire Protection (CAL FIRE) Forest Resource Assessment Program,[35] the SEP and staging areas are not located within identified high fire hazard areas.

4.17.1.7 Schools and Day Care Facilities

There is one day care facility within one-quarter mile of the site. The Wu Yee South East Child Development Center, a children's daycare, is located at the Southeast Community Facility at 1300 Phelps Street and next to the Southeast Greenhouses.[36]

4.17.1.8 Emergency Response Plans

The City and County of San Francisco (CCSF or City) Emergency Response Plan addresses the roles and responsibilities of CCSF during all-hazards emergency response, in particular its interaction with regional, state, and federal entities and the role of the San Francisco Emergency Operations Center and City agencies.[37] The Transportation Annex of the Emergency Response Plan describes the procedures for assessment, identification of temporary alternative solutions, and restoration of damage to transportation systems, facilities and infrastructure due to an emergency incident. To provide flexibility for incident response to select appropriate routing, the plan does not specify designated emergency response or evacuation routes. The Earthquake Annex of the Emergency Response Plan provides an overview of considerations for CCSF response to a major earthquake in the San Francisco Bay Area. The primary purpose of this part of the plan is to support effective management of the initial earthquake response.

The SFPUC Wastewater Enterprise Emergency Operations Plan outlines the Wastewater Enterprise's overall emergency preparedness measures, emergency management organization, emergency operations, roles and responsibilities. Contingency plans supplement the Emergency Operations Plan and are incorporated by reference, including the Operations and Maintenance Manual that outlines detailed procedures for the operation of equipment or facilities during or in response to an emergency.[38]

The SEP Contingency Plan was developed to ensure that wastewater facilities remain in, or are rapidly returned to operation, in the event of an emergency. The plan includes emergency response operating procedures for power failures, equipment failures, treatment plant security, spills and discharges of chemicals or sewage.[39]

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35 CAL FIRE, *Draft Fire Hazard Severity Zones in Local Responsibility Area, San Francisco County*, October 5, 2007.
36 Wu Yee Children's Services, Center Based Care, 2016. Available online at http://www.wuyee.org/center-based-care. Accessed January 13, 2017.
37 CCSF Emergency Management Program, *City and County of San Francisco Emergency Response Plan,* 2010.
38 Metcalf&Eddy/AECOM, *SFPUC Wastewater Enterprise Emergency Operations Plan*, May 2008.
39 SFPUC, Program Management Consultant, *Contingency Plan, Southeast Water Pollution Control Plant as required by NPDES Permit No. CA0037664, Regional Water Board Resolution 74-10*, August 2013.

4.17.2 Regulatory Framework

4.17.2.1 Federal Regulations

In California, federal regulations pertaining to the use and management of hazardous materials and wastes are largely enforced through state and local regulations. Relevant state and local regulations are discussed below.

4.17.2.2 State Regulations

Asbestos-Containing Materials

Section 19827.5 of the California Health and Safety Code, adopted in January 1991, requires that local agencies not issue demolition or alteration permits until an applicant has demonstrated compliance with notification requirements under applicable federal regulations (Part 61 of Title 40 of the Code of Federal Regulations) regarding hazardous air pollutants in the Bay Area, including asbestos. The BAAQMD is vested by the California legislature with authority to regulate airborne pollutants, including asbestos, through both inspection and law enforcement, and implements the California regulatory requirements through Regulation 11, Rule 2 (Asbestos Demolition, Renovation, and Manufacturing).

In accordance with Regulation 11, Rule 2, the BAAQMD must be notified 10 days in advance of any proposed demolition or abatement work that would involve removal of asbestos-containing materials. Notification includes the names and addresses of operations and persons responsible; description and location of the structure to be demolished/altered including size, age, and prior use, and the approximate amount of friable asbestos; scheduled starting and completion dates of demolition or abatement; nature of planned work and methods to be employed; procedures to be employed to meet BAAQMD requirements; and the name and location of the waste disposal site to be used. The BAAQMD randomly inspects asbestos removal operations. In addition, the BAAQMD will inspect any removal operation that is the subject of a complaint.

Rule 11, Regulation 2 requires a survey of any building planned for demolition to identify asbestos-containing materials that may be present. If asbestos-containing materials are identified, they must be removed prior to demolition or alteration activities. During renovation, regulated asbestos-containing materials must also be removed prior to any operations that would cover the asbestos materials, making them inaccessible. During removal activities, the contractor must implement controls to ensure that there are no visible asbestos emissions to the outside air. The contractor can use methods such as wetting exposed asbestos-containing materials or providing exhaust controls to prevent asbestos emissions to the outside air. The structure being abated must also be isolated by containment barriers during removal operations, and a negative air pressure must be maintained within the containment barrier. The BAAQMD periodically inspects asbestos removal operations and will typically inspect removal operations when a complaint has been received.

Contractors who conduct asbestos-related work activities (including abatement) in buildings and structures must follow state regulations where the work would involve 100 square feet or more of asbestos-containing material.[40] Specifically, under CCR Title 8 Section 341.6, the California Occupational Safety and Health Administration (Cal/OSHA) must be notified of asbestos-related work activities to be carried out. Contractors must be licensed as an Asbestos Qualified Contractor by the Contractors Licensing Board of the State of California and registered as such with Cal/OSHA. Section 1529 regulates asbestos exposure in construction work. In addition, a one-time report of the use of carcinogens must be made to Cal/OSHA under CCR Title 8 Chapter 4 Section 5203. The owner of the property where abatement is to occur must have a Hazardous Waste Generator Number assigned by and registered with DTSC. The contractor and hauler of the material are required to file a Hazardous Waste Manifest that details the hauling of the material from the site and its disposal.

Naturally Occurring Asbestos

In 2001, the CARB adopted the Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations in areas of serpentine and other ultramafic rocks, which became effective in July 2002.[41] The ATCM protects public health and the environment by requiring the use of best available dust mitigation measures to prevent the off-site migration of asbestos-containing dust from road construction and maintenance activities, construction and grading operations, and quarrying and surface mining operations in areas of ultramafic rock, serpentine, or asbestos. The BAAQMD implements the Asbestos ATCM. In accordance with the Asbestos ATCM, asbestos-containing material is defined as any material that has an asbestos content of 0.25 percent or greater (California Code of Regulations Title 17, Division 3, Chapter 1, Subchapter 7.5, Section 93105[i][9]). The Asbestos ATCM does not apply to the project because no soil containing greater than 0.25 percent asbestos would be excavated or otherwise disturbed during construction at the project site or during grading to prepare the staging areas on Port property at Piers 94 and 96 and the Pier 94 Backlands.[42]

Lead in Construction Standard

Cal/OSHA's Lead in Construction Standard[43] requires project proponents to develop and implement a lead compliance plan when lead-based paint would be disturbed during construction. The plan must describe activities that could emit lead, methods for complying with the standard, safe work practices, and a plan to protect workers from exposure to lead during construction activities. Cal/OSHA requires 24-hour notification if more than 100 square feet of lead-based paint would be disturbed.

40 CCR 8 Sections 1529 and 341.6-341.14.
41 CCR 17 Section 93105.
42 Biosolids Digester Facilities Project (BDFP) Consultant Team, Environmental Site Investigation Report for San Francisco Department of Public Health Article 22A Compliance, May 2016.
43 CCR 8 Section 1532.1

Screening Levels for Hazardous Materials in Soil or Groundwater

The RWQCB ESLs and DTSC SLs provide conservative screening levels for over 100 chemicals commonly found at sites with contaminated soil or groundwater. These screening levels are intended to help expedite the identification and evaluation of potential environmental concerns at contaminated sites for various site uses (e.g., commercial/industrial uses, residential uses, and construction workers). ESLs and DTSC SLs are not regulatory action levels or cleanup standards.

ESLs and DTSC SLs have been established for both residential and commercial/industrial land uses. Residential screening levels are the most restrictive; soil with chemical concentrations below these levels generally would not require remediation and would be suitable for unrestricted uses if disposed of off-site. Commercial/industrial screening levels are generally higher than residential screening levels because they are based on potential worker exposure to hazardous materials in the soil (and these are generally less than residential exposures).

Hazardous Waste Classification

California and Federal Hazardous Waste Criteria

In accordance with Title 22 of CCR Section 66261.20 et seq., excavated soil is classified as a hazardous waste if it exhibits the characteristics of ignitability, corrosivity, reactivity, and/or toxicity. A waste is considered toxic in accordance with CCR 22 Section 66261.24 if it contains:

- Total concentrations of certain substances at concentrations greater than the total threshold limit concentrations (TTLCs);
- Soluble concentrations greater than the soluble threshold limit concentrations (STLCs);
- Soluble concentrations of certain substances greater than federal toxicity regulatory levels using the Toxic Characteristic Leaching Procedure (TCLP); or
- Specified carcinogenic substances at a single or combined concentration of 0.001 percent.

State and federal regulations consider waste to be hazardous if the soluble concentration exceeds the federal regulatory level as determined by the TCLP. Because the TCLP involves a 20-to-1 dilution of the sample, the total concentration of a substance in the soil would need to exceed 20 times the regulatory level for the soluble concentration to exceed the regulatory level in the extract. A waste is also considered hazardous under state regulations if the soluble contaminant concentration exceeds the STLC as determined by the waste extraction test method. Because the waste extraction test analysis is performed using a 10-to-1 dilution of the sample, the total concentration of a substance would need to exceed 10 times the STLC for the soluble concentration to possibly exceed the STLC in the extract. A waste may also be classified as toxic if testing indicates toxicity greater than the specified criteria. Soil that is not classified as a hazardous waste can be accepted at a Class II or Class III designated landfill, depending on the waste acceptance criteria for the specific landfill. This soil may also be reused on-site or sent to a recycling facility for reuse at another site if it is non-hazardous and meets specific criteria. Typically, the concentrations of all chemicals should be less than RWQCB Residential ESLs for unrestricted on-site reuse or off-site recycling. On-site reuse is subject to approval by the SFDPH.

Asbestos-Containing Materials

Asbestos wastes transported off-site are considered a hazardous waste in accordance with the California Code of Regulations, Title 22, Division 4.5, Chapter 11, Article 3, Section 66261.24 if the asbestos is friable and the asbestos content is 1 percent or greater.

Lead-Based Paint

Demolition debris that is painted with intact lead-based paint may or may not be considered hazardous waste. In order for the entire item to be hazardous, the lead concentration in the paint and the painted item (i.e., door, beam, etc.) must exceed a TTLC of 1000 mg/kg of lead, STLC of 5 mg/L, or TCLP of 5 mg/L in accordance with the California Code of Regulations, Title 22, Division 4.5, Chapter 11, Section 66261.24. In most cases, the lead concentration from the intact paint alone will not exceed hazardous lead levels for both the item and the intact paint; therefore, most materials with intact lead-based paint can be disposed of through normal practices at a regularly licensed waste facility. If the paint has been separated from the building material (e.g., chemically or physically removed), then the paint waste should be evaluated independently from the building material to determine if it is hazardous and to identify the proper management practice.

Polychlorinated Biphenyls (PCBs)

In California, PCB wastes are regulated as hazardous waste under the California Code of Regulations, Title 22, Division 4.5, Chapter 11, Section 66261.24 if the PCB concentration exceeds TTLC of 50 mg/kg or the soluble concentration exceeds the STLC of 5 parts mg/L.

California Universal Waste Regulations

Universal wastes are hazardous wastes that are widely produced by households and many different types of businesses. Televisions, computers and other electronic devices as well as batteries, fluorescent lamps, mercury thermostats and other mercury-containing equipment, and other items are classified as universal wastes. California's Universal Waste Rule, included the California Code of Regulations, Title 22, Division 4.5, Chapter 11, Section 66261.9, allows individuals and businesses to transport, handle, and recycle these wastes in a manner that differs from the requirements for most hazardous wastes. The universal waste regulations contain specific requirements for universal waste handlers and transporters, as well as the destination facilities. These requirements for managing universal wastes are more relaxed than other hazardous materials management regulations and were adopted to ensure that the universal wastes are managed safely and are not disposed of in the trash.

California Fire Code

The California Fire Code, Article 80, includes specific requirements for the safe storage and handling of hazardous materials. These requirements reduce the potential for a release of hazardous materials and for mixing of incompatible chemicals, and specify the following specific design features to reduce the potential for a release of hazardous materials that could affect public health or the environment:

- Separation of incompatible materials with a non-combustible partition, or appropriate distance separation.
- Spill control in all storage, handling, and dispensing areas.
- Separate secondary containment for each chemical storage system. The secondary containment must hold the entire contents of the tank, plus the volume of water needed to supply the fire suppression system for a period of 20 minutes in the event of a catastrophic spill.

The California Fire Code, Article 79, includes specific requirements for the safe storage and handling of flammable and combustible liquids. Specific requirements address fire protection; prevention and assessment of unauthorized discharges; labeling and signage; protection from sources of ignition; specifications for piping, valving, and fittings; maintenance of aboveground tanks; requirements for storage vessels, vaults, and overfill protection; and requirements for dispensing, using, mixing, and handling of flammable and combustible liquids.

The California Fire Code, Chapter 33, specifies safety requirements to prevent fires during construction and demolition. This chapter specifies precautions that must be taken to protect against fire and procedures for management of flammable and combustible liquids as well as flammable gasses during construction. Requirements for providing a water supply for fire protection, portable fire extinguishers, and a means of egress are also addressed.

Transportation of Hazardous Materials and Wastes

The transport of hazardous materials is regulated by the California Highway Patrol under the California Vehicle Code. Specific requirements related to hazardous materials are specified in the California Code of Regulations, Title 13, Division 2, Chapter 6. These regulations specify container types, packaging requirements, and placarding requirements as well as requirements for licensing and training for truck operators and chemical handlers.

Regulatory requirements for the transport of hazardous wastes in California are specified in CCR 22 Division 4.5 Chapters 13 and 29. In accordance with these regulations, all hazardous waste transporters must have identification numbers, which are used to identify the hazardous waste handler and to track the waste from its point of origin to its final disposal disposition. This number, issued by either the USEPA or DTSC, depends on whether the waste is classified as hazardous by federal regulations or only under California regulations. Hazardous waste transporters must also comply with the California Vehicle Code, California Highway Patrol regulations (CCR Title 13). A hazardous waste manifest is required for transport of hazardous wastes. The hazardous waste manifest documents the legal transport and disposal of the waste, and is signed by the generator and transporter(s) of the waste as well as the disposal facility. California regulations specify specific cleanup actions that must be taken by a hazardous waste transporter in the event of a discharge or spill, and for the safe packaging and transport of hazardous wastes.

4.17.2.3 Local Regulations

Articles 21, 22, and 22A of the San Francisco Health Code, administered by the SFDPH, implement state and federal hazardous material and hazardous waste regulations and impose specific local requirements. These articles address the handling of hazardous materials, hazardous wastes, and facility closure as well as requirements for investigation of sites that may contain hazardous materials in the soil or groundwater. Article 22B of the San Francisco Health Code addresses dust control during construction activities. These regulatory requirements are discussed below.

San Francisco General Plan

The Community Safety Element of the *San Francisco General Plan* includes Objective 1, which requires the City to "reduce structural and non-structural hazards to life safety and minimize property damage resulting from future disasters." The Community Safety Element contains the following relevant hazardous materials policies in support of this objective:

> ***Policy 1.23*:** Enforce state and local codes that regulate the use, storage, and transportation of hazardous materials in order to prevent, contain, and effectively respond to accidental releases.
>
> ***Policy 1.24*:** Educate public about hazardous materials procedures including transport, storage, and disposal.

The Community Safety Element of the *San Francisco General Plan* also includes Objective 3, which requires the City to "establish strategies to address the immediate effects of a disaster." The Community Safety Element contains the following relevant emergency response and hazardous materials policies in support of this objective:

> ***Policy 3.1*:** After an emergency, follow the mandates of the Emergency Response Plan and Citywide Earthquake Response Plan.
>
> ***Policy 3.12*:** Address hazardous material and other spills by requiring appropriate cleanup by property owners per local, state, and federal environmental laws.

San Francisco Health Code Article 21 – Hazardous Materials

Article 21 of the San Francisco Health Code provides for safe handling of hazardous materials in the city. It requires any person or business that handles, sells, stores, or otherwise uses specified quantities of hazardous materials to keep a current certificate of registration and to implement a Hazardous Materials Business Plan (HMBP). A special permit is required for USTs. To close a facility (including USTs), a closure plan must be prepared that identifies how the need for future maintenance of the facility will be eliminated, how the threat to the environmental and public health and safety will be eliminated, and how all hazardous materials in the facility will be removed and appropriately disposed of. This article also requires that soil from the UST excavation, and possibly the groundwater, be sampled. Upon completion of closure, a final report documenting UST removal activities and any residual contamination left in place must be submitted to the City. Upon approval of this report, the City would issue a Certificate of

Completion. If a release were indicated, the site owner would be required to assess the extent of any contamination and conduct a site remediation, as needed, in compliance with the SFDPH Local Oversight Program requirements. The SFDPH could approve abandonment of the UST in place if removal were infeasible.

The project would increase the use of hazardous materials and generation of hazardous wastes at the SEP and would include the removal of USTs at the Asphalt Plant as well as closure of hazardous materials handling facilities at the Central Shops and Asphalt Plant.

San Francisco Health Code Article 22 – Hazardous Wastes

Article 22 of the San Francisco Health Code provides for safe handling of hazardous wastes in the city. It authorizes the SFDPH to implement the state hazardous waste regulations, including authority to conduct inspections and document compliance.

The project would generate hazardous wastes as a result of building demolition and excavation of soil containing hazardous materials.

San Francisco Health Code Article 22A – Site Investigation and Remediation

Article 22A of the San Francisco Health Code (also known as the Maher Ordinance) applies to any site identified within the Maher area as well as any site that is on a lot either currently or previously either zoned for or permitted for industrial use; within 150 feet of any of the elevated portions of U.S. Highway 101, Interstate 80, or Interstate 280; on a lot known or suspected by the SFDPH to contain hazardous substances in the soil and/or groundwater; or on a lot known or suspected by the SFDPH to contain or to be within 100 feet of a UST. Article 22A requires that a project sponsor evaluate the potential for site contamination and level of exposure risk associated with the project. Where such analysis reveals the presence of hazardous substances in excess of state or federal standards, the project sponsor is required to submit a site mitigation plan to the SFDPH or other appropriate state or federal agency(ies), and to remediate any site contamination in accordance with an approved site mitigation plan prior to the issuance of any building permit. For departments, boards, commissions and agencies of the CCSF such as the SFPUC that authorize construction or improvements on land under their jurisdiction where no building or grading permit is required, the ordinance requires that protocols be developed between that entity and the SFDPH that will achieve the environmental and public health and safety goals of Article 22A.

The project site is within a designated Maher area.

San Francisco Health Code Article 22B – Construction Dust Requirements

In July 2008, the City adopted amendments to San Francisco Health Code Article 22B and San Francisco Building Code Section 106.A.3.2.6, which collectively constitute the Construction Dust Control Ordinance. The ordinance requires that all site preparation work, demolition, or other construction activities within San Francisco that have the potential to create dust or to expose or disturb more than 10 cubic yards or 500 square feet of soil comply with specified dust control

measures whether or not the activity requires a permit from the Department of Building Inspection (DBI). For projects over one-half acre, the Construction Dust Control Ordinance requires that the SFPUC submit a Dust Control Plan for approval by the SFDPH. For construction on CCSF property, all agencies of the CCSF that authorize construction or improvements must adopt rules and regulations to ensure that the same dust control requirements that are set forth in the Construction Dust Control Ordinance are followed if no building, excavation, grading, foundation, or other permit needs to be obtained under the San Francisco Building Code. The Directors of the SFDPH and DBI assist the departments, boards, commission and agencies to ensure that these requirements are met.

The Construction Dust Control Ordinance requires the site owners and contractors responsible for construction activities to control construction dust on the site or implement other practices that result in equivalent dust control that are acceptable to the Director of Public Health. Dust suppression activities may include watering of all active construction areas sufficiently to prevent dust from becoming airborne; increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water must be used if required by Article 21, Section 1100 et seq. of the San Francisco Public Works Code.

The project would disturb soil throughout much of the 12.9-acre site and up to 12 acres at the staging areas located on Port property (Piers 94 and 96 and the Pier 94 Backlands).

San Francisco Building Code – Lead-Based Paint Regulations

Work that could result in disturbance of lead paint must comply with Section 3426 of the San Francisco Building Code, Work Practices for Lead-Based Paint on Pre-1979 Buildings and Steel Structures. Where there is any work that may disturb or remove lead paint on the exterior of any building built prior to 1979, Section 3426 requires specific notification[44] and work standards, and identifies prohibited work methods and penalties.

Section 3426 applies to the exterior of all buildings or steel structures on which original construction was completed prior to 1979 (which are assumed to have lead-based paint on their surfaces, unless demonstrated otherwise through laboratory analysis), and to the interior of residential buildings, hotels, and childcare centers. The ordinance contains performance standards, including establishment of containment barriers, at least as effective at protecting human health and the environment as those in the U.S. Department of Housing and Urban Development Guidelines (the most recent Guidelines for Evaluation and Control of Lead-Based Paint Hazards) and identifies prohibited practices that may not be used in disturbances or removal of lead-based paint. Any person performing work subject to the ordinance shall, to the maximum extent possible, protect the ground from contamination during exterior work; protect floors and other horizontal surfaces from work debris during interior work; and make all reasonable efforts to prevent migration of lead paint contaminants beyond containment barriers

[44] The required notices are similar to those commonly placed on residential and other buildings in San Francisco that are undergoing re-painting. These notices are generally affixed to a drape that covers all or portions of a building and are a required part of the Section 3425 notification procedure.

during the course of the work. Cleanup standards require the removal of visible work debris, including the use of a High Efficiency Particulate Air Filter vacuum following interior work.

The ordinance also includes notification requirements. Prior to the commencement of work, the responsible party must provide written notice to the Director of DBI of the address and location of the project; the scope of work, including specific location within the site; methods and tools to be used; the approximate age of the structure; anticipated job start and completion dates for the work; whether the building is residential or non-residential, owner-occupied or rental property; the dates by which the responsible party has fulfilled or will fulfill any tenant or adjacent property notification requirements; and the name, address, telephone number, and pager number of the party who will perform the work. Section 3426 contains provisions regarding inspection and sampling for compliance by DBI, as well as enforcement, and describes penalties for non-compliance with the requirements of the ordinance.

San Francisco Fire Code

The 2010 San Francisco Fire Code incorporates by reference the California Code of Regulations, Title 24, Part 9 (California Fire Code) including appendices adopted by the state. In addition, it incorporates portions of the 2009 International Fire Code that are not part of the California Fire Code.

4.17.2.4 Industry Standards

National Fire Protection Association (NFPA) Standard 820, Standard for Fire Protection in Wastewater Treatment and Collection Facilities, establishes minimum requirements to protect wastewater treatment facilities and associated collection systems against fire and explosion hazards. The standard applies to combined sewers, pumping stations, and wastewater treatment plants as well as other wastewater handling facilities. NFPA Standard 820 provides requirements specific to various wastewater treatment processes including both the liquid and solids treatment processes. General requirements are also included for fire and explosion prevention and protection, materials of construction, ventilation, and administrative controls.

4.17.3 Impacts and Mitigation Measures

4.17.3.1 Significance Criteria

The project would have a significant impact related to hazards and hazardous materials if the project were to:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;

- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area;
- For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- Expose people or structures to a significant risk of loss, injury, or death involving fire.

Due to the nature of the project, there would be no impact related to the following topics for the reasons described below:

- ***Safety Hazards from Public Airports.*** There is no public airport or public use airport within two miles of the project site. The nearest airport, San Francisco International Airport, is located approximately eight miles south of the project site. Therefore, this criterion is not applicable.
- ***Safety Hazards from Private Airstrips.*** There is no private airstrip in the project site vicinity. Therefore, this criterion is not applicable.

4.17.3.2 Approach to Analysis

Construction Impacts

Construction-related effects are impacts that could occur during construction activities. The analysis first identifies uses of and potential exposure to hazardous materials during construction, such as a release of hazardous materials used during construction activities, the potential for exposure to hazardous building materials during building demolition, the potential for exposure to hazardous materials in soil and groundwater, and use of extremely hazardous materials or emission of TACs within one-quarter mile of a school. The impact analysis assumes that all construction would be completed in compliance with applicable regulations, including BAAQMD Regulation 11, Rule 2 (Asbestos Demolition, Renovation, and Manufacturing); Section 3426 of the San Francisco Building Code; the Cal/OSHA Lead in Construction Standard; Articles 22A and 22B of the San Francisco Health Code; Articles 4.1 and 4.2 of the San Francisco Public Works Code; the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ; and any other relevant hazardous waste disposal laws. If the project would implement the requirements of these regulations, the impact is considered less than significant. The impact analysis regarding potential impairment of emergency response assumes implementation of the Traffic Control Plan described in Chapter 2, *Project Description*.

Operational Impacts

Operational effects of the project would be related to the routine use, transport, and disposal of hazardous materials; the emission of TACs within one-quarter mile of a school; risk of fire; and interference with emergency response. The impact analysis assumes that the use of hazardous materials and management of hazardous wastes would occur in compliance with applicable regulations, including Articles 21 and 22 of the San Francisco Health Code. The impact analysis for the emission of TACs within one-quarter mile of a school assesses whether the emissions would result in adverse health effects on the staff and students at the school. If so, the analysis assumes implementation of mitigation measures specified in Section 4.8, Air Quality. The impact analysis for interference with emergency response and fire risks assumes implementation of the SFPUC Emergency Operations Plan, the San Francisco Fire Code, and NPFA standards.

Cumulative Impacts

Section 4.1.3, Approach to Cumulative Impact Analysis and Cumulative Projects, describes the overall approach to the cumulative analysis for those topics using a list based approach and summarizes past, present, and reasonably foreseeable future cumulative projects in the vicinity of the project that could contribute to a cumulative impact; please refer to Table 4.1-1 and Figure 4.1-1 for a description and location of potential cumulative projects in the vicinity of the BDFP.

The geographic scope of potential hazards and hazardous materials impacts is restricted to the project site and immediate vicinity because related risks are relatively localized or even site-specific. Similar to the analysis for project impacts, the cumulative impact analysis assumes that construction and operation of other projects in the immediate vicinity would also be completed in compliance with applicable regulations, including BAAQMD Regulation 11, Rule 2; Cal/OSHA's Lead in Construction Standard; Articles 21, 22, 22A, and 22B of the San Francisco Health Code; Articles 4.1 and 4.2 of the San Francisco Public Works Code; the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities; and the San Francisco Fire Code. The analysis considers whether or not there would be a significant, adverse cumulative impact associated with project implementation in combination with past, present, and probable future projects in the immediate vicinity, and if so, whether or not the project's incremental contribution to the cumulative impact would be considerable. Both conditions must apply in order for a project's contribution to cumulative effects to be deemed cumulatively considerable (significant). If so, then mitigation measures are identified to reduce the project's contribution to the extent feasible.

4.17.3.3 Impact Evaluation

Construction and Operational Impacts

Impact HZ-1: Project construction and operation would not result in a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. (Less than Significant)

Construction Impacts

Project construction would require the use of routine hazardous materials such as fuels, lubricants, and solvents for construction vehicles and equipment. Without adequate management, the storage and use of hazardous materials at the project site and off-site staging areas could result in the accidental release of small quantities of hazardous materials, which could result in exposures for construction workers, degradation of soils, and/or entrainment in stormwater runoff affecting the downstream environment.

As discussed under Impact HY-1 in Section 4.16, Hydrology and Water Quality, grading and excavation at the project site and any of the staging areas would be subject to Article 4.2 of the San Francisco Public Works Code (Section 146). For construction uses at the off-site staging areas at the Pier 94 Backlands, Pier 94, and Pier 96, which are not within the area serviced by the combined sewer system, the construction activities would also be subject to the State Water Resources Control Board (SWRCB) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ if preparation of the staging areas would disturb more than one acre of land.

Article 4.2 requires implementation of an Erosion and Sediment Control Plan for projects that disturb more than 5,000 square feet of land, and the Construction General Stormwater Permit requires implementation of a Stormwater Pollution Prevention Plan (SWPPP) for projects that disturb one or more acres of land. Article 4.2 provides that for projects subject to both regulatory requirements, the SWPPP may be prepared in lieu of the Erosion and Sediment Control Plan. These plans would include best management practices to minimize the risk of a hazardous materials release during construction activities. The best management practices would include protection measures for the temporary on-site storage of fuel and other hazardous materials used during construction, including requirements for secondary containment and berming to prevent any release from reaching an adjacent waterway or stormwater collection system. All equipment and materials storage would be routinely inspected for leaks, and records would be maintained for documenting compliance with the storage and handling of hazardous materials. As the administering agency, the SFPUC would review and approve the plans prior to implementation, and would conduct periodic inspections to ensure compliance with the plans.

Regarding transport, the project would be required to comply with the regulations of the California Highway Patrol related to the transportation of hazardous materials. With implementation of the approved controls discussed above, subject to approval and inspection by the City, and compliance with hazardous materials transportation regulations, the potential for releases of

hazardous construction materials during construction to result in a significant hazard to the public or the environment would be ***less than significant***.

Operational Impacts

As described in Chapter 2, *Project Description*, Table 2-9, operation of the project would increase the use of several chemicals at the SEP, including polymer for thickening and dewatering of biosolids, ferric chloride for struvite control, and diesel for a backup generator. The BDFP would also use relatively small quantities of sulfuric acid and potassium permanganate in the odor control systems, antiscalant and sodium hypochlorite (similar to bleach) for the Digestion Cooling Tower, sodium sulfite for the boiler system, and propane gas for turbine startup. None of these materials is considered extremely hazardous. These materials would be stored in appropriate containers with spill containment systems, within proposed buildings and handled in accordance with regulations for the safe storage and handling of hazardous materials.

The SFPUC would continue to comply with the City's hazardous materials handling requirements specified in Article 21 of the San Francisco Health Code. In accordance with this article, the SFPUC's HMBP for the SEP that is on file with the SFDPH would be revised to reflect the increased quantities of hazardous materials used. The HMBP includes chemical inventories, a program for reducing the use of hazardous materials and generation of hazardous wastes, site layouts, a program and implementation plan for training all new employees and annual training for all employees, and emergency response procedures and plans that provide for safe handling of hazardous materials, and also allows emergency responders to safely respond to a chemical emergency at the facility, if one were to occur. Any hazardous wastes produced would be managed in accordance with Articles 21 and 22 of the San Francisco Health Code.

Compliance with the San Francisco Health Code, which incorporates state and federal requirements, would minimize potential exposure of site personnel and the public to accidental releases of hazardous materials or waste and would also protect against a potential release that could cause environmental contamination. In addition, transportation of hazardous materials is well regulated by the California Highway Patrol and the California Department of Transportation, as discussed in Section 4.17.2.2, State Regulations, and operational transport of hazardous materials would be subject to these regulations. Therefore, with compliance with applicable hazardous materials regulations, the potential impacts related to the routine use, transport, and disposal of hazardous materials during operation of the BDFP would be ***less than significant***.

Mitigation: None required.

Impact HZ-2: Project construction and operation would not result in reasonably foreseeable conditions involving the release of hazardous building materials to the environment. (Less than Significant)

Construction Impacts

As described in Section 4.17.1.5, the BDFP would demolish structures that, because of their age, are likely to contain hazardous building materials, including asbestos-containing materials and lead-based paint. Electrical equipment may contain PCBs, while fluorescent light ballasts may contain PCBs or DEHP, and fluorescent light tubes would contain mercury vapors. Prior to demolition, the SFPUC would perform surveys to identify the presence of these materials in buildings to be demolished. During building demolition, workers and the public could be exposed to hazardous building materials if they were not abated prior to demolition. However, as discussed below and in Section 4.17.2, Regulatory Framework, there is a well-established regulatory framework for the abatement of hazardous building materials, and impacts related to exposure to these materials would be less than significant with compliance with regulatory requirements.

Asbestos-Containing Materials

In accordance with BAAQMD Rule 11, Regulation 2 (discussed in Section 4.17.2.2, State Regulations), the SFPUC would be required to retain a qualified contractor to conduct a survey to identify asbestos-containing materials in any building planned for demolition. If asbestos-containing materials are identified, the SFPUC would retain a qualified asbestos removal contractor certified as such by the Contractors Licensing Board of the State of California to remove the regulated materials prior to demolition activities. During removal activities, the contractor would implement controls to ensure that there are no visible asbestos emissions to the outside air. Such measures may include methods such as wetting exposed asbestos-containing materials or providing exhaust controls to prevent asbestos emissions to the outside air; and constructing a containment barrier around the building and maintaining negative air pressure within the containment barrier. The removal activities would be conducted in accordance with the state regulations contained in the California Code of Regulations, Title 8, Section 1529 and Sections 341.6 through 341.17. As the owner of the property, the SFPUC would be responsible for disposal of the asbestos-containing materials at a permitted disposal facility under the SFPUC's Hazardous Waste Generator Number. The contractor and hauler of the material would be required to file a Hazardous Waste Manifest that details the hauling of the material from the project site to the disposal site.

Implementation of the required procedures in accordance with the legal requirements described above would ensure that any potential impacts due the presence of asbestos-containing materials in any of the structures to be demolished would be ***less than significant***.

Lead-Based Paint

Disturbance of building and equipment components that include lead-based paint during demolition could result in exposure of workers and the public to lead. However, demolition activities would be subject to Section 3426 of the San Francisco Building Code and the Cal/OSHA Lead in Construction Standard (CCR 8 Section 1532.1), which are described in Section 4.17.2.2, State Regulations, and Section 4.17.2.3, Local Regulations.

Because the three Central Shops buildings were constructed in 1959, Building 870 at the SEP was constructed in 1952, the buildings at 1550 Evans were constructed in 1978, and underground structures at the former Asphalt Plant site were constructed in 1954, demolition of these structures would be subject to Section 3426 of the San Francisco Building Code. This section of the building code requires specific notifications and work standards, and identifies prohibited work methods and penalties. In accordance with this regulation, the SFPUC's contractor would be required to protect the ground from contamination and make all reasonable efforts to prevent migration of lead paint contaminants beyond containment barriers during the course of the work.

Lead-based paint continues to be used in some industrial applications. Demolition of the water pump station and electrical substation constructed at the SEP in the early 1980s along with demolition of the industrial equipment within all of the structures could encounter lead-based paint. These demolition activities would be subject to the requirements of the Lead in Construction Standard as well, which would require the SFPUC's contractor to develop and implement a lead compliance plan that describes activities that could emit lead, methods used to comply with the standard, safe work practices, and measures to protect workers from exposure to lead during construction activities.

Implementation of procedures required by Section 3426 of the San Francisco Building Code and the Lead in Construction Standard as part of the project would ensure that potential impacts of demolition of structures with lead-based paint would be ***less than significant***.

Other Hazardous Building Materials

Other hazardous building materials that could be present within the structures to be demolished include electrical transformers that could contain PCBs, fluorescent light ballasts that could contain PCBs or DEHP, and fluorescent light tubes that could contain mercury vapors, some of which would be classified as universal wastes under California law. Because electrical transformers that contain PCBs, fluorescent light ballasts that contain PCBs or DEHP, fluorescent light tubes, and any universal wastes encountered during demolition would be removed and disposed of in accordance with the established regulatory framework described in Section 4.17.2.2, State Regulations (under the heading "Hazardous Waste Classification"), impacts related to exposure to other hazardous building materials during demolition activities would be ***less than significant.***

Operational Impacts

Operation of the BDFP would not require the demolition of any structures with asbestos-containing materials or lead-based paint. Removal of any universal wastes such as fluorescent light tubes would continue to comply with applicable laws and regulations. Therefore, impacts related to encountering hazardous building materials during operation would be ***less than significant.***

Mitigation: None required.

Impact HZ-3: Project construction and operation would not release hazardous emissions or handle acutely hazardous materials, substances, or waste within one- quarter mile of an existing or proposed school. (Less than Significant)

Section 15186 of the California Environmental Quality Act (CEQA) Guidelines requires that the environmental document for projects that are located within one-quarter mile of a school address the use of extremely hazardous materials and emission of hazardous air emissions. The Wu Yee South East Child Development Center is located within the Southeast Community Facility, within one-quarter mile of the project site. The State of California defines acutely hazardous materials as extremely hazardous materials in Section 25532(i)(2) of the Health and Safety Code. Construction of the project would use only common hazardous materials such as paints, solvents, cements, adhesives, and petroleum products (such as asphalt, oil, and fuel). None of these materials is considered extremely hazardous. In addition, the project would not use any extremely hazardous materials during operation.

Hazardous air emissions include the TACs that are listed in Title 17 of the California Code of Regulations, Section 93000 (refer to Section 4.8, Air Quality). Impacts associated with TAC emissions are addressed in Impact AQ-3 in Section 4.8, Air Quality. Thus, impacts related to hazardous emissions or the use of extremely hazardous materials within one- quarter mile of a school would be ***less than significant***.

Mitigation: None required.

Impact HZ-4: The project would be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5; however, project construction and operation would not result in a significant hazard to the public or the environment under reasonably foreseeable conditions. (Less than Significant)

Construction Impacts

As discussed in Section 4.17.1, Setting, the SEP, Central Shops, and Asphalt Plant are included on a list of hazardous materials sites compiled by one or more government regulatory agencies. The SFPUC has conducted investigations to evaluate soil and groundwater conditions at these sites and detected several chemicals at concentrations exceeding ESLs or DTSC SLs for commercial/industrial workers. Because project construction would include the excavation of approximately 190,000 cubic yards of soil at the project site, the public could be exposed to hazardous materials in the soil as a result of airborne dust or entrainment in stormwater runoff from the project site unless proper precautions are implemented. In addition, excavation at the project site would require dewatering of groundwater encountered in the excavated areas, and groundwater sampling has indicated that the concentrations of some chemicals in the groundwater exceed the SFPUC batch wastewater discharge requirements specified in Article 4.1 of the San Francisco Public Works Code (described in Section 4.16, Hydrology and Water Quality). At some locations, concentrations of metals in soil (predominantly lead) exceed state or federal hazardous waste criteria and the soil would require disposal at appropriate permitted hazardous waste landfill.

Similarly, soil samples from the Pier 94 Backlands area contained lead at concentrations greater than the ESL, and some portions of the soil would be classified as a California hazardous waste based on total or soluble lead concentrations. At staging areas, shallow excavations would be needed for installation of water and sewer lines and demolition of the existing buildings at 1550 Evans Avenue, but the volume of soil requiring excavation has not been quantified. Due to the limited depth of excavation in the staging areas, no groundwater dewatering would be required during construction.

In addition, the public could be exposed to hazardous materials during removal of subsurface structures at the Asphalt Plant site, including the four concrete underground tanks that formerly contained asphaltic materials as well as during removal of the hazardous materials handling facilities at the Central Shops prior to building demolition. Workers could be exposed to hazardous materials in soil vapors as a result of placement of construction trailers within the regulated landfill at Pier 94 and the Pier 94 Backlands.

Without proper controls, these construction activities could expose the public or the environment to hazardous materials. However, as discussed below, there is a robust set of regulatory requirements for site investigation and cleanup, discharge of dewatering effluent, and closure of facilities that handled hazardous materials as well as for the transportation and disposal of hazardous wastes. In addition, the WDRs for the regulated landfill include specific requirements for construction within the regulated landfill. Implementation of these requirements would ensure that the excavation, handling, and disposal of soil and groundwater containing hazardous materials during construction would not result in a significant hazard to the public or the environment.

Soil Excavation

Maher Ordinance Requirements. The BDFP and staging areas are all located within a Maher area. Therefore, the project is subject to Article 22A of the San Francisco Health Code (the Maher Ordinance), which is administered and overseen by the SFDPH. The project site and staging areas are in different stages of compliance with the Maher Ordinance. Therefore, this impact analysis describes the overall requirements of the ordinance, then discusses that status of compliance for the project site, adjacent staging areas, and staging areas on Port property.

The Maher Ordinance requires the SFPUC to retain the services of a qualified professional to prepare a Phase I Environmental Site Assessment that meets the requirements of San Francisco Health Code Section 22A.6. The Phase I Environmental Site Assessment would determine the potential for hazardous materials to be present in the soil and groundwater and the level of exposure risk associated with the project. Based on that information, the SFPUC may be required to conduct soil and/or groundwater sampling and analysis. Where such analysis reveals the presence of hazardous substances in excess of state or federal standards, the SFPUC would be required to submit a site mitigation plan to SFDPH or other appropriate state or federal agency(ies), and to remediate any site contamination in accordance with an approved site mitigation plan prior to the issuance of any building permit. For departments, boards, commissions and agencies of the CCSF that authorize construction or improvements on land under their jurisdiction where no building or grading permit is required, the ordinance requires

protocols be developed between that entity and SFDPH that will achieve the environmental and public health and safety goals of Article 22A.

In accordance with these requirements, the SFPUC conducted soil and groundwater sampling to characterize the concentration of chemicals in the soil and groundwater at the project site.[45] In August 2016, the SFDPH approved the subsurface investigation report summarizing this sampling, and required SFPUC to prepare and implement a site mitigation plan, dust control plan, and health and safety plan for construction.[46] In their approval of the subsurface investigation report, the SFDPH also required submittal of a final report at the completion of the project. All of these required plans and reports would be prepared prior to construction and would be subject to review and approval by the SFDPH.

The Maher Ordinance would also require the SFPUC to conduct a Phase I Environmental Site Assessment, and possibly soil and groundwater sampling, at any off-site staging areas that would involve the excavation of more than 50 cubic yards of soil (i.e., potentially the Pier 94 Backlands or 1550 Evans Avenue). If indicated on the basis of the sampling in all areas, the SFPUC would prepare a site mitigation plan for SFDPH review and would implement the site mitigation plan during construction.

San Francisco Dust Control Ordinance. The public would also be protected against exposure to chemicals in airborne dust because the contractor would be required to implement the requirements of Article 22B of the San Francisco Health Code, San Francisco's Dust Control Ordinance. In accordance with the Dust Control Ordinance, the SFPUC's construction contractor(s) would submit a Dust Control Plan for approval by the SFDPH for construction activities at the SEP. The plan would describe dust suppression activities to prevent dust from becoming airborne, dust monitoring requirements, action levels that would require implementation of corrective actions, and corrective actions that would be implemented if action levels are exceeded or a dust complaint is received. The requirements of Article 22B are discussed in more detail in Section 4.8, Air Quality. Although construction activities at Pier 94, Pier 96, and the Pier 94 Backlands would likely disturb more than one-half acre of land, the SFPUC may obtain a waiver from the SFDPH because there are no sensitive receptors within 1,000 feet of these proposed staging areas.

Construction Site Runoff Control Requirements. Implementation of stormwater BMPs in accordance with the Erosion Control Plan prepared under Article 4.2 of the San Francisco Public Works Code, Section 147, and the SWPPP prepared for construction activities on Port property would ensure that hazardous materials are not transported off-site in stormwater during project construction. These regulatory requirements are discussed above under Impact HZ-1.

[45] BDFP Consulting Team, Environmental Site Investigation Report for San Francisco Department of Public Health Article 22A Compliance, May 2016.

[46] San Francisco Department of Public Health, Subsurface Investigation Approval, Sewer Improvement Project, Southeast Water Pollution Control Plant, Biosolids Digester Facility, 1800 & 1801 Jerrold Avenue and 750 & 1150 Phelps Street, San Francisco, CA. EHB-SAM No. -SMED: 1293. August 29, 2016.

With implementation of the regulatory requirements discussed above, soil excavation would result in a ***less-than-significant*** impact related to construction within areas of soil containing hazardous materials.

Dewatering

During BDFP construction, groundwater produced by dewatering would be discharged to the combined sewer system in compliance with Article 4.1 of the San Francisco Public Works Code, as supplemented by Order No. 158170. Section 4.16, Hydrology and Water Quality, describes these regulatory requirements. In accordance with Article 4.1, groundwater produced during the limited dewatering would be pumped to baker tanks or other containment, tested, and treated to ensure compliance with the discharge limitations of Article 4.1 of the San Francisco Public Works Code and Order No. 158170. Treatment could include methods such as using settling tanks to remove sediments, filters to remove suspended solids, and other methods to meet chemical-specific discharge limitations. The chemical-specific treatment method used would depend on the chemicals that exceed the specified discharge limitation but could include methods such as filtration or activated carbon treatment to reduce chemical concentrations as necessary to meet permit requirements prior to discharge. Impacts related to discharge of the groundwater produced during construction-related dewatering would be ***less than significant*** with compliance with the specified discharge limitations.

Closure of USTs and Hazardous Materials Handling Facilities

Construction of the BDFP would include closure of USTs at the Asphalt Plant and other hazardous materials handling facilities at the Central Shops in accordance with Article 21 of the San Francisco Health Code. This article would require a closure plan identifying how the need for future maintenance of the facility will be eliminated, how the threat to the environment and public health and safety will be eliminated, and how all hazardous materials in the facility will be removed and appropriately disposed of. For USTs, the closure plan would identify appropriate requirements for disposition of any remaining hazardous materials in the tank and the tank itself. The closure plan would be submitted to the SFDPH for approval prior to removal of the UST. Soil from the UST excavation, and possibly the groundwater, would also be sampled in accordance with Article 21. Upon completion of closure, a release or contamination report would be submitted to the SFDPH if a release were indicated on the basis of visual observations or sampling, and a final report documenting tank removal activities and any residual contamination left in place would be submitted to the SFDPH. Upon approval of this report, the SFDPH would issue a Certificate of Completion. If a release were indicated, the SFPUC would be required to submit a corrective action plan, including a community health and safety plan, to the SFDPH and the RWQCB, and remediation would be required in accordance with federal, state, and local regulations. Alternatively, the UST could be abandoned in place if removal were infeasible. Implementation of the measures required in accordance with Article 21 of the San Francisco Health Code would ensure that hazardous materials impacts associated with UST removal and closure would be ***less than significant***.

Transportation and Disposal of Hazardous Materials

The environmental investigation report estimates that the following volumes of soil would require disposal as hazardous waste:

- 4,000 cubic yards of soil from the Boneyard would be classified as a California hazardous waste. (This is the location of the proposed Biosolids Dewatering Facility.)
- 2,000 cubic yards from the Asphalt Plant would be classified as a California hazardous waste.
- 1,000 cubic yards from the Central Shops would be classified as a federal hazardous waste.
- 38,000 cubic yards from the Central Shops would be classified as a California hazardous waste.

As the generator of the hazardous wastes, the SFPUC would be required to follow state and federal regulations for manifesting wastes, using licensed waste haulers, and disposing the materials at a permitted disposal or recycling facility. These requirements are described in Section 4.17.2.2, State Regulations (under the heading "Transportation of Hazardous Materials and Wastes"). Compliance with these regulatory requirements would ensure that impacts related to disposal of hazardous wastes would be ***less than significant***.

Possible Siting of Construction Offices on a Regulated Landfill

Portions of the Pier 94 Backlands and Pier 94 are located on a listed landfill site that received unauthorized municipal debris in the 1960s and 1970s (see Figure 4.17-1). This area is regulated as a solid waste disposal site under a WDR issued by the RWQCB. During BDFP construction, temporary trailers and restroom facilities would be located at the staging areas at the Pier 94 Backlands and on Pier 94 and/or Pier 96 for approximately five years. Portions of the Pier 94 and Pier 94 Backlands staging areas include this regulated landfill. Because the future availability and configuration of staging areas at the Port are not currently known, it is possible that construction offices would be located on top of the regulated landfill area, potentially exposing building occupants to harmful landfill gases such as methane and VOCs. Compliance with WDRs would require RWQCB approval of any changes to site development, including the proposed staging area uses. The RWQCB would require additional studies to confirm the potential presence of landfill gases and any landfill gas controls needed to ensure the safe occupancy of proposed structures. With compliance with the WDR requirements, the potential adverse effects of landfill gases on construction workers at the staging area would be ***less than significant***.

Operational Impacts

As discussed in Section 4.17.1, Setting (under the heading "Environmental Investigations and Underground Tank Removals"), soil at the SEP, Asphalt Plant, and Central Shops contains several chemicals at concentrations exceeding commercial/industrial ESLs. Therefore, without proper precautions, future site workers could potentially experience adverse health effects if exposed to the soil for a sufficient period of time and off-site migration of soil from the project site could potentially cause adverse environmental effects. However, construction of the BDFP would remove much of the soil, and the construction of new structures and paved areas under the BDFP would preclude future contact with and off-site migration of any soil remaining in

place once the project is constructed. Further, operation of the project would not require additional earthmoving activities that could generate dust.

The site mitigation plan prepared in accordance with the Maher Ordinance, described above, would specify any measures the SFPUC would put in place to manage future contact with the site soil during normal operations and minimize the off-site migration of soil. The SFDPH would review the site mitigation plan and ensure that the proposed measures are protective of future site occupants and the environment. Therefore, operation of the BDFP on a listed hazardous materials site would not cause a significant hazard to the public or the environment. This impact would be ***less than significant***.

Mitigation: None required.

Impact HZ-5: Project construction and operation would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (Less than Significant)

Construction Impacts

BDFP construction would not conflict with the San Francisco Emergency Response Plan, because the plan does not designate emergency response or evacuation routes, and the project would not otherwise impair implementation of this plan. However, the project would be considered to have a significant impact on implementation of emergency response or emergency evacuation if construction activities interfered with emergency response vehicle travel or restricted access to critical facilities such as hospitals or fire stations. Project construction would close Jerrold Avenue between Phelps Street and the Caltrain tracks to through traffic for approximately five years, which could impede emergency response traffic. However, as discussed in Chapter 2, *Project Description*, the SFPUC or its contractor would prepare and implement a Traffic Control Plan that conforms to the San Francisco Municipal Transportation Agency's (SFMTA) Blue Book. The Traffic Control Plan would require coordination of construction with facility owners or administrators of police and fire stations (including all fire protection agencies), transit stations, hospitals, and schools. In accordance with the plan, facility owners or operators would be notified in advance of the timing, location, and duration of construction activities and the locations of detours and lane closures. Emergency service vehicles would be given priority for access. As a result, implementation of the Traffic Control Plan would provide adequate access such that project construction would not interfere with emergency response or evacuation activities and this impact would be ***less than significant***.

Operational Impacts

Upon completion of construction, Jerrold Avenue would be reopened to through traffic and detours around the site would no longer be needed. Quint Street would remain closed. The SEP operations would continue to conform to the SFPUC Wastewater Enterprise Emergency

Operations Plan, which would be modified to include the BDFP.[47] The Emergency Operations Plan outlines the Wastewater Enterprise's overall emergency preparedness measures, emergency management organization, emergency operations, roles, and responsibilities. Contingency plans supplement the Emergency Operations Plan and are incorporated by reference; these include the Operations and Maintenance Manual, which outlines detailed procedures for the operation of equipment or facilities during or in response to an emergency. The SEP Contingency Plan was developed to ensure that wastewater facilities remain in operation, or are rapidly returned to operation, in the event of an emergency. The plan includes emergency response operating procedures for power failures, equipment failures, treatment plant security, spills, and discharges of chemicals or sewage.[48] In addition, the SEP HMBP contains procedures for emergency response to hazardous materials incidents. The SEP Contingency Plan and HMBP would be updated, as required by law, to include the BDFP operations and to ensure that the new biosolids treatment facilities and operations would not impair implementation of the SEP emergency response plans. Because operation of the BDFP would conform to the modified SEP Contingency Plan and HMBP, this impact would be ***less than significant***.

Mitigation: None required.

Impact HZ-6: Project construction and operation would not result in a significant risk of loss, injury, or death involving fire. (Less than Significant)

Construction Impacts

As discussed in Impact HZ-1, construction activities would involve the use of flammable materials such as fuels, oils, solvents, and compressed gases for welding. If handled or stored improperly, these materials could ignite and result in fire. However, the construction contractor would comply with the California Fire Code requirements for Fire Safety during Construction and Demolition,[49] including requirements for storage of flammables, accumulation of debris, site work such as welding, and operation of motor vehicles. In addition, these regulations require the preparation of a fire prevention program in cooperation with the fire chief, training of responsible personnel in the use of fire protection equipment, maintenance of fire protection equipment and water supply for fire protection on-site, and vehicle access for firefighting on the project site. Further, as described above and in Section 4.6, Transportation and Circulation, emergency vehicles would have local access during construction for fire response. Compliance with these regulations would ensure that impacts related to the risk of fires during construction would be ***less than significant***.

47 Metcalf&Eddy/AECOM, *SFPUC Wastewater Enterprise Emergency Operations Plan*, May 2008.
48 SFPUC, Program Management Consultant, *Contingency Plan, Southeast Water Pollution Control Plant as required by NPDES Permit No. CA0037664, Regional Water Board Resolution 74-10*, August 2013.
49 California Fire Code, Chapter 33.

Operational Impacts

Project facilities would be designed and constructed in accordance with fire safety requirements set forth in the California Fire Code and industry standards. As discussed in Chapter 2, *Project Description*, the BDFP would store and use flammable materials, including a 50-foot-diameter steel digester gas storage tank, a 1,000-gallon diesel fuel storage tank for the backup generator, and two propane gas cylinders for turbine startup fuel. California Fire Code Article 79 includes specific requirements for the safe storage of flammable and combustible liquids. In addition, the NFPA develops and publishes consensus codes and standards intended to minimize the possibility and effects of fire and other risks. While not regulations, these codes and standards are industry-accepted guidelines for construction and fire protection systems. NFPA Standard 820 establishes the standard for fire protection in wastewater treatment and collection facilities, which would be applicable to the Digester Gas Storage facility. Additional relevant codes include a fuel gas code, a standard on explosion prevention systems, and standards for fire prevention during welding and other construction activities.

The project would increase the generation of digester gas, a flammable gas, from the current production rate of 1.3 million cubic feet per year to 2 million cubic feet per year by 2045. The proposed digester gas storage system would be similar to the system operated at the Oceanside Water Pollution Control Plant, which is a gasholder submerged in a steel water tank. This arrangement pressurizes the digester gas handling system and provides a buffer between the anaerobic digesters and digester gas use facilities. The tank would be equipped so that increases in digester gas pressure would automatically trigger the waste gas burners and combust the digester gas until the pressure in the system has been reduced. This storage system and all of the biosolids handling facilities would be constructed in accordance with NFPA Standard 820, which specifies ventilation requirements for wastewater treatment facilities that generate digester gas. Implementation of this standard would ensure that explosive vapors do not accumulate at dangerous levels. Implementation of these requirements and other measures to prevent and protect against fire and explosion hazards in accordance with NFPA Standard 820 would ensure that project operations would not result in a significant risk of loss, injury, or death involving fire or explosions and this impact would be ***less than significant.***

Mitigation: None required.

Cumulative Impacts

Impact C-HZ-1: The project, in combination with past, present, and probable future projects, would not substantially contribute to cumulative hazards or hazardous materials impacts. (Less than Significant)

Hazardous materials impacts related to the project could result from using hazardous materials, constructing and operating the project within soil and groundwater containing hazardous materials, and demolishing structures that contain hazardous building materials. In addition, the project could result in hazards related to emergency response impairment and fires.

Table 4.1-1 and Figure 4.1-1 summarize cumulative projects in the vicinity of the BDFP. Those projects that are at or adjacent to the SEP, involve construction, but have not yet been constructed or completed construction include the following (project sponsor is shown in parentheses following project name):

- Southeast Plant Headworks Replacement Project (SFPUC)
- SEP Existing Digester Gas Handling Improvements (SFPUC)
- SEP Building 521 Replacement/ 522 Disinfection Upgrade (SFPUC)
- SEP Power Feed and Primary Switchgear Upgrades (SFPUC)
- SEP Primary/Secondary Clarifier Upgrades (SFPUC)
- SEP Seismic Reliability and Condition Assessment Improvements (SFPUC)
- SEP Oxygen Generation Plant Replacement (SFPUC)
- SEP Repair and Replacement (R&R) Projects (SFPUC)
- Demolition of the Existing SEP Digesters and Southside Renovation Project (SFPUC)
- Eastside Recycled Water Project (SFPUC)
- Central Shops Relocation and Land Reuse (SFPUC)
- Southeast Greenhouses Demolition (SFPUC)
- Central Bayside System Improvement Project (SFPUC)
- Quint Street Lead Track (Port of San Francisco and Federal Railroad Administration)
- Peninsula Corridor Electrification Project (Caltrain Peninsula Corridor Joint Powers Board)

As shown, most of these projects are proposed by the SFPUC and would involve construction within and adjacent to the SEP property. In addition, the Pier 94 Backlands Improvement Project could involve industrial uses such as the production of biofuel.

Routine Use or Release of Hazardous Materials

As discussed above, compliance with applicable regulatory requirements would ensure that the project would not result in any significant impacts with respect to hazards or hazardous materials (Impacts HZ-1 through HZ-3). All cumulative development in San Francisco would be subject to the same regulatory framework as the project for the transport, use, and storage of hazardous materials. Compliance with these existing regulations would ensure that any cumulative impacts related to exposure to hazardous materials would be ***less than significant.***

Hazardous Emissions near Schools

As discussed in Impact HZ-3, the project would not use extremely hazardous materials so it would not contribute to any cumulative impacts related to the use of these materials. While the project would emit DPM, a TAC, cumulative impacts related to these emissions are discussed in Section 4.8, Air Quality (Impact C-AQ-2).

Interference with an Adopted Emergency Response Plan or Emergency Evacuation Plan

As discussed in Impact HZ-5, the project would not conflict with the City's Emergency Response Plan. Project construction would close Jerrold Avenue to through traffic for the five-year duration of construction. However, as discussed in Chapter 2, *Project Description*, the SFPUC or its contractor would prepare and implement a Traffic Control Plan that conforms to the SFMTA's Blue Book. The Traffic Control Plan would require coordination of construction with facility owners or administrators of police and fire stations (including all fire protection agencies), transit stations, hospitals, and schools. In accordance with the plan, facility owners or operators would be notified in advance of the timing, location, and duration of construction activities and the locations of detours and lane closures. Emergency service vehicles would be given priority for access. Implementation of the Traffic Control Plan would provide adequate access such that project construction, in combination with other construction projects, would not interfere with emergency response or evacuation activities and this cumulative impact would be ***less than significant***.

Project operations would increase truck trips by an estimated four trips per day, which is expected to have a negligible effect on local area roadways; therefore, operation of the project in combination with other cumulative projects would not cause a significant cumulative hazards impact related to the impairment of emergency response.

Risk of Fires

Construction of the project and other cumulative projects would likely use similar flammable materials, such as fuels, lubricants, and welding materials, that would contribute to a risk of fires. Because each project in the cumulative scenario would be required to comply with the San Francisco Fire Code as would the project (see Impact HZ-6), the cumulative impact of BDFP construction in combination with other planned projects would be ***less than significant***.

Project operation would result in a less-than-significant impact related to loss and damage from fires due to handling of digester gas, storage of diesel fuel, and flammable gas. The only other project in the cumulative scenario that would handle or store digester gas is the Pier 90-94 Backlands, which may include industrial uses such as biofuel production. However, this site is more than one-half mile from the BDFP and would not contribute to fire risk at the project site. Other projects may possibly store fuels and propane gas, and those projects would be subject to the San Francisco Fire Code and HMBP regulations that would reduce the potential for fires, as well as be required to provide information to the San Francisco Fire Department about the types of flammable materials stored on-site to facilitate appropriate fire response. Therefore, the cumulative impact of BDFP operation in combination with other planned projects on fire risk would be ***less than significant.***

Mitigation: None required.

4.18 Mineral Resources, Energy Resources, and Water Use

This section identifies and evaluates impacts related to mineral resources, energy resources, and water use that could result from implementation of the Biosolids Digester Facilities Project (BDFP or project). The section discusses existing energy, fuel, and water use at the Southeast Water Pollution Control Plant (Southeast Plant or SEP) and examines whether implementation of the project would result in the consumption of large amounts of energy, fuel, or water, or would use such resources in a wasteful manner. This section also addresses the project's impacts on mineral resources. Mitigation measures are identified to avoid or reduce adverse impacts, as appropriate. The project's impacts on water supply are addressed in Section 4.12, Utilities and Service Systems. The project's impacts related to energy usage as it may affect climate change, including measures to reduce greenhouse gas emissions, are discussed in Section 4.9, Greenhouse Gas Emissions.

4.18.1 Setting

4.18.1.1 California's Energy Use and Supply

Forms of energy generated or obtained within California include electricity from fossil fuel, hydroelectric, nuclear, and renewable sources; natural gas; and petroleum. California's energy system provides 71 percent of the electricity, 10 percent of the natural gas, and 38 percent of the petroleum consumed in or used for the state. The rest of the state's energy is imported, and includes electricity from the Pacific Northwest (8 percent, primarily hydroelectric) and the Southwest (21 percent, primarily coal and nuclear); natural gas purchases from Canada (22 percent), the Rocky Mountain states (23 percent), and the Southwest (42 percent); and crude oil imported from Alaska (12 percent) and foreign sources (50 percent).[1]

Electricity

Statewide Use and Supply

The production of electricity requires the consumption or conversion of energy resources such as water, wind, oil, gas, coal, solar, geothermal, and nuclear sources. Of the electricity generated in-state, 61.3 percent is generated by natural gas-fired power plants, 0.5 percent is generated by coal-fired power plants, 7.1 percent comes from large hydroelectric dams, and 8.6 percent comes from nuclear power plants. The remaining in-state total electricity production (22.5 percent) is supplied by renewable sources such as biomass, geothermal, small hydroelectricity, solar, and wind.[2]

On a per capita basis, Californians consume approximately 6,721 kilowatt-hours (kWh) of electricity annually, the lowest statewide per capita consumption in the country. In comparison,

[1] California Energy Commission, California's Major Sources of Energy, 2011.
[2] California Energy Commission, Energy Almanac – Total Electricity System Power, *2014 Total System Power in Gigawatt Hours*, data as of June 30, 2016. Available online at http://energy.ca.gov/almanac/electricity_data/system_power/2014_total_system_power.html. Accessed on January 12, 2017.

the average annual U.S. per capita consumption is 12,146 kWh.[3] However, California's overall electricity consumption is second only to that of Texas.

Use and Supply within San Francisco

In 2014, electricity consumption in San Francisco was 5.8 billion kWh.[4] This use is forecast to grow at the rate of 1.3 percent per year to approximately 8 billion kWh per year by 2030.[5]

Electricity in San Francisco is primarily provided by three sources: the Pacific Gas and Electric Company (PG&E), the San Francisco Public Utilities Commission (SFPUC) Power Enterprise, and direct access providers (i.e., purchase of electric energy directly from energy generators or other suppliers). San Francisco receives 73 percent of its electricity from PG&E,[6] which also provides natural gas and electricity to most of Northern California. The PG&E power mix for 2014 was as follows: 24 percent natural gas, 21 percent nuclear, 27 percent eligible renewables (described below), 8 percent large hydroelectric, and 21 percent unspecified power.[7] The SFPUC is the municipal power utility that provides electrical services to all City and County of San Francisco (City) facilities, services, and customers, which include the following: San Francisco International Airport; San Francisco General Hospital; San Francisco Municipal Railway; police services, fire services, retail City tenants, residences, and businesses in the San Francisco Shipyard; and Treasure Island. The SFPUC provides approximately 16 percent of San Francisco's electricity from the Hetch Hetchy Power system or local renewable sources operated by the SFPUC Power Enterprise.[8] The Hetch Hetchy Power system is composed of three hydroelectric powerhouses with a combined total hydroelectric output of nearly 400 megawatts (MW).[9] This clean energy is transmitted to San Francisco along PG&E and City-owned transmission lines that traverse California from east to west. Within San Francisco, the SFPUC also generates over 10 MW of clean, renewable energy from San Francisco's 19 solar arrays and two digester gas cogeneration facilities. (See discussion below regarding cogeneration facilities at the SEP.) The Hetch Hetchy Power system comprises 98.8 percent of the power supply from the SFPUC Power Enterprise, while in-City renewable resources comprise 1.2 percent. Direct access to electricity providers was created as a result of California restructuring its electricity industry in 1998. Fewer than 800 customers in San Francisco use direct access, but they constitute about 11 percent of the total energy usage in San Francisco.[10]

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3 California Energy Commission, Energy Almanac – US Per Capita Electricity Use by State in 2010. Available online at http://www.energy.ca.gov/almanac/electricity_data/us_per_capita_electricity.html. Accessed on January 12, 2017.

4 California Energy Commission, Energy Consumption Data Management System, *2014 Electricity Consumption by County – San Francisco*, data as of March 14, 2016. Available online at http://ecdms.energy.ca.gov/elecbycounty.aspx. Accessed on January 12, 2017.

5 San Francisco Department of the Environment, *San Francisco Climate Action Strategy, 2013 Update*, October 21, 2013.

6 San Francisco Department of the Environment, *San Francisco Climate Action Strategy, 2013 Update*, October 21, 2013.

7 Pacific Gas and Electric Company (PG&E), *PG&E's 2014 Power Mix*, 2014. Available online at https://www.pge.com/includes/docs/pdfs/myhome/myaccount/explanationofbill/billinserts/11.15_PowerContent.pdf.

8 San Francisco Department of the Environment, *San Francisco Climate Action Strategy, 2013 Update*, October 21, 2013.

9 San Francisco Water Power Sewer, *About the Power Enterprise*. Available online at http://www.sfwater.org/index.aspx?page=391. Accessed on March 14, 2016.

10 San Francisco Department of the Environment, *San Francisco Climate Action Strategy, 2013 Update*, October 21, 2013.

Natural Gas

Natural gas is one of the two primary fuels that drive California's energy system. It is primarily used to generate electricity and for heating and cooling buildings and water. Natural gas has become an increasingly important source of energy since the state's power plants rely on this fuel. Combined, California's residential and commercial building sectors account for more than 40 percent of the total state natural gas usage.[11] At 56,000 cubic feet (approximately 58 million British thermal units [Btu]) per year, California's per capita natural gas consumption is lower than the national per capita average of 72,000 cubic feet (74 million Btu) per year.[12] California is second only to Texas in total statewide natural gas consumption. As with electricity, California's high statewide natural gas consumption results from the state's large population and its vigorous economy. Only 10 percent of the state's natural gas needs are met by in-state production. The state's natural gas is primarily supplied from the southwest and the Rocky Mountains, as well as imports from Canada.

In 2014, approximately 220 million therms (approximately 22 trillion Btu) of natural gas were used in San Francisco.[13] PG&E operates one of the largest natural gas distribution networks in the country, including 48,850 miles of natural gas transmission and distribution pipelines.[14] In all, PG&E delivers natural gas to approximately 4.3 million customer accounts in Northern and Central California, including San Francisco.

Transportation Fuels

California's transportation sector uses nearly 40 percent of the energy consumed in the state.[15] Gasoline and diesel, both derived from petroleum (also known as crude oil), are the two most common fuels used for vehicular travel. According to the California Energy Commission (CEC), the state relies on petroleum-based fuels for 96 percent of its transportation needs. Although California refines much of its oil reserves in the state (approximately 38 percent), most of the petroleum consumed is produced out of state (approximately 10 percent from Alaska) or is supplied by foreign sources (52 percent).[16] California experienced a 12 percent decrease in production between 2004 and 2014 as a result of several factors, including declining fuel reserves and economic and regulatory factors. Statewide, Californians used approximately 2.8 billion gallons of diesel and 14.7 billion gallons of gasoline in 2014.[17,18] Per capita consumption of

[11] California Energy Commission, *Energy Almanac – Supply and Demand of Natural Gas in California*. Available online at http://www.energy.ca.gov/almanac/naturalgas_data/overview.html. Accessed on January 12, 2017.
[12] California Energy Commission, Energy Almanac – Average Per Capita Natural Gas Consumption by State in 2011. Accessed on March 14, 2016.
[13] California Energy Commission, Energy Consumption Data Management System, *2014 Gas Consumption by County – San Francisco*. Available online at http://ecdms.energy.ca.gov/gasbycounty.aspx. Accessed on January 12, 2017.
[14] PG&E, Fast Facts, 2016. Available online at http://www.pge.com/en/about/company/profile/index.page. Accessed on August 8, 2016.
[15] California Energy Commission, *2013 Integrated Energy Policy Report,* CEC-100-2013-001-CMF.
[16] California Energy Commission, *Energy Almanac – Oil Supply Source to California Refineries*, 2016. Available online at http://www.energy.ca.gov/almanac/petroleum_data/statistics/crude_oil_receipts.html. Accessed on January 12, 2017.
[17] California State Board of Equalization, Taxable Diesel Gallons 10 Year Report, Net of Refunds.
[18] California State Board of Equalization, Net Taxable Gasoline Gallons, Including Aviation Gasoline.

petroleum products in transportation is expected to slow down with the increasing use of alternative fuels and improved fuel efficiency in vehicles.

Renewable and Alternative Energy

Renewable electricity generation sources provide a number of benefits. Such sources reduce the state's dependence on the use of imported fossil fuels (including natural gas), reduce the state's vulnerability to price fluctuations in energy markets, and serve to minimize greenhouse gas emissions. The CEC currently defines solar, geothermal, wind, biomass, and small-scale hydroelectric generation methods as renewable electricity sources. Compared to other utility providers in the state, PG&E's overall electricity generation portfolio contains a relatively high percentage of renewable sources. In 2014, PG&E generated 27 percent of its total electricity through renewable sources, including biomass, small hydroelectric, geothermal, and wind. Although development of renewable energy sources is generally beyond the scope of local development planning, individual development projects may include small-scale generation features, such as photovoltaics, that can be connected to, and supply supplementary electricity to, the primary power grid.

Commercially available alternative transportation fuels to gasoline and diesel include biodiesel, renewable diesel, ethanol, hydrogen, methanol, natural gas, and electricity.[19] Some of these fuels, such as natural gas, are cleaner-burning petroleum-based alternatives to gasoline and diesel. Other products, such as ethanol and renewable diesel, are non-petroleum fuels. Although some alternative fuels can be used in a traditional combustion motor, other alternatives, such as electricity, are based on alternative propulsion technologies. The California Air Resources Board is investigating a number of low-carbon fuel strategies.

In 2007, the CEC in partnership with the California Air Resources Board and other state, federal, and local agencies prepared the State Alternative Fuels Plan in accordance with Assembly Bill 1007. The plan identifies strategies to increase the use of alternative fuels to meet California's goals for reducing petroleum consumption, improving energy security, and increasing in-state production of biofuels. Subsequently, the State of California has implemented the Alternative and Renewable Fuel and Vehicle Technology Program (Assembly Bill 118). This program provides financial incentives for businesses, vehicle and technology manufacturers, workforce training partners, fleet owners, consumers, and academic institutions to develop and deploy alternative and renewable fuels and advanced transportation technologies to help attain the State's climate change policy objectives.

[19] Biodiesel is a fuel produced from biological feedstock sources including fats, oils and greases. Biodiesel is chemically different from petroleum diesel and renewable diesel (which is chemically indistinguishable from petroleum diesel). Biodiesel is usually blended with petroleum diesel, such as the B20 biodiesel grade used in City fleets.

4.18.1.2 Existing Energy Demand and Supply at the SEP

The annual electricity demand of the existing solids treatment process at the SEP is estimated at 1 MW. This electricity demand is currently supplied by a combination of the following sources: electricity generated from digester gas at the existing cogeneration facility (0.66 MW), electricity from Hetch Hetchy hydropower (0.32 MW), and natural gas purchased from the state (0.02 MW). Electricity is provided to the SEP from Hetch Hetchy Power distributed through PG&E's distribution system. A small stream of natural gas is required for the cogeneration engine, and it is currently purchased from the State Department of General Services Natural Gas Services program and delivered through PG&E pipelines. Other energy demands at the existing solids treatment facilities include about 50 gallons of diesel per year for equipment testing and fuel use.

As indicated in Table 2-8 (in Chapter 2, *Project Description)*, the SEP digesters currently produce about 1.3 million cubic feet of digester gas per day. The digester gas provides fuel for boilers and a cogeneration facility on-site. An internal combustion engine at the cogeneration facility converts the digester gas to electricity. The boilers are fueled by digester gas to supply heat. The cogeneration facility can produce about 2 MW of electricity for on-site use, providing about one-third of the overall SEP's energy needs through electricity and heating. Heat from cogeneration maintains the digesters at the necessary temperatures to biologically treat the biosolids. Currently, any excess digester gas that cannot be converted to energy is routinely combusted via waste gas burners.

4.18.1.3 Existing Water Use at the SEP

As described in Chapter 2, *Project Description*, the SEP currently uses supplies from the following three water sources for process and wash water: No. 1 water (potable water); No. 2 water (non-potable, chlorinated and filtered SEP secondary-treated effluent); and No. 3 water (non-potable, chlorinated SEP secondary-treated effluent). The type of water used in the treatment system depends on the process and required water quality. Current average water demand of potable water (No. 1 water) for the existing solids treatment process is approximately 0.04 million gallons per day (mgd), while the average total water demand (potable and non-potable) is approximately 1.3 mgd (refer to Table 2-6 in Chapter 2, *Project Description*). Currently, potable water use constitutes approximately 3 percent of the total water used for the existing solids treatment process.

4.18.1.4 Mineral Resources

Minerals are naturally occurring chemical elements or compounds, or groups of elements or compounds, that were not formed by organisms. Naturally occurring concentrations of minerals in the earth's crust are known as mineral deposits. Mineral resources are mineral deposits from which the economic extraction of a commodity (such as gold or copper) is currently potentially feasible. In addition to metallic minerals, materials used for construction (e.g., sand and aggregate), industrial and chemical processes (e.g., salt), and fuel (e.g., crude oil) are considered mineral resources in California.

In accordance with the Surface Mining and Reclamation Act (SMARA) of 1975, the California Department of Conservation, Division of Mines and Geology, currently known as the California Geological Survey, has mapped non-fuel mineral resources of the state to show where economically

significant mineral deposits are either present or likely to occur based on the best available scientific data. These resources have been mapped using the California Mineral Land Classification System, which includes the following four Mineral Resource Zones (MRZs):

- ***MRZ-1.*** Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.
- ***MRZ-2.*** Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.
- ***MRZ-3.*** Areas containing mineral deposits, the significance of which cannot be evaluated.
- ***MRZ-4.*** Areas where available information is inadequate for assignment to any other zone.

The project site and construction staging areas are mapped as MRZ-1.[20] There are no mines, mineral plants, oil, gas, or geothermal wells within the project area.[21]

4.18.2 Regulatory Framework

4.18.2.1 Federal Regulations

No federal regulations pertain to mineral resources or water use in the project area. Regulations related to energy use are described below.

National Energy Conservation Policy Act

The National Energy Conservation Policy Act serves as the underlying authority for federal energy management goals and requirements. Signed into law in 1978, it has been regularly updated and amended by subsequent laws and regulations. This act is the foundation of most federal energy requirements.

National Energy Policy Act of 2005

The National Energy Policy Act of 2005 sets equipment energy efficiency standards and seeks to reduce reliance on non-renewable energy resources and provide incentives to reduce current demand on these resources. For example, under the act, consumers and businesses can attain federal tax credits for purchasing fuel-efficient appliances and products, including hybrid vehicles; constructing energy-efficient buildings; and improving the energy efficiency of commercial buildings. Additionally, tax credits are available for the installation of qualified fuel cells, stationary microturbine power plants, and solar power equipment.

[20] Kohler-Antablin, S., *Generalized Mineral Land Classification Map of the South San Francisco Bay Production-Consumption Region*, 1996. Published by the California Department of Conservation Division of Mines and Geology.

[21] California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR), District 6 Wells, posted February 2, 2016. Available online at http://www.conservation.ca.gov/dog/maps/Pages/GISMapping2.aspx. Accessed on March 25, 2016.

Executive Order 13423 (Strengthening Federal Environmental, Energy, and Transportation Management), signed in 2007, strengthens the key energy management goals for the federal government and sets more challenging goals than the Energy Policy Act of 2005. The energy reduction and environmental performance requirements of Executive Order 13423 were expanded upon in Executive Order 13514 (Federal Leadership in Environmental, Energy, and Economic Performance), signed in 2009.

4.18.2.2 State Regulations

California Energy Action Plan

The State of California's *2008 Energy Action Plan Update*[22] updates the *2005 Energy Action Plan II*,[23] which is the State's principal energy planning and policy document. The plan maintains the goals of the original *Energy Action Plan*, describes a coordinated implementation plan for state energy policies, and identifies specific action areas to ensure that California's energy is adequate, affordable, technologically advanced, and environmentally sound. First-priority actions to address California's increasing energy demands are to promote energy efficiency, demand response (i.e., reducing customer energy usage during peak periods to address power system reliability and support the best use of energy infrastructure), and use of renewable power sources. To the extent that these strategies are unable to satisfy increasing energy and capacity needs, the plan supports clean and efficient fossil fuel-fired generation.

Title 24 - California Energy Efficiency Standards

The Energy Efficiency Standards for Residential and Nonresidential Buildings specified in Title 24, Part 6 of the California Code of Regulations were established in 1978 in response to a legislative mandate to reduce California's energy consumption. Pursuant to state law[24], the CEC is required to adopt and implement energy efficiency standards for both residential and non-residential buildings. The CEC must also update the standards periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The CEC adopted its most recent update to the standards in 2013.[25] These updated standards are expected to achieve 25 percent more efficiency than previous standards for residential construction and 30 percent more for non-residential construction, offering builders better windows, insulation, lighting, ventilation systems, and other features that reduce energy consumption in homes and businesses.

California Green Building Standards Code

As described in Section 4.9, Greenhouse Gas Emissions, the 2013 California Green Building Standards Code, as specified in Title 24, Part 11 of the California Code of Regulations, specifies building standards to improve public health, safety, and general welfare by enhancing the design

22 California Energy Commission, *2008 Update Energy Action Plan*, February 2008.
23 California Energy Commission, California Public Utilities Commission, *Energy Action Plan II*, September 21, 2005.
24 Public Resources Code Sections 25402 and 25402.1.
25 California Energy Commission, *Building Energy Efficiency Standards for Residential and Nonresidential Buildings*, May 2012. Available online at http://www.energy.ca.gov/2012publications/CEC-400-2012-004/CEC-400-2012-004-CMF-REV2.pdf.

and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices. The provisions of this code apply to the planning, design, operation, construction, replacement, use and occupancy, location, maintenance, removal, and demolition of every building or structure or any appurtenances connected or attached to such building structures throughout California.

California Water Code Chapter 1, General State Policy

Section 106.5 of the California Water Code declares the state's policy that no municipality shall acquire or hold any right to wastewater, or to use water for other than municipal purposes.

Surface Mining and Reclamation Act of 1975

SMARA of 1975 (Chapter 9, Division 2, Section 2710 et seq. of the Public Resources Code) requires the State Mining and Geology Board to adopt state policies for reclaiming mined lands and conserving mineral resources. Title 24 of the California Code of Regulations, Division 2, Chapter 8, Subchapter 1 contains these policies.

In accordance with SMARA, the State has established the California Mineral Land Classification System to help identify and protect mineral resources in areas that are subject to urban expansion or other irreversible land uses that would preclude mineral extraction. Protected mineral resources include construction materials, industrial and chemical mineral materials, metallic and rare minerals, and non-fluid mineral fuels.

4.18.2.3 Local Regulations

San Francisco General Plan

The Energy section of the Environmental Protection Element of the *San Francisco General Plan* provides the City and County of San Francisco with a comprehensive and pragmatic energy management program that helps promote a productive collaboration between municipal government and local residents by guiding both public and private decisions affecting the use of energy. San Francisco's Energy Policy was designed with four goals in mind: (l) increasing the efficiency with which energy is used locally, (2) diversifying the present balance of resource supplies to meet local energy needs, (3) fostering the economic development of energy management services and renewable energy systems, and (4) encouraging the active participation of members of the community to carry out this program. The Air Quality Element of the General Plan includes one objective pertaining to energy use, which links energy conservation and waste management to emissions reductions.

The Fresh Water section of the Environmental Protection Element of the *San Francisco General Plan* includes the following policy related to limiting wasteful use of water:

> ***Policy 6.1.*** Maintain a leak detection program to prevent the waste of fresh water.

Regarding mineral resources, the *San Francisco General Plan* does not identify any occurrences of locally important mineral resources in the project area.[26]

Sustainability Plan for City and County of San Francisco

The *Sustainability Plan for City and County of San Francisco*, adopted in 1997, contains a set of general goals and specific objectives and actions for San Francisco to ensure that the city's current energy and water use needs are met without sacrificing the ability of future generations to meet their own needs. The major energy goals expressed in the plan are to reduce overall power use by maximizing energy efficiency; to maintain an energy supply based on renewable, environmentally sound resources; to eliminate climate-changing and ozone-depleting emissions and toxic contaminants associated with energy production and use; and to base energy decisions on the goal of creating a sustainable society. The major water use goals expressed in the plan are to maximize reuse of wastewater, maximize water conservation, minimize water use and waste, and ensure a sustainable and adequate water supply.

Climate Action Plan for San Francisco, San Francisco Climate Action Strategy, and San Francisco Greenhouse Gas Reduction Strategy

Multiple San Francisco programs developed to reduce greenhouse gas emissions (discussed in detail in Section 4.9, Greenhouse Gas Emissions) contain energy conservation provisions. The *Climate Action Plan for San Francisco, Local Actions to Reduce Greenhouse Gas Emissions* outlines citywide actions to reduce GHGs in the energy, transportation, and solid waste sectors. Strategies of the Climate Action Plan include expanding residential and commercial recycling programs. The 2013 *San Francisco Climate Action Strategy* describes additional steps taken to increase energy efficiency in San Francisco.[27] The San Francisco *Strategies to Address Greenhouse Gas Emissions*[28] documents San Francisco programs designed to reduce greenhouse gas emissions; programs that address energy conservation and recycling include increasing the energy efficiency of new and existing buildings, implementing a green building strategy, adopting a zero waste strategy, and adopting a mandatory recycling and composting ordinance. Specific actions taken by the SFPUC to address climate change include managing an energy efficiency program for municipal buildings in San Francisco designed to reduce electricity use and natural gas consumption.

San Francisco Environment Code, Green Building Requirements

The San Francisco Environment Code sets green building requirements that apply to all new construction in San Francisco. As discussed in Section 4.9, Greenhouse Gas Emissions, Chapter 7 (Green Building Requirements) of the San Francisco Environment Code adopts the mandatory measures in the state green building code and requires documentation of compliance with either Leadership in Energy and Environmental Design (LEED®) or GreenPoint Rated standards. City

[26] City and County of San Francisco, *San Francisco General Plan, Environmental Protection Element*. Available online at http://sf-planning.org/ftp/General_Plan/I6_Environmental_Protection.htm. Accessed on March 28, 2016.
[27] San Francisco Department of Environment, *San Francisco Climate Action Strategy, 2013 Update*, October 2013.
[28] San Francisco Planning Department, *Strategies to Address Greenhouse Gas Emissions in San Francisco*, November 2010, p. VIII-22. Available online at http://www.sf-planning.org/index.aspx?page=2627. Accessed on September 1, 2016.

departments must administer their construction projects in accordance with this chapter. Chapter 7 includes requirements for municipal projects related to LEED® certification, collection of recyclable and compostable materials, construction and demolition debris management, water conservation, energy-efficient lighting, and indoor environmental quality. In accordance with these requirements, fluorescent fixtures must meet certain efficiency of lumens per watt of electricity consumed and/or be controlled by an occupancy sensor, and exterior light fixtures must include an automatic timer to prevent lights from operating during daylight hours. Water closets (e.g., toilets and urinals), shower heads, and faucets must meet certain efficiency standards to meet the water conservation requirements of this code.

San Francisco Better Roof Requirements for Renewable Energy Facilities Ordinance

As described in Section 4.9, Greenhouse Gas Emissions, this ordinance requires projects like the BDFP (i.e., newly constructed buildings of non-residential occupancy meeting criteria related to size) to install solar photovoltaic systems and/or solar thermal systems in the solar zone.[29] The minimum total solar zone area[30] for a building must also meet certain size requirements. Refer to Section 4.9.2.3 in Section 4.9 for additional information.

San Francisco Green Building Code

The San Francisco Green Building Code (Green Building Code) consists of the California Green Building Standards Code as further amended by the City and County of San Francisco. The purpose of the Green Building Code is to minimize waste of energy, water, and other resources in the construction and operation of buildings. Provisions of the Green Building Code apply to planning, design, operation, construction, use and occupancy of newly constructed buildings in San Francisco.

San Francisco Environment Code, Construction and Demolition Debris Management

The requirements described below apply to the BDFP.

The San Francisco Environment Code, Section 708, mandates the reduction and recycling of construction and demolition debris generated at City-owned facilities. This section affects all construction and demolition projects implemented by City agencies, regardless of size, and requires that contractors on City projects divert at least 75 percent of construction and demolition debris from landfill disposal. The contractor is also prohibited from sending any construction or demolition debris to a landfill without receiving approval from the San Francisco Department of the Environment (SFDE).

Chapter 14 of the Environment Code also mandates the recycling of construction and demolition debris generated from both private and City-sponsored projects in San Francisco. This chapter affects all construction projects that would generate one cubic yard or more of construction and

[29] The solar zone is located on the roof or overhang of a building, or on the roof or overhang of another structure within 250 feet of the building or on covered parking installed with the building project.
[30] California Title 24, Part 6, Section 110.10.

demolition debris and requires that all construction and demolition wastes be taken to a registered facility that is certified by the SFDE to receive these wastes. These facilities must recycle or reuse at least 65 percent of all construction waste received.

Recycling and reuse of materials (including construction and demolition debris) reduces the energy requirements associated with extraction and manufacturing of new and raw materials.

San Francisco Public Works Code, Article 21 – Restriction of Use of Potable Water for Soil Compaction and Dust Control Activities

Article 21 of the San Francisco Public Works Code prohibits the use of potable water supplies for soil compaction and dust control in conjunction with any construction or demolition project when alternatives (e.g., non-potable water) are available. (Refer to Section 4.12, Utilities and Service Systems, for additional information.)

San Francisco Water Efficient Irrigation Ordinance

The San Francisco Water Efficient Irrigation Ordinance (codified in the San Francisco Administrative Code, Chapter 63) establishes a framework for planning, designing, installing, maintaining, and managing water-efficient landscaping in new construction and rehabilitation projects. The ordinance encourages the use of climate-appropriate and local California native species, and establishes provisions for water management and the prevention of wasteful use of water in landscapes. Landscape areas affected include planted areas within buildings or structures, such as green roofs. To ensure that water is used efficiently without waste, the ordinance sets a Maximum Applied Water Allowance, using State-mandated formulas and accounting for local climatic conditions. This allowance may not be exceeded unless the landscaped area is irrigated with gray water or harvested rain water.

San Francisco Reclaimed Water Use Ordinance

As discussed in greater detail in Section 4.16, Hydrology and Water Quality, this ordinance requires property owners to install recycled water systems in certain new construction, modified, or remodel projects. The goal of the ordinance is to maximize the use of recycled water. Buildings and facilities that are within the designated recycled water use areas are required to use recycled water for all uses authorized by the State of California. Some of the common uses include irrigation, cooling, and/or toilet and urinal flushing. These systems must meet San Francisco Plumbing and Health Codes, which include specifications for pipe type, pipe separation, backflow prevention assemblies, water meters, and signage. The project site is within a designated recycled water use area,[31] and the total floor area of the proposed Solids Pretreatment Facility would be greater than 40,000 square feet. Thus, the Reclaimed Water Use Ordinance would apply to the project.

[31] SFPUC, *Recycled Water Use*. Available online at http://sfwater.org/index.aspx?page=687. Accessed on January 26, 2016.

San Francisco Non-Potable Water Ordinance

As described in Section 4.16, Hydrology and Water Quality, this ordinance allows for the collection, treatment, and use of alternative water sources for non-potable applications. In October 2013, the CCSF amended the ordinance to allow water systems consisting of two or more buildings sharing non-potable water. The CCSF also amended the ordinance in July 2015, requiring new construction to use alternative water supplies for non-potable use.

4.18.3 Impacts and Mitigation Measures

4.18.3.1 Significance Criteria

The project would have a significant impact related to mineral or energy resources or water use if it were to:

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state;
- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan; or
- Encourage activities that result in the use of large amounts of fuel, water, or energy, or use these resources in a wasteful manner.

Due to the nature of the project, there would be no impact related to the following topic(s) for the reasons described below:

- ***Result in the loss of availability of a known mineral resource or a locally important mineral resource.*** As indicated above in Section 4.18.1.4, the project site and construction staging areas do not contain substantial mineral resources or locally important mineral resource recovery sites. Consequently, the project would not change the availability of mineral resources; therefore, these significance criteria are not discussed further in this EIR.

4.18.3.2 Approach to Analysis

Consistent with Public Resources Code Section 21100(b)(3), this impact analysis evaluates the potential for the BDFP to result in a substantial increase in energy demand and/or wasteful use of fuel, water, or energy during project construction and project operations. The impact analysis is informed by Appendix F of the California Environmental Quality Act Guidelines.

Construction Impacts

The analysis uses a qualitative approach to discuss energy demand from construction activities and describes conservation measures that would minimize the use of fuel, water, and energy and ensure that they are not used in a wasteful manner.

Operational Impacts

To determine whether the project would use large amounts of energy, fuel, or water during operations, this analysis provides a quantitative overview of the energy and water that would be consumed during the operation of the project and compares it to existing energy and water use. The analysis also weighs the project's energy, fuel, and water efficiency features when considering the project's potential for wasteful consumption of these resources during long-term operations. It is assumed that, as part of the project, the SFPUC and its contractors would comply with existing laws and regulations applicable to the BDFP with respect to fuel, water, and energy use.

Cumulative Impacts

Section 4.1.3, Approach to Cumulative Impact Analysis and Cumulative Projects, describes the overall approach to the cumulative analysis for those topics using a list-based approach and summarizes reasonably foreseeable future projects in the vicinity of the project that could contribute to a cumulative impact; refer to Table 4.1-1 and Figure 4.1-1 for a description and location of potential cumulative projects in the vicinity of the BDFP.

The cumulative analysis for energy resources and water use uses a list-based approach to analyze the effects of the project in combination with other past, present, and probable future projects in the immediate vicinity. (Because the project would have no impact related to mineral resources, that topic is not addressed in the cumulative impact analysis.) Cumulative impacts during construction and operations are evaluated together because energy use during both construction and operations would be strongly influenced by State and local regulations that encourage energy, fuel, and water conservation, and would affect similar fuel, energy, and water resources. The cumulative impact analysis assumes that construction and operations of other projects in the geographical area, listed in Table 4.1-1, would be required to comply with the same regulatory requirements as the project, which would serve to avoid and reduce many impacts to less-than-significant levels on a project-by-project basis. The analysis then considers whether or not there would be a significant, adverse cumulative impact associated with project implementation in combination with past, present, and probable future projects in the geographical area, and if so, whether or not the project's incremental contribution to the cumulative impact would be considerable. Both conditions must apply in order for a project's contribution to cumulative effects to be deemed cumulatively considerable (significant). If so, then mitigation measures are identified to reduce the project's contribution to the extent feasible.

4.18.3.3 Impact Evaluation

Construction Impacts

Impact ME-1: Construction of the project would not result in the use of large amounts of fuel, water, or energy, or use these resources in a wasteful manner. (Less than Significant)

The BDFP would require construction of about 206,000 square feet of new structures. To accommodate the proposed facilities and construction staging, approximately 136,000 square feet

of existing structures would be demolished, including buildings at the 1550 Evans Avenue staging area. Construction of BDFP facilities would take place over a period of about five years, from 2018 to 2023. During this period, fuel, water, and energy would be needed for the operation of equipment and vehicles to perform a variety of demolition and construction activities. Construction activities associated with the project would require the following sources of fuel, water, and energy:

- Diesel, for demolition, grading, and construction equipment, heavy-duty delivery trucks, and demolition debris and material hauling trucks
- Gasoline, to fuel construction worker commute vehicles
- Electricity, for operation of hand tools, air compressors, welding machines, mobile project offices, and security lighting
- Water, for dust control

In addition to direct construction-related energy consumption at the project site, energy would be consumed indirectly to make the materials and components used in construction. This includes energy used for extraction of raw materials, manufacturing, and transportation associated with manufacturing. Direct energy use typically represents about one-quarter of total construction-related consumption, while indirect energy use typically represents about three-quarters of total construction-related energy consumption.[32]

Energy Use

The precise amount of construction-related energy demand cannot be predicted at this time. Although this usage would represent an irreversible consumption of finite fossil fuel energy resources, the energy consumption associated with construction would be temporary and would therefore not result in long-term depletion of local or regional energy resources. As indicated in Chapter 2, *Project Description*, all construction equipment would comply with the San Francisco Clean Construction Ordinance. Many of the requirements of the ordinance also reduce energy use by (for example) requiring use of more efficient equipment and alternative fuels (refer to Section 4.8.2.3 in Section 4.8, Air Quality, for more detail). The project would also be constructed in compliance with the Chapter 14 and Section 708 of the San Francisco Environment Code. All non-hazardous material removed from the project site and off-site staging areas, including concrete, metal, and green waste, would be recycled to the maximum extent feasible, consistent with the minimum diversion rates specified in Chapter 14 and Section 708 of the San Francisco Environment Code to reduce the amount of material disposed of in landfills. Recycling and reuse of materials would reduce the energy requirements associated with extraction and manufacturing of new and raw materials.

Therefore, project construction would not require excessive or wasteful use of energy, as fuel use would be consistent with current construction and manufacturing practices, energy standards that promote strategic planning, and building standards that reduce consumption of fossil fuels and enhance energy efficiency. Additionally, implementation of **Mitigation Measure AQ-1a**

[32] Hannon et al., *Energy and Labor in the Construction Sector, Science Magazine,* November 24, 1978.

described in Section 4.8, Air Quality, would further ensure that fuel energy consumed during construction activities would not be wasted. Excavated material would be used as backfill on-site where feasible, thereby minimizing fuel consumption associated with construction haul trucks and solid waste disposal. Because construction of the BDFP would not be expected to have a material effect on energy resources, or result in wasteful or unnecessary use of energy, energy consumption that would be associated with construction activities would be considered ***less than significant***.

Water Use

Construction activities associated with the project would use water over the entire five-year construction period. During construction, recycled water would be used for dust control on roads and streets consistent with San Francisco Public Works Code, Article 21 which would ensure that water is not used in a wasteful manner. Public Works Code, Article 21, restricts the use of potable water for soil compaction and dust control activities associated with any construction project in the City and requires that recycled water, well water, or groundwater be used. The SEP recycled water fill station on Quint Street directly adjacent to the project site provides disinfected recycled water for these uses. Therefore, project compliance with applicable ordinances would ensure that the project would not result in wasteful, inefficient, or unnecessary use of potable water during construction, and this impact would be ***less than significant***.

Mitigation: None required.

Operational Impacts

Impact ME-2: Operation of the project would not result in the use of large amounts of fuel, water, or energy, or use these resources in a wasteful manner. (Less than Significant)

Energy Use

Table 4.18-1 summarizes the existing and projected operational energy demand, and the existing and proposed energy supply sources. Current power demand for the existing solids treatment process is estimated to be 1 MW; with implementation of the BDFP, power demand is expected to increase to 4.4 MW by 2023 and 4.9 MW by 2045. The existing energy recovery facilities provide about 66 percent of the current power demand, with the remainder provided from Hetch Hetchy Power or purchased from the State. Under the project, while power demand is expected to increase, the BDFP facilities are designed to increase the power generation capabilities such that by 2023, the BDFP would supply 95 percent of its own power demands. By 2045, the BDFP would provide over 100 percent of its own power demands and the excess power would be available for use by other SEP facilities. The current use of Hetch Hetchy Power would be reduced from 0.32 to 0.2 MW by 2023, and to zero by 2045, at which point it would be used only for backup power, when necessary.

TABLE 4.18-1
EXISTING AND PROJECTED ENERGY DEMAND
AND SUPPLY FOR BIOSOLIDS PROCESSING FACILITIES

		Existing Biosolids Facilities	Proposed BDFP
Electricity			
Power Demand		1 MW (estimated)	4.4 MW (2023) 4.9 MW (2045)
Power Supply Sources[a]	Cogeneration – Digester gas	0.66 MW[b]	4.2 MW (2023) 5.2 MW (2045)
	Cogeneration – Natural Gas	0.02 MW[c]	0
	Hetch Hetchy Power through PG&E Grid	0.32 MW	0.2 MW (2023) 0 (2045)
	On-site Solar power	n/a	Unknown
TOTAL, Power Supply from All Sources		1 MW	4.4 MW (2023) 5.2 MW (2045, excess 0.3 MW to be made available to other SEP facilities)
Diesel[d]			
Diesel Demand		50 gallons/year[e]	5,250 gallons/year[f]
Diesel Supply Source		Regional diesel providers	Regional diesel providers

NOTES:

n/a = not applicable ; BDFP = Biosolids Digester Facilities Project; MW = megawatts

[a] Existing power supply based on 2014 cogeneration engine operating record.
[b] Currently, the cogeneration engine can generate up to 2 MW power. When engine output exceeds the solids treatment processdemand, the surplus power is used by liquid processes.
[c] The cogeneration engine consumes a small stream of natural gas.
[d] Includes only non-emergency use.
[e] Based on actual current use.
[f] Estimate based on the operation of a 1.5-MW standby power generator for a maximum 50 hours of operation per year at 100 percent load for maintenance and testing purposes, consistent with Bay Area Air Quality Management District (BAAQMD) permit requirements. Actual maintenance and testing hours are anticipated to be less (i.e., six hours annually).

SOURCE: San Francisco Public Utilities Commission (SFPUC), *Final BDFP Conceptual Engineering Report*, March 2016

As shown in Table 2-8 in Chapter 2, *Project Description*, the proposed BDFP facilities are projected to generate an average of 1.6 million cubic feet of digester gas per day when the BDFP becomes operational in 2023. As the total volume of solids treated by the BDFP increases over time with anticipated population growth, the amount of digester gas generated would also increase to an average of 2 million cubic feet per day by 2045. Digester gas generated by the proposed digesters would be used to produce steam (used to heat the thermal hydrolysis process [THP]) and power that would more than meet the BDFP operational power needs. The new Energy Recovery Facility would improve energy production efficiency compared to the existing facilities. The project also would include solar photovoltaics, which would supply part of the energy requirements of the SEP. Although the energy demand would increase almost five-fold with the implementation of the BDFP, long-term demand would be more than offset by additional power generated on-site, and the BDFP would eliminate use of natural gas and electricity from Hetch Hetchy hydropower for solids processing at the SEP. Excess energy produced by BDFP supply sources would be made available to other SEP facilities. The project's net increase in on-site

generation of renewable energy would also increase the availability of renewable energy from hydropower for other municipal uses; overall, this would be a beneficial energy impact.

Energy Efficiency

New equipment installed as part of the proposed new solids treatment, odor control, energy recovery, and associated facilities of the BDFP would be more energy efficient than the existing equipment it would replace. In addition, several operational features of the BDFP would increase energy recovery and conservation. By 2045, the Energy Recovery Facility would produce enough electricity and enough high quality heat (steam) for the THP and other BDFP facilities so that under normal circumstances no additional fuel or steam supply would be needed for the BDFP. Use of the THP would make the solids more readily digestible and allow for better methane production during anaerobic digestion. In addition, the turbine would have a recuperator that would maximize the turbine efficiency by using exhaust heat to pre-heat the fuel stream.

The project would be consistent with all applicable regulations pertaining to energy efficiency and conservation associated with San Francisco Environment Code, Chapter 7, regarding Green Building Requirements for City buildings and their commissioning. All lighting would meet applicable requirements of Chapter 7 of the San Francisco Environment Code, which is consistent with California Code of Regulations Title 24, Part 6. Lighting needs of project buildings would be provided by light emitting diode fixtures, and structures would be constructed to meet or exceed Title 24 requirements for energy efficiency.

Energy monitoring proposed as part of the project would improve management of energy usage, variable frequency drives would be used for energy efficiency in driven equipment, and premium efficiency motors would be specified for use. Due to the nature of non-occupied infrastructure projects such as the BDFP, LEED® certification can be difficult to obtain because energy reduction credits identified for the certification tend to be oriented toward the characteristics of energy use in occupied buildings. As part of project design, however, the SFPUC would evaluate alternative technologies to increase energy efficiency consistent with applicable performance requirements of the San Francisco Building Code Green Building Ordinance and the San Francisco Environment Code. The operational energy demands of the project would not increase reliance on non-renewable resources, and implementation of the BDFP would not result in the use of large amounts of energy in a wasteful manner.

Fuel Use

As shown in Table 4.18-1, the existing solids treatment process currently uses a minimal amount of diesel fuel for miscellaneous purposes. As part of the proposed Energy Recovery Facility improvements, the BDFP would install one 1.5-MW standby power generator to provide an alternative source of electrical power in the event that the normal electrical power source fails. While the standby power generator is intended to be used only during emergencies, it would need to be operated routinely for testing and maintenance purposes. The generator would be subject to BAAQMD permit requirements, which require annual testing and maintenance of the

engine, with a maximum of 50 hours of testing and maintenance use per year.[33] Assuming 50 hours per year of non-emergency use at 100 percent load, diesel usage for the proposed generator would be 5,250 gallons per year. This increase would not be considered excessive or wasteful use of diesel fuel as the standby generator is essential for the operational reliability of the BDFP and routine testing is a permit requirement. In addition, the unit would be required to undergo regular testing and maintenance consistent with the standards of National Fire Protection Association 110, which specifies installation, maintenance, operation, and testing requirements as they pertain to the performance of the emergency or standby power supply systems. As the proposed generator use would be consistent with BAAQMD requirements and the National Fire Protection Association standards, the increase in diesel fuel use under the BDFP would not be considered excessive or wasteful.

As described above in Impact ME-1, consistent with current City policy for the entire municipal fleet, all SFPUC diesel vehicles associated with BDFP operation would use renewable diesel. Use of renewable diesel during BDFP operations would increase the efficiency of fuel use compared to existing conditions. The number of daily truck trips required for biosolids cake hauling would increase from 7 to 10 truck trips per day under existing conditions to approximately 10 to 14 haul trips per day by 2045 (although this projected increase in haul trips is attributable to the projected increase in solids loading associated with anticipated population growth through 2045). This would incrementally increase diesel fuel use as the contractors hauling biosolids are not required to use renewable diesel and are assumed to use conventional diesel vehicles. (With the production of Class A biosolids, to the extent that market locations for biosolids were located closer than sites where biosolids are currently reused [described in Section 2.2.2 in Chapter 2, *Project Description*], diesel consumption per haul trip could be less than existing conditions.) This minimal increase would not be considered wasteful, and overall the BDFP operations would not result in the use of large amounts of fuel or use fuel in a wasteful manner. As a result, this impact would be less than significant.

Water Use

BDFP processes would increase overall water use compared to existing conditions for all water types, as shown in **Table 4.18-2**. The BDFP is being designed to maximize use of SEP recycled water and/or other non-potable water to the extent possible in its processes. Therefore, most (about 92 percent) of the project's water needs would be supplied by the No. 2 and No. 3 non-potable water systems, while about 8 percent would be associated with the No. 1 potable water system. The Water Supply Assessment prepared for the project indicates that estimated potable water (No. 1 water) demand would be 0.21 mgd, about a five-fold increase in demand compared to existing conditions.[34] However, the non-potable water would have the greatest demand increases, and to meet this demand, the project would maximize the beneficial reuse of treated effluent, which would have otherwise been discharged into the Bay.

[33] Based upon California Code of Regulations, Title 17, Section 93115.
[34] San Francisco Water Power Sewer, Water Supply Assessment for Biosolids Digester Facilities Project, February 16, 2017.

TABLE 4.18-2
EXISTING AND PROJECTED AVERAGE DAILY WATER DEMAND
FOR BIOSOLIDS PROCESSING FACILITIES

	Existing Biosolids Facilities (mgd)	Proposed BDFP (mgd)	Net Change (mgd)
Potable Water (No. 1 Water)	0.04	0.21	0.16
Non-Potable, Chlorinated and Filtered Water (No. 2 Water)	0.17	2.30	2.13
Non-Potable and Chlorinated Water (No. 3 Water)	1.11	0.22	-0.89
TOTAL (No. 1 + No. 2 + No. 3)	1.32	2.73	1.40

NOTE:
BDFP = Biosolids Digester Facilities Project, mgd = million gallons per day

SOURCE: San Francisco Water Power Sewer, Water Supply Assessment for Biosolids Digester Facilities Project, February 16, 2017.

Nearly 100 percent of the projected increase in potable water demand is associated with processes that require water with low salinity; this would not be considered a wasteful use of potable water given the fundamental purpose of the solids treatment processes. Potable water use for solids processing could be further reduced in the future through use of disinfected tertiary-level treated recycled water.[35] The SFPUC would also design and construct all bathrooms in BDFP buildings with dual plumbing to allow for the use of recycled water if and when it becomes available in the future.

All new water closets and faucets installed under the project would comply with the San Francisco Building Code. Although LEED® standards for water conservation are oriented toward commercial, office, and residential facilities, and not non-occupied wastewater treatment buildings like the project facilities, LEED® Credit WE3.0 (30 percent reduction in indoor water use) would be the targeted goal for proposed administrative (occupied) buildings.

For outdoor water use, the project would comply with water conservation measures under the San Francisco Water Efficient Irrigation Ordinance. These requirements specify water efficiency and conservation measures for indoor and outdoor use, including establishing standards for low-flow plumbing fixtures and water efficiency standards for landscape irrigation. Irrigation water demand, which is currently met by potable water, is also assumed to be supplied by potable water under the project until the Eastside Recycled Water Project is online. The project would include mostly developed areas and use drought-tolerant plants, and irrigation water usage would comply with the Water Efficient Irrigation Ordinance. Therefore, the BDFP operations would not result in use of large amounts of potable water in a wasteful manner.

[35] The SFPUC proposes to implement the Eastside Recycled Water Project by 2030. The Eastside Recycled Water Project would produce disinfected tertiary treated recycled water for non-potable uses. Refer to Table 4.1-1 in Section 4.1 for more information on this project.

Summary of Impact ME-2

Operational energy use would not be considered wasteful since proposed BDFP facilities would increase energy generation, efficiency, and conservation and more than offset the increase in energy demand due to the project. Compliance with the requirements of the San Francisco Environment Code and other ordinances discussed above would ensure that the project would not result in inefficient, wasteful, or unnecessary use of fuel or water during operation. For these reasons, the project's operational impacts on fuel, water, and energy resources would be ***less than significant.***

Mitigation: None required.

Cumulative Impacts

Impact C-ME-1: The project, in combination with past, present, and probable future projects, would not encourage activities that result in the use of large amounts of fuel, water, or energy, or use such resources in a wasteful manner. (Less than Significant)

The geographic scope for the analysis of potential cumulative impacts related to energy, fuel, and water resources encompasses the BDFP area and the broader region, which generally would use the same fuel, water, and energy supply sources. All projects listed in Table 4.1-1 in Section 4.1, Overview, are considered in the cumulative impact analysis for both construction and operation.

Regarding construction-phase impacts related to energy and water use, all of the projects presented in Table 4.1-1 involve some level of construction. Several of the Projects (e.g., SEP Chemical Systems Relocation and Facilities Upgrade, SEP Existing Digester Roof Repairs, SEP Northside Reliability Project) have already been constructed, while 20 projects could be under construction during some portion of the five-year construction period of the BDFP. Like the project, construction of all cumulative projects would require the use of fuel and energy, and could also require the use of water. The amount of fuel, energy and water consumed during construction would vary by project. The projects identified in Table 4.1-1 are within San Francisco and would be subject to the same regulatory framework as the project for the use of fuel, water, and energy during construction.[36] These requirements include the California Green Building Standards Code, Clean Construction Ordinance (applicable to most public projects), Environment Code Chapter 14 and Section 708, and Public Works Code Article 21. Compliance with these existing regulations by the identified cumulative projects would ensure that fuel, water, or energy resources are not used wastefully during construction, and that construction of these projects would not result in a significant adverse, cumulative impact to which the BDFP project could contribute.

[36] One project, the Peninsula Corridor Electrification Project (Caltrain Peninsula Corridor Joint Powers Board), would not be subject to City policies and ordinances, but would be subject to the state regulations pertaining to energy and water conservation discussed in Section 4.18.2.2.

Regarding operations-phase impacts related to energy and water use, many of the projects listed in Table 4.1-1 involve repair and replacement of existing systems and equipment at the SEP and elsewhere (e.g., SEP Chemical System Relocation and Facilities Upgrade, SEP Existing Digesters Roof Repair, Existing Digester Gas Handling Improvements); these projects generally would not increase consumption of energy and water above existing levels. Operation of the other projects listed in Table 4.1-1 would require the use of fuel, energy or water in varying quantities. For example, similar to the BDFP, generators and other diesel-fueled equipment that could be installed as part of the cumulative projects would use fuel, but these uses are generally required by safety regulations. As indicated above, the projects identified in Table 4.1-1 are within San Francisco and would be subject to the same regulatory framework as the BDFP for the use of fuel, water, and energy during operations. At a minimum, applicable regulations would include current State standards regarding energy consumption and conservation (e.g., energy efficiency standards and green building standards in Title 24 of the California Code of Regulations). The application of local energy and water efficiency requirements would vary by project type, size, and sponsor but could include Chapter 7 of the San Francisco Environment Code or the 2013 San Francisco Green Building Code, San Francisco Better Roofs Requirements for Renewable Energy Facilities Ordinance, the San Francisco Water Efficient Irrigation Ordinance, and (if within a recycled water use area) the Reclaimed Water Use and Non-Potable Water ordinances. Compliance with applicable energy and water use regulations would ensure that the identified cumulative projects in the region would not result in wasteful use of these resources. As a result, there would not be a significant cumulative impact from the wasteful use of fuel, energy, or water to which the BDFP project could contribute. Accordingly, the cumulative effect would be ***less than significant***.

Mitigation: None required.

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4.19 Agriculture and Forest Resources

This section describes existing agricultural and forest resources in the project area and the potential for implementation of the Biosolids Digester Facilities Project (BDFP or project) to adversely affect those resources. This impact analysis evaluates the potential agriculture and forest resources impacts of the project construction and operation, and identifies mitigation measures to avoid or reduce significant adverse impacts, as appropriate. Please see Section 4.14, Biological Resources, for discussion of the San Francisco Urban Forestry Ordinance as it relates to protected trees.

4.19.1 Setting

The project site and off-site staging areas are located on the eastern side of San Francisco, in the Bayview-Hunters Point neighborhood (refer to Figures 2-1 and 2-2 in Chapter 2, *Project Description*). As described in Section 4.2, Land Use, the project site and off-site staging areas are designated for public and heavy industrial uses under the City's zoning.

The California Department of Conservation, Division of Land Resource Protection, maps important farmlands throughout California. Important farmlands include Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land. There are no important farmlands mapped on the project site or off-site staging areas.[1]

Section 12220(g) of the California Public Resources Code defines forest land as "land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits." Timberland is land (other than land owned by the federal government and land designated by the California Department of Forestry and Fire Protection [CAL FIRE] as experimental forest land) that is available for and capable of growing a crop of trees of any commercial species used to produce lumber and other forest products. Statewide land cover mapping prepared by CAL FIRE as part of ongoing land cover monitoring classifies land cover into 13 land cover classes. The land cover maps characterize land cover at the project site and off-site staging areas as urban; therefore, there are no timber harvesting activities at the project site or off-site staging areas.[2]

[1] California Department of Conservation, California Farmland Conversion Report 2008-2010, April 2014. Available online at http://www.conservation.ca.gov/dlrp/fmmp/Pages/FMMP_2008-2010_FCR.aspx.

[2] California Department of Forestry and Fire Protection (CAL FIRE), [Map] State of California Land Cover, Multi-Source Data Compiled in 2006, February 2011. Available online at http://frap.fire.ca.gov/data/frapgismaps/landcover2006_download. Accessed on September 8, 2015.

4.19.2 Regulatory Framework

4.19.2.1 Federal Regulations

The Farmland Protection and Policy Act requires an evaluation of the relative value of farmland including Prime Farmland, Unique Farmland, and Farmlands of Statewide or Local Importance, as follows, that could be affected by decisions sponsored in whole or part by the federal government:[3]

- ***Prime Farmland*** is land that has the best combination of physical and chemical characteristics for long-term crop production. It has the soil quality, growing season, and moisture supply needed to sustain high crop yields when appropriately treated and managed. In addition, the land must have been used for irrigated agricultural production in the last four years to qualify under this category.

- ***Unique Farmland*** is land that does not meet the criteria for Prime Farmland or Farmland of Statewide Importance but has been used for the production of the state's leading agricultural crops. This land is usually irrigated, but may include the types of non-irrigated orchards or vineyards that are found in some climatic zones of California. Unique Farmland must have been in agricultural production at some time during the four years prior to the mapping date.

- ***Farmland of Statewide Importance*** is similar to Prime Farmland, but with minor shortcomings such as greater slopes and less ability to store moisture.

- ***Farmland of Local Importance*** applies to land of importance to the local agricultural economy as determined by the county. This land is either currently producing crops or has the capability of production, but does not meet the criteria of the preceding categories.

The Farmland Protection and Policy Act would not apply to the project, since the project is not a federal government action or program.

4.19.2.2 State Regulations

The California Land Conservation Act of 1965 (commonly referred to as the Williamson Act) is the state's primary program for the conservation of private land for agricultural and open space uses. The Williamson Act provides a mechanism through which private landowners can contract with counties and cities to voluntarily restrict their land to agricultural and compatible open space uses. In return, Williamson Act contracts offer tax incentives by ensuring that land is assessed for its agricultural productivity rather than its highest and best use. Contracts typically restrict land use for a period of 10 years; however, some jurisdictions exercise the option to extend the term for up to 20 years. Contracts are automatically renewed unless the landowner files for non-renewal or petitions for cancellation.

[3] United States Department of Agriculture Natural Resources Conservation Service, Farmland Protection Policy Act. Available online at http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/landuse/fppa/. Accessed on June 27, 2016.

The California Department of Conservation prepares countywide maps of lands enrolled in Williamson Act contracts and classifies them into the following categories[4]:

- ***Prime Agricultural Land.*** This category represents the state's highest quality agricultural land. Land in this category is typically used for the production of irrigated crops or to support livestock.

- ***Non-Prime Agricultural Land.*** This category represents Open Space Land of Statewide Significance as defined under the California Open Space Subvention Act. Most land in this category is being used for agricultural purposes, such as livestock grazing or non-irrigated crops, but may also include other open space uses that are compatible with agriculture and consistent with local general plans.

- ***Land in Non-Renewal.*** This category represents land under a Williamson Act contract that is being terminated at the option of the landowner or local government.

There are no agricultural lands, including Williamson Act lands, within the project site or off-site staging areas. No state regulations pertaining to forest resources apply to the project.

4.19.2.3 Local Regulations

The San Francisco Board of Supervisors established an Urban Agriculture Program in 2012 to provide institutional support for urban agriculture, including the growing of plants and raising of animals.[5] The project site and off-site staging areas are not currently used for urban agriculture (except for the Southeast Greenhouses) or planned for such use. The Southeast Greenhouses were used for urban agriculture at the time of the Notice of Publication but will be demolished in 2017 as part of a separate project; potential future uses of the site are being evaluated by the SFPUC. There are no local regulations governing agriculture or forest resources that apply to the project.

4.19.3 Impacts and Mitigation Measures

4.19.3.1 Significance Criteria

The project would have a significant impact on agriculture and forest resources if the project were to:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;

- Conflict with existing zoning for agricultural use, or a Williamson Act contract;

[4] Department of Conservation, Division of Land Resource Protection, *State of California Williamson Act Contract Land*, 2013.

[5] San Francisco Board of Supervisors, Agenda Packet 7/17/12 San Francisco Administrative Code. Available online at http://www.sfbos.org/ftp/uploadedfiles/bdsupvrs/bosagendas/materials/bag071712_120404.pdf. Accessed on June 27, 2016.

- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)) or timberland (as defined by Public Resources Code Section 4526);
- Result in the loss of forest land or conversion of forest land to non-forest use; or
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or forest land to non-forest use.

Due to the nature of the project, there would be no impact related to the following topics for the reasons described below:

- ***Conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to Non-Agricultural Use.*** The project would not be on land designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Therefore, this criterion is not applicable to the project.
- ***Conflict with Zoning for Agricultural Use or with a Williamson Act Contract.*** The project would not be on land used or zoned for agricultural activities. The project site and off-site staging areas are not subject to a Williamson Act contract. Therefore, this criterion is not applicable to the project.
- ***Conflict with Existing Zoning for Forest Land, Loss of Forest Land, or Conversion of Forest Land to Non-Forest Use.*** There is no forest land on the project site or off-site staging areas; thus, implementation and operation of the project would not conflict with zoning regulations for forest land, result in the loss of forest land, or result in the conversion of forest land to non-forest use. Therefore, the third and fourth criteria listed above are not applicable to the project.

4.19.3.2 Approach to Analysis

For this analysis, state and local planning documents and maps were reviewed to identify agricultural or forest resources present at the project site or construction staging areas that, because of their proximity, could be directly or indirectly affected by the project.

4.19.3.3 Impact Evaluation

Construction and Operational Impacts

Impact AG-1: The project would not involve changes in the existing environment which could result in the conversion of farmland to non-agricultural use or forest land to non-forest use. (No Impact)

As indicated in the preceding text, none of the areas affected by the project are designated as Farmland or forest land. Therefore, the project would have ***no impact*** on farmland or forest land.

Mitigation: None required.

Cumulative Impacts

Impact C-AG-1: The project, in combination with past, present, and probable future projects, would not substantially contribute to cumulative impacts on farmland or forest land. (No Impact)

Pursuant to CEQA Guidelines Section 15130(a)(1), an EIR should not discuss impacts that do not result in part from the project evaluated in the EIR. As described under Impact AG-1, the project would have no impact related to the conversion of farmland to non-agricultural use or forest land to non-forest use. Therefore, there would be ***no significant cumulative impact*** on these resources to which the project would contribute.

Mitigation: None required.

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CHAPTER 5
Other CEQA Issues

5.1 Growth Inducing Impacts

Section 15126.2(d) of the California Environmental Quality Act (CEQA) Guidelines requires that an environmental impact report (EIR) discuss "the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment."

As discussed in Chapter 4, Section 4.4, Population and Housing, the Biosolids Digester Facilities Project (BDFP or project) does not involve any housing construction and therefore would not induce growth directly by constructing housing that would attract people to the area. Project construction would not extend roads or other infrastructure that could indirectly induce growth. Given the size and availability of the regional workforce, project construction would not be expected to induce demand for housing by attracting a substantial number of workers from outside the region. Nor would the project provide new permanent employment opportunities that could attract workers to the area; long-term operation of the BDFP would not increase the number of workers employed at the Southeast Water Pollution Control Plant (Southeast Plant or SEP).

The existing sewer system is already sized to serve the projected population of over 1 million residents by 2045. Both the Southeast Plant and Oceanside Plant have capacity for the projected flows expected in 2045 and the biosolids digester facilities at the SEP would be designed to treat the solids from these projected flows up to the existing capacity. Project implementation would thus maintain the existing overall capacity of the SEP. As described in Section 4.4, Population and Housing, the proposed solids treatment facilities capacity provided by the BDFP is based on projections presented in the San Francisco Public Utilities Commission (SFPUC) *Wastewater Flow and Load Projections Technical Memorandum*.[1] The flow and load projections were developed using the most recent data available from SEP and Oceanside Water Pollution Control Plant operations and the (then) most recent population and employment projections developed by the Association of Bay Area Governments (ABAG), the Bay Area's regional planning agency. ABAG projections are relied on for planning by transportation and air quality agencies, water agencies, local governments, and others,

[1] SFPUC, *Wastewater Flow and Load Projections Technical Memorandum*, Prepared for San Francisco Public Utilities Commission Sewer System Improvement Program, Updated February 2014.

and are routinely used by the San Francisco Planning Department in its land use allocations to project growth throughout the City and County of San Francisco. Use of ABAG's *Projections 2013* to project wastewater flows and loads ensures that treatment capacity provided by the SEP and the associated solids treatment improvements provided by the BDFP would be consistent with planned growth and would not provide excess capacity that could potentially accommodate unplanned growth.

Based on this analysis, the project would not have a substantial growth-inducing impact, and no mitigation is required.

5.2 Significant Unavoidable Impacts

In accordance with Section 21100(b)(2)(A) of CEQA and with Sections 15126(b) and 15126.2(b) of the CEQA Guidelines, the purpose of this section is to identify project-related environmental impacts that could not be eliminated or reduced to a less-than-significant level with implementation of all feasible mitigation measures, as identified in Chapter 4, *Environmental Setting and Impacts*. The findings in this chapter are subject to final determination by the San Francisco Planning Commission as part of its certification of the Final EIR.

5.2.1 Cultural Resources

The project would result in the demolition of Buildings A and B at the Central Shops site, which are eligible for listing in the California Register of Historical Resources and National Register of Historic Places. Demolition of Buildings A and B would destroy the physical characteristics that convey historical significance of these buildings, as detailed in Section 4.5, Cultural Resources, causing a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5. This impact would be significant and unavoidable, even with implementation of Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display), which would require written and photographic documentation of Buildings A and B consistent with National Park Service Historic American Building Survey/ Historic American Engineering Record Historical Report Guidelines prior to their demolition, as well as installation of a permanent display of interpretive materials in a prominent, public setting. Implementation of this measure would reduce the severity of the impact, but not to a less-than-significant level. The project would cause a substantial adverse change in the significance of a historical resource, and the impact would be *significant and unavoidable, with mitigation.*

Furthermore, the project would result in a substantial contribution to cumulative impacts on historic architectural resources when considered in combination with past, present, and probable future projects (specifically the Demolition of the Existing SEP Digesters and Southside Renovation Project). This would be *significant and unavoidable*, even with implementation of Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display). The impact associated with the demolition of Building 870, a contributor located within the *Southeast Treatment Plant Streamline Moderne Industrial Historic District*, from implementation of the BDFP in combination with the impact associated with the proposed future demolition of all existing digesters (Buildings 630-730) and their control buildings (Buildings 620 and 680), as part of the Southside Renovation Project, would result

in a significant, adverse cumulative impact on historic architectural resources. In addition to the loss of one of the *Southeast Treatment Plant Streamline Moderne Industrial Historic District's* 22 contributory buildings, the overall implementation of the BDFP would replace the function of the existing digesters and associated control buildings, thereby allowing for demolition of the existing digesters and control buildings. Therefore, the proposed project's contribution to this cumulative impact is considered cumulatively considerable, and cumulative impacts would remain *significant and unavoidable, with mitigation*.

5.2.2 Air Quality

The project includes construction activities and equipment that would generate NOx, an ozone precursor and criteria air pollutant, above the City's significance threshold for NOx during all five construction years. For this reason, the project would violate an air quality standard, a significant impact. Implementation of Mitigation Measure M-AQ-1a (Construction Emissions Minimization) would help to reduce NOx emissions, but not to below the applicable significance threshold during the first and third construction years. Implementation of Mitigation Measure M-AQ-1b (Emission Offsets) could offset the residual NOx emissions to below significance thresholds; however, whether implementation of Mitigation Measure M-AQ-1b would fully offset excess NOx emissions cannot be confirmed for two reasons. First, the SFPUC is in the process of determining whether there are enough opportunities available for upgrading existing SFPUC facilities sufficient to achieve the needed offset to reduce this impact to below the significance threshold. Second, although implementation of emissions offsets via the mitigation offset fee would result in an agreement with a third party, the BAAQMD, that agreement depends in part on the actions of that third party, and thus is not fully within the City's control. Given these uncertainties, the residual impact of construction emissions is conservatively considered significant, and the project's impact would remain *significant and unavoidable, with mitigation*.

5.3 Areas of Known Controversy and Issues to Be Resolved

On June 24, 2015, the San Francisco Planning Department issued a Notice of Preparation (NOP) of an EIR. In accordance with Section 15082 of the CEQA Guidelines, on June 24, 2015, the Planning Department sent over 2,340 copies of the NOP to public agencies and interested parties to begin the formal CEQA scoping process for the project. Notices were sent to potentially interested parties, including various state, regional, and local agencies, as well as to owners of properties within at least 300 feet of the north and west boundaries of the SEP and to owners of properties south of the SEP to Palou Avenue and east to Third Street. The Planning Department held a scoping meeting on July 16, 2015 to solicit comments on the scope of the EIR. The NOP is included in Appendix NOP of this document.

No areas of scientific or technical controversy have been identified for this project. Public comments received on the NOP for the proposed project included the following:

- Pedestrian, bicyclist and motorist safety during construction
- Transit impacts related to construction

- Overall health impacts related to truck traffic, exposure to diesel particulates and dust, and respective mitigation measures
- Construction and operations job opportunities for the community; benefits of project to the community
- Community involvement and outreach
- Use of the facility for educational and training purposes
- Conflicts with other concurrent construction projects in vicinity; potential for cumulative impacts with other projects
- Odors
- Environmental justice[2]
- Issues related to aesthetics
- Cumulative impacts of concurrent projects
- Loss of Southeast Greenhouses
- Alternative location for project
- Use of compostable materials

[2] The U.S. Environmental Protection Agency's (USEPA) Office of Environmental Justice defines environmental justice as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Consistent with CEQA, economic or social effects of a project are not to be treated as significant effects on the environment (CEQA Guidelines Section 15131). The EIR focuses on physical environmental effects rather than socioeconomic effects. The SFPUC is conducting a separate environmental justice analysis concurrent with the project, which can be found at the following website: http://sfwater.org/index.aspx?page=654.

CHAPTER 6
Alternatives

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6.3 Alternatives Analysis	6-3 Comparison of Environmental Impacts of Project to Impacts of Alternatives	6-3 Location of Pier 94 Backlands Alternative
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		6-7 Parcels Considered for Potential Alternative Sites

6.1 Overview

6.1.1 Purpose of this Chapter

As required by the California Environmental Quality Act (CEQA), this chapter presents the alternatives analysis for the Biosolids Digester Facilities Project (BDFP or project) proposed by the San Francisco Public Utilities Commission (SFPUC) to replace the solids treatment and related facilities at the existing Southeast Water Pollution Control Plant (SEP) in San Francisco. The purpose of the CEQA alternatives analysis is to identify potentially feasible alternatives that could avoid or substantially lessen the significant impacts identified for the project while still meeting most of the project objectives. This chapter describes both the methodology used to screen and select alternatives to the project for detailed CEQA analysis as well as the results of the detailed alternatives analysis. For the alternatives selected for detailed analysis, the chapter evaluates the alternatives' impacts relative to existing environmental conditions and compares the potential impacts of the alternatives with those of the project. Based on this analysis, this chapter then identifies the environmentally superior alternative. Finally, other alternatives that were considered but eliminated from detailed consideration are presented together with the reasons for their elimination.

6.1.2 CEQA Requirements for Alternatives Analysis

CEQA Guidelines Section 15126.6(a) states that an environmental impact report (EIR) must describe and evaluate a reasonable range of alternatives to the project that would feasibly attain most of the project's basic objectives but would also avoid or substantially lessen any identified significant adverse environmental effects of the project. CEQA Guidelines Section 15364 defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." CEQA Guidelines Section 15126.6(f)(1) states that "the factors that may be taken into account when addressing the potential feasibility of alternatives include site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site (or the site is already owned by the proponent)."

The EIR must evaluate the comparative merits of the alternatives and include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the project. Specifically, the CEQA Guidelines set forth the following criteria for selecting and evaluating alternatives:

- ***Range of reasonable alternatives.*** An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, that would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation (Section 15126.6[f]). An EIR is not required to consider alternatives that are infeasible. (Section 15126.6[a]) The specific alternative of "no project" shall also be evaluated along with its impact (Section 15126.6[e][1]).

- ***Ability to avoid or substantially reduce significant effects.*** The discussion of alternatives shall focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly (Section 15126.6[b]).

- ***Ability to meet project objectives.*** The range of potential alternatives shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects (Section 15126.6[c]).

6.2 Alternatives Screening and Selection

Consistent with CEQA, the approach to alternatives selection focused on the following criteria for identifying the range of alternatives:

- Does the alternative reduce the severity of one or more of the project's significant adverse impacts?

- Is the alternative potentially feasible?
- Does the alternative meet most of the basic objectives of the project?
- Does the alternative foster informed decision-making and public participation?

The screening process involved three main steps: (1) review of potentially impact-reducing or impact-avoidance concepts and strategies that were previously identified either by members of the community or by the SFPUC, (2) review of significant impacts identified in the EIR, and (3) formulation of alternatives that would meet CEQA requirements. Most of the concepts and strategies previously identified by the public or the SFPUC were eliminated from consideration for CEQA purposes based on one or more of the following reasons: (1) their inability to reduce the project's significant impacts that were identified in Chapter 4 of this EIR, (2) their infeasibility, (3) their inability to meet most of the project's basic objectives, and/or (4) their potential to result in greater environmental impacts than the project. Section 6.5 describes potential alternatives and other strategies that were considered but eliminated and the reasons for their elimination.

6.2.1 Alternatives Previously Identified for the BDFP

6.2.1.1 Alternatives Identified by the Public

Residents of the Bayview-Hunters Point community and other members of the public suggested numerous alternative concepts to the project, all of which were considered as part of the alternatives screening process for this EIR.

The nine-member Southeast Digester Task Force was an advisory group representing the local Bayview-Hunters Point community and convened by the SFPUC for the purpose of reviewing and evaluating alternative concepts for replacing the SEP digesters. The Digester Task Force met regularly during 2009 and 2010 before delivering a final report, the Southeast Digester Task Force Final Report,[1] to the City and County of San Francisco (City or CCSF) that included recommendations for site options and facility layouts, among other things. The Digester Task Force evaluated 16 site options, screened out most of the sites due to their infeasibility (e.g., inadequate size, distance from the SEP, site contamination, and/or site unavailability), reconfigured the remaining sites, and ultimately recommended the following two sites:

- The proposed BDFP site, which is described in Chapter 2, *Project Description*, and evaluated in Chapter 4, *Environmental Setting and Impacts*, as the proposed project in this EIR.
- The Pier 94 Backlands site, which is described and evaluated in this EIR as a CEQA alternative in Section 6.3, below.

A variation of an alternative considered by the Task Force (the SEP South/Quint Street Alternative), the project site plus SEP South, is also described and evaluated in this EIR as a CEQA alternative in Section 6.3 below. Section 6.5, below, identifies the other options identified by the task force and describes the reasons they were eliminated from detailed analysis in the EIR.

[1] Southeast Digester Task Force for the San Francisco Public Utilities Commission, *Review of the Biosolids Digester Facility Project*, June 2, 2010.

During the scoping period for this EIR (see Chapter 1, Section 1.2, Environmental Review Process), one community member suggested the following three alternatives to the project:

- The first alternative would divert some wastewater flows from the SEP to the SFPUC Oceanside Water Pollution Control Plant but otherwise would not alter existing SEP solids processing facilities. This alternative was considered for evaluation in the EIR but ultimately rejected for reasons stated in Section 6.5, below.
- The second alternative would locate the BDFP facilities at 1550 Evans Avenue or the Pier 94 site. The 1550 Evans alternative was considered for evaluation in the EIR but ultimately rejected for reasons stated in Section 6.5, below. The Pier 94 site is described and analyzed as a CEQA alternative in Section 6.3.2, below.
- The third alternative component proposed hauling biosolids by rail instead of by truck. This alternative was considered for evaluation in the EIR but ultimately rejected for reasons stated in Section 6.5, below.

6.2.1.2 Other Alternatives Identified During Project Planning

The SFPUC has identified and examined numerous alternative concepts to address the need for and objectives of the BDFP over many years. As part of the alternatives screening process for the BDFP EIR, the SFPUC's Needs Assessment Report[2] and the Alternatives Analysis Report[3] were reviewed for possible alternatives that could meet CEQA criteria for EIR alternatives. The Needs Assessment Report identified requirements and modifications needed for the SEP biosolids facilities to meet the Sewer System Improvement Program (SSIP) levels of service goals (refer to Table 2-3 in Chapter 2, *Project Description*). The report evaluated four alternatives that could meet future needs and could achieve level of service goals, two of which advanced the recommendations of the Digester Task Force (construction of new biosolids digester facilities at either the proposed BDFP site or at the Pier 94 Backlands, described in Section 6.2.1.1, above). The remaining two alternatives were the following:

- *Maintain Existing Facilities.* This alternative, involving long-term maintenance of existing facilities, essentially represents what would reasonably be expected to occur if the BDFP is not approved, and is described and analyzed under the No Project Alternative (refer to Section 6.3.1, below).
- *Rebuild Existing Facilities in Place.* This alternative concept involves reconstruction of existing solids handling facilities in place. Section 6.5, below, describes this potential alternative and the reasons it was eliminated from detailed analysis in this EIR.

During development of the BDFP, the SFPUC evaluated processing technology, treatment train, and site layout options for the BDFP as part of the Alternatives Analysis Report. The results yielded the proposed technology (thermal hydrolysis process with mesophilic anaerobic digestion), unit processes, and site layout described in Chapter 2, *Project Description*. Section 6.5, below, describes

[2] SFPUC, *Needs Assessment Report: Southeast Water Pollution Control Plant Biosolids Digester Facilities, Draft Final*, January 2016.
[3] SFPUC, *Biosolids Digester Facilities Project Alternatives Analysis Report*, December 2014.

three of the site layout options considered for potential evaluation in the EIR and the reasons they were eliminated.

6.2.2 Strategies to Avoid Significant Impacts

The primary goal of the alternatives selection process is to identify alternatives that could substantially reduce or avoid one or more of the significant impacts attributable to the project, in accordance with CEQA Guidelines Section 15126.6(b). The following sections summarize the conclusions for significant and potentially significant impacts of the BDFP that were identified in Chapter 4, *Environmental Setting and Impacts*, of this EIR and describe strategies that were considered for inclusion in the alternatives analysis based on their ability to avoid or lessen significant or potentially significant impacts. See Chapter 4 for details regarding the impacts of the project.

6.2.2.1 Significant and Unavoidable Impacts

The project was determined to have the following significant and unavoidable impacts.

Cultural Resources

- Project implementation would cause a substantial adverse change in the significance of a historic architectural resource through the demolition of Central Shops Buildings A and B. Even with implementation of Mitigation Measure M-CR-1 (Documentation of Historical Resources and Interpretive Display), the impact would be *significant and unavoidable.* (Impact CR-1)

- The project would result in a substantial contribution to cumulative impacts on historic architectural resources because the project would demolish Building 870, a contributor to a *Southeast Treatment Plant Streamline Moderne Industrial Historic District* (historic district), and implementation of the BDFP would replace the function of the existing digesters and associated control buildings, which are contributors to the historic district, thereby allowing for a potential future project involving demolition of the existing digesters and control buildings. (Demolition of the existing digesters and control buildings is not part of the BDFP.) Loss of Building 870 (contributor within the historic district) under the project, in combination with the proposed future demolition of all existing digesters and their control buildings, would result in a significant, adverse cumulative impact on the district and therefore an adverse impact on historic architectural resources. Even with implementation of Mitigation Measure M-CR-1 (Documentation of Historical Resources and Interpretive Display), the impact would be *significant and unavoidable.* (Impact C-CR-1)

Air Quality

- Of the criteria air pollutants that would be generated during project construction, nitrogen oxide (NOx) emissions would violate an existing air quality standard, both at the project level and cumulatively. Even with implementation of Mitigation Measures M-AQ-1a (Construction Emissions Minimization) and M-AQ-1b (Emission Offsets), these impacts would be *significant and unavoidable* during two of the five years of construction. (Impacts AQ-1, C-AQ-1a)

6.2.2.2 Strategies to Avoid or Lessen Significant Unavoidable Impacts

Significant and Unavoidable Impact on Historic Architectural Resources

Strategies to avoid the project's impact on historic architectural resources (i.e., demolition of Central Shops Buildings A and B) were examined in detail in a memorandum from ESA+Orion to the San Francisco Planning Department.[4] In 2015, the San Francisco Historic Preservation Commission approved Resolution No. 0746 recommending that EIRs that identify demolition of a historic architectural resource in San Francisco include a robust alternatives evaluation. The resolution states that EIR alternatives evaluation should include, in addition to the required No Project Alternative, at least one full preservation alternative (i.e., an alternative that would fully preserve the resource) and one partial preservation alternative (i.e., an alternative that would partially preserve the resource), while taking into account the potential feasibility of the proposed alternatives and their ability to achieve the project objectives. The resolution also requests that EIRs describe these alternatives. As part of the alternatives development process for this EIR, full and partial preservation strategies were identified to meet the Historic Preservation Commission recommendations[5] as well as the CEQA requirements. In total, ten strategies to reduce or avoid impacts on historic architectural resources were considered: six "full preservation" alternatives that would avoid the impact entirely and four "partial preservation" alternatives that would lessen the severity of the impact by retaining a portion of the resource. Three full preservation alternatives identified in this process (the No Project, Pier 94 Backlands, and Historical Resources Relocation Alternatives) were selected as alternatives for detailed analysis in this EIR in Section 6.3, below. In addition, the SEP South/Quint Street Alternative (one of the site options considered by the Digester Task Force) was selected for detailed analysis in Section 6.3, below and is also considered a full preservation alternative. All of the partial preservation strategies were deemed either to be infeasible or ineffective in substantially reducing the significant and unavoidable impact on historic architectural resources. The strategies to avoid or reduce impacts on historic architectural resources that were considered but eliminated from further analysis are described in Section 6.5, below.

Cumulative Significant and Unavoidable Impact on Historic District

The project would result in a substantial contribution to cumulative impacts on historic architectural resources because the overall implementation of the BDFP would replace the function of the existing digesters and associated control buildings, which are contributors to the *Southeast Treatment Plant Streamline Moderne Industrial Historic District*, thereby allowing for future potential demolition of the existing digesters and control buildings. Phase II of the SFPUC's SSIP includes demolition of the existing SEP digesters and associated control buildings, and improvements within the south side of the SEP,[6] once the BDFP is constructed and fully operational. With the BDFP and the proposed future demolition of the existing digesters,

[4] Brewster, Brad, Jill Hamilton, and Joyce Hsiao, Memorandum to Steve Smith and Tina Tam, San Francisco Planning Department, regarding SFPUC Biosolids Digester Facilities Project EIR Preservation Alternatives, May 25, 2016.

[5] Ibid.

[6] More information on this project, Demolition of the Existing SEP Digesters and Southside Renovation Project, can be viewed in Table 4.1-1 in Section 4.1 of this EIR.

approximately 13 of the 22 contributing structures to the historic district would be demolished, a significant, unavoidable cumulative impact.

The fundamental project objective is to "replace the existing solids treatment facilities at the SEP with new infrastructure with modern and more efficient treatment technologies to protect public health and safety and provide continued regulatory compliance." Thus, *any* alternative that would achieve this single objective would also result in a substantial contribution to cumulative impacts on historic architectural resources by replacing the function of the existing digesters and allowing for potential future demolition of the existing digesters. There is no alternative that could avoid or substantially reduce the severity of this significant and unavoidable cumulative impact on the historic district *and* meet this fundamental project objective. Therefore, with the exception of the No Project Alternative, none of the alternatives described and analyzed in Section 6.3, below, addresses this significant and unavoidable cumulative impact on the historic district.

Significant and Unavoidable Construction Air Quality Impacts

The project would result in significant and unavoidable impacts associated with criteria air pollutant emissions (specifically ozone precursors, NOx) during the first and third years of construction, both on a project and cumulative impact basis, even with implementation of maximum feasible mitigation measures for construction emissions minimization. Implementation of Mitigation Measure M-AQ-1b (Emission Offsets) could reduce these impacts to less than significant, by reducing NOx emissions to below the threshold level within the same air basin. However, these impacts are still considered significant and unavoidable because of uncertainties related to the availability of sufficient offset opportunities and reliance on an agreement with a third party (the BAAQMD).

No feasible strategy or alternative has been identified to avoid or substantially reduce the severity of these impacts beyond the mitigation measures presented in Chapter 4, Section 4.8. Consequently, only the No Project Alternative would avoid these significant and unavoidable, air quality impacts.

6.2.2.3 Significant Impacts that Can be Mitigated to Less than Significant

Project implementation would result in the following significant impacts, all of which could be mitigated to less-than-significant levels with the implementation of mitigation measures identified in Chapter 4, *Environmental Setting and Impacts*, under the respective impact evaluations.

Cultural Resources

- Ground-disturbing activities during project construction would affect known prehistoric archeological resources or could affect unidentified deeply submerged prehistoric deposits, resulting in a substantial adverse change in the significance of an archeological resource, as both a project-level impact and a cumulative impact. With implementation of Mitigation Measures M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) and M-CR-2b (Accidental Discovery of Archeological Resources), both impacts would be *less than significant*. (Impacts CR-2 and C-CR-2)

- Project construction could disturb human remains, including those interred outside of formal cemeteries, as both a project-level impact and a cumulative impact. With implementation of Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery), both impacts would be *less than significant*. (Impacts CR-3 and C-CR-2)

Noise

- Use of concrete saws during project construction could cause a substantial temporary or periodic increase in ambient noise levels and could expose people to or generate noise levels in excess of noise level standards established in the local noise ordinance. In addition, use of the Southeast Greenhouses as a staging area could substantially exceed the ambient noise levels at nearby sensitive receptors. With implementation of Mitigation Measure M-NO-1a (Shielding of Concrete Saw Operations) and Mitigation Measure M-NO-1b (Construction Noise Control Measures at Southeast Greenhouses Staging Area), this impact would be *less than significant*. (Impact NO-1)

- Noise from project construction, combined with construction noise from cumulative projects nearby, could cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity. With implementation of Mitigation Measures M-NO-1b (Construction Noise Control Measures at Southeast Greenhouses Staging Area), the project's contribution to this impact would be *less than cumulatively considerable*. (Impact C-NO-1)

Air Quality

- The NOx emissions during project construction could conflict with or obstruct implementation of the 2010 Clean Air Plan, but with implementation of Mitigation Measures M-AQ-1a (Construction Emissions Minimization) and M-AQ-1b (Emission Offsets), the project would be consistent with the 2010 Clean Air Plan, and this impact would be *less than significant with mitigation*. (Impact AQ-4)

Biological Resources

- Project construction could have a substantial adverse effect on roosting bats, as both a project-level and cumulative impact. However, with implementation of Mitigation Measure M-BI-1 (Protective Measures for Special Status Bats and Maternity Roosts), these impacts would be *less than significant*. (Impacts BI-1 and C-BI-1)

Geology, Soils and Paleontological Resources

- Project construction could destroy a unique paleontological resource, as both a project-level impact and a cumulative impact. However, with implementation of Mitigation Measure M-GE-4 (Paleontological Resources Monitoring and Mitigation Program), these impacts would be *less than significant*. (Impacts GE-4 and C-GE-2)

6.2.2.4 Strategies to Avoid or Lessen Significant Impacts that can be Mitigated to Less than Significant

Several strategies were identified to avoid or more effectively mitigate noise and air quality impacts determined to be less than significant after mitigation. These impacts are generally all associated with project construction, and strategies to avoid or more effectively mitigate such impacts include extending the construction schedule and revising the construction methods.

Extending the construction schedule could reduce the severity of air quality impacts (by reducing concurrent use of air pollutant-emitting construction equipment such that NOx emissions would be consistent with the 2010 Clean Air Plan); however, this strategy would prolong numerous other construction activity impacts (e.g., noise, traffic, air pollutant emissions) and would not reduce the total criteria air pollutant emissions; on balance, this strategy would not effectively reduce or avoid these construction-related impacts over the duration of the construction period. The severity of Impacts NO-1, C-NO-1, and AQ-4 could potentially be reduced by avoiding or reducing the use of concrete saw operations; however, this strategy could be overly cumbersome, if even feasible, and would likely extend the construction schedule, such that this strategy would not effectively reduce or avoid these construction-related noise and air quality impacts. Therefore, neither extending the construction schedule nor revising the construction methods were determined to more effectively mitigate noise and air quality impacts than the identified mitigation measures, and these strategies were eliminated from further consideration.

To avoid construction impacts related to cultural and paleontological resources, the SFPUC would need to revise the construction methods to avoid subsurface excavation, assuming the project would remain at the proposed location. This strategy is not feasible. As shown on Figure 2-8 in Chapter 2, *Project Description*, subsurface facilities are integral components of the project. Because feasible mitigation measures are available that would effectively reduce these impacts to less than significant, alternative construction methods that would avoid subsurface excavation were eliminated from further consideration and are not addressed under any of the alternatives. Another strategy that would avoid construction impacts related to cultural and paleontological resources would be to locate the new facilities at a site that does not have known or suspected buried resources. This strategy is addressed and analyzed in Section 6.3, below, under Alternative B, the Pier 94 Backlands Alternative.

Similarly, to avoid construction impacts related to effects on roosting bats, the SFPUC would need to revise the construction methods to avoid building demolition and tree removal as well as reduce construction-associated noise and vibration. This strategy is not feasible at the proposed project location because building demolition and removal of trees are necessary prerequisites for the project. Although these impacts could potentially be avoided or reduced if the project is constructed at a different location (addressed under the Pier 94 Backlands Alternative in Section 6.3, below), there is the potential that the same or other impacts on biological resources could occur at the alternative location. Section 6.3.2, below, evaluates the relative merits of the Pier 94 Backlands Alternative for its effectiveness in reducing construction effects on biological resources (including roosting bats) compared to the project. Nevertheless, because feasible mitigation measures are available that would effectively reduce these impacts to less than significant, alternative construction methods that would avoid building demolition and tree removal at the project site were eliminated from further consideration.

6.2.3 Alternatives Selected for Detailed Analysis

The screening process described above identified four alternatives to the BDFP that represent a reasonable range of alternatives and warrant further analysis as CEQA alternatives. These include the No Project Alternative plus three feasible alternatives that could avoid or substantially reduce

one or more significant impacts of the project and achieve most of the BDFP objectives, thus meeting the CEQA criteria for detailed analysis. The following four alternatives are analyzed in this chapter:

- Alternative A: No Project
- Alternative B: Pier 94 Backlands
- Alternative C: Historical Resources Relocation
- Alternative D: SEP South/Quint Street

With the exception of the No Project Alternative, the identified alternatives would meet most of the project objectives and would lessen, and in some cases avoid, significant adverse impacts that were identified for the proposed project. All four of the above alternatives would be considered full preservation alternatives and would avoid the significant and unavoidable direct impact on historic architectural resources. The No Project Alternative would avoid all significant impacts identified for the proposed project, including the project's significant and unavoidable cumulative impact on the *Southeast Treatment Plant Streamline Moderne Industrial Historic District* and the significant and unavoidable construction-related air quality impact of the proposed project; it would also avoid the significant but mitigable impacts with respect to archeological and paleontological resources, human remains, construction noise, consistency with the 2010 Clean Air Plan, and biological resources (roosting bats). In addition to the significant and unavoidable direct impact on historic architectural resources, the Pier 94 Backlands Alternative would avoid the significant but mitigable impacts related to paleontological resources. Both the Historical Resources Relocation Alternative and the SEP South/Quint Street Alternative would avoid the significant and unavoidable direct impact on historic architectural resources, but for both of these alternatives, all other significant impacts would be the same as those identified for the BDFP.

6.3 Alternatives Analysis

This section presents the detailed analysis of the impacts of the selected alternatives compared to the proposed project. For each of the four alternatives, this section presents a description of the alternative and assumptions used in analyzing that alternative, assesses the ability of the alternative to meet each of the project objectives, and analyzes the impacts of the alternative compared to those of the proposed project. The impact analysis is based on the same environmental setting and significance thresholds as presented for each resource topic in Chapter 4, *Environmental Setting and Impacts*, and uses the same approach to analysis. Except as noted, the impact analysis of the alternatives is qualitative, relative to the identified impacts of the project, and the reader is referred to Chapter 4 for the more detailed analysis. Since the alternatives are conceptual, this evaluation is based on the best available information and reasonable assumptions about how each alternative would be implemented.

Table 6-1 summarizes and compares the characteristics of the project with those of the four alternatives. **Table 6-2** summarizes the ability of the four alternatives to meet the project objectives.

TABLE 6-1
COMPARISON OF PROJECT AND ALTERNATIVES

Characteristic	Proposed Project	Alternative A: No Project	Alternative B: Pier 94 Backlands	Alternative C: Historical Resources Relocation	Alternative D: SEP South/Quint Street
Summary					
Facilities Location	Parts of SEP North near Rankin Street and near Jerrold Avenue, Central Shops site, and Asphalt Plant site (no facilities located within Quint Street)	SEP South	Pier 94 Backlands	Same as project	Portions same as project: parts of SEP North near Rankin Street and near Jerrold Avenue and Asphalt Plant site Portions different from project: Part of Central Shops site (excluding the area in and around Central Shops Buildings A and B); parts of SEP South near Quint Street; Quint Street between Jerrold Avenue and the Caltrain right-of-way
New Pipelines between SEP and New Facilities	Within SEP boundaries and project site	n/a	Approximately 4,000 feet of 10 to 12 new pipelines (between 6 and 20 inches in diameter) located within public rights-of way along Cargo Way, Mendell Street, and Evans Avenue	Same as project	Within SEP boundaries and project site, but different locations from the project Relocation of existing utilities under Quint Street may require construction outside the SEP boundaries
Facilities Acreage	Approximately 10 acres	Approximately 9 acres	Approximately 15 acres (excluding off-site pipelines)	Same as project	Approximately 16 acres
Site Acquisition and Availability	SEP available now Asphalt Plant available in 2017 Central Shops available in 2018	SEP available now	May be feasible, but site is part of the public land trust that is under State Lands Commission jurisdiction. Unknown date of availability, but if feasible would require a minimum of several years to acquire. Pipeline alignments within public rights-of-way.	Same as project	Same as project, plus would require vacating Quint Street
Additional Site Needs	n/a	n/a	Would require that land of similar size and value as the area of the Pier 94 Backlands site be identified and be placed into public trust	Pier 90 site (approximately 3 acres), potentially available in the future	Temporary sites for relocation of existing solids treatment facilities (e.g., gravity belt thickeners, centrifuge systems, sludge pipelines, biosolids dewatering, cake storage and loadout, etc.) would be needed for interim use during construction. Locations of these temporary (at least seven years) sites to be determined. Need right-of-way for relocated gas pipeline along Quint Street.
Proximity of Digesters to Residences	1,000 feet	< 100 feet	> 1,800 feet	Same as project	600 feet to Phelps Street 700 feet to Oakdale Avenue
Footprint of Aboveground Structures	Approximately 206,000 square feet	n/a	Building square footage greater than that of project due to height restriction	Same as project	Same as project
Maximum Height	65 feet	65 feet	40 feet	Same as project	Same as project
Sea Level Rise Considerations	Designed to meet 36-inch increase in sea level rise by 2100 as applicable	None	Designed to meet 36-inch increase in sea level rise by 2100 as applicable at this site	Same as project	Same as project
Staging Area Location	Pier 94 Backlands, Pier 94 and/or Pier 96, segments of Quint Street/Jerrold Avenue, Southeast Greenhouses, and/or 1550 Evans Avenue	None	Piers 94 Backlands, Pier 94 and/or Pier 96	Same as project except for possible additional staging area at Pier 90 required for relocation of historic resources	Same as project
Staging Area Acreage	Up to 12 acres	None	Approximately same as project	Same as project, except for possible additional staging area at Pier 90 required for relocation of historic resources	Same as project
Solids Treatment Facilities					
Process	Thermal Hydrolysis Process/Mesophilic Anaerobic Digestion	Mesophilic Anaerobic Digestion	Same as project	Same as project	Same as project

TABLE 6-1 (Continued)
COMPARISON OF PROJECT AND ALTERNATIVES

Characteristic	Proposed Project	Alternative A: No Project	Alternative B: Pier 94 Backlands	Alternative C: Historical Resources Relocation	Alternative D: SEP South/Quint Street
Solids Treatment Facilities (cont.)					
Biosolids Type	Class A (fewest restrictions for reuse)	Class B (limited reuse options)	Same as project	Same as project	Same as project
Biosolids Annual Production	24,000 dry tons (year 2045)	27,700 dry tons (Year 2045)	Same as project	Same as project	Same as project
Digesters	Number of digesters: 5 Size of digesters: 1.66 million gallons each Height above grade: 65 feet Diameter: 70 feet	Number of digesters: 10 (9 in active use as digesters and 1 used for biogas storage) Size of digesters: 1.8 million gallons each Height above grade: 22 feet Diameter: 100 feet	Number of digesters: 5 Size of digesters: 1.66 million gallons each Height above grade: 40 feet Diameter: 100 feet	Same as project	Same as project
Digester Gas Production	Approximately 1.6 to 2 million cubic feet per day (2023 to 2045)	Approximately 1.3 to 1.7 million cubic feet per day (2023 to 2045)	Same as project	Same as project	Same as project
Energy Recovery Facilities					
Process	• Gas Turbines • Heat Recovery Steam Generation System • Steam Boilers (backup only) • Waste gas burners	• Internal Combustion Engine • Hot Water Boilers • Waste gas burners	Same as project	Same as project	Same as project
Energy Generation, Annual Average	4.2 to 5.2 megawatts (2023 to 2045)	Up to 2 megawatts	Same as project	Same as project	Same as project
Maximum Height of Structures	55 feet (digester gas storage tank)	26 feet (boilers)	40 feet	Same as project	Same as project
Waste Gas Burners – Operations	2 units, 40 feet tall, infrequent use (only used for testing, planned maintenance, and emergencies)	2 units, 65 feet tall, routine and more frequent flaring over time (due to projected increased loadings)	Same as project	Same as project	Same as project, but closer to residences
Odor Control Facilities					
Design Parameter	Designed to limit odors from biosolids facilities to within SEP site	Odors from biosolids facilities not completely contained within existing SEP site	Designed to limit odors from biosolids facilities to within Pier 94 Backlands site	Same as project	Same as project
Solids Treatment Odor Control Facilities	One new centralized solids odor control system with biofilters, adsorption vessels, ammonia scrubbers, odor control fans, and dispersion cones to treat odors from pre-digestion processes (gravity belt thickeners, screening, pre-THP dewatering, and cake storage) and from post-digestion processes (biosolids dewatering, storage, and loadout)	Adsorption units at gravity belt thickeners, centrifuge building, and cake loadout	Same as project	Same as project	Same as project
Ancillary SEP-Related Facilities					
New Ancillary Facilities	New, redundant plant-wide operations control center for both SEP North and South (i.e., security controls, energy management systems, fire protection and alarm systems, compressed air, and plant communications); new electrical rooms, transformers, chemical storage, and diesel emergency generator	None	Additional redundant facilities would need to be built at this location, including site-specific operations control center at this site, backup power, (diesel generators), chemical storage, and fire protection. Due to the distance from the main SEP, these additional facilities would not support the rest of the SEP in the way the same facilities would with the project.	Same as project	Same as project
New Utility Connections	Not required	None	New connections needed for water supply, high voltage power (substation), sewage, natural gas, communications Increased stormwater drainage improvements needed	Same as project, plus potential utility connections to relocated historic buildings	Relocate 24-inch high pressure PG&E gas line within public right-of-way (to be determined) and other utilities within Quint Street

TABLE 6-1 (Continued)
COMPARISON OF PROJECT AND ALTERNATIVES

Characteristic	Proposed Project	Alternative A: No Project	Alternative B: Pier 94 Backlands	Alternative C: Historical Resources Relocation	Alternative D: SEP South/Quint Street
Operations and Maintenance					
Maintenance	• Routine maintenance of new facilities • Routine grit removal during normal operations (due to design, no need to take digesters offline for cleaning)	• High level of maintenance for older equipment • Digester taken out of service for more frequent routine grit removal from digesters • Repair/replacement of facilities as needed (e.g., secondary sludge thickening pumps, gravity belt thickeners, digesters, digester pumps, centrifuges and pumps, bin hoppers, gas booster station equipment, gas handling system components, electrical system)	Similar to project Due to the remote location, additional redundant facilities would need to be maintained and operated	Same as project (does not include maintenance of relocated historic resources)	Similar to project, but layout is not as efficient as proposed project. Maintenance facilities are located far from the processes they would be supporting.
Staffing	No change from existing (280 staff for entire SEP including biosolids)	Slight increase in operations and maintenance staffing compared to existing to ensure reliable operations of aging facilities (up to five additional staff)	Increase of about five staff (to be located at Pier 94 Backlands)	Same as project (does not include staffing for relocated historic resources)	Same as project
Operating Hours	24 hours per day, seven days per week	Same as project	Same as project	Same as project (does not include operations for relocated historic resources)	Same as project
Operational Haul Routes	Grit and screening, biosolids, yellow grease hauling, and chemical delivery via Rankin Street, Evans Avenue, and Cesar Chavez Street to Interstate 280 or U.S. Highway 101	Same as existing condition: grit and screening hauling via Rankin Street, Evans Avenue, and Cesar Chavez Street to Interstate 280 or U.S. Highway 101; chemical delivery, yellow grease, and biosolids loadout via Jerrold Avenue to U.S. Highway 101	• Biosolids, chemical deliveries, yellow grease loadout (to/from site): Amador Street, Illinois Street, Cesar Chavez Street, U.S. Highway 101 • Grit/screening (to/from site): Amador Street, Illinois Street, Cesar Chavez Street, Pennsylvania Street (outbound only), Interstate 280	Same as project	Same as project
Energy Demand and Supplies	By 2045, all electricity demands of the SEP solids treatment process (4.9 megawatts) would be met by electricity produced by the energy recovery facilities (5.2 megawatts), with excess energy available to other SEP facilities. Standby energy would be available for use at the SEP during routine operations, emergencies, and power outages.	Up to 2 megawatts produced by existing energy recovery facilities would partially meet SEP solids treatment process energy demands; supplemental energy from Hetch Hetchy hydropower would be required.	Energy produced at the Pier 94 Backlands site would only be used on-site; no excess energy would be available, due to higher electrical demands related to additional pumping of dilute sludge and return streams to SEP. There would be no standby energy for use at the SEP during routine operation, emergencies, and power outages.	Same as project	Same as project
Construction of New Facilities or Relocation					
Duration and Schedule	Five years, February 2018 to January 2023	No planned construction for major facilities replacement, but construction would be expected to occur sporadically as needed. The diminishing reliability of existing solids processing facilities could result in unanticipated breakdowns and equipment failure, necessitating sporadic repair and replacement construction projects in the future.	Duration approximately same as project. Start date likely delayed by several years due to site acquisition.	Approximately 7 to 13 months for disassembly and transportation (to occur prior to BDFP construction) and 18 to 24 months for reassembly and rehabilitation of Central Shops Buildings A and B at the new site (to occur concurrent with BDFP construction). Total assumed construction duration: about six years.	Duration: At least seven years due to relocation of utilities under Quint Street (water lines, gas pipeline) and construction of interim solids treatment process facilities. Start date likely delayed by several years due to need to redesign project and site acquisition needs for vacating Quint Street.
Construction Hours	Typical: Monday through Friday, 7:00 a.m. to 3:30 p.m. Work could occur until 8:00 p.m. and on Saturdays and Sundays as needed. During peak construction for up to a year, two shifts per day with the second shift lasting until 11:00 p.m. if needed.	No planned construction; see above	Similar to project	Same as project Relocation of Buildings A and B: assumed to be standard Monday through Friday, 7:00 a.m. to 3:30 p.m.	Same as project
Construction Work Force (includes both management and contractor staff)	Typical: 100 to 550 persons, depending on construction activity	No planned construction; see above	Assumed to be 10 percent larger than project	Same as project for construction of BDFP facilities Relocation of Buildings A and B: 75 construction workers	Same as project

TABLE 6-1 (Continued)
COMPARISON OF PROJECT AND ALTERNATIVES

Characteristic	Proposed Project	Alternative A: No Project	Alternative B: Pier 94 Backlands	Alternative C: Historical Resources Relocation	Alternative D: SEP South/Quint Street
Construction of New Facilities or Relocation (cont.)					
Temporary Road Closure	Jerrold Avenue between SEP entrance west of Phelps Street and Caltrain tracks	No planned construction; see above	Potential lane closures for pipeline installation	Same as project	Same as project
Temporary Relocation of Muni	Muni 23 Monterey route	No planned construction; see above	Potential rerouting of Muni Route 19 and Route 44 along Evans Avenue (three to five months)	Same as project	Same as project
Construction Haul Routes	Routing along Rankin Street, Evans Avenue, Cesar Chavez Street, Jerrold Avenue, Third Street, Cargo Way, and Amador Street to Interstate 280 or U.S. Highway 101. Haul trucks between pier staging and SEP. Construction worker shuttle between Pier 94 and SEP.	No planned construction, see above	Routing along Amador, Illinois, Cesar Chavez, and Pennsylvania Streets to Interstate 280 or U.S. Highway 101	Same as project	Same as project
Ongoing Operational Hauling from SEP During Construction	Routing along Jerrold Avenue, Phelps Street, Rankin Street, Evans Avenue, and Cesar Chavez Street	Same as existing condition	Same as existing condition	Same as project	Same as project
Demolition	Approximately 136,000 square feet of existing structures	No planned demolition	None required	Same as project Relocation of Buildings A and B: Assume existing buildings at 600 Amador Street would be demolished	Demolition of Building 871 in SEP North (same as project) No demolition of Central Shops Buildings A and B Additional demolition of SEP South Structures (780, 960 [partial], 785, 900, SS14, SS15, SS15A 770, 915A, 915B, 750, 891, 800, 880, 885, 995, 950, 860, SS17, 833, 840, 791, 832, 790, 962, 925, SS5A, SS5B, 870, 511), including below-grade structures and pipe galleries. Relocation of equipment and pipes would add extensive time and cost. Includes demolition of processes that are needed throughout construction; therefore, interim facilities need to be constructed (waste activated sludge thickening, biosolids dewatering and cake storage and loadout).
Site Preparation	Substantial excavation and subsurface construction, requiring subsurface excavation support Approximate excavation depth 20 to 30 feet, except for digesters (41 feet)	No planned construction	Similar to project. Additionally, site preparation could be more extensive because contamination exists due to existing stockpiling of concrete, soils, and debris, heavy metals, polycyclic aromatic hydrocarbons, petroleum hydrocarbons, methane; two closed hazardous sites; two active underground storage tanks (USTs).	Same as project Relocation of Buildings A and B: Standard construction methods, assumes no subsurface construction and minimal, if any, excavation	Same as project. In addition, site would require relocation of utilities under Quint Street and construction of interim treatment processes.
Construction Methods	Standard construction methods, including pile driving	No planned construction	Standard construction methods, including pile driving Cut-and-cover for pipelines connecting to the SEP; bore and jack for pipeline construction at Third Street and railroad tracks near Cargo Way to reduce disruption of transportation	Same as project Relocation of Buildings A and B: Standard construction methods but consistent with Secretary of Interior's Standards for historic structures	Same as project
Construction Dewatering	Groundwater dewatering system required to provide dry work area; volume of groundwater produced is unknown. Groundwater would be tested, pre-treated as necessary, and discharged to the combined sewer system for treatment at the SEP.	No planned construction	Groundwater dewatering needed similar to project	Same as project	Same as project

TABLE 6-1 (Continued)
COMPARISON OF PROJECT AND ALTERNATIVES

Characteristic	Proposed Project	Alternative A: No Project	Alternative B: Pier 94 Backlands	Alternative C: Historical Resources Relocation	Alternative D: SEP South/Quint Street
Permits and Approvals					
Permits and Approvals Needed	• SWRCB Construction General Permit and SWPPP • SWRCB, consideration for Clean Water State Revolving Fund (SRF) loan • State Historic Preservation Officer, Section 106 Memorandum of Agreement (MOA) (for SRF loan) • SFPW approval of sidewalk changes and street improvement permit • San Francisco Board of Supervisors approval of sidewalk legislation • SFMTA approval of on-street parking legislation • BAAQMD authority to construct and permit to operate • San Francisco Port Commission, approval to use Pier 94 and /or Pier 96 for construction staging	No new permits or approvals anticipated, but SFPUC would continue to comply with existing and future permits.	• SWRCB Construction General Permit and SWPPP • SWRCB consideration for Clean Water State Revolving Fund loan • BAAQMD authority to construct and permit to operate • San Francisco Port Commission, approval to use Pier 94 for long-term facilities and approval to amend the Waterfront Land Use Plan • State Lands Commission approval and possibly California legislature • RWQCB approval prior to excavation or reconfiguration of waste at regulated landfill at Pier 94	• Same as project	Same as project, plus • Board of Supervisors for Street Vacation • Possible CPUC/PG&E for gas line relocation

NOTES:
BAAQMD = Bay Area Air Quality Management District
BDFP = Biosolids Digester Facilities Project
CPUC = California Public Utilities Commission
Muni = San Francisco Municipal Railway
n/a = not applicable
PG&E = Pacific Gas and Electric Company
RWQCB = Regional Water Quality Control Board
SEP = Southeast Water Pollution Control Plant
SFMTA = San Francisco Municipal Transportation Agency
SFPW = San Francisco Public Works
SWPPP = Stormwater Pollution Prevention Plan
SWRCB = State Water Resources Control Board
THP = thermal hydrolysis process

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TABLE 6-2
SUMMARY OF ABILITY OF PROJECT AND ALTERNATIVES TO MEET PROJECT OBJECTIVES

Project Objective	Project	Alternative A: No Project	Alternative B: Pier 94 Backlands	Alternative C: Historical Resources Relocation	Alternative D: SEP South/Quint Street
	Would the project or alternative meet the objective?				
1. Replace the existing solids treatment facilities at the SEP with new infrastructure with modern and more efficient treatment technologies to protect public health and safety and provide continued regulatory compliance.	Yes	No	Yes	Yes	Yes
2. Maximize the efficiency of the current treatment process operations and maintenance, staffing resources, and the use of existing SFPUC infrastructure.	Yes	Partial	No (Redundant equipment, facilities would be required at new location)	Yes	Yes
3. Reliably meet treatment capacity for projected 2045 flows and loads associated with projected population growth.	Yes	No	Yes	Yes	Yes
4. Beneficially use 100 percent of biosolids generated.	Yes	No	Yes	Yes	Yes
5. Beneficially use 100 percent of digester gas generated.	Yes	No	Yes	Yes	Yes
6. Build critical processes with redundant infrastructure to provide reliability and operational flexibility.	Yes	No	Partial (No plant-wide operations center or standby power)	Yes	Yes
7. Improve seismic reliability.	Yes	No	Yes	Yes	Yes
8. Limit noticeable odors from BDFP facilities to the SEP property boundary.	Yes	No	Yes	Yes	Yes
9. Provide visual improvements that promote a cohesive architectural design and identity at the BDFP site, enhance the overall aesthetics, and improve the public edges in a manner consistent with the surrounding neighborhood and the rest of the SEP.	Yes	No	No	Yes	Yes
10. Design and site new facilities to accommodate or adapt to expected sea level rise over their expected life.	Yes	No	Yes	Yes	Yes

TABLE 6-2 (Continued)
SUMMARY OF ABILITY OF PROJECT AND ALTERNATIVES TO MEET PROJECT OBJECTIVES

Project Objective	Project	Alternative A: No Project	Alternative B: Pier 94 Backlands	Alternative C: Historical Resources Relocation	Alternative D: SEP South/Quint Street
	Would the project or alternative meet the objective?				
11. Allow for timely construction of the BDFP.	Yes	n/a	No (Due to land availability uncertainties)	Partial (Extended construction schedule estimated to be about one year longer than project)	No (Due to extended construction duration plus extended delay in start date for re-design)
12. Maintain rate payer affordability.	Yes	Unknown (Long-term financial implications unknown)	Unknown (Due to land availability uncertainties)	Unknown (Due to unknown additional costs related to relocation uncertainties)	No (Due to substantial increase in construction requirements and need for revised design)

NOTES:
BDFP = Biosolids Digester Facilities Project
n/a = not applicable
SEP = Southeast Water Pollution Control Plant
SFPUC = San Francisco Public Utilities Commission

6.3.1 Alternative A: No Project

6.3.1.1 Description

As required by CEQA Guidelines Section 15126.6(e), the No Project Alternative is evaluated to allow decision-makers to compare the environmental effects of approving the project with the effects of not approving the project. The No Project Alternative, as described below, represents what would reasonably be expected to occur in the foreseeable future if the project were not to be approved. This would be considered a full preservation alternative with respect to Central Shops Buildings A and B, an identified individual historical resource. In addition, this alternative would avoid the project's significant and unavoidable cumulative impact on the *Southeast Treatment Plant Streamline Moderne Industrial Historic District*. This alternative would also avoid the significant and unavoidable construction-related air quality impact of the proposed project.

Construction

Under the No Project Alternative, the BDFP would not be constructed and the SFPUC would continue to operate and maintain the existing SEP solids treatment and energy recovery facilities indefinitely. The SFPUC has an immediate need in the vicinity of the SEP for an area of at least six acres for storage of equipment and vehicles and temporary relocation of existing uses while it undertakes scheduled repair and replacement projects at the SEP, and has already acquired jurisdiction of the Asphalt Plant site and is in the process of acquiring the Central Shops site to support this need. The SFPUC also has a longer-term, continuing need for staging to support upgrades to the SEP and sewer system as part of its SSIP. The SFPUC would not demolish Central Shops Buildings A and B under the No Project Alternative.

Digester Gas, Energy Recovery and Biosolids Production

Under the No Project Alternative, the energy recovery capacity and the biosolids quality would remain the same as under existing conditions. In the future, biosolids volumes are expected to increase due to planned population growth with a concomitant increases in digester gas volumes, but the existing energy recovery facilities (internal combustion engine, hot water boilers, and waste gas burners) would not have the capacity to capture the energy production potential of the increases in digester gas volumes. The waste gas burners would operate more frequently than under existing conditions, and there would be more frequent flaring over time due to the increased loadings.

The future annual production of biosolids is estimated to be 27,700 dry tons by 2045 under the No Project Alternative, compared to 24,000 dry tons under the project, due to the lower efficiency of the existing processes. Digester gas production would be less under the No Project Alternative (1.3 to 1.7 million cubic feet per day from 2023 to 2045 compared to 1.6 to 2.0 million cubic feet per day for the same period under the BDFP), and energy generation would be limited to up to 2.0 megawatts (MW), compared to 4.2 to 5.2 MW for the project. Because the energy recovery facilities would not be replaced, the SEP would not generate surplus energy. The amount of energy generation under the No Project Alternative would only partially meet the SEP solids treatment process energy demands and, as under existing conditions, supplemental energy from Hetch Hetchy hydropower would continue to be required (refer to Chapter 2, Table 2-8). In the future,

with the projected increase in SEP electricity demands, the SFPUC would need to increase its use of electricity from Hetch Hetchy hydropower from about 0.32 MW in 2014 up to 2.9 MW by 2045.

The biosolids produced from the solids treatment process would continue to be Class B, and would still contain detectable levels of pathogens. In the future, Class B biosolids likely will have increasingly limited reuse options. In the long term, the No Project Alternative could require transport of the biosolids over greater distances for reuse or disposal, compared to both existing conditions and the proposed project.

Odor Control

Under the No Project Alternative, the odor control systems for solids handling facilities would continue to consist of adsorption units at the gravity belt thickeners, centrifuge building, and cake loadout facilities. As described in Chapter 2, Section 2.2.2, Southeast Water Pollution Control Plant, the existing SEP odor control units are not capable of completely containing odors within the SEP fence line, and this condition would be expected to continue under this alternative.

Maintenance and Repair

Many of the existing solids treatment facilities are over 60 years old and operating well beyond their useful life. Consequently, under the No Project Alternative, the SFPUC would need to implement an increased frequency of maintenance compared to either existing or future-with-project conditions, and would need a more rigorous program to repair and replace facilities for reliable operations. For example, each of the working digesters would need to be taken out of service more frequently for grit removal procedures in order to maintain adequate operating conditions. Up to five additional permanent staff over the existing condition would be needed to accommodate the increased maintenance requirements.

In addition to increased maintenance, increased levels of repair and replacement of equipment and facilities would ultimately be required for reliable operations and continued compliance with regulatory requirements, reducing the efficiency of the current treatment process operations and maintenance and staffing resources. The Needs Assessment Report[7] for the BDFP and a 2013 condition assessment[8] that preceded it document the performance and condition of 23 separate existing structures involved in solids handling. The Needs Assessment Report found that, in addition to failing to meet the SSIP levels of service goals, many individual structures and facilities lack redundancy, are structurally inadequate (e.g., concrete structures exhibited cracking, leakage, and spalling), are seismically unreliable, do not provide adequate treatment capacity for projected 2045 flows and loads, and use equipment that (due, for example, to corrosion) require major maintenance, repair, or replacement. Structures and equipment that would be expected to require major repair and/or replacement under the No Project Alternative include the secondary sludge thickening pumps, gravity belt thickeners, digesters, digester pumps and associated equipment, centrifuges, centrifuge pumps, bin hoppers, gas booster

7 SFPUC, *Needs Assessment Report: Southeast Water Pollution Control Plant Biosolids Digester Facilities, Draft Final*, January 2016.

8 SFPUC, *Southeast Water Pollution Control Plant Condition Assessment Report (Final),* 2013.

station equipment, gas handling systems components, and the electrical system. In the future as equipment continues to age and deteriorate, the SFPUC would also need to conduct more frequent assessments to determine the integrity of the individual facilities and pieces of equipment, so that the SFPUC could take actions as appropriate to repair and/or replace individual failing facilities and equipment.

To the extent possible, the SFPUC would repair facilities to avoid complete failure. However, it is not feasible to seismically retrofit the existing digesters without completely rebuilding them,[9] so this alternative assumes that no seismic improvements to the digesters would occur.

Risk of Upset

The No Project Alternative would have the same risk of upset compared to existing conditions, but a much higher risk of upset than the proposed project. The seismic hazards at the existing solids processing facilities would persist. The existing facilities are not built to current seismic standards, nor are they designed for future sea level rise considerations. Thus, long-term continued use of the existing solids treatment facilities under the No Project Alternative would result in an increasing risk of failure and shutdown the longer this equipment is used. As described in a 2013 condition assessment, the current conditions of the solids processing facilities include inadequate and deteriorated piping and equipment supports and anchorages, soft story[10] buildings/structures, and plan irregularities.[11] If an earthquake of substantial size and in proximity to the SEP were to occur, the risk of failure of one or more digesters (in addition to other structures at the SEP) would be the same as under existing conditions, but as the digesters continue to age and deteriorate, this risk of failure would be expected to increase compared to existing conditions because the existing digesters are not seismically reinforced. With the increased level of maintenance, it is unlikely that all of the digesters and other equipment would fail at once; however, a seismic event in the SEP vicinity could have severe consequences. In such an event, potential simultaneous failure of multiple solids treatment facilities and equipment could be catastrophic and could result in large volumes of undigested sludge that would require special transport and disposal.

In addition to increased likelihood of physical damage and release during an earthquake, failure of portions of the SEP could reduce the efficacy of wastewater and solids treatment by limiting the facilities available for wastewater processing. If one or more of the digesters were to become non-operational, SEP staff would need to modify the liquid wastewater treatment processes to reduce solids production, which could affect the ability of the SEP to protect San Francisco Bay water quality. The SFPUC's ability to treat wastewater would then be compromised, with implications for public health and safety as well as regulatory permit violations.

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[9] SFPUC, *Needs Assessment Report: Southeast Water Pollution Control Plant Biosolids Digester Facilities, Draft Final*, January 2016.

[10] "Soft story" buildings are so called because they have first stories that are much less rigid than the stories above. These buildings are typically susceptible to earthquake damage due to the large unreinforced openings of the ground floors and the typically wood-frame construction. Without reinforcement, these buildings generally cannot withstand lateral earthquake forces.

[11] Plan irregularity expresses the extent that a building shape differs from a "regular" simple box-shaped building. Irregularities are believed to contribute to poor seismic performance and occasional failure.

If any of the major components of the biosolids facilities were to fail, the SEP would not be able to achieve Class B quality biosolids. The SFPUC would have to send the biosolids to another party for further treatment or distribution or otherwise find alternative disposal options for partially or undigested sludge.

6.3.1.2 Ability to Meet Project Objectives

The No Project Alternative would fail to meet most, if not all, of the BDFP objectives. The No Project Alternative would not replace the existing aging facilities with new modern and more efficient treatment technologies, would use equipment beyond its useful life, would not provide facilities that would reliably treat 2045 flows and loads, would not beneficially use 100 percent of the biosolids and biogas generated, would not provide redundant infrastructure for operational flexibility, would not improve seismic reliability, would not limit noticeable odors to the SEP property boundary, would not make visual improvements to the BDFP site, and would not accommodate or adapt to expected future sea level rise. Due to the uncertainties associated with future facilities and equipment failures and potential catastrophic breakdown, it is unknown if, in the long term, the No Project Alternative would maintain rate payer affordability. However, despite the continued use of outdated equipment beyond its useful life, the SFPUC would continue to maximize the efficiency of the current operations and maintenance, staffing resources, and use of existing SFPUC infrastructure, partially meeting Objective #2.

The No Project Alternative would also fail to achieve the goals of the SFPUC's SSIP by not providing a reliable, flexible system that can respond to catastrophic events; by not integrating green and grey infrastructure to manage stormwater and minimize flooding, by not providing benefits to affected communities (compared to existing conditions); by not modifying the system to adapt to climate change; and by not achieving economic and environmental sustainability through 100 percent use of biosolids and biogas.

6.3.1.3 Environmental Impacts

The No Project Alternative would avoid the significant and unavoidable impacts related to historical resources and construction-phase NOx emissions identified for the project in Chapter 4, *Environmental Setting and Impacts*. Under "normal" conditions (without breakdowns and equipment failure), the No Project Alternative would avoid all construction and operational impacts that were identified for the project, but under possible future scenarios with breakdowns and equipment failures, a wide range of impacts could occur, depending on the nature and extent of those breakdowns. As discussed below, in a few resource areas, there could be distinct environmental impacts compared to the proposed project, but in most impact areas there would either be no impacts or similar impacts to those of the proposed project.

Most Resource Areas

The No Project Alternative would avoid all construction activities and operational changes that would occur under the proposed project, and therefore it would result in *no impacts* in the following areas: Land Use, Population and Housing, Transportation and Circulation, Wind/ Shadow, Recreation, Utilities, Public Services, Biological Resources, Geology/Soils/Paleontological Resources,

Hazards, Mineral Resources, and Agricultural/Forest Resources. Although this alternative would require a slight increase in staffing for the increased maintenance requirements, the estimated increase in staffing (up to five persons) would be a negligible increase from existing staffing levels (less than two percent), with negligible effects on environmental impacts in any of the above-listed resource areas compared to existing conditions.

As described above, the No Project Alternative would have a long-term higher risk of upset than existing conditions or the proposed project. In the event of a breakdown or equipment failure, there could be sporadic repair and replacement construction projects at the SEP South, where the existing digesters are located. In such cases, construction impacts on the above-listed resource areas would be expected to be similar to those identified for the proposed project, though at a reduced scale (because repairs and replacement would occur on an as-needed basis, rather than as one all-encompassing construction project). Upon completion of any needed repairs or equipment replacement, operations are assumed to continue to be similar to existing conditions, and there would be no operational impacts in these resource areas.

Aesthetics

The No Project Alternative would avoid all construction impacts, including temporary, minor effects on visual character and light and glare impacts that would occur under the proposed project. In the event that emergency equipment repairs or replacements are required, any construction would be subject to the same SFPUC standard construction measures requiring siting construction staging away from public view where possible and directing any nighttime lighting away from residential areas. Therefore, as with the proposed project, aesthetic impacts during construction would be less than significant. With regard to operational impacts, outside of routine maintenance, this analysis presumes that there would not be any substantial improvements to the existing structures beyond basic repairs and maintenance, or if replacement were to be required, any replacement equipment is assumed to be similar in size and locations as the existing equipment. Similarly, under No Project Alternative, existing landscaping would be maintained with no substantial improvements. Thus, similar to the proposed project, the No Project Alternative would have less-than-significant long-term (operational) aesthetics impacts.

Cultural Resources

The No Project Alternative would not demolish Central Shops Buildings A and B or Building 870. It would continue use of the existing digesters and associated control buildings. This would avoid the significant and unavoidable impacts on individual historical resources (Central Shops Buildings A and B) and on the *Southeast Treatment Plant Streamline Moderne Industrial Historic District*. This alternative would also avoid the project's significant but mitigable effects on archeological resources and on human remains.

As part of an action separate from the project, the San Francisco General Services Agency is in the process of relocating the Central Shops operations and transferring the site to the SFPUC, and this process is assumed to proceed under the No Project Alternative. The SFPUC has identified the use of the Central Shops to store equipment and vehicles and temporarily relocate existing uses while it undertakes scheduled repair and replacement projects. For the purposes of this

alternatives analysis, it is assumed that the SFPUC would neither demolish nor alter this historic resource; thus, under the No Project Alternative, the resources would retain the physical characteristics that convey its historical significance and that justify its individual eligibility for inclusion in the California and National Registers. Furthermore, it is assumed that continued use of the existing digesters and associated control buildings would retain the historic integrity of the eligible historic district. Therefore, unlike the proposed project, the No Project Alternative would have no impact on historic resources.

However, as described above, the No Project Alternative would have a higher risk of upset than the proposed project, and an increasingly higher risk of upset as continued, prolonged use of the existing digesters occurs. Although not an impact *per se*, the increased likelihood of physical damage to the existing digesters under this alternative could result in future catastrophic damage to these structures, which could affect the historic integrity of the historic district.

Noise and Vibration

Under "normal" conditions (without breakdowns and equipment failure), the No Project Alternative would avoid all construction-related noise impacts that were identified for the project. However, major repair projects and replacement of some structures and equipment ultimately would be necessary in the future, but the magnitude and duration of the associated construction requirements cannot be predicted at this time. These repair and replacement projects likely would generate construction noise and vibration impacts similar to those of the project, but the impacts would be associated with repair/replacement of existing biosolids treatment facilities located at SEP South. The existing digesters and energy recovery facilities are closer to residential receptors to the east (less than 100 feet away) and the daycare facility (about 350 feet to the south), compared to the facilities under the project (e.g., the proposed digesters would be approximately 1,000 feet away from residential receptors and 1,500 feet away from the daycare facility). Therefore, it is possible that construction-related noise levels could occasionally be higher (and significant) at these residences and at the daycare facility, compared to levels predicted to occur under the proposed project, both on a project and cumulative level; if such construction activities were to be subject to CEQA, mitigation measures similar to those identified for the proposed project would be required to reduce the impact to less than significant. While construction noise generated during each individual repair would be shorter in duration than the project's five-year construction duration, the overall, long-term duration of ongoing repair/replacement activities under the No Project Alternative, including major repairs, could exceed well beyond five years.

Vibration impacts of the No Project Alternative could be less than those of the proposed project if ongoing repair activities were to involve less intensive construction activities, and pile-driving was avoided altogether. Construction associated with the existing digesters, would be required and could occur less than 100 feet from sensitive receptors to the east, and there could be intensive construction activities required, similar to those of the proposed project; for these reasons, vibration levels could exceed the strongly perceptible threshold for human annoyance, a potentially significant impact.

Operational noise levels under this alternative would be the same as existing conditions, and therefore there would be no impact.

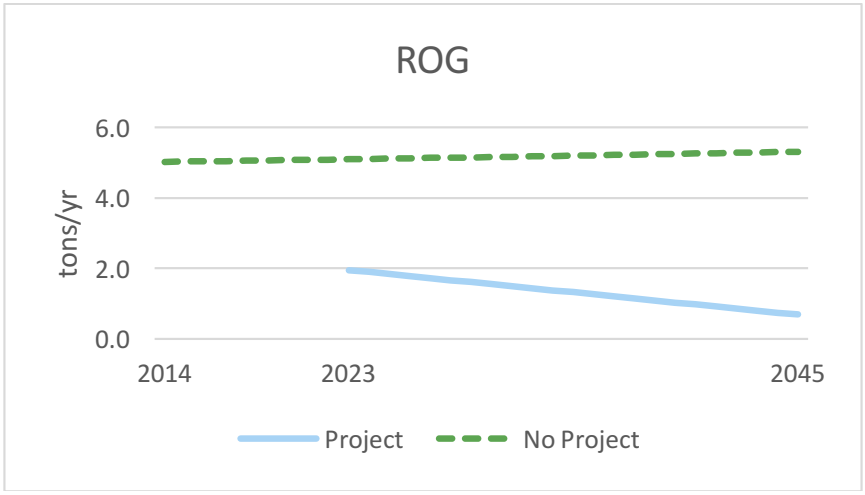
Air Quality

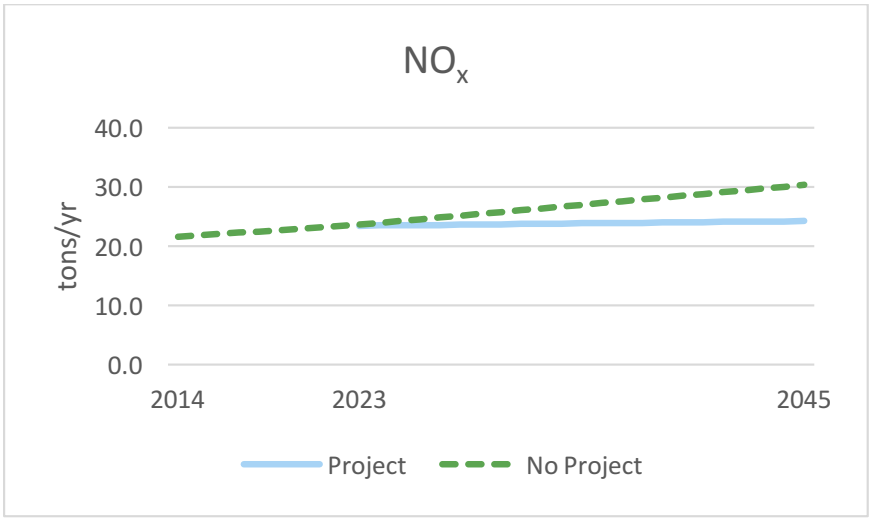
Under normal conditions, the No Project Alternative would avoid all construction-related air quality impacts that were identified for the project. Major repair projects and replacement of some structures and equipment ultimately would be necessary in the future, but the magnitude and duration of the associated construction requirements cannot be predicted at this time. These repair and replacement projects would generate the same type of construction-phase air pollutant emissions as the proposed project, although the impacts would be associated with repair/replacement of facilities at SEP South. Daily emissions of criteria air pollutants (such as NOx from construction equipment and vehicles) as well as toxic air contaminants (e.g., diesel particulate matter [DPM] from diesel equipment and vehicles) would most likely be less under the No Project Alternative than under the project because the amount of construction would most likely be less; therefore, construction-phase air pollutant impacts for the No Project Alternative are assumed to be less than significant. If large-scale repair/replacement of structures became necessary, construction-related air pollutant emissions could still exceed significance thresholds, and if such construction activities were to be subject to CEQA, Mitigation Measures M-AQ-1a (Construction Emissions Minimization) and M-AQ-1b (Emission Offsets) could still be required.

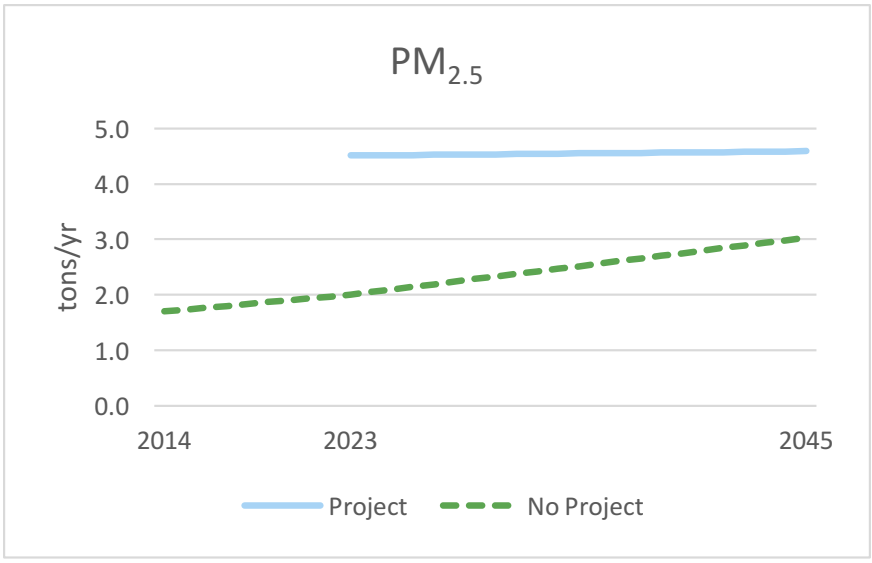
Regarding operational air quality impacts, as indicated in Table 6-1, there will be future increases in biosolids loading (associated with planned population growth). Consequently, compared to existing conditions, there will be increased operational air pollutant emissions in the future associated with increased biosolids and digester gas processing volumes, even without implementation of the project. On behalf of the San Francisco Planning Department, Ramboll-Environ[12] conducted an analysis of future estimated operational air pollutant emissions without the project, and a comparison of criteria pollutant emissions under the No Project Alternative versus the project is presented on **Figure 6-1**. As indicated on this figure, the No Project Alternative is projected to result in higher reactive organic gas (ROG) and NOx operational emissions than the project due to the increase in digester gas that would be generated from the increased loadings and older equipment being used. However, the No Project Alternative would have lower operational emissions of particulate matter of 2.5 microns in diameter or less ($PM_{2.5}$) than the proposed project, largely due to the project's operation of turbines which have higher emission factors than the existing cogeneration engines that would be used under the No Project Alternative.[13] The increase in $PM_{2.5}$ operational emissions under the proposed project should be considered on balance with the increased energy that would be generated from digester gas production. Nevertheless, under

[12] Ramboll-Environ, April 2017**.** Memorandum, San Francisco Public Utilities Commission SFPUC Biosolids Digester Facilities Project (BDFP) No Project Alternative Air Quality.

[13] The estimated future increase in $PM_{2.5}$ associated with operation of the proposed turbines depicted on Figure 6-1 is not expected to actually occur to the degree indicated on the figure because the turbine emissions are based on a manufacturer-guarantee not-to-exceed emission factor for the proposed turbine, which is conservative. The turbine emissions should never exceed this value, and the turbines would likely operate with much lower emissions.







SOURCE: Ramboll Environ, San Francisco Public Utilities Commission (SFPUC) Biosolids Digester Facilities Project (BDFP) No Project Alternative Air Quality Analysis, April 2017.

Figure 6-1
Comparison of Project Air Pollutant Emissions to No Project Alternative Emissions

both the No Project Alternative and the proposed project, net operational criteria pollutant emissions (ROG, NOx, and $PM_{2.5}$) would remain below significance threshold levels and therefore would be less than significant.[14] With respect to toxic air contaminants and health risk, as described in Section 4.8.1.4 (in Section 4.8, Air Quality), the project site and its vicinity are located in the Air Pollutant Exposure Zone (APEZ) and Health Vulnerability zip code 94124, which indicates that the area already experiences poor air quality due to emissions from various stationary and mobile sources in the area. Existing sources of toxic air contaminant emissions from solids processing (the cogeneration engine, sludge handling process unit, the digesters, waste gas burners, dewatering facility, and hot water boilers) would continue to operate under the No Project Alternative. As shown in Figure 6 1, $PM_{2.5}$ emissions would be lower than with the proposed project, and toxic air contaminant emissions (such as DPM emissions) also would likely be less. Overall, like the project, the No Project Alternative would not expand the boundaries of the APEZ.

As stated above, the No Project Alternative could require transport of the biosolids over greater distances for reuse or disposal, compared to both existing conditions and the project, which could result in long-term increases in air pollutant emissions associated with the increased hauling distances. Nevertheless, this is not expected to be a substantial increase in emissions, and operational air quality impacts are assumed to be less than significant.

While this alternative would avoid the project's conflicts with the Clean Air Plan due to significant and unavoidable construction-related emissions, this alternative would not be consistent with the Clean Air Plan's Policy ECM 2, which promotes energy efficiency and renewable energy for purposes of air quality and climate protection, since the No Project Alternative would not have the ability to recover the associated increase in energy potential of 3.9 MW (refer to Chapter 2, Table 2-8) beyond the 2-MW capacity of the existing energy recovery facilities. Similarly, it is unknown whether continued reliance on existing solids treatment facilities would be consistent with Measure WR1 of the *2017 Clean Air Plan* (currently in draft form). Measure WR1 specifically calls for limiting GHGs from, and promoting the use of digester gas recovery systems at publicly owned treatment works like the SEP.

Cumulative construction-related air quality impacts would be less severe than those of the proposed project, but the impacts would not be completely avoided because repair/replacement construction activities, such as repair or replacement of existing digesters, would contribute to cumulative increases in construction-related criteria pollutant and toxic air contaminant emissions (and therefore, health impacts). Nevertheless, due to the unknown schedule for the repair/ replacement activities, it is assumed that, because construction activities would be less intensive than those for the proposed project, the contribution of construction-related air quality impacts to cumulative impacts would be less than significant.

[14] Net emissions are future No Project or future BDFP emissions minus existing emissions (that is, emissions relative to today).

Greenhouse Gas Emissions

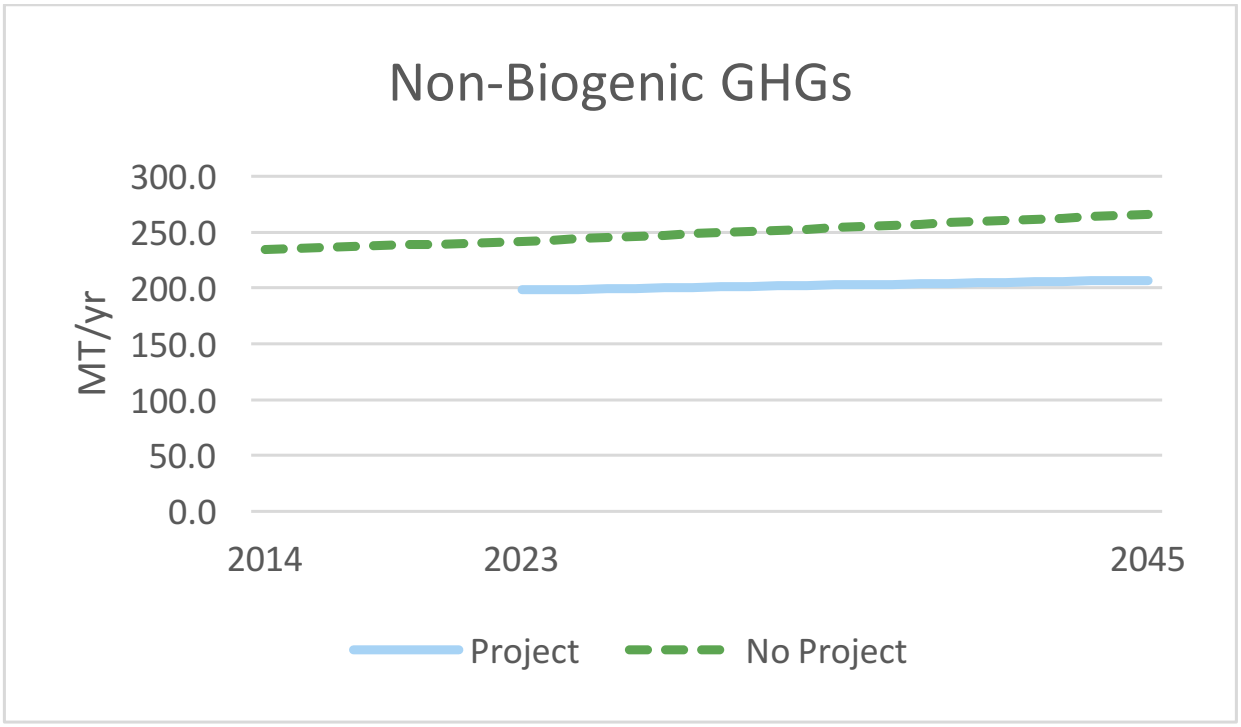
As described above, in the future under the No Project Alternative, the SEP would have increased biosolids loading over existing conditions due to anticipated population growth, and there would be an associated increase in digester gas production. By not using the increase in energy potential available from the increase in digester gas production (and not improving biosolids reuse opportunities), the No Project Alternative would not be consistent with adopted policies intended to reduce statewide greenhouse gas (GHG) emissions, including increasing renewable portfolio standards for electricity (see Chapter 4, Section 4.9, Greenhouse Gas Emissions). Therefore, the No Project Alternative would not be consistent with policies adopted for the purpose of reducing GHG emissions, and unlike the proposed project, would have a potentially significant impact on GHG emissions. Mitigation measures such as improvements to existing or construction of new energy recovery facilities would be needed to reduce the impact to less than significant.

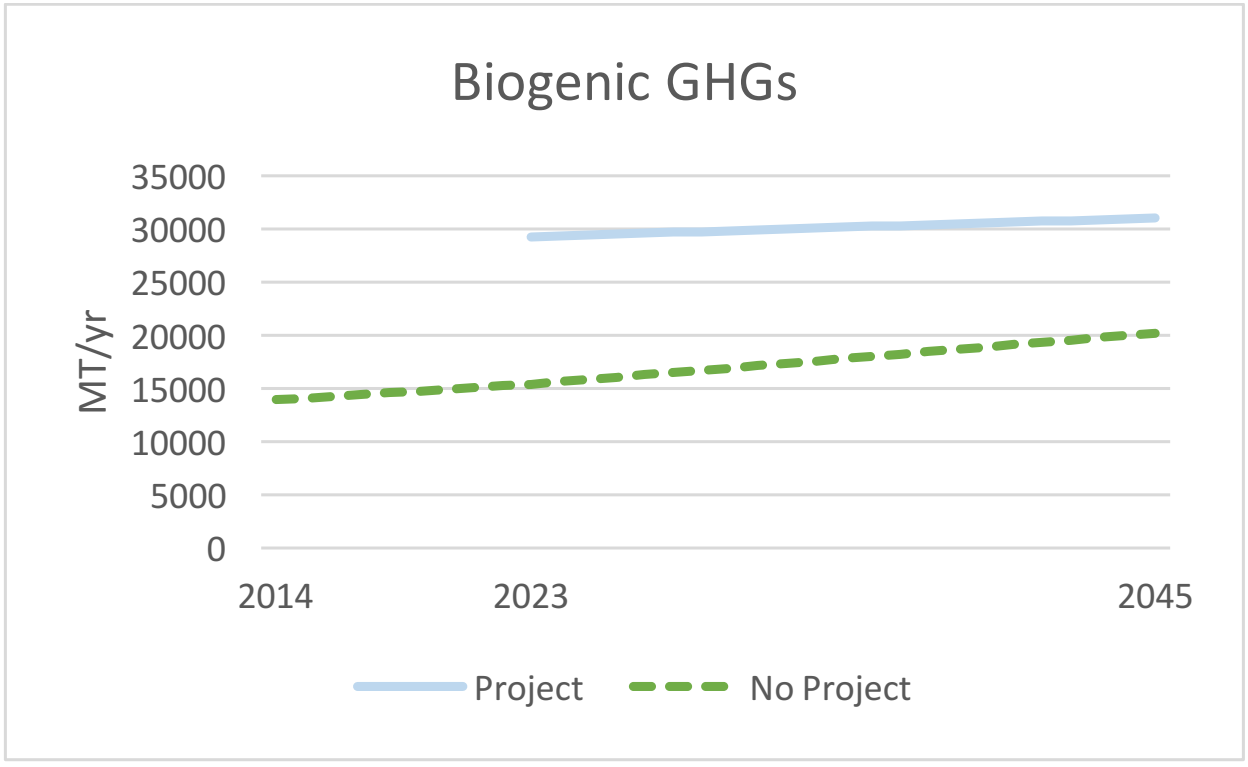
Figure 6-2 presents a comparison of biogenic and non-biogenic GHG emissions. This figure indicates that, between 2014 and 2045, operational non-biogenic and biogenic GHG emissions under the No Project Alternative and the proposed project would increase, but the rate of increase would be greater under the No Project Alternative. Under the No Project Alternative, the non-biogenic emissions would increase from 234 metric tons of carbon dioxide-equivalent ($MTCO_2E$) per year to 266 $MTCO_2E$ per year, a net increase of 32 $MTCO_2E$ per year by 2045. Under the project, non-biogenic emissions would increase slightly from 198 $MTCO_2E$ per year to 207 $MTCO_2E$ per year (9 $MTCO_2E$ per year) by 2045. While the net increase would be greater under the No Project Alternative than under the proposed project, non-biogenic emissions under this alternative as well as under the proposed project would be less than significant, well below the Bay Area Air Quality Management District (BAAQMD) guidance threshold of 10,000 $MTCO_2E$ per year for a stationary source.

Hydrology and Water Quality

Under "normal" conditions (without breakdowns and equipment failure), the No Project Alternative would have none of the impacts on hydrology or water quality that were identified for the project during either construction or operation. However, this alternative would have a much higher risk of upset than the proposed project, and long-term continued use of the existing solids treatment facilities under the No Project Alternative would result in an increasing risk of failure and shutdown the longer this equipment is used. For example, because the existing facilities are not built to current seismic standards, a seismic event in the SEP vicinity could have severe consequences. In such an event, potential simultaneous failure of multiple solids treatment facilities and equipment could be catastrophic and could result in large volumes of undigested sludge that reduce the ability of wastewater and solids treatment processes to achieve water quality objectives and discharge limits required to protect San Francisco Bay water quality.

Furthermore, even without a catastrophic event, the No Project Alternative would be expected to require major repair and replacement of some structures and equipment in the future, with associated construction activities. This analysis presumes that construction impacts on hydrology and water quality would be similar to, or less severe than, those identified for the proposed project, depending on the magnitude and extent of construction activities.





SOURCE: Ramboll-Environ, San Francisco Public Utilities Commission (SFPUC) Biosolids Digester Facilities Project (BDFP) No Project Alternative Air Quality Analysis, April 2017.

Figure 6-2
Comparison of Proposed Project GHG Emissions to No Project Alternative Emissions

As described in Chapter 4, Section 4.16, Hydrology and Water Quality, a water quality analysis conducted for the project identified changes in water quality of the SEP effluent that are expected to occur in the future due to planned population growth, independent of the proposed project. The study indicated that increased concentrations of total ammonia and nitrogen are expected to occur under the No Project Alternative. Total ammonia concentrations (95th percentile) are projected to increase from 53.7 to 68.5 milligrams per liter (mg/L_ between 2015 and 2045 (with the BDFP, the increase would be to 69.8 mg/L), which is well below the National Pollutant Discharge Elimination System (NPDES) limitation of 190 mg/L; total nitrogen concentrations (95th percentile) are projected to increase from 65.1 to 82.9 mg/L between 2015 and 2045 (with the BDFP, the increase would be to 85.2 mg/L). By comparison, the proposed project would result in a slightly greater increase in both total ammonia and nitrogen concentrations in the effluent than the No Project Alternative, but in either case, the increase would be well below the permit limitation and the impact would therefore be less than significant.

Energy

As described above, in the future under the No Project Alternative, biosolids loading at the SEP would increase compared to existing conditions due to anticipated population growth, and there would be an associated increase in digester gas production. In the future, the existing energy recovery facilities at the SEP could produce up to 2 MW (an increase of 1 MW over existing conditions), which would partially meet SEP solids treatment process energy demands. Supplemental energy from Hetch Hetchy hydropower would still be required to meet future electricity demands of 4.4 MW and 4.9 MW in 2023 and 2045, respectively (refer to Chapter 2, Table 2-8). Thus, the SFPUC would not be able to use all of the increased digester gas that would be generated due to increased loadings of biosolids associated with population growth, and the No Project Alternative would require more frequent routine flaring over time, compared to existing conditions. (Under the proposed project, no routine flaring of biogas would occur.) Although the increased use of Hetch Hetchy hydropower that would occur under this alternative would continue the use of renewable energy sources, it would not maximize use of the increase in on-site energy resources, nor would it make Hetch Hetchy renewable energy available to replace non-renewable energy demand elsewhere. In addition, the No Project Alternative would not improve biosolids reuse opportunities. Unlike the proposed project, the No Project Alternative would not maximize the energy recovery and therefore would have a potentially significant impact due to this loss of the future increase in energy potential. Construction of modern, more efficient energy recovery facilities, similar to those under the proposed project, would reduce this impact to less than significant, although construction of those facilities would result in impacts similar to those identified for the proposed project.

6.3.2 Alternative B: Pier 94 Backlands

6.3.2.1 Description

Alternative B, the Pier 94 Backlands Alternative, would involve constructing BDFP facilities at the Pier 94 Backlands, which is the same site as one of the potential staging areas under the proposed project. Under this alternative, no construction or demolition activities would occur at

the project site, and Central Shops Buildings A and B would be retained in place. This alternative was selected for evaluation because it would avoid a significant impact on a historical resource, was recommended by the Southeast Digester Task Force as an alternative location for biosolids processing,[15,16] and would analyze impacts at an alternative location consistent with CEQA Guidelines Section 15126.6(f)(2). This would be considered a full preservation alternative with respect to an identified individual historical resource. However, this alternative would neither reduce nor avoid the significant and unavoidable cumulative impact on the *Southeast Treatment Plant Streamline Moderne Industrial Historic District*.

This alternative is similar to an option previously developed by the SFPUC as described in Section 6.2.1.1 above. It would consist of constructing essentially the same solids handling, odor control, energy recovery and associated facilities as the proposed project but at the Pier 94 Backlands site. This alternative would also require construction and operation of multiple pipelines to convey sludge and other materials between the Pier 94 Backlands site and the SEP. Under this alternative, the SFPUC would have to acquire the Pier 94 Backlands site from the Port of San Francisco (Port), and the California State Lands Commission would have to make a public trust determination.

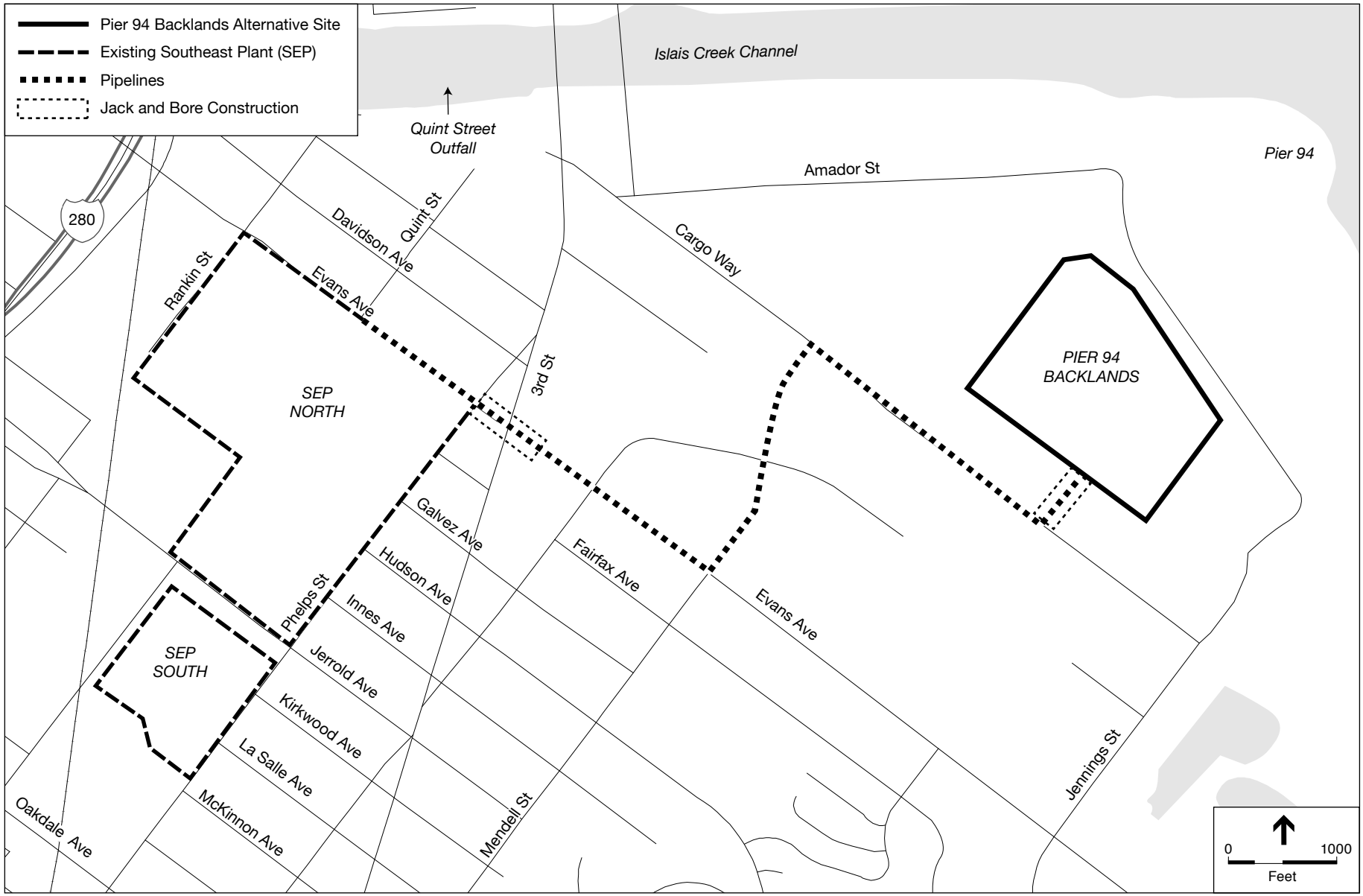
Site Location

Pier 94 Backlands

Figure 6-3 shows the location of the Pier 94 Backlands Alternative, and **Figure 6-4** depicts the conceptual site plan. Solids handling, energy recovery, and related facilities would be constructed on approximately 15 acres within the 27-acre Pier 94 Backlands area, located south and west of Amador Street, north of Jennings Street, and east of Cargo Way, about 0.75 mile southwest of the SEP (refer to Chapter 2, Figure 2-13). The Pier 94 Backlands is the same site as one of the staging areas for the BDFP described in Chapter 2; information on existing conditions at the Pier 94 Backlands and plans and policies applicable to its proposed use during construction are presented throughout Chapters 2, 3, and 4 of this EIR. Information relevant to its use as a permanent location for biosolids facilities as applicable to this alternative is summarized below.

Site Acquisition and Availability. The Pier 94 Backlands is owned by the City and administered by the Port.[17] Most of the Port's property including the Pier 94 Backlands consists of former tidelands held in public trust for the people of California.[18] The Public Trust Doctrine[19] holds that trust lands belong to the public and should be used in ways that connect people to the water: water-related commerce, navigation, fisheries, and other uses that require waterfront access to operate, as well as

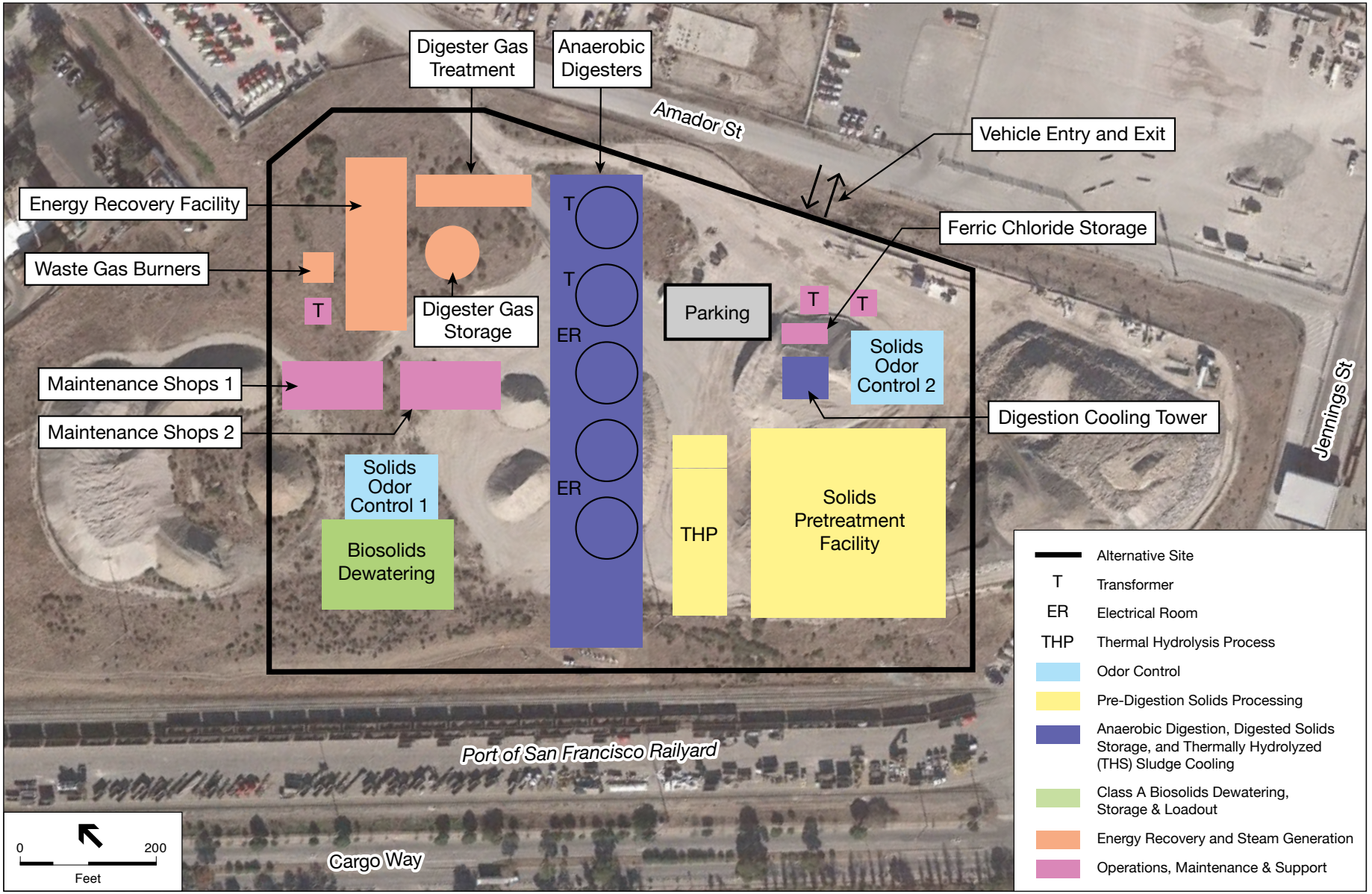
[15] Southeast Digester Task Force for the San Francisco Public Utilities Commission, *Review of the Biosolids Digester Facility Project*, June 2, 2010.
[16] SFPUC, Sludge Pipeline for Remote Biosolids Center Site Alternatives, Draft, November 2009.
[17] Through the Burton Act, the state legislature granted control of the Pier 94 Backlands along with other lands in San Francisco to the Port in 1968. (http://www.slc.ca.gov/Programs/Granted_Lands/G11_San_Francisco_County/G11-01_San_Francisco_Port_District/S1968_Ch1333.pdf)
[18] Port of San Francisco, *Waterfront Land Use Plan*, p. 2., 1997, revised version October 2009. Available online at http://www.sfport.com/index.aspx?page=199.
[19] California Constitution, Article 10 Section 3. (http://www.slc.ca.gov/Programs/Granted_Lands.html)



SFPUC Biosolids Digester Facilities

SOURCE: San Francisco Public Works 2005 GIS data;
ESA+Orion, data developed in 2016 for BDFP

Figure 6-3
Location of Pier 94 Backlands Alternative



SOURCE: Brown and Caldwell, CH2M, Black & Veatch; ESA+Orion

SFPUC Biosolids Digester Facilities

Figure 6-4

Conceptual Site Plan: Pier 94 Backlands Alternative

Note: Refer to Figure 6-3 for location of pipelines between the SEP and the Pier 94 Backlands Alternative site.

development deemed to increase the public's enjoyment of and access to tidelands (e.g., habitat preservation, recreation). The State Lands Commission is responsible for ensuring compliance with the Public Trust Doctrine for properties like the Pier 94 Backlands. The Pier 94 Backlands Alternative would require approval from the State Lands Commission (and possibly approval from the state legislature) for the trust exchange agreement and approval of long-term use of Pier 94 Backlands from the Port. To secure access to the site, the SFPUC would enter a trust exchange agreement with the State Lands Commission either through negotiation or if authorized by special legislation. In the trust exchange agreement, the SFPUC would need to place into the trust land of similar size and value as the area needed for this alternative.

Site Development Considerations. The Pier 94 Backlands area consists of fill from dredge spoils and construction debris deposited during the 1960s and 1970s; unauthorized deposition of municipal refuse also occurred within part of the site and is now a regulated (closed) landfill (refer to the area shaded green on Figure 4.17-1 in Chapter 4, Section 4.17, Hazards and Hazardous Materials). Although the Pier 94 Backlands itself currently has no utility services, major utilities (e.g., water, wastewater, electrical services) are already available in the vicinity, and the Port plans to construct roads, utilities, and stormwater management facilities on the property as part of the Pier 90-94 Backlands Planning project (refer to Table 4.1-1 in Chapter 4, Section 4.1, Overview).

Pipelines Between Pier 94 Backlands and SEP

Figure 6-3 shows the alignment for the pipeline between the Pier 94 Backlands and SEP North that would be required under this alternative. As shown, the approximately 4,000-foot-long pipeline alignment would be within public rights-of-way, crossing beneath the San Francisco Bay Railroad railyard that abuts the Pier 94 Backlands, then following along Cargo Way, Mendell Street, and Evans Avenue to the SEP.

This pipeline corridor would include 10 to 12 pipelines, each ranging from 6 to 20 inches in diameter, to convey separately the following materials between the Pier 94 Backlands and SEP sites: primary sludge; waste activated sludge; primary scum; No. 2 and No. 3 water; reject liquid from thickening, screening, and dewatering; and a supervisory control and data acquisition fiber optic cable.

Components

Biosolids Treatment, Energy Recovery, and Other Facilities

As shown on Figure 6-4 and Table 6-1, the facilities and processes described for the proposed project—including biosolids treatment, energy recovery, odor control, operations and maintenance, and ancillary facilities—would be constructed and operated at the Pier 94 Backlands site. As with the proposed project, the solids treatment facilities in the Pier 94 Backlands Alternative would use a thermal hydrolysis process and anaerobic digestion to treat solids, producing Class A biosolids and biogas. Energy recovery and odor control facilities would also operate in the same manner, use the same technologies, and generate the same amount of energy as the project. The odor control facilities would be designed to limit odors from solids handling and energy recovery operations to

within the site, as with the proposed project. Overall, the areal extent of the site would be about 15 acres (compared to 10 acres for the proposed project), and the total amount of building square footage to be constructed would also be somewhat greater under the Pier 94 Backlands Alternative than under the proposed project, in part because the height of all structures would be limited to 40 feet at this site (refer to Table 2-4 in Chapter 2, *Project Description*, for the heights proposed for project facilities) and because of the additional available space. For example, the five digesters would be 15 feet shorter than under the proposed project, and therefore the diameter of the digesters under this alternative would be greater in order to provide equivalent digestion capacity.

Ancillary Facilities, Support Systems, and Utility Connections

Under this alternative, additional redundant ancillary facilities would be needed because of the remote location of the Pier 94 Backlands from the SEP. Unlike under the proposed project, certain support facilities present at the SEP, such as water, utilities, communication control systems, and chemical storage would not be available. This alternative would thus require a site-specific operations control center and dedicated security, fire protection, backup power facilities with diesel generators, and new connections for commodity utility supplies (e.g., high-voltage electric power and substation, potable water, sewer/stormwater, and natural gas).

As described in Chapter 4, Section 4.16, Hydrology and Water Quality, the Pier 94 Backlands is comprised of unpaved surfaces, and stormwater is treated through a system of landscape swales that collect, treat, and convey stormwater. The stormwater, once treated, is released to the bay through an outfall. This alternative would include the construction of a new separate stormwater system or reconfiguration of the combined sewer system to accommodate stormwater flows from the Pier 94 Backlands. In either case, the drainage system would be constructed in accordance with applicable design requirements to accommodate anticipated stormwater flows.

Other Project Features

Under this alternative, flood-proofing for the Pier 94 Backlands would be in accordance with the SFPUC's Climate Change Guidance for SSIP Projects and consistent with the anticipated future flood levels at this location (refer to Chapter 4, Section 4.16, Figures 4.16-3, 4.16-4, and 4.16-5). As with the project, architecture and landscaping would be designed consistent with the San Francisco Planning Code, the Stormwater Management Ordinance, the San Francisco Arts Commission Civic Design Review process and Public Art Program, and the *San Francisco Better Streets Plan*. The decommissioning of the existing digesters would be as described for the project (see Chapter 2, Section 2.4.2.4) but would occur at least two to three years later than with the project.

Operations and Maintenance

Performance testing, full facility commissioning, plant capacity, and operating hours for the Pier 94 Backlands Alternative would be the same as described for the proposed project. The SFPUC would conduct routine maintenance of new facilities and equipment, although there would be more facilities and equipment to maintain than under the proposed project (due to the need for site-specific dedicated operations and maintenance facilities, as well as the pipelines

between the SEP and Pier 94 Backlands). As indicated in Table 6-1, five additional staff would be needed at the Pier 94 Backlands to operate and maintain the facilities. Trucks hauling biosolids, chemical deliveries, yellow grease loadout, and grit/screening debris would use Amador, Illinois, Cesar Chavez, and Pennsylvania Streets for access to the Pier 94 Backlands site when traveling to and from U.S. Highway 101 and Interstate 280.

Similar to the proposed project, energy produced at the energy recovery facility would be used to support solids processing, but unlike the proposed project, the energy recovery facilities located at the Pier 94 Backlands site would not be available as backup power to the main plant or to support other SEP facilities.

Construction

Construction Schedule, Work Force, Hours, and Coordination

Similar to the proposed project, construction of the Pier 94 Backlands Alternative would take approximately five years. The overall construction schedules are estimated to be similar because (1) total facilities construction activities would be essentially the same and require the same amount of time (refer to Chapter 2, Table 2-10); (2) although no major demolition would be necessary, more extensive site preparation activities would be needed at the Pier 94 Backlands site, requiring about the same amount of time; and (3) construction of the additional pipelines between the SEP and Pier 94 Backlands site could occur concurrently. Pipeline construction could involve more than one location at a given time if the contractor were to mobilize multiple crews to work at different locations along the alignment. If so, the size of the construction work force for the Pier 94 Backlands Alternative would be greater than that estimated for the proposed project. For purposes of this alternatives analysis, it is assumed that the construction work force could be 10 percent greater than that estimated for the proposed project at any given time. Construction hours would be the same as for the project (generally 7:00 a.m. to 3:30 p.m. Monday through Friday, with some activities extending to 8:00 p.m. as needed. Construction could also occur on Saturdays and Sundays when needed. As with the project, prior to the start of construction, the SFPUC would hire a Southeast Area Program Construction Manager who would (among other things) oversee construction staging and traffic control planning. The SFPUC would develop a Traffic Control Plan for this alternative similar in content to that described in Chapter 2, Section 2.6, Project Construction, but also addressing traffic control needed for pipeline construction, which would entail in-street construction.

Under this alternative, construction would start at least several years later than the project due to the unknown timeline required to garner site use permissions. As described above, the site use process for the Pier 94 Backlands Alternative would require approval from the San Francisco Port Commission and approval from the State Lands Commission for public trust consistency (and possibly approval from the California legislature).

Construction Staging and Haul Routes, Lane Closures, and Temporary Relocation of Muni Routes

Staging for construction of biosolids treatment facilities under the Pier 94 Backlands Alternative would require up to 12 acres (similar to the proposed project). Staging would occur within the

Pier 94 Backlands and Piers 94/96 staging areas, similar to the proposed project. Staging for pipeline construction would occur in these areas as well as within the pipeline construction corridor.

Construction haul routes would be as indicated in Table 6-1. (Existing operational haul trips from the SEP would not be affected during construction of this alternative.) Pipeline construction would require temporary closure of travel lanes, although with the possible exception of Mendell Street, full road closures are not anticipated; San Francisco Municipal Railway (Muni) Routes 19 and 44 along Evans Avenue could require rerouting during pipeline construction in that street.[20]

Construction Methods

General construction methods would be similar to those for the proposed project (described in Chapter 2, Section 2.6) with the following exceptions: no building demolition or tree removal would be required, and the pipelines between the Pier 94 Backlands and the SEP would be installed using traditional cut and cover (trenching) and bore and jack techniques. Bore and jack construction (a form of tunneling) would be used to construct the pipelines beneath the San Francisco Bay Railroad railyard and westbound lanes of Cargo Way, and under Third Street at Evans Avenue. For purposes of this alternatives analysis, it is assumed that the depth of excavation for pipeline construction would be 10 to 30 feet, though deeper construction would occur at bore and jack locations. Pipeline construction would be constrained due to the complexity of installing multiple pipelines within streets that already contain numerous utilities (necessitating relocation of some utilities), but would be expected to be completed within the overall five-year construction schedule.

Permits and Approvals

As listed in Table 6-1, many of the permits and approvals needed for the Pier 94 Backlands Alternative would be the same as those required for the proposed project. Additional approvals needed for this alternative include approval by the State Lands Commission or state legislature for the trust exchange agreement, approval of long-term use of the Pier 94 Backlands from the Port, and approvals from the Regional Water Quality Control Board (RWQCB) related to construction within a closed landfill. In addition, the Port's Waterfront Land Use Plan would need to be amended to allow the use to occur.

6.3.2.2 Ability to Meet Project Objectives

The Pier 94 Backlands Alternative would meet most of the project's basic objectives, as shown in Table 6-2. However, this alternative would not allow for timely construction of the BDFP because of the years of delay anticipated for permission to use the Pier 94 Backlands site. This alternative would not maximize the efficiency of the current treatment process operations and maintenance, staffing resources, and use of existing SFPUC infrastructure because it could not use existing support facilities and systems at the SEP and would require construction of new essentially

[20] SFPUC, Sludge Pipeline for Remote Biosolids Center Site Alternatives, Draft, November 2009.

duplicative support facilities and systems at the Pier 94 Backlands site. Similarly, because this alternative would not result in a plant-wide operations center and standby power, it would only partially meet the objective of building critical processes with redundant infrastructure to provide reliability and operational flexibility. Lastly, the ability of this alternative to maintain rate payer affordability is unknown because of the financial uncertainties associated with site acquisition.

6.3.2.3 Environmental Impacts

Land Use

The Pier 94 Backlands is currently undeveloped and used for storage of soil and aggregate. No community is established on the Pier 94 Backlands, and the public does not use the site. Neither the Pier 94 Backlands Alternative nor any of the cumulative projects in the vicinity of the Pier 94 Backlands would include physical barriers or obstacles to circulation that would restrict existing patterns of movement. Pipelines connecting the Pier 94 Backlands site to the SEP would be located underground. Consequently, the Pier 94 Backlands Alternative would not physically divide an established community, and as with the proposed project, this impact would be less than significant.

As described in Chapter 3, *Plans and Policies*, development at the Pier 94 Backlands site is subject to policies and other provisions of the City's *San Francisco General Plan* and *Bayview Hunters Point Area Plan* and the Port's *Waterfront Land Use Plan*.[21] Unlike the project, the Pier 94 Backlands Alternative would be consistent with *San Francisco General Plan* policies related to the preservation of historical resources and Policy 7 of the Accountable Planning Initiative, due to the preservation of Central Shops Buildings A and B. However, the Pier 94 Backlands Alternative as a permanent, non-maritime use would not be consistent with Port's *Waterfront Land Use Plan*. As part of their approval processes, the San Francisco Planning Commission, the Port, and other relevant regulatory agencies would determine whether, on balance, the Pier 94 Backlands Alternative would be consistent with the plans they administer, and would identify any exceptions or revisions that might be required (e.g., revising policies to reflect removal of the property from the public trust and use of the site for wastewater treatment). Therefore, at this time, the Pier 94 Backlands Alternative would not be inconsistent with aspects of the *San Francisco General Plan* and *Bayview Hunters Point Area Plan* relevant to avoiding or mitigating an environmental effect, but the use would not be consistent with the Port's *Waterfront Land Use Plan.* Assuming that an amendment to the Port's *Waterfront Land Use Plan* would be incorporated as part of this alternative, this impact would be less than significant.

[21] For example, the *Bayview Hunters Point Area Plan* designates the Pier 94 Backlands area as Maritime Industrial, and the *Waterfront Land Use Plan* designates part of the Pier 94 Backlands area as a "Waterfront Mixed Use Opportunity Area" and identifies portions of the area as either "Existing Maritime Area" or "Maritime Expansion Area." In addition, the *San Francisco Bay Plan*, *San Francisco Bay Area Seaport Plan*, and *Waterfront Special Area Plan* designate the Pier 94 Backlands area for "port priority" use.

Aesthetics

Under the Pier 94 Backlands Alternative, new permanent structures would be constructed at the Pier 94 Backlands, but the maximum height of the structures would be limited to 40 feet. Thus, the new facilities would be similar in character and scale to nearby industrial facilities. A portion of the digesters and other structures would be visible from certain public vistas, including parts of Heron's Head Park, the India Basin Shoreline Park to the southeast, and Hilltop Park and Adam Rodgers Park to the south. However, because the facilities would all be located west of Amador Street, the facilities would not block views of the Bay from these parks nor otherwise obstruct scenic vistas. While facilities at the Pier 94 Backlands would be highly visible from the section of the Bay Trail on Cargo Way between Heron's Head Park and Illinois Street, the area is already substantially developed with industrial land uses, and existing views of the Bay from this part of the San Francisco Bay Trail are substantially blocked by sand and aggregate piles, equipment, and structures. Therefore, while the Pier 94 Backlands Alternative, alone and in combination with cumulative projects, would intensify industrial uses in this area, the new facilities would not substantially degrade the visual character of the site or surroundings, adversely affect a scenic vista, or damage scenic resources. Thus, as with the proposed project, these visual impacts would be less than significant.

Construction of this alternative would create a new source of nighttime light or glare during nighttime construction activities, but this light and glare would not substantially affect other people or properties because the closest residences to the Pier 94 Backlands site are more than 1,800 feet away. As a result, this aesthetics impact would be less than significant. As with the project, compliance with SFPUC standard construction measures would ensure that construction site and staging areas are maintained in a clean and orderly condition and nighttime lighting is directed away from residential areas and has shields to prevent light spillover effects. As with the proposed project, compliance with applicable regulations and policies (California Green Building Code Section 5.106.8 and *San Francisco Better Streets Plan* policy) would ensure that light and glare from operation of the facilities would be less than significant.

Population and Housing, Growth Inducement

Similar to the proposed project, the Pier 94 Backlands Alternative would not displace housing would not increase treatment capacity at the SEP, nor would it extend roads or infrastructure into an undeveloped area. While construction-phase employment projections could be incrementally (assumed to be 10 percent) greater under this alternative than under the proposed project, construction workers would largely be drawn from the local and regional work force and would commute (rather than relocate) to the area. Although this alternative would require an additional five employees over existing SEP (and future with-project) staffing levels, this increase would not represent substantial population growth. Thus, the Pier 94 Backlands Alternative would not induce population growth, displace housing units, create substantial demand for additional housing, or displace a substantial number of people, and population and housing and growth inducement impacts would be less than significant.

Cultural Resources

Historical Resources

There are no known historical resources at the Pier 94 Backlands. Under this alternative, Central Shops Buildings A and B would be retained in place rather than demolished. Consequently, this significant and unavoidable impact on a historical resource associated with the project would not occur.

There are no recorded historical resources within or immediately adjacent to the proposed pipeline route (Evans Street, Mendell Street, and Cargo Way). Buildings along the pipeline route are primarily modern, light industrial, industrial, or office buildings, most of which were constructed in the late 1970s to the late 1980s;[22] as such, they would not meet the minimum age threshold for eligibility for listing in the California Register. Approximately six industrial, steel-frame warehouses on the north side of Evans Street between Quint and Phelps Streets were built from 1961 to 1969 and would meet the minimum age threshold.[23] Upon further review, these buildings could be eligible for listing in the California Register if they meet criteria such as associations with historic events or important persons, or are the embodiment of a certain style of architecture. While construction of the pipelines would have no direct effects (e.g., demolition or substantial alteration) on potentially age-eligible buildings, it could have indirect effects from vibration associated with activities such as pile driving and use of large vibratory compactors. However, these buildings are mostly corrugated steel and concrete construction, which have reduced sensitivity to vibration; in addition, the one masonry building has been structurally upgraded in compliance with local ordinance requirements.[24] Should any damage occur to these buildings, the SFPUC would be required to repair the damage. In addition, if upon later investigation these buildings are determined to be historical resources, mitigation measures could be applied to reduce the potentially significant impact to less-than-significant levels.

While the Pier 94 Backlands Alternative would avoid impacts on historical resources (by retaining Central Shops Buildings A and B in place), the cumulative impacts of this alternative on historical resources would be substantially the same as those identified for the proposed project. Similar to the proposed project, this alternative would still replace the function of the existing digesters and associated buildings at the SEP, and would allow for subsequent potential demolition of many of the contributors to the *Southeast Treatment Plant Streamline Moderne Industrial Historic District* during the envisioned Southside Renovation Project. Mitigation Measure M-CR-1 (Documentation of Historical Resources and Interpretive Display) would reduce the severity of the cumulative impact but would not reduce the impacts on the historic district to a less-than-significant level. As such, the cumulative impact on historical resources due to the indirect impacts of Pier 94 Backlands Alternative in combination with the direct impact of the Demolition of the Existing SEP Digesters and Southside Renovation Project, with respect to future demolition of the existing digesters and control buildings, would be a significant and

[22] Assessor's records accessed June 10, 2016 via San Francisco Property Information Map, http://propertymap.sfplanning.org.
[23] Ibid.
[24] San Francisco Property Information Map, Building Permits for 1698 Evans Avenue. Available online, accessed July 29, 2016.

unavoidable cumulative impact, even with mitigation, and the alternative's contribution to the impact would be cumulatively considerable (i.e., significant).

Archeological Resources and Human Remains

Like the proposed project, the Pier 94 Backlands Alternative could result in a substantial adverse change in the significance of an archeological resource. Because the Pier 94 Backlands and pipeline routes are on artificial fill from land reclaimed during the 1960s, there is the potential that historic structures, such as shipwrecks or wharf remains, present within San Francisco Bay when land reclamation began, could still be extant. Remains of these historic structures could be preserved beneath the artificial fill on or beneath the original San Francisco Bay floor and could be directly affected by construction excavations that penetrate the fill. This site has low potential for the presence of middle or later period prehistoric archeological sites as the subterranean topography does not display pre-Bay conditions generally associated with elevated potential for submerged prehistoric sites, and the area has been under bay waters for several thousand years at least. However, the potential to encounter older, submerged prehistoric sites through drilling of pilings beneath the bay floor has not been assessed for this site. Implementation of Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) and Mitigation Measure M-CR-2b (Accidental Discovery of Archeological Resources) would reduce this potentially significant impact to a less-than-significant level. With respect to cumulative impacts on archeological resources, the Pier 94 Backlands Alternative would avoid contributing to potential cumulative impacts on CA-SFR-171, but the potential remains that this alternative could contribute to cumulative impacts on both recorded and unrecorded archeological resources in the Pier 94 Backlands vicinity as well as along the pipeline route between the Pier 94 Backlands site and the SEP. However, as with the proposed project, implementation of Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) and Mitigation Measure M-CR-2b (Accidental Discovery of Archeological Resources) would ensure that any contribution to potentially significant cumulative impacts on archeological resources would not be cumulatively considerable.

Like the proposed project, this alternative has the potential to uncover human remains that may have been buried outside of formal cemeteries. In the event that human remains are uncovered during ground-disturbing activities, Mitigation Measure M-CR-2b (Accidental Discovery of Archeological Resources) would reduce this potentially significant impact to a less-than-significant level. Therefore, with mitigation, the impact on archeological resources and human remains would be less than significant.

Transportation and Circulation

Under the Pier 94 Backlands Alternative, impacts on transportation and circulation would generally be similar to those of the proposed project, although the effects of construction and operations would predominantly occur to the east of the SEP. Table 6-1 indicates the construction- and operations-phase vehicle routes associated with this alternative, as well as the streets associated with the pipeline alignment.

Construction-Phase Transportation and Circulation Impacts

Construction-related travel demand would be incrementally greater (assumed to be 10 percent) than with the proposed project because of the increased number of vehicle trips associated with pipeline construction, although truck and worker access routes would be primarily via Cesar Chavez Street (instead of Oakdale and Jerrold Avenues). Pipeline construction would require temporary closure of travel lanes on Cargo Way and Evans Avenue and could require temporary full closure of segments of Mendell Street. Pipeline construction within Evans Avenue between Quint and Mendell Streets may require temporary rerouting of the Muni 19 Polk and 44 O'Shaughnessy routes for three to four months or more (depending on the rate of pipeline construction). Pipeline construction at Third Street would occur via bore and jack construction, and thus would not affect T Third light rail operation. Unlike the proposed project, this alternative would not require the temporary closure of Jerrold Avenue and rerouting of the Muni 22 Monterey route. Pipeline construction under this alternative could temporarily disrupt bicycle and pedestrian facilities along the route of the pipelines between the SEP and Pier 94 Backlands (such as the Class II and III lanes along Evans Avenue and the Class IV separated path along Cargo Way). As with the proposed project, the SFPUC would implement a Traffic Control Plan under this alternative that would include measures to reduce traffic congestion and temporarily relocate bus stops, and other measures to reduce potential traffic, bicycle, pedestrian, transit, and emergency vehicle access disruptions and safety hazards. Thus, similar to impacts of the project, construction-related transportation impacts of the Pier 94 Backlands Alternative would be less than significant.

Given the change in location and construction start date, construction of new biosolids facilities at the Pier 94 Backlands would minimally overlap with cumulative projects identified for the proposed project, but would likely overlap with other projects in the vicinity of Pier 94 for which schedules are currently undetermined or that are still in the planning stages.[25] As with the proposed project, a Southeast Area Program Construction Manager would be hired by the SFPUC to manage implementation of the Traffic Control Plan and lead coordination efforts between other projects in the vicinity and SEP operations throughout construction. The Southeast Area Program Construction Manager would also be responsible for coordinating with the project teams to update the San Francisco Municipal Transportation Agency (SFMTA) as needed to address local traffic, transit, bicycle, and pedestrian issues. Therefore, as with the proposed project, implementation of the Pier 94 Backlands Alternative, in combination with construction of other cumulative projects, would result in less-than-significant cumulative construction-related transportation impacts.

Operations-Phase Transportation and Circulation Impacts

Under this alternative, operation and maintenance of new facilities at Pier 94 Backlands would generally be similar to the proposed project, though with some relocation of truck trips from the SEP to the Pier 94 Backlands and a slight increase in staffing (up to five additional staff) with a commensurate increase in travel demand. The additional trips would not substantially affect

[25] These cumulative projects could include the Asphalt and Concrete Recycling and Production Plant at Pier 94, Pier 96 Bulk Export Terminal, and the Blue Greenway Project and Heron's Head Park Improvements.

transportation and circulation in the vicinity of Pier 94 and, as with the proposed project, operations-phase impacts on transportation and circulation would be less than significant.

Noise and Vibration

Under this alternative, the biosolids facilities would be located over 2,200 feet north of the closest residential receptors, and about 1,200 feet northeast of City College of San Francisco's Evans Campus (an educational facility). Construction and operational noise impacts on residential receptors would be reduced under this alternative compared to the proposed project, because both residential receptors and educational facilities would be located much farther from construction and operational noise.

Since the same construction equipment would be used under this alternative, Impact NO-1, regarding consistency with ordinance noise limits, would be the same (i.e., significant for concrete saws) under Pier 94 Backlands Alternative as it would be under the proposed project.

Construction noise impacts from use of the Southeast Greenhouses staging area would be avoided under this alternative since this staging area would no longer be needed. However, this alternative would have additional construction noise impacts associated with pipeline construction that would not occur under the proposed project. The proposed pipeline alignment would extend along the southern and eastern boundaries of the City College campus. Due to the proximity of City College to the pipeline alignment (minimum of 150 feet from the edge of Evans Avenue and 25 feet from Mendell Street), construction-related noise levels would be significantly higher near City College compared to the proposed project and would require mitigation measures such as construction equipment source and administrative controls to reduce the potentially significant impacts to less than significant. However, pipeline construction would move along the alignment and construction-related noise impacts associated with pipeline construction would be much shorter in duration than facility construction at the project site or at the Pier 94 Backlands. When all of these factors are considered, construction-related noise impacts of the Pier 94 Backlands Alternative would be potentially significant but less severe compared to the proposed project's impacts. Similarly, the less-than-significant operational noise impacts on nearby sensitive receptors that would occur under the proposed project would be avoided altogether under this alternative.

With the additional pipeline construction required under this alternative, the likelihood of vibration impacts would be greater than under the proposed project. Construction along the pipeline alignment would occur near buildings (as close as 15 feet from edges of streets), which could be subject to temporary increases in vibration. In addition, if sheet pile driving is required at bore and jack pits or along the pipeline alignment, vibration impacts on adjacent structures would be greater than would occur under the proposed project because of the structures' proximity to such activities. This alternative would likely require vibration controls to reduce these potentially significant effects to a less-than-significant level.

This alternative would avoid the significant, but mitigable, cumulative construction-related noise impact that would result from the proximity of the project to other SFPUC projects proposed at the SEP and their proximity to nearby sensitive receptors. While construction of this alternative

could overlap with construction of other cumulative projects in the Pier 94 Backlands vicinity, any cumulative noise impacts are expected to be less than significant due to the absence of sensitive receptors in the immediate vicinity of the Pier 94 Backlands. Any cumulative operational noise or vibration increases would also be expected to be less than significant for the same reason (absence of sensitive receptors). Therefore, cumulative construction-related impacts would be less severe than those of the project, and as with the proposed project, cumulative operational noise and vibration impacts are anticipated to be less than significant.

Air Quality

While this alternative would avoid air pollutant emissions associated with the proposed project's demolition activities, there would be additional emissions resulting from construction of up to 12 pipelines between the SEP and the Pier 94 Backlands site and the additional redundant ancillary facilities required under this alternative. When the component of project emissions related to demolition activities is compared to construction-related emissions typically associated with pipeline projects, it would be expected that emissions from pipeline construction would be greater than emissions from demolition activities due to the excavation, grading, and off-hauling that would be required for pipeline construction. Thus, with all other aspects of construction and operations being essentially equivalent, the Pier 94 Backlands Alternative would likely result in a net increase in construction-related criteria air pollutant and toxic air contaminant (TAC) emissions, compared to the proposed project. Construction-related criteria air pollutant emissions would be greater under this alternative and the significant and unavoidable construction-related impacts associated with NOx emissions that would occur during two years of construction under the proposed project would also be significant and unavoidable during at least two years of construction under this alternative. Despite the overall increase in construction-related TAC emissions, construction-related health risks and hazards would be less than those of the proposed project because there are few, if any, sensitive receptors located within 1,000 feet downwind of the Pier 94 Backlands site. Since the closest sensitive receptors are not located downwind of the site, construction-related health risks and hazards are expected to be lower at these locations. Likewise, the potential for nuisance odors to adversely affect downwind sensitive receptors would also be less under this alternative. However, it is noted that construction-related and operational TAC emissions and nuisance odor impacts would be less than significant under both this alternative and the proposed project.

Like the project site, the Pier 94 Backlands is located within an APEZ. As with the proposed project, construction and operation of the BDFP facilities at this site is not expected to expand the APEZ.

Although greater construction-related emissions would occur under this alternative, potentially significant impacts associated with conflicts with the 2010 Clean Air Plan would be the same as those of the proposed project and would be less than significant with mitigation.

This alternative's contribution to significant and unavoidable cumulative construction-related NOx emissions would be greater than that of the proposed project due to the added pipeline construction, and as with the proposed project, this cumulative impact would be significant and

unavoidable, even with implementation of mitigation measures like Mitigation Measures M-AQ-1a and M-AQ-1b. Although there would be a net increase in construction-related contaminant emissions and TACs, cumulative health risks and hazards would be less severe than those of the proposed project because the closest sensitive receptors are farther (1,800 feet) compared to the project and because of the absence of downwind receptors at the Pier 94 Backlands site.

Greenhouse Gas Emissions

This alternative would have the same energy capture potential (from digester gas produced) and the same increase in biosolids reuse opportunities as the project, and would be subject to the same local regulations adopted to reduce GHG emissions. Energy produced by digester gas facilities under the Pier 94 Backlands Alternative would be similar to the energy produced under the project and would result in a similar associated increase in biogenic GHG emissions, but unlike the proposed project, the energy recovery facilities located at the Pier 94 Backlands site would not be available as backup power to the main plant or to support other SEP facilities. Other SEP facilities would remain reliant upon Hetch Hetchy power, similar to existing conditions, and therefore, unlike the proposed project, GHG emissions reductions would not be realized because this renewable energy source would not be freed up for use by others. This alternative would nevertheless have a less-than-significant effect because its GHG emissions would not conflict with state, regional, or local GHG reduction plans and regulations, and would not contribute considerably to cumulative GHG emissions.

Wind and Shadow

Because the pipelines between the SEP and the Pier 94 Backlands would be underground, they would not affect wind or shadow and are not discussed further in this section.

Wind

Similar to the proposed project site, the Pier 94 Backlands does not contain any areas subject to wind comfort or wind hazard criteria established in the San Francisco Planning Code. The nearest public areas to the portion of the Pier 94 Backlands that would be developed under this alternative (shown on Figure 6-4) are Amador Street, which has no sidewalks, and Cargo Way, which includes a segment of the Bay Trail. Cargo Way is 200 feet from the Pier 94 Backlands and separated from it by the San Francisco Bay Railroad railyard. As occurs at the proposed project site, winds in the area are typically from the west/southwest and wind speeds are light. Changes in wind patterns resulting from this alternative would generally occur to the east (downwind) of the Pier 94 Backlands along Amador Street. Given existing wind conditions and the absence of downwind public areas, implementation of the Pier 94 Backlands Alternative would not alter wind in a manner that would substantially affect public areas and, as with the proposed project, this impact would be considered less than significant. Given the location and nature of cumulative projects in the vicinity of the Pier 94 Backlands, no significant cumulative impacts related to wind would be anticipated.

Shadow

Heron's Head Park is the nearest public open space to the Pier 94 Backlands. The parking lot at Heron's Head Park is about 500 feet southwest of the portion of the Pier 94 Backlands that would be developed under this alternative. None of the facilities that would be constructed at the Pier 94 Backlands would exceed 40 feet in height; thus, Section 295 of the San Francisco Planning Code would not apply. The Pier 94 Backlands Alternative could cast new shadow on bicycle routes, the Bay Trail, and sidewalks along Cargo Way during certain times of the year, although the facilities would be located over 200 feet away. New shadow, if any, would be transitory in nature and would not substantially affect the function of these pathways (which are generally not used as places for extended periods of stationary activity). The open space recreation facilities are too distant to be affected by shadows created by facilities that would be constructed at the Pier 94 Backlands under this alternative. Consequently, implementation of the Pier 94 Backlands Alternative would not create shadow in a manner that could substantially affect outdoor recreation facilities or other public areas and, as with the project, this impact would be considered less than significant. Given the location and nature of cumulative projects in the vicinity of the Pier 94 Backlands, no significant impacts related to shadow would be anticipated.

Recreation

As discussed above, recreational resources in the vicinity of Pier 94 Backlands include the Bay Trail along Cargo Way, Heron's Head Park, India Basin Shoreline Park, Hilltop Park, and Adam Rodgers Park. Similar to the proposed project, this alternative would construct neither housing nor recreational resources. The five additional workers needed to operate the solids processing facilities at the Pier 94 Backlands would create a negligible increase in existing trail and park use in the area. Construction of the pipelines from the SEP to the Pier 94 Backlands could temporarily disturb users of the Bay Trail during construction in Cargo Way; however, this disturbance would be temporary, and use of the Bay Trail is transitory. The Pier 94 Backlands Alternative would not otherwise alter existing recreational resources. Under cumulative conditions, this alternative in combination with the Blue Greenways Project, Asphalt and Concrete Recycling and Production Plant, and Pier 96 Bulk Export Terminal, could result in an incremental increase in use of recreational resources in the vicinity. However, the incremental increase in use of these resources would not result in physical degradation to the extent that construction or expansion of recreational facilities would be required. These cumulative projects would have less-than-significant incremental impacts related to recreational resources. For these reasons, similar to the proposed project, this alternative would have less-than-significant impacts related to recreational resources.

Utilities and Service Systems

Compared to the proposed project, the Pier 94 Backlands Alternative would generate more soil requiring disposal, primarily resulting from construction of the new digesters (which have a much larger diameter) and the pipelines between the Pier 94 Backlands and the SEP. Other than this construction-related increase, this alternative would generate approximately the same amount of wastewater and solid waste as the proposed project and would require the same amount of potable water. Wastewater would be conveyed to the SEP via facilities designed to

accommodate the anticipated flows. Solid waste disposal would be subject to the same regulatory requirements as the proposed project. There is currently a system of landscape swales that collect, treat, and convey stormwater through an outfall to the Bay, but this alternative would include modifications to the combined sewer system or construction of a new separate stormwater system for the conveyance of stormwater runoff. In either case, the drainage system would be constructed in accordance with applicable design requirements to accommodate anticipated stormwater flows. As with the proposed project, compliance with applicable regulatory requirements would ensure that the Pier 94 Backlands Alternative would not result in any impacts with respect to utilities or services systems. All cumulative development in San Francisco would be subject to the same regulatory framework as this alternative, and compliance with these existing regulations would serve to reduce any cumulative impacts. Therefore, all impacts related to utilities and service systems would be less than significant, as identified for the proposed project, and no mitigation would be required.

Public Services

The number of construction workers needed for the Pier 94 Backlands Alternative would be about 10 percent higher than the number needed for the proposed project, and similarly the temporary increase in demand for public services during construction would be limited to an insubstantial increment above current conditions. As with the proposed project, the SFPUC would be required to prepare a Traffic Control Plan for construction (including pipelines) (see Chapter 2, Section 2.6.1.3, Construction Coordination). The impact of construction on demand for public services and governmental facilities would thus be less than significant. The five additional workers required to staff operation of the solids processing facilities under this alternative would not substantially increase the population of permanent residents requiring public services in the area. As with the proposed project, facilities under this alternative would be constructed in compliance with all applicable fire codes and public safety standards and would be inspected by the San Francisco Fire Department. The Pier 94 Backlands site is within the same police and fire jurisdictions as the proposed project site. Operation of this alternative would have a less-than-significant effect on demand for public services and governmental facilities. For these reasons, all impacts related to public services would be less than significant, as identified for the proposed project, and no mitigation would be required.

Biological Resources

Whereas the proposed project would remove buildings/structures that could serve as roost for bats, implementation of the Pier 94 Backlands Alternative would not require removal of any structures. Thus, the potential impact on bat roosts would not occur under this alternative. As with the proposed project, implementation of SFPUC standard construction measures as well as compliance with the Construction General Stormwater Permit and the City's Construction Site Runoff Control requirements (Article 4.2, San Francisco Public Works Code, Section 146) would reduce potentially significant impacts on nesting birds to a less-than-significant level. This alternative would include removal of non-native grasslands and coyote brush to accommodate construction activities and facility construction. These activities would result in short-term ground disturbance and increased noise, and long-term foraging habitat removal, which would be potentially significant impacts on

migratory birds. As with the proposed project, implementation of SFPUC standard construction measures during project construction would reduce these effects to a less-than-significant level. Implementation of this alternative would not require the removal of any protected trees; however, if tree removal becomes necessary, it is assumed that any removal of protected trees would occur in compliance with requirements in the San Francisco Urban Forestry Ordinance. Bore and jack construction activities could result in short-term indirect impacts on industrial drainages to the north of Cargo Way, although these potential impacts are considered less than significant with the implementation of the project's Stormwater Pollution Prevention Plan (SWPPP). Like the proposed project, the Pier 94 Backlands Alternative would not significantly affect sensitive wildlife or vegetation, or wetlands, after the implementation of the aforementioned best management practices and the SFPUC standard construction measures.

Geology, Soils, and Paleontological Resources

The amount of earthwork under this alternative would be incrementally greater than under the proposed project, primarily due to construction of the pipelines between the Pier 94 Backlands and the SEP. However, impacts related to soil erosion would remain less than significant with implementation of the requirements of Article 4.1 of the San Francisco Public Works Code and the SWRCB General Construction Stormwater NPDES Permit. As with the proposed project, excavations conducted during construction would be shored in accordance with applicable regulations. Monitoring would be conducted during dewatering and pile driving, and corrective actions would be implemented if necessary to ensure that settlement would remain within acceptable levels. Similarly, facilities would be constructed in accordance with the San Francisco Building Code, the SFPUC's General Seismic Safety Requirements, and applicable engineering design standards, which would ensure that the structures could withstand seismic hazards including ground shaking and ground failures (including vibration-induced liquefaction during project construction).

While some of the facilities would be constructed within the limits of the regulated landfill in the Pier 94 Backlands and could be subject to substantial amounts of settlement, this alternative would implement the recommendations of the required site-specific geotechnical report, which would need to be prepared, to reduce the amount of settlement and/or the potential for damage due to settlement. The artificial fill and young bay mud that underlie the Pier 94 Backlands have a low potential for paleontological resources. Therefore, all impacts related to geology, soils, seismicity, and paleontology would be less than significant and no mitigation would be required.

Hydrology and Water Quality

Under the Pier 94 Backlands Alternative, the amount of earth-moving activities and construction-related groundwater dewatering would be greater than under the proposed project, due to the larger area required, the depth to groundwater, and the construction of pipelines between the Pier 94 Backlands and the SEP. However, impacts related to degradation of water quality would remain less than significant with implementation of City requirements (i.e., Articles 4.1 and 4.2 of the San Francisco Public Works Code and the SWRCB General Construction Stormwater NPDES Permit). This alternative would include the construction of a new separate stormwater system or reconfiguration of the combined sewer system to accommodate stormwater flows from the Pier

94 Backlands. Under either option, compliance with City requirements (Article 4.1 of the San Francisco Public Works Code and the City's Stormwater Design Guidelines) would preclude adverse water quality effects from discharge of stormwater. Because the proposed biosolids treatment processes would be the same under the proposed project and the Pier 94 Backlands Alternative, the changes in SEP effluent composition would also be the same (and would not adversely affect receiving water quality). While the project site would be partially within the 100-year flood zone in 2100 with 36 inches of sea level rise, the Pier 94 Backlands is not within an existing or future flood zone or within a potential tsunami inundation zone. For these reasons, as with the proposed project, all impacts related to hydrology and water quality would be less than significant under the Pier 94 Backlands Alternative.

Hazards and Hazardous Materials

There are no buildings at the Pier 94 Backlands, and there are no schools located within one-quarter mile of the Pier 94 Backlands. Construction of the new facilities at the Pier 94 Backlands would introduce a new use of hazardous materials at this site. As with the proposed project, compliance with City requirements (e.g., Article 21 of the San Francisco Public Health Code) regarding the use of hazardous materials would ensure that adverse effects would not occur. The geologic materials at the Pier 94 Backlands contain asbestos.[26] As with the proposed project, construction within these materials would be subject to the requirements of the California Air Resources Board Asbestos Air Toxics Control Measure.

As indicated above, the northern portion of the Pier 94 Backlands site would be located over a portion of a Class III regulated landfill regulated under Order No. R2-2003-0055 issued by the RWQCB.[27] Historic groundwater monitoring indicates that the landfill wastes have not adversely affected groundwater or surface water quality except in the area of a previous aboveground fuel storage tank where elevated total petroleum hydrocarbon concentrations have been identified in the groundwater.[28] However, excavation could encounter wastes within the landfill and potentially affect the integrity of the landfill cover. Although a 1988 Solid Waste Assessment Test investigation of the landfill did not detect methane, volatile organic compounds (VOCs), or hydrocarbons in the soil gas,[29] methane is a common byproduct of decomposing wastes. Therefore, following construction, building occupants could potentially be exposed to harmful landfill gases such as methane and VOCs. However, the RWQCB must approve all changes to the landfill and would require technical reports under Order No. R2-2003-0055 to address how the design of this alternative would maintain the integrity of the landfill and prevent water quality impacts. In addition, as with the proposed project, the assessment and management of site risks would be ensured through compliance with the Maher Ordinance, Article 22A of the San Francisco Health Code, regardless of the likelihood that higher volumes of contaminated soil would be encountered

[26] TR/RYCG, *Site Investigation Report Pier 94 Backland Improvement and Amador Street Sanitary Pump Station San Francisco, California*, June 15, 2012.
[27] RWQCB, *Pier 94 Landfill Order No. R2-2003-0055. Updated Waste Discharge Requirements and Rescission of Order No. 87-061 for: City and County of San Francisco, San Francisco Port Commission, Pier 94 Class III Landfill, San Francisco County*, June 18, 2003.
[28] Ibid.
[29] TR/RYCG, *Geotechnical Investigation Pier 94 Backland Improvements San Francisco, California*, July 5, 2012.

under this alternative compared to the proposed project. As with the proposed project, impacts related to interference with emergency response would be minimized through implementation of a Traffic Control Plan. Fire risks would be minimized through compliance with existing fire safety codes and industry standards. For the reasons stated above, as with the proposed project, all impacts related to hazards and hazardous materials would be less than significant.

Mineral Resources, Energy Resources, and Water Use

Similar to the proposed project, this alternative would have no impact on mineral resources because the Pier 94 Backlands does not contain substantial mineral resources or locally important mineral resource recovery sites.

Construction energy needs would be slightly higher than those of the proposed project, given that this alternative would include construction of pipelines between the Pier 94 Backlands and the SEP. However, this energy consumption would not be considered a wasteful use of energy, for the reasons explained for the proposed project; thus, this impact would be less than significant. Energy produced by digester gas facilities under this alternative would be similar to the energy produced under the proposed project and would be sufficient to provide enough power to operate the project, although this energy would not be available to SEP facilities. Thus, other SEP facilities would remain reliant upon Hetch Hetchy power (similar to existing conditions). The impact of operation of this alternative on energy, fuel, and water use would be less than significant. Cumulative impacts of this alternative would be less than significant, similar to those identified for the proposed project. This alternative would not reduce the amount of power needed from Hetch Hetchy; however, the alternative would not encourage activities that would result in the use of large amounts of these resources, or result in their use in a wasteful manner.

Agriculture and Forest Resources

Like the proposed project, the Pier 94 Backlands Alternative would not affect any land designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, nor would it affect any land zoned or used for either agricultural or forestry use. Therefore, there would be no impact related to agriculture or forest resources.

6.3.3 Alternative C: Historical Resources Relocation

6.3.3.1 Description

Alternative C, the Historical Resources Relocation Alternative, would consist of full construction and operation of the BDFP as proposed, plus the relocation of Central Shops Buildings A and B to a similar industrial setting in San Francisco. The relocation, rehabilitation, and reuse of Buildings A and B would be consistent with the Secretary of the Interior's Standards, and would reduce the significant and unavoidable impact on historical resources under the proposed project to a less-than-significant level. Rather than demolishing Buildings A and B, the SFPUC would dismantle these structures such that they could be relocated consistent with the Secretary of the Interior's Standards for Rehabilitation, and the character-defining features of these historical resources would

be retained.[30] Following relocation, Buildings A and B would be rehabilitated and reused. This would be considered a full preservation alternative with respect to an identified individual historical resource. However, this alternative would neither reduce nor avoid the significant and unavoidable cumulative impact on the *Southeast Treatment Plant Streamline Moderne Industrial Historic District*.

Under this alternative, construction of BDFP facilities at the proposed project site would be delayed by about one year to accommodate the disassembly and transportation and relocation of Buildings A and B; otherwise, the characteristics of the BDFP (location, components, operation, maintenance, and construction) would be the same as described in Chapter 2, *Project Description*, and are not discussed in detail in this section. The description below, instead, focuses on the relocation of Central Shops Buildings A and B.

Site Location

The relocation of Buildings A and B would require a site of about 130,000 square feet (about three acres) in area, in order to allow sufficient buffer around the buildings themselves to accommodate vehicular circulation and to retain a similar setting to their original location. The SFPUC has identified a site at Pier 90, bisected by Amador Street east of Illinois Street and Cargo Way, as a potentially feasible new location for Buildings A and B (refer to **Figure 6-5**). Buildings A and B could be relocated to two sites on either side of Amador Street (600 Amador Street and 450 Amador Street). The existing buildings at 600 Amador Street would be relocated or demolished prior to relocation of Buildings A and B. No buildings would be demolished at 450 Amador Street. The relocation site is referred to as the Pier 90 site in this document. Construction staging would occur primarily at the Pier 90 site, with additional staging at the Pier 94 Backlands if needed.

The City through the Port Commission owns the Pier 90 site. American Storage, a storage company, currently leases 600 Amador Street. Central Concrete Supply, Inc., a ready mix concrete supplier, currently leases 450 Amador Street. These two uses are typical of land uses in the surrounding area. While this site is subject to the public trust (similar to Pier 94 Backlands site discussed above), the relocation of Central Shops Buildings A and B to this site would not require State Lands Commission approval.[31]

The 600 Amador Street site is bounded to the south by the Pier 94 Backlands and the San Francisco Bay Railroad railyard; a rendering plant and concrete preparation plant are located to the east along Amador Street. Vacant grain silos stand to the east of 450 Amador Street. Islais Creek Channel borders the area to the north. Cargo Way and Third Street separate the site from warehouses and commercial uses to the west.

[30] Secretary of Interior's Standards for Rehabilitation (36 CFR 67).

[31] If the Port were to rent out the relocated buildings for a long-term use that was not consistent with the public trust, then that use would require approval by the State Lands Commission.

SOURCE: ESA+Orion; Google Earth, 2016

SFPUC Biosolids Digester Facilities

Figure 6-5

Potential Site and Layout for Historical Resources Relocation Alternative

Buildings along Amador Street near the Pier 90 site are used for industrial and maritime purposes, and include multi-story concrete grain silos, building materials storage, large metal storage tanks associated with a rendering facility, and multi-story concrete and metal structures associated with concrete processing.

The Pier 90 site is not within the Bay Conservation and Development Commission (BCDC) 100-foot shoreline band but is within a "port priority use area" (designated in the *San Francisco Bay Area Seaport Plan*). While specific future uses of Buildings A and B have not been determined, it is presumed that the future uses would be consistent with the existing use of the Central Shops, as well as with allowable uses within a port priority area such as light industrial uses.

For the purposes of this analysis, it is assumed that the City through the Port Commission would retain ownership of the Pier 90 site, and that the Port would manage land use at the site.

Components

In addition to construction of the BDFP as described in Chapter 2, *Project Description*, this alternative would relocate Buildings A and B to the Pier 90 site. The existing buildings at 600 Amador Street would be relocated or demolished prior to relocation of Buildings A and B. No buildings would be demolished at 450 Amador Street. Dismantling, transport, and storage of Buildings A and B would occur before BDFP construction begins at the SEP. Prior to reconstruction of Buildings A and B, a slab foundation would be installed at the Pier 90 site, and some utilities (such as water, sewer, and power) would be connected.

Operations and Maintenance

As discussed above, future use of Buildings A and B would likely retain an industrial use in a manner consistent with the *Port of San Francisco, Waterfront Land Use Plan* land uses. It would be speculative to presume a particular use for the relocated Buildings A and B beyond this basic consistency assumption, so the impact analysis below addresses only this basic assumption.

Construction

Construction Schedule, Work Force, and Work Hours

Construction of the BDFP facilities would occur as described in Chapter 2, *Project Description*; however, the demolition or relocation of buildings at Pier 90 and subsequent dismantling and transport of Buildings A and B to Pier 90 would occur at the beginning of the construction schedule, and would add about one year to the total construction schedule. Construction would thus occur over an approximately six-year period. For purposes of this evaluation, it is assumed that 75 construction workers (approximately half of the work force required for site preparation of the BDFP) would be needed for disassembly and transportation of Buildings A and B and site preparation at the Pier 90 site. Construction work hours are assumed to be the same as for the proposed project.

Construction Staging, Worker Parking, Truck Access, and Lane Closures

As described above, construction staging could occur at the same locations as proposed for the BDFP, as well as at the Pier 90 site. Construction worker parking would be provided at the Pier 90 site and the Pier 94 Backlands if needed. Trucks transporting Buildings A and B would travel between the existing Central Shops site and 600 Amador Street or 450 Amador Street along either the same route as the equipment deliveries and concrete trucks route identified in Figure 2-15 in Chapter 2, *Project Description*, for the BDFP (exiting the SEP on Rankin Street, then continuing to the Pier 90 site using Evans Avenue, Third Street, and Cargo Way/Amador Street), or would exit the SEP on Jerrold Avenue and then continue on to Phelps Street, Third Street, and Cargo Way/Amador Street. Additional materials brought to the Pier 90 site would be delivered via Evans Avenue, Third Street, or Illinois Street. Temporary lane closures may occur during construction.

Construction Methods

Construction methods to be used for relocating Buildings A and B have not been determined but would likely include disassembly of the structures, construction of slab on grade foundations (Pier 90 is on artificial fill placed between 1926 and 1938) and concrete perimeter walls, and reassembly of the buildings. Buildings A and B would be required to be constructed in accordance with the State Historical Building Code and the Secretary of the Interior's Standards for the Treatment of Historic Properties. Construction would require the use of similar equipment to that included in Table 2-11 in Chapter 2, *Project Description*. The total amount of earthwork under the Historical Resources Relocation Alternative would be slightly greater than under the proposed project due to construction activities required for site preparation at Pier 90.

Permits and Approvals

Relocation of Buildings A and B would require approval from the Port, as the Pier 90 site is under its jurisdiction; thus, this alternative would require all the same the permits and approvals required for the proposed project (identified in Chapter 2, Section 2.7, Intended Uses of this EIR and Required Actions and Approvals).

6.3.3.2 Ability to Meet Project Objectives

Because the Historical Resources Relocation Alternative would involve full implementation of the BDFP as proposed, this alternative would meet all of the proposed project objectives (see Table 6-2), with one possible exception. Due to the unknown time and costs to acquire a suitable relocation site for Buildings A and B, conduct site preparations, and take the precautions needed to dismantle and reconstruct Buildings A and B consistent with the Secretary of the Interior's Standards, it is unknown if this alternative would allow for rate payer affordability. The estimated one-year extension in project schedule for the dismantling and relocation would be considered within a reasonable range for the SFPUC to partially meet its objective for timely construction of the BDFP facilities.

6.3.3.3 Environmental Impacts

With a few exceptions, the Historical Resources Relocation Alternative would result in all the same impacts as those identified for the proposed project in Chapter 4, *Environmental Setting and Impacts*, plus impacts associated with construction and operation of the relocated buildings at Pier 90. The exceptions relate to the historical resource impacts and assumptions for cumulative impacts, as discussed below.

This alternative would substantially reduce the severity of impacts on historic architectural resources (Impact CR-1). Under this alternative, the project-level impact on historical architectural resources would be less than significant because Central Shops Building A and B would be relocated, rehabilitated, and reused in a similar industrial setting in San Francisco in a manner consistent with the Secretary of the Interior's Standards. However, as with the proposed project, the cumulative impact on historical architectural resources would be significant and unavoidable under the Historical Resources Relocation Alternative, even with mitigation (Mitigation Measure M-CR-1, Documentation of Historical Resources and Interpretive Display). This is because under cumulative conditions, the SFPUC would potentially demolish all of the existing digesters and their central control buildings (refer to Chapter 4, Section 4.1, Table 4.1-1), which are contributors to the eligible *Southeast Treatment Plant Streamline Moderne Industrial Historic District*, and implementation of this alternative would demolish Building 870 (a contributor to the historic district) plus replace the function of the existing digesters and allow for the future demolition of the digesters and control buildings. Therefore, similar to the proposed project, the alternative's contribution to the cumulative adverse impact on this eligible district would be cumulatively considerable, and a significant, unavoidable cumulative impact on a historic district.

With respect to the assumptions for cumulative impacts, this alternative would delay construction of facilities at the BDFP site by about one year. Some of the cumulative impacts disclosed in Chapter 4, *Environmental Setting and Impacts*, are directly related to the degree to which construction of cumulative projects would overlap with the BDFP. Consequently, some of those cumulative impacts could slightly differ under this alternative, as described below.

The impact discussions described below focus on the construction and operational impacts at the Pier 90 site and do not repeat the impacts at the project site and staging areas that would be the same under this alternative as those of the proposed project.

Land Use

Existing uses in the Pier 90 area include a storage company, concrete supplier, building materials storage and a rendering facility. With implementation of the Historical Resources Relocation Alternative, the building materials storage and a parking lot operated by the concrete supplier would be replaced by Buildings A and B. Moving the buildings to this site would not close any roads, and existing uses in the Pier 90 vicinity do not constitute an established community. Consequently, this alternative would not physically divide an established community.

Development at Pier 90 would be subject to policies and other provisions of the City's *San Francisco General Plan* and *Bayview Hunters Point Area Plan* and the Port's *Waterfront Land Use Plan*. Although specific future uses have not been identified, potential uses of Buildings A and B under this alternative (e.g., light industrial) are assumed not to conflict with the policies set forth in these plans.

Aesthetics

At Pier 90, the two relocated Central Shops buildings would constitute new permanent industrial buildings near other industrial buildings and facilities. While Central Shops Building B would be taller and more massive than the existing storage facility buildings it would replace, the character of both of the relocated buildings would be similar to the visual character of nearby industrial facilities. The relocated buildings would be partly visible from parts of Hilltop Park and Adam Rodgers Park to the south; however, the relocated Central Shops buildings would not block views of the Bay from these parks nor otherwise obstruct scenic vistas. While the relocated buildings would be highly visible from the section of the Bay Trail on Cargo Way and Illinois Street where these two streets intersect with Amador Street, the area is already substantially developed with industrial land uses, and existing views of the Bay from this part of the San Francisco Bay Trail are substantially interrupted by existing buildings and other structures that border this part of Amador Street. Therefore, while the Historical Resources Relocation Alternative, alone and in combination with cumulative projects, would intensify the industrial uses at the Pier 90 site, the relocated buildings would not degrade the visual character of their respective sites or surroundings, adversely affect a scenic vista, or damage scenic resources. Thus, these impacts would be less than significant. It is assumed that no nighttime construction would be required at the Pier 90 site, so there would be no construction-related light and glare impacts at that location. As with the proposed project, compliance with applicable regulations and policies (California Green Building Code Section 5.106.8 and *San Francisco Better Streets Plan* policy) would ensure that light and glare from operation of the relocated Buildings A and B would be less than significant.

Population and Housing, Growth Inducement

Similar to the proposed project, the Historical Resources Relocation Alternative would not displace housing, would not increase treatment capacity at the SEP, and would not extend roads or infrastructure into an undeveloped area. However, the relocation of the Central Shops buildings to Pier 90 would displace two businesses that currently lease the 450 and 600 Amador Street sites. The number of jobs associated with these businesses is small, and the employees displaced from their current employment sites would be expected to find employment at the same businesses in a different location or at other jobs in San Francisco or the surrounding area. Therefore, the displacement of the workers at these two sites would not create substantial demand for new housing or necessitate the construction of replacement housing elsewhere, and the impact of the Historical Resources Relocation Alternative related to displacement of people, while greater than that of the proposed project, would be less than significant. The construction-phase employment period for the Historical Resources Relocation Alternative would be extended by about one year and require about 75 additional construction workers to dismantle and relocate

the Central Shops buildings. This is not a substantial increase in the time and work force requirements assumed for the proposed project. As under the proposed project, construction workers would largely be drawn from the local and regional work force and would commute (rather than relocate) to the area. Therefore, the relocation component of the Historical Resources Relocation Alternative would not induce population growth, displace housing units, create substantial demand for additional housing, or displace a substantial number of people, and population and housing and growth inducement impacts would be less than significant.

Cultural Resources

Historical Resources

The Historical Resources Relocation Alternative would consist of full construction and operation of the BDFP as proposed; however, rather than demolish Central Shops Buildings A and B, this alternative would relocate these buildings to a similar industrial setting in San Francisco. The dismantlement, relocation, rehabilitation, and reuse of Buildings A and B would be consistent with the Secretary of the Interior's Standards, and the character-defining features of these resources would be retained. Therefore, this alternative would substantially reduce the severity of a significant impact on historical architectural resources. Like the proposed project, this alternative would include demolition of Building 870, which is an identified contributor to the eligible *Southeast Treatment Plant Streamline Moderne Industrial Historic District*. However, as with the proposed project, removal of Building 870 would have a less-than-significant impact on the overall significance and historic integrity of the district because the building is not individually eligible for listing, and because the removal of this one building would not substantially degrade the historical integrity of the district.

Because the dismantlement, relocation, rehabilitation, and reuse of Buildings A and B would be consistent with the Secretary of the Interior's Standards, and because the demolition of Building 870 would result in a less-than-significant impact on the historic district, the impact on historical architectural resources would be less than significant under this alternative, and no mitigation measures are necessary. However, as with the proposed project, under cumulative conditions, the SFPUC would demolish all of the existing digesters and their central control buildings (refer to Chapter 4, Section 4.1, Table 4.1-1, Project 12), which are contributors to the eligible *Southeast Treatment Plant Streamline Moderne Industrial Historic District*. Therefore, as with the proposed project, the Historical Resources Relocation Alternative's contribution to the cumulative adverse impact on this eligible historic district would be cumulatively considerable, and the cumulative impact would be significant and unavoidable, even with mitigation (Mitigation Measure M-CR-1, Documentation of Historical Resources and Interpretive Display).

Archeological Resources and Human Remains

The proposed relocation site for Buildings A and B (Pier 90, bisected by Amador Street east of Illinois Street and Cargo Way) consists of artificial fill. Historic structures present when land reclamation began, such as shipwrecks or wharf remains, could be extant and could be directly affected by construction excavations if erection of Buildings A and B entails excavation or pile driving that would penetrate the fill. Because the proposed relocation site consists of artificial fill,

there is a low potential for the presence of middle or later period prehistoric archeological sites. It is assumed that Buildings A and B would be relocated to slab on grade foundations similar to their existing foundations. This work would not require substantial excavation, and there would be a low potential to encounter older deeply buried prehistoric sites submerged by the Bay.

Nevertheless, the potential remains that site preparation activities could encounter archeological resources and human remains at the Pier 90 site, a potentially significant impact. Implementation of Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) and Mitigation Measure M-CR-2b (Accidental Discovery of Archeological Resources) would reduce impacts on archeological resources and human remains at the proposed relocation site to a less-than-significant level. Therefore, with mitigation, the impact on archeological resources and human remains would be less than significant.

Transportation and Circulation

The same peak number of construction trucks and construction workers as the BDFP would occur for the Historical Resources Relocation Alternative, although the dates of these peaks would shift. The same temporary street closures would occur during construction, with the addition of potential temporary closures of roadways between the SEP and the Pier 90 site during transport of large pieces of Buildings A and B, but these closures would be of short duration and would represent less-than-substantial changes to current vehicle travel and circulation, based on the existing traffic volumes and the duration of closures. Temporary disruption of the bicycle and pedestrian facilities on Cargo Way and Illinois Street could also occur during relocation of Buildings A and B; however, as with the BDFP, a Traffic Control Plan containing measures to reduce transportation and circulation hazards associated with construction activities would be prepared. As with the proposed project, construction impacts of this alternative would be less than significant.

Operational haul routes of vehicles associated with SEP operations would be the same as those identified for the proposed project. For this reason, operation of the Historical Resources Relocation Alternative would result in transit, bicycle and pedestrian travel, freight rail, parking, and traffic safety hazard impacts that would be similar to those described for the proposed project.

While the dates of peak construction activity would shift by about one year under the Historical Resources Relocation Alternative, the same construction cumulative scenario as evaluated for the proposed project would apply because no additional projects in the SEP vicinity from the cumulative projects list would be under construction in 2023 to 2024. For this reason, the cumulative construction impacts of the Historical Resources Relocation Alternative on transportation and circulation would be similar to those of the proposed project.

The operational cumulative scenario for the relocation component of the Historical Resources Relocation Alternative is also the same as that analyzed for the BDFP. Similar to the BDFP, the relocation component of the Historical Resources Relocation Alternative, along with other cumulative projects in the operational cumulative scenario, would not permanently reroute public transit, bicycle, or pedestrian routes in the area, and would not include activities using freight rail.

Noise and Vibration

In addition to having the same potentially significant but mitigable construction noise impact identified for the BDFP at the BDFP site, the Historical Resources Relocation Alternative would result in construction-related noise increases in the Pier 90 area (assuming Buildings A and B are reconstructed on this alternative site). Because of the added development in the Pier 90 area, noise impacts would be slightly greater when compared to those of the proposed project; however, implementation of this alternative is not expected to result in any new significant construction-related and operational noise impacts on sensitive receptors, due to the absence of noise-sensitive receptors in the Pier 90 vicinity.

This alternative would result in the same significant cumulative construction-related noise impacts on nearby sensitive receptors when combined with other SEP projects. While construction of this alternative could overlap with construction of other cumulative projects in the Pier 90 area, any cumulative noise or vibration impacts are expected to be less than significant due to the absence of sensitive receptors in the immediate vicinity. Any cumulative operational noise or vibration increases at the Pier 90 site are also expected to be less than significant for the same reason (absence of sensitive receptors). Therefore, cumulative construction-related and operational noise and vibration impacts would be slightly greater than those of the proposed project due to the added development in the Pier 90 area, but there would be no new significant construction-related or operational cumulative noise and vibration impacts.

Air Quality

Under this alternative, criteria pollutant emissions and health risks would remain substantially the same as those of the proposed project, since the Central Shops maintenance activities were assumed to continue to occur within the air basin but at a different location (i.e., no emissions reductions were assumed due to removal of the Central Shops activities from the SEP site), even though new uses at the relocated Buildings A and B could incrementally add to long-term operational emissions. Given the size of Buildings A and B, operational emissions of a new use at this site would not be expected to be significant. (If the new use were a relocated use from another site within the same air basin, then operational emissions would be the same as those of the proposed project.) Therefore, this alternative would not substantially increase the operational emissions and health risks estimated for the proposed project.

This alternative would result in slightly more short-term criteria pollutant emissions resulting from relocation or demolition of existing facilities on the Pier 90 site and relocation of the Central Shops buildings. Depending on the timing of these activities at the Pier 90 site, these added emissions would further increase the project's exceedances of the significance threshold for NOx if the emissions occurred during Construction Years 1 or 3, and such an impact would be significant and unavoidable under the proposed project as well as under this alternative.

Despite this additional increase in construction-related criteria air pollutant and TAC emissions compared to the proposed project, the added construction-related health risks and hazards are expected to be less than significant (as with the proposed project) because there are few, if any, sensitive receptors located within 1,000 feet downwind of the Pier 90 area. Likewise, the potential

for nuisance odors to adversely affect downwind sensitive receptors would also be less than significant under this alternative.

Like the BDFP site, the Pier 90 area is located within an APEZ. As with the proposed project, implementation of the Historical Resources Relocation Alternative would not be expected to expand the APEZ.

As with the proposed project, even with somewhat greater construction-related emissions under this alternative, impacts associated with conflicts with the Clean Air Plan would be less than significant with mitigation.

This alternative's contribution to significant and unavoidable cumulative construction-related NOx emissions would be greater than that of the proposed project due to the added emissions associated with Central Shops relocation and rehabilitation as well as dismantling or demolition of buildings at the Pier 90 site, and as with the proposed project, this cumulative impact would be significant and unavoidable, even with implementation of measures like Mitigation Measures M-AQ-1a and M-AQ-1b. Cumulative impacts on health risks and hazards associated with TACs would be similar to those of the proposed project and would be less than significant.

Greenhouse Gas Emissions

This alternative would have the same energy capture potential (from digester gas produced) and the same increase in biosolids reuse opportunities as the proposed project, and would be subject to the same local regulations adopted to reduce GHG emissions. Energy produced by digester gas facilities under the Historical Resources Relocation Alternative would be the same as the energy produced under the proposed project. Overall, under this alternative, despite the minor increase in construction activities at Pier 90, impacts related to GHGs are still expected to be less than significant.

Wind and Shadow

Wind

Similar to the BDFP site, the Pier 90 site does not contain any areas subject to wind comfort or wind hazard criteria established in the San Francisco Planning Code. The nearest public areas to the portion of the Pier 90 site to which Buildings A and B would be relocated under this alternative (shown on Figure 6-5) are Amador Street, which has no sidewalks, and Illinois Street and Cargo Way, which both include a segment of the Bay Trail. The Pier 90 site is approximately 120 feet northeast of Cargo Way and approximately 120 feet east of Illinois Street. The Bayview Gateway open space is located between Third Street, Cargo Way, Illinois Street, and the Illinois Street bridge approach, which is west of the Pier 90 site. As at the BDFP site, winds in the area are typically from the west/southwest and wind speeds are light. Changes in wind patterns resulting from this alternative would be less than significant at the SEP, the same as described for the BDFP. Changes in wind patterns resulting from the relocation of Buildings A and B would generally occur to the east (downwind) of the Pier 90 site along either side of Amador Street. This alternative would reconstruct Buildings A and B, which have a maximum height of two stories.

Given existing wind conditions and the absence of public areas immediately downwind, implementation of the relocation component of the Historical Resources Relocation Alternative would not alter wind in a manner that would substantially affect public areas and, as with the proposed project, this impact would be considered less than significant. As stated above, any changes in wind patterns resulting from the relocation of Buildings A and B would generally occur to the east (downwind) of the Pier 90 site, and therefore no significant cumulative impacts related to wind would be anticipated.

Shadow

The Bayview Gateway open space is the nearest public open space to the Pier 90 site. The eastern edge of the Bayview Gateway open space is about 150 feet west of the portion of the Pier 90 site to which Building A would be relocated. Neither Building A nor Building B would exceed 40 feet in height; thus, Section 295 of the San Francisco Planning Code would not apply to the relocation of these buildings. The Historical Resources Relocation Alternative could cast new shadow on bicycle routes and the Bay Trail (approximately 150 feet west) along Illinois Street, but new shadow would be transitory in nature and would not substantially affect the function of these pathways (which are generally not used as places for extended periods of stationary activity). The open space recreation facilities are too distant to be affected by shadows created by relocated Buildings A and B. Consequently, implementation of the relocation component of the Historical Resources Relocation Alternative would not create shadow in a manner that could substantially affect outdoor recreation facilities or other public areas and, as with the proposed project, this impact would be less than significant. Given the location and nature of cumulative projects in the vicinity of the Pier 90 site, no significant impacts related to shadow would be anticipated.

Recreation

Recreational resources in the vicinity of the Pier 90 site include the Bayview Gateway open space and the Bay Trail along Illinois Street. Users of the Bay Trail along Illinois Street could be temporarily disturbed by construction activities associated with the relocation of Buildings A and B; however, this disturbance would be temporary, and use of the Bay Trail is transitory. Similar to the proposed project, relocation of Buildings A and B would not result in the physical deterioration or degradation of recreational resources.

In combination with the Blue Greenways Project, Asphalt and Concrete Recycling and Production Plant, and Pier 96 Bulk Export Terminal, use of the Bay Trail could increase due to improvements to the Bay Trail and the presence of additional employees in the area. However, the incremental increase in use of these resources would not result in substantial physical degradation. These cumulative projects would have less-than-significant incremental impacts related to recreational resources. For these reasons, similar to the proposed project, the relocation component of the Historical Resources Relocation Alternative would have less-than-significant impacts related to recreational resources.

Utilities and Service Systems

While Central Shops Buildings A and B would not be demolished under the Historical Resources Relocation Alternative, this alternative would result in a similar volume of building debris requiring disposal because the existing structures at Pier 90 would be relocated or demolished to accommodate the relocated buildings. The Historical Resources Relocation Alternative would also produce slightly more soil requiring disposal because of construction activities required for site preparation for reconstruction of Buildings A and B. Wastewater from the relocated buildings would be conveyed to the SEP via the City's combined sewer system and stormwater would drain to the existing separate storm sewer system at Pier 90. Solid waste disposal at the relocated buildings would be subject to the same regulatory requirements as the proposed project. As with the proposed project, compliance with applicable regulatory requirements would ensure that the Historical Resources Relocation Alternative would not result in any impacts with respect to utilities or services systems. All cumulative development in San Francisco would be subject to the same regulatory framework as the Historical Resources Relocation Alternative, and compliance with these existing regulations would serve to reduce any cumulative impacts.

For the reasons stated above, as with the proposed project, all impacts related to utilities and service systems would be less than significant, and no mitigation would be required.

Public Services

During the disassembly and transport of Buildings A and B, about 75 workers would be needed for the Historical Resources Relocation Alternative; this would occur prior to construction at the project site. The subsequent rehabilitation and construction of Buildings A and B at Pier 90 would occur concurrently with BDFP construction activity at the project site; therefore, the total average construction work force would be higher than the number of workers identified for the proposed project due to these extra 75 workers during this rehabilitation period. As under the proposed project, construction workers would largely be drawn from the local and regional work force and would commute (rather than relocate) to the area. Therefore, similar to the proposed project, the relocation component of the Historical Resources Relocation Alternative would not result in increased response times such that new or physically altered facilities would be required to maintain service, and the impact on public services would be less than significant.

Biological Resources

Similar to the project, the relocation component of the Historical Resources Relocation Alternative could cause impacts on nesting birds and roosting bats, as a result of demolition of existing buildings at 600 Amador Street, building re-construction, and site preparation. Direct and indirect disturbances to bats potentially roosting in underutilized industrial buildings or trees could occur from construction-associated noise or increased human activity in the area. Increased lighting, or the reconstruction of Building A and B, can also lead to the disturbance of roosting bats. Similarly, birds potentially nesting in the street trees along Amador Street in front of the proposed location of Buildings A and B could be affected by project construction activities that generate noise and visual disturbance. Construction activities that may alter the ambient noise environment or introduce short-term loud noise events include but are not limited to building

demolition and grading or ground disturbance. Noise pollution can be detrimental to wildlife, and bird populations are particularly susceptible because they rely on acoustic signals for mating, predator evasion, and communication between adults and offspring, among other behaviors.

Trees along Amador Street in front of the proposed location for Buildings A and B would be exposed to potential damage or removal during construction, similar to trees under the proposed project. Absent more specific information regarding extent of demolition and construction under the Historical Resources Relocation Alternative, this analysis conservatively assumes that any of the trees along Amador Street in front of the 450 and 600 Amador Street lots would be removed or damaged, and that damage may include mechanical damage to tree trunks and canopies, root damage resulting from grading and excavation activities, and root damage resulting from soil compaction. Similar to the project, this alternative would protect these trees through implementation of a Tree Protection Plan, described in Chapter 2, Section 2.6.5.5, Tree Removal and Protection Plan, which would be submitted to San Francisco Public Works (SFPW). The commitment to tree replacement and protection would conform with Article 16 of the San Francisco Public Works Code.

Nesting birds, roosting bats, and street trees potentially affected by the implementation of the Historical Resources Relocation Alternative would be subject to the same standard construction measures and regulatory conditions as those identified for the project. As with the project, implementation of the SFPUC's Standard Construction Measure 7 would reduce impacts on birds potentially nesting in the street trees along Amador Street in front of the proposed location of Buildings A and B to less than significant levels. Implementation of Mitigation Measure M-BI-1 (Protective Measures for Special Status Bats and Maternity Roosts) would reduce potentially significant impacts on roosting bats at the proposed Buildings A and B relocation site to a less-than-significant level. Therefore, the impacts of the Historical Resources Relocation Alternative on biological resources would be less than significant with mitigation. Cumulative projects in the vicinity of Pier 90 could also generate noise during construction and operation that could contribute potentially significant impacts on biological resources. However, with implementation of the identified mitigation measure, the remaining contribution to this cumulative impact from the relocation component of this alternative would be less than cumulatively considerable, and as with the proposed project, the cumulative impact would be less than significant with mitigation.

Geology, Soils, and Paleontological Resources

Due to construction activities required for site preparation at Pier 90, the total amount of earthwork under the Historical Resources Relocation Alternative would be slightly greater than under the project. However, impacts related to soil erosion would remain less than significant with implementation of the requirements of Article 4.1 of the San Francisco Public Works Code and the SWRCB NPDES Permit. Central Shops Buildings A and B would be retrofitted to comply with the current San Francisco Building Code and applicable engineering design standards to withstand seismic hazards including ground shaking and seismically induced ground failures such as liquefaction. This would be an improvement over existing conditions. The artificial fill and young bay mud that underlie Pier 90 have a low potential for paleontological resources.

For the reasons stated above, as with the proposed project, all potentially significant impacts related to geology, soils, seismicity, and paleontology would be less than significant with implementation of the mitigation measures required for the project.

Hydrology and Water Quality

Due to construction activities required for site preparation at Pier 90, the total amount of earthwork and construction-related groundwater dewatering under the Historical Resources Relocation Alternative would be slightly greater than under the project. However, impacts related to degradation of water quality would remain less than significant with implementation of City requirements (i.e., Articles 4.1 and 4.2 of the San Francisco Public Works Code and the SWRCB General Construction Stormwater NPDES Permit). Compliance with City requirements (Article 4.1 of the San Francisco Public Works Code and the City's Stormwater Design Guidelines) would preclude adverse water quality effects from discharge of stormwater from the relocated Buildings A and B.

Pier 90 is located adjacent to Islais Creek and could be inundated by 2050 as a result of sea level rise (refer to Chapter 4, Section 4.16, Figure 4.16-3). However, in accordance with the City's Guidance for Incorporating Sea Level Rise into Capital Planning, it is assumed that the relocated Central Shops Buildings A and B would be appropriately designed to withstand and adapt to sea level rise (see Chapter 4, Section 4.16.2, Regulatory Framework, for a description of this guidance). Because there are existing structures at the Pier 90 site that would be replaced by relocated Buildings A and B, in general, the relocated buildings would not substantially alter the direction of flood flows compared to what would occur under existing conditions, and the relocated buildings would not exacerbate future flooding conditions. Unlike the BDFP site, much of Pier 90 is located within a potential tsunami zone (refer to Chapter 4, Section 4.16, Figure 4.16-6), and relocated Building A could be located within this zone. Tsunamis are extremely rare. However, if the National Warning System issues a tsunami warning, the City would initiate its outdoor warning system and issue emergency instructions should the San Francisco waterfront be threatened. Use of this system would allow for adequate time to warn people to avoid the area in the event of a tsunami and for evacuation of the area should workers be present when the warning is issued. Although some damage to relocated Buildings A and B could occur, these buildings would be retrofitted to comply with the current San Francisco Building Code and applicable engineering design standards, which would increase the buildings' resilience to damage in the event of a tsunami. Both the sea level rise impact and the tsunami impact would be of greater magnitude than under the proposed project but would remain less than significant.

For the reasons stated above, as with the proposed project, all impacts related to hydrology and water quality would be less than significant and no mitigation would be required.

Hazards and Hazardous Materials

While Buildings A and B would not be demolished under the Historical Resources Relocation Alternative, this alternative would result in a similar volume of hazardous building materials requiring abatement and disposal because the existing structures at Pier 90 could be demolished (or relocated) to accommodate the relocated buildings. The amount of earthwork under the

Historical Resources Relocation Alternative would be slightly greater than under the proposed project due to construction activities for site preparation at Pier 90.

As with the proposed project, the assessment and management of site risks related to construction at Pier 90 would be ensured through compliance with the Maher Ordinance, Article 22A of the San Francisco Health Code, and the California Air Resources Board Asbestos Air Toxics Control Measure. Any use of hazardous materials at the relocated buildings would also be subject to the requirements of Article 21 of the San Francisco Health Code. Similarly, impacts related to interference with emergency response during construction would be minimized through implementation of a Traffic Control Plan. Fire risks would be minimized through compliance with existing fire safety codes and industry standards.

For the reasons stated above, as with the proposed project, all impacts related to hazards and hazardous materials would be less than significant.

Mineral and Energy Resources

Similar to the proposed project, this alternative would have no impact on mineral resources because the Pier 90 site and the SEP do not contain substantial mineral resources or locally important mineral resource recovery sites.

Construction energy needs would be slightly higher than those of the project, given that this alternative would include relocation of Buildings A and B. However, this energy consumption would not be considered a wasteful use of energy, for reasons similar to those explained for the project (similar construction equipment meeting local efficiency standards would be used, and the same regulations regarding recycling and water use would apply); thus, this impact would be less than significant. Additional power would be needed to supply relocated Buildings A and B, however. Operation of relocated Buildings A and B would use Pacific Gas and Electric Company (PG&E) power rather than Hetch Hetchy power, and therefore this alternative would result in an incremental increase in energy demand compared to the proposed project. The impact of operation of the relocation component of the Historical Resources Relocation Alternative on energy, fuel, and water use would be less than significant. Cumulative impacts of this alternative would also be less than significant, similar to those identified for the proposed project. This alternative would not reduce energy demand; however, the alternative would not encourage activities that would result in the use of large amounts of these resources, or result in their use in a wasteful manner.

Agriculture and Forest Resources

Like the proposed project, the relocation component of the Historical Resources Relocation Alternative would not affect any land designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, nor would it affect any land zoned or used for either agricultural or forestry use. Therefore, there would be no impact related to agriculture or forest resources.

6.3.4 Alternative D: SEP South/Quint Street

6.3.4.1 Description

Alternative D, the SEP South/Quint Street Alternative, would consist of full construction and operation of the same processes and facilities as the proposed project, except that the project facilities would be reconfigured and located within different portions of the SEP boundaries, the Asphalt Plant site, portions of the Central Shops site, and within the right-of-way of Quint Street between Jerrold Avenue and the Caltrain right-of way. Central Shops Buildings A and B would be retained in place. This would be considered a full preservation alternative with respect to an identified individual historical resource. However, this alternative would neither reduce nor avoid the significant and unavoidable cumulative impact on the *Southeast Treatment Plant Streamline Moderne Industrial Historic District*. This alternative was selected for evaluation because it would avoid a significant impact on a historical resource and would avoid the site acquisition challenges of Alternative B, Pier 94 Backlands, and physical difficulties associated with relocating Central Shops Buildings A and B under Alternative C above. **Figure 6-6** shows the conceptual layout of the SEP South/Quint Street Alternative.

Site Plan

Similar to the proposed project, this alternative would have digesters aligned parallel to the Caltrain right-of-way, but instead of being within the Central Shops site they would be located within the Asphalt Plant site and would extend across Quint Street into SEP South. The solids pretreatment, thermal hydrolysis process (THP), anaerobic digesters, solids odor control, biosolids dewatering facilities, and waste gas burners would all be located within SEP South, requiring demolition of about 25 existing structures/facilities that are part of the existing solids treatment process (refer to Table 6-1, above, for list of structures to be demolished). The energy recovery and gas treatment facilities would be located on the non-historic portion of the Central Shops site. Maintenance Shops 1 would be located within SEP North boundaries along Rankin Street. Maintenance Shops 2, No. 2 Water Pump Station, and iron chloride storage tanks would generally be in the same locations as under the proposed project, within SEP North along Jerrold Avenue. In total, the facilities would span about 16 acres, including the area to be preserved around Central Shops Buildings A and B.

Treatment of Historical Resources

Central Shops Buildings A and B and the immediate surrounding area would be preserved, thereby avoiding the significant impacts on this historical architectural resource that would occur with their demolition under the project. Like the proposed project, this alternative would include demolition of Building 870, which is an identified contributor to the eligible *Southeast Treatment Plant Streamline Moderne Industrial Historic District*. In addition, this alternative would include demolition of numerous structures in SEP South, within and adjacent to this eligible historic district, including at least seven structures identified as contributors. This contrasts with the proposed project, which would demolish one building within the historic district in SEP North but would not include demolition of any structures in SEP South. However, the future potential demolition of the existing

SOURCE: SFPUC; Google Maps, 2016

SFPUC Biosolids Digester Facilities

Figure 6-6

Conceptual Site Plan: SEP South/Quint Street Alternative

SEP digesters and associated control buildings is considered reasonably foreseeable as a result of the proposed project (refer to Chapter 4, Section 4.1, Table 4.1-1, Project 12).

Components

The SEP South/Quint Street Alternative would essentially include all of the same components as the proposed project. Aside from the layout of the facilities, nearly all aspects of the SEP South/Quint Street Alternative would be substantially the same as those of the proposed project, including the footprint of aboveground structures, maximum height, and staging area locations and acreage. The major differences in project components are described below.

Interim Solids Handling Facilities

Construction of the project within SEP South would require demolition of facilities needed to maintain ongoing solids treatment processes throughout the duration of construction. Therefore, this alternative would require construction of interim facilities prior to demolition of these facilities. Interim facilities (e.g., gravity belt thickeners, centrifuge systems, sludge pipelines, biosolids dewatering, cake storage and loadout, etc.) would be required for at least seven years, until construction is completed and the new facilities are fully commissioned. The locations of the sites for these temporary facilities have not yet been identified, but presumably they would be located within or near the SEP boundaries since they need to be in reasonable proximity to existing facilities and treatment processes. One potentially feasible site for interim facilities is the Southeast Greenhouses site. Regardless of their specific location, the interim facilities would include interim odor control systems, which would not be constructed to the same standards and objectives as the proposed permanent odor control system.

For the purposes of this alternative analysis, the interim facilities are assumed to be located at the Southeast Greenhouses site. Under this assumption, with interim facilities located at this site and new permanent facilities constructed on the closed Quint Street site, trucks associated with ongoing SEP operations would need to use Phelps Street for access to Jerrold Avenue during the construction period.

Quint Street

This alternative would require permanently vacating the segment of Quint Street between Jerrold Avenue and the Caltrain right-of-way for construction of both aboveground and underground structures. This differs from the proposed project, under which this same portion of Quint Street would be closed, but no permanent facilities would be constructed here and relocation of underground utilities would not be required. The SEP South/Quint Street Alternative would require relocation of existing utilities under Quint Street, including a 24-inch-diameter high pressure gas line. Relocating existing utilities such as the high pressure gas line would require construction in locations outside of the SEP boundaries.

Facilities Locations

Under this alternative, the digesters would be located at the Asphalt Plant site and on the closed Quint Street segment, placing the digesters closer to the nearest residences (600 feet to Phelps

Street and 700 feet to Oakdale Avenue) compared to the proposed project (1,000 feet). The location of the waste gas burners would also be closer to residences.

Operations and Maintenance

Overall operations and maintenance under the SEP South/Quint Street Alternative would be substantially the same as under the proposed project. However, under this alternative configuration, some of the maintenance facilities would be farther from the processes they would be supporting, and therefore there would be somewhat reduced efficiency in maintenance activities compared to the proposed project.

For the purposes of this alternative analysis, it is assumed that long-term operational grit truck routes would be the same as those identified for the proposed project (refer to Chapter 2, Figure 2-12); chemical delivery, yellow grease loadout, and biosolids truck routes would be the same as the existing route along Jerrold Avenue.

6.3.4.2 Ability to Meet Project Objectives

Because the SEP South/Quint Street Alternative would involve full implementation of the BDFP as proposed, this alternative would meet most of the project objectives (see Table 6-2). However, this alternative would not allow for the timely construction of the BDFP nor maintain rate payer affordability. The reasons for not meeting these objectives relate to the extended schedule and increased costs associated with the interim facilities and relocation of utilities under Quint Street.

This alternative would require that both aboveground structures/facilities (e.g., waste activated sludge thickening, biosolids dewatering, and cake storage and loadout) and underground components (pipe galleries, utility lines, etc.) be relocated in phases to ensure there would be no interruption of solids treatment processes. Relocation of underground pipe galleries and pipelines would be particularly complicated because many of the subsurface areas are congested and there would be minimal room to maneuver given the areas reserved for construction activities. In addition, relocating the 24-inch PG&E high pressure gas pipeline (and other utilities on Quint Street) would further complicate the construction process due to the proximity to residents to the west and potentially the lack of public right-of-way in the vicinity to accommodate these pipelines. With the need for relocating underground utilities, vacating Quint Street, and constructing/operating interim facilities, the overall construction duration and cost are anticipated to be substantially higher than what was identified for the proposed project. The construction schedule would extend at least seven years.

The location where interim facilities would be built has not been identified, but would need to be determined as soon as possible to reduce further schedule extensions beyond the minimum seven years. One possible (though not guaranteed) location would be the Southeast Greenhouses site, due to its proximity to the existing solids handling treatment facilities and the availability of space (although other nearby construction staging areas would need to be identified). While this alternative would be designed to limit noticeable odors of permanent facilities to the SEP property boundary (including locating the proposed digesters as far as possible from residents by placing the digesters in the area along the railroad tracks on the Asphalt Plant site), the interim

solids handling facilities may not have as robust odor control systems. This could exacerbate existing odor conditions during the construction period.

While the proposed facilities would be designed to meet the remaining objectives, the proposed site layout would not optimize efficiency of the treatment system or operations and maintenance compared to the proposed project. For example, the orientation of the solids pretreatment facility would not provide the most direct and unencumbered piping pathways to the proposed digesters. In addition, the waste gas burners would be located on the opposite side of the plant from the energy recovery facilities, which, in the event of an emergency that results in breakages of digester gas pipes, could result in excess digester gas that could not be flared, resulting in potential public safety hazards. Lastly, locating one of the maintenance shops away from the main solids treatment facilities would result in less efficiency during operations and maintenance of equipment.

6.3.4.3 Environmental Impacts

Land Use

Similar to the BDFP, construction of the SEP South/Quint Street Alternative would temporarily affect land uses in the vicinity of the SEP but would not physically divide an established community because temporary closure of Jerrold Avenue would separate two areas of similar industrial land use that do not constitute an established community. Operation of the SEP South/Quint Street Alternative, including interim facilities at SEP South and the Southeast Greenhouses site, also would be in areas not currently accessible by the public and would not block access between adjacent land uses, similar to the BDFP. For these reasons, the SEP South/Quint Street Alternative would have a less-than-significant effect on dividing an established community.

Conflicts with land use plans and policies adopted to avoid or mitigate an environmental effect would be reduced compared to the proposed project, because the SEP South/Quint Street Alternative would retain Central Shops Buildings A and B in place, thereby avoiding conflicts with *San Francisco General Plan* policies related to the preservation of historic resources and conflicts with Policy 7 of the Accountable Planning Initiative. However, the SEP South/Quint Street Alternative would have the same policy inconsistencies as the proposed project related to a significant and unavoidable cumulative impact on a historic district. As with the BDFP, the impact related to consistency with land use plans and policies would be considered less than significant under CEQA because policy conflicts in and of themselves do not constitute a significant effect on the physical environment.

Aesthetics

Construction and operation of this alternative would be substantially similar to the proposed project, with construction equipment and permanent facilities similar in character to those typically used at industrial sites in the area. Views of the project site would be substantially blocked by intervening structures and landscaping. Short-range views of the site would be primarily from adjacent public streets, where views would be limited and fleeting, and while the

site may be visible in longer-range views from surrounding hills, neither construction nor operations would be expected to substantially affect views from these areas within the context of the overall industrial setting. Even though construction activities would be somewhat closer to Phelps Street compared to the proposed project, this alternative would not substantially degrade the existing visual character of the site or its surroundings or damage scenic resources. The reconfigured site would not block or disrupt scenic vistas or degrade the visual character of the area. Therefore, the SEP South/Quint Street Alternative, alone and in combination with cumulative projects, would not substantially degrade the visual character of the site or surroundings, adversely affect a scenic vista, or damage scenic resources. Thus, these impacts would be less than significant.

Similar to the proposed project, this alternative would be expected to require nighttime illumination, but the SFPUC would implement standard construction measures that require nighttime lighting to be directed away from residential areas and shielded to prevent light spillover effects, and construction impact on light and glare would be less than significant. As with the proposed project, compliance with applicable regulations and policies (California Green Building Code Section 5.106.8 and Planning Commission Resolution 9212) would ensure that light and glare from facilities operation would be less than significant.

Population and Housing, Growth Inducement

Similar to the proposed project, the SEP South/Quint Street Alternative would not displace housing or employment, would not increase treatment capacity at the SEP, and would not extend roads or infrastructure into an undeveloped area. While the construction phase is expected to take about two years longer (for a total of about seven years rather than five), as under the proposed project, it is expected that construction workers would largely be drawn from the local and regional work force and would commute (rather than relocate) to the area. Therefore, the SEP South/Quint Street Alternative would not induce population growth, displace housing units, create substantial demand for additional housing, or displace a substantial number of people, and population and housing and growth inducement impacts would be less than significant.

Cultural Resources

Historical Resources

As Central Shops Buildings A and B and the immediate surrounding area would be preserved, the SEP South/Quint Street Alternative would avoid the significant impact on this historical architectural resource that would occur with their demolition under the proposed project. However, unlike the proposed project, this alternative would include demolition of at least seven structures, including Building 870, identified as contributors to the *Southeast Treatment Plant Streamline Moderne Industrial Historic District*. Thus, this alternative would result in the demolition of 31.8 percent of the contributors in the eligible district, the majority of which are associated with the implementation of the 1935 Sewer System Master Plan and continue to provide a good representation of the Streamline Moderne architectural style that characterized the SFPUC's original wastewater facilities. Therefore, the demolition of these buildings would adversely affect the integrity of the historic district. As a result, this alternative would result in a significant

impact on historical architectural resources. Mitigation measures available to reduce the severity of the impact include Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display). However, as implementation of Mitigation Measure M-CR-1 would not reduce the severity of the impact to a less-than-significant level, the impact would be significant and unavoidable with mitigation.

As with the proposed project under cumulative conditions, the SFPUC would potentially demolish all of the existing digesters and their central control buildings (refer to Chapter 4, Section 4.1, Table 4.1-1, Project 12), which are contributors to the *Southeast Treatment Plant Streamline Moderne Industrial Historic District*. Therefore, as with the proposed project, the SEP South/Quint Street Alternative's contribution to the cumulative adverse impact on this eligible district would be cumulatively considerable, and the cumulative impact would be significant and unavoidable, even with mitigation (Mitigation Measure M-CR-1, Documentation of Historical Resources and Interpretive Display).

Archeological Resources and Human Remains

Like the proposed project, the SEP South/Quint Street Alternative could cause a substantial adverse change in the significance of an archeological resource, but would include substantially more construction due to the additional need for interim facilities. Archeological investigations have identified a National Register-eligible prehistoric archeological site, CA-SFR-171, in the SEP, and potential impacts on archeological resources would be more severe than those of the proposed project because substantially more construction and excavation would occur within the site boundaries of this resource. Potential impacts on human remains would also be similar to those of the proposed project. Older prehistoric sites potentially associated with the pre-bay surface similarly could be affected by either mass excavation or the installation of piles. Additionally, there is a moderate to high potential to encounter historical archeological remains during excavation at the Southeast Greenhouses site where the interim facilities would be constructed.

For these reasons, impacts on archeological resources and human remains at the SEP would be potentially significant. Implementation of Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) and Mitigation Measure M-CR-2b (Accidental Discovery of Archeological Resources) would reduce impacts on archeological resources and human remains to a less-than-significant level. Therefore, with mitigation, the impact on archeological resources and human remains would be less than significant.

Transportation and Circulation

The SEP South/Quint Street Alternative would rearrange the same facilities as the BDFP within SEP North and SEP South, and the total duration of construction of this alternative would be at least two years longer than that of the proposed project. The SEP South/Quint Street Alternative would also produce more soil requiring disposal as a result of constructing the interim solids handling facilities and the additional utilities location that would be required. Like the proposed project, the SEP South/Quint Street Alternative would include a project-specific construction Traffic Control Plan. Construction of interim facilities would similarly require such a plan. The

same peak numbers of construction trucks and construction workers as the proposed project would occur for the SEP South/Quint Street Alternative, although the dates of these peaks would shift. As peak construction traffic (trucks and workers), the temporary closure of Jerrold Avenue, and the Traffic Control Plan would be similar to the proposed project, effects of SEP South/Quint Street Alternative construction on traffic circulation, public transit, bicycle facilities, pedestrian travel, freight rail, parking, and traffic safety would be similar to those identified for the proposed project. While this alternative would vacate Quint Street, the effect on circulation and vehicle miles traveled (VMT) from vacating this street would be inconsequential because Quint Street was permanently closed (effectively vacated) in October 2015, preventing through vehicular and pedestrian traffic from traveling between Newcomb and Jerrold Avenues (as described in Chapter 4, Section 4.6, Transportation and Circulation).

Operations trucks would either use the same routes as existing SEP haul trucks or would use the second entrance/exit to the SEP site via Rankin Street, as described for the proposed project. As the number of haul trucks servicing the SEP South/Quint Street Alternative would be the same as for the proposed project, the SEP South/Quint Street Alternative would similarly result in an insubstantial increase in VMT. For this reason, the transportation and circulation impacts of operation of the SEP South/Quint Street Alternative would be the same as those described for the proposed project.

As with to the proposed project, construction of the SEP South/Quint Street Alternative would overlap with the Headworks Replacement Project, the Central Bayside System Improvement Project, the 1995 Evans/Forensic Services Division and Traffic Control Project, the Pier 70 Project, and the India Basin Mixed Use Development Project. Due to the later construction start date of the SEP South/Quint Street Alternative, construction would not overlap with the Power Feed and Primary Switchgear Upgrades Project, the Seismic Reliability and Conditions Assessment, the Kansas and Marin Streets Sewer Improvements, or the Mission Bay Blocks 29-32 Project; however, the SEP South/Quint Street Alternative could occur concurrently with the Peninsula Corridor Electrification Project, which may require temporary lane or road closures along Jerrold Avenue and Evans Avenue during construction. Similar to the proposed project, the SEP South/Quint Street Alternative would be required to be conducted in accordance with City requirements to ensure that construction activities are conducted safely and with the least possible interference with pedestrians, bicyclists, transit, and vehicles. All cumulative projects would also be required to comply with these requirements. Construction and operational truck trips and routes, construction staging areas, and workers would be the same as proposed for the BDFP (or, in the case of operational truck routes, would include an existing truck route for chemical delivery, yellow grease loadout, and biosolids), but construction-related traffic increases would begin and peak at later times than under the proposed project. While the projects included in the cumulative construction scenario would be somewhat different under this alternative, it is anticipated that cumulative impacts of both construction and operation of the SEP South/Quint Street Alternative would be similar to those identified for the proposed project, and would be less than significant.

Noise and Vibration

Under this alternative, project facilities would still be located generally at the BDFP site, and therefore construction-related noise impacts would be similar to those of the project, as identified in Chapter 4, Section 4.7, Noise and Vibration. As with the proposed project, construction equipment under this alternative would have the potential to generate noise that exceeds the 86 A-weighted decibel (dBA) (at 50 feet) equipment noise limit of Section 2907 of the Police Code. Use of the Southeast Greenhouses staging area could generate noise levels that exceed the City's ambient +10 dBA threshold at the daycare center to the south and some of the closest residential receptors to the east on Phelps Street. Both of these exceedances would be potentially significant, temporary noise impacts, but they would be reduced to less-than-significant levels with implementation of Mitigation Measure M-NO-1a (Shielding of Concrete Saw Operations) and Mitigation Measure M-NO-1b (Construction Noise Control Measures at Southeast Greenhouses Staging Area). In addition, due to the closer proximity to sensitive receptors, this alternative could result in other construction activities—in addition to concrete saws—exceeding the applicable equipment noise limit, and additional mitigation measures, such as construction equipment source and administrative controls, may be required. This alternative would also require more extensive demolition of existing facilities (south of Jerrold Avenue and west of the existing digesters), which could result in a longer construction duration or more equipment being operated on the site at the same time.

Impacts related to construction vibration would be slightly greater than those of the proposed project because demolition and construction activities would occur closer to nearby structures to the east and south. This is a potentially significant impact that would not occur under the proposed project, but feasible vibration control measures are available that would reduce this impact to less than significant.

With respect to operational noise, compared to the proposed project, this alternative would construct the energy recovery facilities slightly farther from the closest residences to the southeast and east, resulting in lower noise levels at these sensitive receptors. At the same time, the waste gas burners, solids pretreatment, and Solids Odor Control Facility (i.e., fans and pumps) would be constructed closer to these same receptors. The noisiest facility would be the Solids Odor Control Facility, at which operational noise levels would exceed the 60-dBA exterior (with windows open) or 45-dBA interior nighttime Section 2909(d) noise limit by as much as 7 dBA, which would be a new potentially significant impact. Since the odor control facilities (primarily fan noise) are mostly outdoors, additional noise mitigation would be required in order to reduce operational noise to below the ordinance limit. Therefore, overall construction-related and operational noise under this alternative would be greater than under the proposed project due to the more extensive demolition required as well as the potential for additional noise impacts caused by facilities being located closer to nearby sensitive receptors.

Compared to the proposed project, this alternative would have the same cumulative construction-related noise and vibration impacts resulting from the proximity to other SFPUC projects proposed at the SEP and their proximity to nearby sensitive receptors. As indicated above, this alternative's contribution to cumulative construction-related noise and vibration impacts would be slightly greater than those of the proposed project, but construction-related

cumulative noise impacts under this alternative would be the same as those of the proposed project and the same mitigation measures would be required to reduce the impacts to less than significant.

As described above, this alternative would result in potentially significant operational noise impacts because the Solids Odor Control Facility, the noisiest facility, would be located closer to sensitive receptors to the east and southeast. For the same reasons, unlike the proposed project, this alternative's contribution to cumulative operational noise impacts could be considerable, a potentially significant impact. Further analysis would be needed to determine if feasible measures are available to reduce operational noise levels to less-than-significant levels.

Air Quality

Compared to the proposed project, this alternative would result in higher construction-related criteria pollutant emissions because it would require more construction and truck trips, due to (1) greater demolition at the SEP; (2) relocation of existing infrastructure, including PG&E's 24-inch high pressure line in Quint Street; and (3) construction of interim facilities. Because construction would occur on Quint Street, routes for construction-related trucks and operational trucks (during construction) could be temporarily redirected to Phelps Street for access to the SEP and the Southeast Greenhouses site, increasing proximity of trucks to sensitive receptors to the east of Phelps Street. While the degree of increase cannot be specified, the project's construction-related criteria pollutant emissions could be reduced with implementation of Mitigation Measures M-AQ-1a (Construction Emissions Minimization) and M-AQ-1b (Emission Offsets) if feasible emission offsets were identified; however, as with the proposed project and due to the uncertain feasibility of implementing adequate emission offsets, this impact would be considered significant and unavoidable with mitigation. Additionally, there would be short-term increases in criteria air pollutants due to operation of interim facilities at the Southeast Greenhouses site.

Construction-related health risks could be greater under this alternative than under the proposed project. There would be increased health risks associated with closer proximity of construction equipment and trucks to sensitive receptors as well as increased TAC emissions (mostly as diesel particulate matter) from additional demolition activities and additional construction activities associated with interim facilities. Operationally, development of interim facilities and location of the waste gas burners substantially closer to the nearest sensitive receptors, while locating energy recovery facilities only slightly farther from these receptors under this alternative, could result in a net increase in operational health risks when compared to the proposed project, a potentially significant impact. This impact likely could be reduced with implementation of mitigation (e.g. additional emissions controls).

Even though there would be greater construction-related emissions under this alternative, conflicts with the Clean Air Plan would be the same as those of the proposed project, and this potentially significant impact would be less than significant with mitigation.

This alternative's contribution to significant and unavoidable cumulative construction-related NOx emissions would be greater than that of the proposed project due to more extensive demolition at the SEP, and as with the proposed project, this impact would be significant and

unavoidable, even with implementation of mitigation measures like Mitigation Measures M-AQ-1a and M-AQ-1b. Cumulative effects on health risks would be greater than those of the proposed project due to location of waste gas burners closer to the nearest sensitive receptors, and would be a potentially significant impact, compared to a less-than-significant impact for the proposed project; however, this impact would be less than significant with mitigation.

Greenhouse Gas Emissions

This alternative would have the same energy capture potential (from digester gas produced) and the same increase in biosolids reuse opportunities as the project, and would be subject to the same local regulations adopted to reduce GHG emissions. Energy produced by digester gas facilities under the SEP South/Quint Street Alternative would be the same as the energy produced under the project and, as with the proposed project, the energy produced would be used to power proposed solids handling facilities, with excess energy used by other facilities at the SEP. Other SEP facilities not served by the energy recovery facilities would remain reliant upon Hetch Hetchy power. Overall, this alternative is still expected to have a less-than-significant effect on GHG emissions.

Wind and Shadow

Wind

The SEP South/Quint Street Alternative would construct the BDFP facilities in areas that would affect the same publicly accessible areas as those identified for the proposed project (Jerrold Avenue). The SEP South/Quint Street Alternative site does not contain any areas subject to wind comfort or wind hazard criteria established in the San Francisco Planning Code. As with the proposed project, winds in the area are typically from the west/southwest and wind speeds are light. The orientations and profiles of the new facilities would be different from those of the proposed project. For purposes of this analysis, it is assumed that the facility/structure heights and massing would be the same as described for the proposed project. In the SEP South/Quint Street Alternative, the buildings nearest Jerrold Avenue would be the energy recovery and digester gas treatment facilities, Maintenance Shops 2, solids pretreatment and THP, biogas storage, and digestion. The largest new structure adjacent to Jerrold Avenue would be the Solids Pretreatment Facility, approximately 34,200 square feet in area and 65 feet tall. As described in Chapter 4, Section 4.10, Wind and Shadow, the tallest BDFP structures would exceed the height of existing structures within the project site but would be similar in height to some existing buildings at the SEP and to neighboring buildings that would remain. The SEP South/Quint Street Alternative structures would not be substantially taller than adjacent or nearby buildings and structures. Due to the predominant wind patterns, buildings and structures to the southwest of Jerrold Avenue (including the Solids Pretreatment Facility) would intercept wind but would not direct it to publicly accessible areas. While the energy recovery and digester gas treatment facilities would increase the slab-shaped massing facing the predominant wind direction on the northeastern side of Jerrold Avenue, potentially affecting winds at pedestrian level, the maximum height of the structure would be 65 feet, a height that is generally considered too low to result in substantial ground-level wind effects. For this reason, the SEP South/Quint Street

Alternative would not contribute to wind pattern alteration that would substantially affect public areas, and would have a less-than-significant impact.

Shadow

As noted above, the SEP South/Quint Street Alternative would construct facilities in areas that would affect the same publicly accessible areas as those identified for the proposed project (Jerrold Avenue). The SEP South/Quint Street Alternative would not cast new shadow on Palou & Phelps Mini Park or Youngblood Coleman Playground, the nearest San Francisco Recreation and Parks Department (SFRPD) properties, or any other SFRPD properties. As with the proposed project, full buildout of the SEP South/Quint Street Alternative would cast shade on Jerrold Avenue; however, this shadow would be transitory, would not affect the function of the sidewalks, and would not exceed levels commonly expected in urban areas. For these reasons, the SEP South/Quint Street Alternative would not create new shadow that would substantially affect public open spaces, and would have a less-than-significant impact.

Recreation

Similar to the proposed project, the SEP South/Quint Street Alternative would not directly affect recreational facilities because there are no such facilities within the SEP South/Quint Street Alternative site or off-site staging areas. The SEP South/Quint Street Alternative does not include new recreational facilities and would not permanently affect existing recreational resources, and does not include new residential or other uses that would generate increased demand for parks or other recreational facilities. The SEP South/Quint Street Alternative would thus have no impact related to direct or indirect physical deterioration of recreational resources.

Utilities and Service Systems

The BDFP facilities constructed under the SEP South/Quint Street Alternative would produce the same amount of wastewater, stormwater, biosolids, and solid waste as the proposed project and would require the same amount of potable water. While Central Shop Buildings A and B would not be demolished under this alternative, more building debris would require disposal because 30 structures in SEP South would be demolished to accommodate the BDFP facilities. The SEP South/Quint Street Alternative would also produce more soil requiring disposal, as a result of constructing the interim solids handling facilities and the additional utilities location that would be required. As with the proposed project, compliance with applicable regulatory requirements would ensure that the SEP South/Quint Street Alternative would not result in any impacts with respect to utilities or service systems. All cumulative development in San Francisco would be subject to the same regulatory framework, and compliance with these existing regulations would serve to avoid any significant cumulative impacts. Therefore, all impacts related to utilities and service systems would be less than significant, as with the proposed project, and no mitigation would be required.

Public Services

Compared to the proposed project, the SEP South/Quint Street Alternative would require a similarly sized work force, which is expected to be drawn from the local and regional work force

and would commute (rather than relocate) to the area. For this reason, the SEP South/Quint Street Alternative is not expected to result in increased response times such that new or physically altered facilities would be required to maintain public services, despite the extended duration of construction under the SEP South/Quint Street Alternative. As with the proposed project, any incremental increase in demand for law enforcement, fire protection, or emergency medical services during construction would be temporary, could be accommodated by existing services, and would not require construction of new or physically altered facilities to maintain service. Thus, impacts would be less than significant.

As with the proposed project, operations of the SEP South/Quint Street Alternative would not require new or physically altered public service facilities because this alternative similarly would not construct residences or increase the number of employees at the SEP. For this reason, operation of the SEP South/Quint Street Alternative would have no impact on public services.

Biological Resources

Potential impacts on biological resources— including impacts on nesting birds and roosting bats as a result of building demolition, construction, and site preparation—would be the same under this alternative as under the proposed project.

Disturbances to bats potentially roosting in underutilized industrial buildings or trees could occur from construction-associated noise or vibration, or increased human activity in the area. Increased lights or the construction of large structures can lead to the disturbance of roosting bats, which also may lead to behavioral alterations. Similarly, nesting birds could be affected by construction activities that generate noise and visual disturbance. Construction activities that may alter the ambient noise environment or introduce short-term loud noise events include but are not limited to building demolition and grading or ground disturbance. Noise pollution can be detrimental to wildlife, and bird populations are particularly susceptible because they rely on acoustic signals for mating, predator evasion, and communication between adults and offspring, among other behaviors.

Absent more specific information regarding the extent of demolition and construction under the SEP South/Quint Street Alternative, this analysis conservatively assumes that any trees within or near the footprint of the SEP South/Quint Street Alternative would be removed or damaged, with damage such as mechanical damage to tree trunks and canopies, root damage resulting from grading and excavation activities, and root damage resulting from soil compaction. However, these trees would be protected through implementation of the Tree Protection Plan described in Chapter 2, Section 2.6.5.5, Tree Removal and Protection Plan, which would be submitted to SFPW. The commitment to tree replacement and protection would conform with Article 16 of the Public Works Code.

Nesting birds, roosting bats, and street trees potentially affected by the implementation of the SEP South/Quint Street Alternative would be subject to the same standard construction measures and regulatory conditions as identified for the project. As with the proposed project, implementation of SFPUC's Standard Construction Measure 7 would reduce impacts to nesting birds to less than significant. Implementation of Mitigation Measure M-BI-1 (Protective Measures

for Special Status Bats and Maternity Roosts) would reduce potentially significant impacts on roosting bats within or near the footprint of the SEP South/Quint Street Alternative to a less-than-significant level. Therefore, with the above mitigation, impacts on biological resources would be less than significant.

Geology, Soils, and Paleontological Resources

The BDFP facilities constructed under the SEP South/Quint Street Alternative would be identical to those constructed under the proposed project, except that interim solids handling facilities would also be constructed. The amount of earthwork under this alternative would be greater because of construction of the interim biosolids handling facilities and the additional utilities relocation that would be required for this alternative. However, impacts related to soil erosion would remain less than significant with implementation of the requirements of Article 4.1 of the San Francisco Public Works Code and the SWRCB General Construction Stormwater NPDES Permit. As with the proposed project, excavations conducted during construction would be shored in accordance with applicable regulations. Monitoring would be conducted during dewatering and pile driving, and corrective actions would be implemented if necessary to ensure that settlement would remain within acceptable levels. All new facilities would be constructed in accordance with the San Francisco Building Code, the SFPUC's General Seismic Safety Requirements, and applicable engineering design standards, which would ensure that the structures could withstand seismic hazards including ground shaking and seismically induced ground failures such as liquefaction.

Under the SEP South/Quint Street Alternative, the depths of excavation would be the same as under the proposed project, and therefore the excavations under this alternative would also extend into the Pleistocene-aged upper layered sediments, which have a high paleontological sensitivity. However, as with the proposed project, implementation of Mitigation Measure M-GE-4 (Paleontological Resources Monitoring and Mitigation Program) would reduce this potentially significant impact to a less-than-significant level.

For the reasons stated above, as with the proposed project, all impacts related to geology, soils, seismicity, and paleontology would be less than significant with implementation of the mitigation measures required for the project.

Hydrology and Water Quality

The facilities constructed under the SEP South/Quint Street Alternative would produce the same amount of wastewater and stormwater as the proposed project, and there would be no change in the composition of the wastewater. The amount of earthwork and construction-related groundwater dewatering under the SEP South/Quint Street Alternative would be greater because of construction of the interim biosolids handling facilities and the additional utilities relocation that would be required under this alternative. However, impacts related to degradation of water quality would remain less than significant with implementation of City requirements (i.e., Articles 4.1 and 4.2 of the San Francisco Public Works Code and the SWRCB General Construction Stormwater NPDES Permit).

While the project includes construction of some facilities in a future flood zone (due to sea level rise), none of the facilities constructed under the SEP South/Quint Street Alternative would be constructed in such a zone. As with the proposed project, none of the facilities would be constructed within a potential tsunami inundation zone.

For the reasons stated above, as with the proposed project, all impacts related to hydrology and water quality would be less than significant and no mitigation would be required.

Hazards and Hazardous Materials

The BDFP facilities constructed under the SEP South/Quint Street Alternative would be identical to those constructed under the proposed project, except that interim solids handling facilities would also be constructed and additional utilities would require relocation. Under the SEP South/Quint Street Alternative, the BDPF facilities would use the same hazardous materials and would generate the same volume of biogas as would the proposed project. The increased soil excavation conducted under the SEP South/Quint Street Alternative for construction of the interim biosolids facilities and relocation of additional utilities would increase the potential for encountering hazardous materials in the soil and groundwater. However, as with the proposed project, the assessment and management of site risks related to construction would be ensured through compliance with the Maher Ordinance, Article 22A of the San Francisco Health Code and the California Air Resources Board Asbestos Air Toxics Control Measure. While Central Shops Buildings A and B would not be demolished under the SEP South/Quint Street Alternative, more hazardous building materials would require abatement and disposal under this alternative because 30 structures in SEP South would be demolished to accommodate the BDFP facilities. However, impacts related to hazardous building materials would be less than significant with compliance of existing regulations, including BAAQMD Rule 11, Regulation 2; Section 3426 of the San Francisco Building Code; the Lead in Construction Standard; and California Universal Waste Regulations. Similarly, impacts related to interference with emergency response during construction would be minimized through implementation of a Traffic Control Plan. Fire risks would be minimized through compliance with existing fire safety codes and industry standards.

For the reasons stated above, as with the proposed project, all impacts related to hazards and hazardous materials would be less than significant.

Mineral and Energy Resources

Similar to the proposed project, this alternative would have no impact on mineral resources because the SEP and construction staging areas do not contain substantial mineral resources or locally important mineral resource recovery sites.

Construction energy needs would be slightly higher than those of the project, given that this alternative would include the construction of interim facilities. However, this energy consumption would not be considered a wasteful use of energy, for similar reasons as those explained for the project (similar construction equipment meeting local efficiency standards would be used, and the same regulations regarding recycling and water use would apply); thus, this impact would be less than significant. Energy produced by biogas facilities under the SEP

South/Quint Street Alternative would be similar to the energy produced under the project and similarly would be available to SEP facilities. The impact of operation of the SEP South/Quint Street Alternative on energy, fuel, and water use would be less than significant. Cumulative impacts of this alternative would be less than significant, similar to those identified for the project. Similar to the proposed project, this alternative would reduce the amount of power needed from Hetch Hetchy and would not encourage activities that would result in the use of large amounts of these resources, or result in their use in a wasteful manner.

Agriculture and Forest Resources

Like the proposed project, the SEP South/Quint Street Alternative would not affect any land designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, nor would it affect any land zoned or used for either agricultural or forestry use. Therefore, there would be no impact related to agriculture or forest resources.

6.4 Alternatives Comparison and the Environmentally Superior Alternative

The CEQA Guidelines require the identification of an environmentally superior alternative to the proposed project (Section 15126.6[e]). If it is determined that the "no project" alternative would be the environmentally superior alternative, then the EIR shall also identify an environmentally superior alternative among the other project alternatives (Section 15126.6[3]).

Table 6-3 compares the significant impacts of the proposed project with those of Alternatives A (No Project), B (Pier 94 Backlands), C (Historical Resources Relocation), and D (SEP South/Quint Street). The table also lists impacts that would be less than significant for the proposed project but would be significant or potentially significant under one or more of the alternatives, indicating that in a few cases, an alternative would result in a significant impact that would not occur under the proposed project. Impacts not listed in this table would be less than significant (or no impact) for the proposed project and for all alternatives.

As indicated in Table 6-3, the significant and unavoidable impact on historical resources associated with the demolition of Central Shops Buildings A and B identified for the proposed project would be avoided or substantially reduced under all alternatives. However, the significant and unavoidable cumulative impact on the eligible *Southeast Treatment Plant Streamline Moderne Industrial Historic District* under the proposed project would remain significant and unavoidable under Alternatives B, C, and D (but not under Alternative A, the No Project Alternative), and this impact would be the same or more severe for these alternatives compared to the proposed project. The significant and unavoidable air quality impacts related to construction emissions of criteria air pollutants identified for the project would remain under Alternatives B, C, and D and would be more severe under these alternatives. Therefore, there is no clear distinction among Alternatives B, C, and D regarding their ability to avoid or substantially reduce the significant and unavoidable impacts of the proposed project.

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TABLE 6-3
COMPARISON OF ENVIRONMENTAL IMPACTS OF PROJECT TO IMPACTS OF ALTERNATIVES

Environmental Resource	Proposed Project	Alternative A: No Project	Alternative B: Pier 94 Backlands	Alternative C: Historical Resources Relocation	Alternative D: SEP South/Quint Street
Cultural Resources	**Impact CR-1:** The project would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco Planning Code. (SUM)	No impact.	No impact on Central Shops Buildings A and B because they would be retained in place. However, potential impacts on other potentially eligible historic structures along the pipeline route would occur. (LSM)	Impact reduced because Central Shops Buildings A and B would be relocated and rehabilitated consistent with Secretary of the Interior's Standards. (LS)	Impact would be significant and avoidable with mitigation because, although Central Shops Buildings A and B would be retained in place, at least seven structures that are contributors to the historic district would be demolished, which would not occur under the project. (SUM)
	Impact CR-2: The project could cause a substantial adverse change in the significance of an archeological resource. (LSM)	No impact.[a]	Impact and mitigation would be similar to the project. (LSM)	Impact and mitigation would be similar to the project, at both the SEP and Pier 90 site. (LSM)	Impact and mitigation would be similar to the project. (LSM)
	Impact CR-3: The project could disturb human remains, including those interred outside of formal cemeteries. (LSM)	No impact.[a]	Impact and mitigation would be similar to the project. (LSM)	Impact and mitigation would be similar to the project, at both the SEP and Pier 90 site. (LSM).	Impact and mitigation would be similar to the project. (LSM)
	Impact C-CR-1: The project, in combination with past, present, and future projects, would substantially contribute to cumulative adverse historic architectural resources impacts. (SUM)	No impact.	Impact reduced because Central Shops Buildings A and B would be retained; however, this alternative would allow for future demolition of the existing digesters (part of the historic district), and thus the impact on the historic district and archeological resources, and associated mitigation, would be similar to the project. (SUM)	Impact reduced because Central Shops Buildings A and B would be relocated and rehabilitated; however, this alternative would allow for future demolition of the existing digesters (part of the historic district), and thus the impact on the historic district and archeological resources, and associated mitigation, would be similar to the project. (SUM)	Impact on Central Shops Buildings A and B would be avoided because these structures would be retained in place; however, Alternative D would demolish seven other structures that are contributors to the historic district. Alternative D would also allow for future demolition of the existing digesters (part of the historic district), and thus the impact on the historic district and archeological resources, and associated mitigation, would be similar to the project. (SUM)
Noise and Vibration	**Impact NO-1:** Use of concrete saws during construction of the project could cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project and could expose people to or generate noise levels in excess of standards in the Noise Ordinance and when the Southeast Greenhouses staging area would be used, construction activities would exceed significance thresholds at nearby sensitive receptors. (LSM)	Construction noise impacts would be less than those of the project, but would still be significant because some ongoing repair activities, such as repair of existing digesters, would be closer to the nearest residences to the east. Similar mitigation would be required. (LS or LSM)	Construction noise impacts would be significant because construction activities could disrupt classroom activities at City College of San Francisco's Evans Campus, but overall, construction-related noise increases would be less than those of the project because fewer sensitive receptors would be affected by construction noise and they would be subject to temporary noise increases for a much shorter duration. Additional mitigation would be required to address pipeline construction noise, but less mitigation would be required for construction activities at the Pier 94 Backlands site (Construction noise impacts at sensitive receptors near the Southeast Greenhouses staging area would be avoided, and less than significant). (LSM)	This impact would be greater because this alternative would result in construction noise increases at an off-site location that would occur in addition to noise at the SEP. Overall, however, construction noise impacts on sensitive receptors would be the same as those of the project since there are no sensitive receptors located in proximity to the Pier 90 site. Similar mitigation would be required. (LSM)	Construction noise impacts would be greater than those of the project because this alternative would involve more demolition activities closer to sensitive receptors and because siting interim facilities at the Southeast Greenhouses site would create greater construction-related and operational noise impacts. Additional mitigation would be required. (LSM)
	Impact NO-2: Construction of the project would not expose structures or persons to excessive groundborne vibration levels. (LS)	Vibration impacts could be less under this alternative if ongoing repair activities were to involve less intensive construction activities and pile driving activities were either reduced or avoided altogether. However, these activities could be closer to sensitive receptors to the east and construction-related vibration levels could exceed thresholds for human annoyance. Mitigation would be required. (LSM)	Potential vibration impacts on adjacent historic structures at the SEP would be avoided under this alternative. With the additional pipeline construction required, however, the likelihood of vibration impacts would be greater than under the proposed project. This alternative could pose new vibration impacts if sheet pile driving techniques were employed for pipeline construction near existing development, but this impact could be mitigated to less than significant with feasible measures (avoidable with alternative construction techniques). (LSM)	Impact would be the same as that of the project. (LS)	Impacts and mitigation would be the slightly greater than those of the project because demolition and construction activities would occur closer to nearby structures to the east and south. (LSM)

TABLE 6-3 (Continued)
COMPARISON OF ENVIRONMENTAL IMPACTS OF PROJECT TO IMPACTS OF ALTERNATIVES

Environmental Resource	Proposed Project	Alternative A: No Project	Alternative B: Pier 94 Backlands	Alternative C: Historical Resources Relocation	Alternative D: SEP South/Quint Street
Noise and Vibration (cont.)	**Impact NO-3**: Operation of the project would not result in a substantial permanent increase in ambient noise levels in the project vicinity and permanently expose persons to noise levels in excess of standards in the Noise Ordinance (Article 29 of the Police Code). (LS)	As with the proposed project, there would be no new significant operational impacts under this alternative. (No Impact)	As with the proposed project, there would be no new significant operational impacts under this alternative; there would be fewer sensitive receptors that could be affected by operational noise. (LS)	As with the proposed project, there would be no new significant operational impacts under this alternative since there would be no sensitive receptors in proximity to the new off-site facilities. (LS)	This alternative would create new significant noise impacts associated with construction and operation of interim facilities at the Southeast Greenhouses site, which is closer to receptors to the east and south than the project. In addition, under this alternative the noisiest facility, the Solids Odor Control Facility, would be located closer to sensitive receptors to the east and southeast, and operational noise increases could exceed ordinance limits. (LSM or SUM)
	Impact C-NO-1: Construction activities of the project combined with cumulative construction noise in the project vicinity would cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity or result in excessive groundborne vibration levels during construction. (LSM)	Noise generated by repair activities[a] at the SEP could contribute to cumulative construction-related noise increases at the SEP if they overlap with other planned construction projects at the SEP. (LSM)	Cumulative construction-related noise impacts would be less due to absence of sensitive receptors in the Pier 94 Backlands vicinity. (LS)	Cumulative construction noise impacts and mitigation would be similar to the project since project facilities would still be located at the BDFP site. (LSM) There are no sensitive receptors in proximity to the Pier 90 site, so cumulative impacts would be less than significant at this site.	This alternative's contribution to cumulative noise impacts would be greater than that of the project since construction would be more extensive at the SEP site and closer to sensitive receptors (including construction and operation of interim facilities at the Southeast Greenhouses site. (LSM)
	Impact C-NO-2: Operation of the project when considered with other cumulative development would not cause a substantial permanent increase in ambient noise levels or result in excessive vibration in the project vicinity. (LS)	No impact.	Similar to the project. (LS)	Similar to the project. (LS)	Under this alternative, the noisiest facility, the Solids Odor Control Facility, would be located closer to sensitive receptors to the east and southeast, and operational noise increases could result in cumulatively considerable contribution to operational noise impacts. (LSM or SUM)
Air Quality	**Impact AQ-1:** The project's construction activities would not generate fugitive dust that could violate an air quality standard or contribute substantially to an existing or projected air quality violation, but project construction would generate criteria air pollutants that would violate an air quality standard and contribute substantially to an existing or projected air quality violation, and result in a cumulatively considerable net increase in criteria air pollutants. (SUM)	Less than the proposed project, but the impact would not be completely avoided due to construction-related air pollutant emissions associated with ongoing repair activities of existing facilities. (LS or LSM)	Construction-related criteria pollutant emissions would be greater overall because of the added pipeline construction, which would not be offset by reduced demolition at the BDFP site. (SUM)	Construction of this alternative would generate the same criteria pollutant emissions as the project, plus additional emissions resulting from relocation and rehabilitation of the Central Shops buildings and dismantling or demolition of buildings at Pier 90 site. (SUM)	Construction-related criteria pollutant emissions would be greater than those of the proposed project due to increased demolition, construction/operation of interim facilities, increased truck operations, and increased grading/excavation associated with relocation of existing infrastructure. (SUM)
	Impact AQ-3: Construction and operation of the project would generate toxic air contaminants, including diesel particulate matter, but would not expose sensitive receptors to substantial air pollutant concentrations or result in a cumulatively considerable net increase in health risks or hazards. (LS)	Less than the proposed project but impact would not be completely avoided because there would still be construction-related air pollutant emissions associated with ongoing repair activities of existing facilities. (LS)	Net increase in construction related emissions and TACs, however health risks could be less overall because the closest sensitive receptors are farther away (1,800 feet) compared to the project (1,000 feet), and because there are few to no sensitive receptors located downwind of the Pier 94 Backlands site. (LS)	Impact would be similar to the proposed project. (LS)	Construction and operational health risks could be greater than those of the project due to closer proximity of construction and trucks to sensitive receptors, increased TAC emissions from demolition activities and construction/demolition of interim facilities. Operational health risks could be greater because waste gas burners would be substantially closer to the nearest sensitive receptors. (LSM)
	Impact AQ-4: The project's construction-related air pollutant emissions could conflict with, or obstruct implementation of, the *2010 Clean Air Plan*. (LSM)	While this alternative would reduce the project's conflicts with the Clean Air Plan associated with construction-related emissions, this alternative would not be consistent with the Clean Air Plan's Policy ECM 2, Renewable Energy. In addition, it would result in higher future operational emissions of ozone precursors (ROG and NOx) than the proposed project. (LSM)	Although there would be greater construction-related emissions under this alternative, conflicts with the Clean Air Plan would be the same as those of the project. (LSM)	Although there would be greater construction-related emissions under this alternative, conflicts with the Clean Air Plan would be the same as those of the project. (LSM)	Although there would be greater construction-related emissions under this alternative, conflicts with the Clean Air Plan would be the same as those of the project. (LSM)

TABLE 6-3 (Continued)
COMPARISON OF ENVIRONMENTAL IMPACTS OF PROJECT TO IMPACTS OF ALTERNATIVES

Environmental Resource	Proposed Project	Alternative A: No Project	Alternative B: Pier 94 Backlands	Alternative C: Historical Resources Relocation	Alternative D: SEP South/Quint Street
Air Quality (cont.)	**Impact C-AQ-1a:** Construction of the project, in combination with other past, present, and probable future projects, would result in a cumulatively considerable net increase in criteria air pollutants and contribute to cumulative regional air quality impacts. (SUM)	Less than the proposed project but impact would not be completely avoided because repair activities, such as repair of existing digesters, would contribute to cumulative increases in construction-related criteria pollutant emissions. (LS)	This alternative's contribution to significant and unavoidable cumulative construction-related NOx emissions would be greater than the proposed project due to the added pipeline construction. (SUM)	This alternative's contribution to significant and unavoidable cumulative construction-related NOx emissions would be greater than the proposed project due to the added emissions associated with Central Shops relocation and rehabilitation as well as dismantling or demolition of buildings at the Pier 90 site. (SUM)	This alternative's contribution to significant and unavoidable cumulative construction-related NOx emissions would be greater than the proposed project due to more extensive demolition at the SEP. (SUM)
	Impact C-AQ-2: Construction and operation of the project, in combination with other past, present, and probable future projects, could generate toxic air contaminants, including diesel particulate matter, but would not expose sensitive receptors to substantial air pollutant concentrations or result in a cumulatively considerable net increase in health risks and hazards. (LS)	Less than the project, but the impact is not avoided because repair activities, such as repair of existing digesters, would contribute to cumulative increases in construction-related toxic air contaminant emissions. (LS)	Although there would be a net increase in construction-related contaminant emissions and TACs, cumulative health risks and hazards would decrease because the closest sensitive receptors would be farther away (1,800 feet) compared to the project and because downwind receptors are absent with respect to the Pier 94 Backlands site. (LS)	Impact would be similar to that of the project. (LS)	Slight net increase in health risks due to relocation of waste gas burners closer to nearest sensitive receptors, but the impact would be less than significant with mitigation. (LSM)
Greenhouse Gas Emissions	**Impact C-GG-1:** The project would generate greenhouse gas emissions, but not at levels that would result in a significant impact on the environment or conflict with any policy, plan, or regulation adopted for the purpose of reducing greenhouse gas emissions. (LS)	Unlike the project, this alternative would conflict with adopted policies intended to reduce statewide GHG emissions because it would not make use of the energy production potential of increasing biogas emissions, would not reduce non-biogenic GHG emissions, and would not improve biosolids reuse opportunities, though feasible measures are available to reduce this impact to less than significant. (LSM)	This alternative would have the same energy capture potential (from biogas produced) and the same increase in biosolids reuse opportunities as the project. However, unlike in the project, the energy recovery facilities located at the Pier 94 Backlands site would not be available as backup power to the main plant or to support other SEP facilities. (LS)	Impact would be similar to that of the project. (LS)	Impact would be similar to that of the project. (LS)
Biological Resources	**Impact BI-1:** Project construction could have a substantial adverse effect, either directly or through habitat modifications, on roosting bats, which are protected by the California Department of Fish and Wildlife. (LSM)	No impact.[a]	Impacts on bats would be avoided. (LS)	Impact and mitigation would be similar to the project. (LSM)	Impact and mitigation would be similar to the project. (LSM)
	Impact C-BI-1: The project, in combination with past, present, and probably future projects, could substantially contribute to cumulative impacts on biological resources (roosting bats). (LSM)	No impact.[a]	Impacts on bats would be avoided. (LS)	Impact and mitigation would be similar to the project. (LSM)	Impact and mitigation would be similar to the project. (LSM)
Geology, Soils, and Paleontological Resources	**Impact GE-4:** The project could directly or indirectly destroy a unique paleontological resource. (LSM)	No impact.[a]	Impact would be reduced to less than significant due to low potential for paleontological resources. (LS)	Impact and mitigation would be similar to the project. (LSM)	Impact and mitigation would be similar to the project. (LSM)
	Impact C-GE-2: The project, in combination with past, present, and probable future projects, could substantially contribute to cumulative impacts on paleontological resources. (LSM)	No impact.[a]	Impact would be reduced to less than significant due to low potential for paleontological resources. (LS)	Impact and mitigation would be similar to the project. (LSM)	Impact and mitigation would be similar to the project. (LSM)
Mineral and Energy Resources	**Impact ME-2:** Operation of the project would not result in the use of large amounts of fuel, water, or energy, or use these resources in a wasteful manner. (LS)	Unlike the proposed project, this alternative would result in a potentially significant impact because more frequent routine flaring of digester gas would be a wasteful use of a local energy resource, but feasible measures are available to reduce this impact to less than significant. (LSM)	Impact would be similar to the project. (LS)	Impact would be similar to the project. (LS)	Impact would be similar to the project. (LS)

NOTES:

[a] As described in Section 6.3.1, under the No Project Alternative, the SFPUC would need to implement a much higher level of maintenance, as well as increased levels of equipment/facility repair and replacement, compared to existing conditions. With a higher risk of upset, there could also be emergency repairs or replacements needed. Construction of such projects could adversely affect archeological resources or human remains, and could create impacts related to noise, air pollutant emissions, and transportation.

LS = Less than Significant
LSM = Less than Significant with Mitigation
SUM = Significant and Unavoidable with Mitigation
SU = Significant and Unavoidable

BDFP = Biosolids Digester Facilities Project
GHG = greenhouse gas
NOx = nitrogen oxides
ROG = reactive organic gases

SEP = Southeast Water Pollution Control Plant
TAC = toxic air contaminant

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The identification of the environmentally superior alternative is based on the relative severity of the various significant impacts. For the purposes of this analysis, the relative severity of a significant impact considers multiple factors, including the areal extent, magnitude, duration, and frequency of the impact as well as proximity to and number of sensitive receptors.

The No Project Alternative would avoid all construction and operational impacts that were identified for the proposed project under "normal" conditions. However, due to the age and condition of the existing facilities, likely future scenarios include breakdowns and equipment failures, even with an increased level of maintenance. Under scenarios of breakdowns and equipment failures, there would be potential for a wide range of impacts, depending on the nature and extent of those breakdowns. Due to the increased level of repairs and replacement and the inevitable construction associated with those repairs/replacement, the No Project Alternative would likely result in physical environmental impacts associated with archeological resources, transportation/circulation, noise, vibration, air quality, biological resources, and paleontological resources. However, depending on the circumstances under which the repairs/replacement would occur, implementation of the mitigation measures identified in this EIR for the significant construction-related impacts of the proposed project may or may not be required; this could result in more severe impacts than those identified for the proposed project. Furthermore, because the No Project Alternative would not make use of the energy production potential of increased digester gas production (a result of planned population growth), it would conflict with policies adopted for the purpose of reducing GHG emissions and it would be a wasteful use of a local energy resource. These would be considered potentially significant impacts associated with GHG emissions and energy resources that would not occur under the proposed project, although feasible mitigation is available that could reduce these impacts to less than significant. Nevertheless, in consideration of the likelihood of persistent and prolonged environmental impacts associated with ongoing and unplanned construction activities for repairs and replacement, the No Project Alternative is not the environmentally superior alternative.

The SEP South/Quint Street Alternative would result in some impacts that are more severe and some significant impacts that would not occur under the proposed project. Even though Central Shops Buildings A and B would be retained in place, at least seven structures that are contributors to the historic district would be demolished, a significant and unavoidable impact that would not occur at the project level under the proposed project (but was identified as a cumulative impact). In addition, due to the closer proximity of sensitive receptors, health risk impacts associated with exposure to TACs would be greater than those under the proposed project, a potentially significant impact. Increased exposure to TACs due to closer proximity to sensitive receptors would occur during construction (due to construction equipment and trucks) as well as during operations (due to waste gas burners). Under this alternative, the noisiest facility, the Solids Odor Control Facility (mostly outdoors), would be located closer to sensitive receptors to the east and southeast, and operational noise increases could exceed ordinance limits, another significant direct and cumulative impact. Furthermore, the SEP South/Quint Street Alternative would add at least two years to the proposed project's five-year construction schedule, for a total of seven years. This extended construction period would extend the duration of all construction-related impacts, and specifically, air pollutant emissions, noise, and transportation impacts in the project vicinity, which, as stated above, would occur closer to sensitive receptors,

further exacerbating these impacts. Overall, although Central Shops Buildings A and B would be retained in place, avoiding a significant and unavoidable impact, the SEP South/Quint Street Alternative would result in more severe environmental impacts than the proposed project. Therefore, the SEP South/Quint Street Alternative is not the environmentally superior alternative.

The remaining two alternatives—the Pier 94 Backlands and Historical Resources Relocation Alternatives—would both provide environmental trade-offs compared to the proposed project. Both alternatives would avoid or substantially reduce at least one significant impact of the proposed project, but both alternatives would also result in additional environmental impacts, including impacts at different locations, that would not occur under the proposed project.

The Pier 94 Backlands Alternative would avoid and substantially reduce all impacts at the BDFP site, but overall construction and operational impacts at the Pier 94 Backlands site would be comparable to those identified for the proposed project, only at a different location. This alternative would also result in construction impacts associated with the 4,000 feet of pipelines between the Pier 94 Backlands site and the SEP that would not occur under the proposed project and would affect the sensitive receptors located along the pipeline alignment that would not be affected under the proposed project (including City College campus). However, some impacts at the Pier 94 Backlands site (e.g., noise and health risk) would be less severe than what would occur under the proposed project, because of the greater distance to sensitive receptors. This alternative would avoid the cumulative construction noise impact that would occur under the proposed project. The same mitigation measures identified for the project would be required except for Mitigation Measures M-CR-1 (Documentation of Historical Resources and Interpretive Display), M-NO-1b (Construction Noise Control Measures at Southeast Greenhouses Staging Area), M-BI-1 (Protective Measures for Special Status Bats and Maternity Roosts), and M-GE-4 (Paleontological Resources Monitoring and Mitigation Program). In addition, many mitigation measures similar to those recommended for the proposed project and/or additional new mitigation measures (for construction noise) would be necessary along the 4,000-foot corridor for the pipeline construction. The overall construction schedule would be about the same as that of the proposed project (five years), but the overall area of surface disturbance for the Pier 94 Backlands Alternative would be about 15 acres plus the 4,000-foot pipeline corridor, which could disturb an additional 5 to 10 acres, depending on the width of the construction corridor. This would be a substantially greater area of disturbance than that of the project (about 10 acres).

Similarly, **the Historical Resources Relocation Alternative** would involve trade-offs. This alternative would avoid the significant and unavoidable impact associated with demolition of Central Shops Buildings A and B that would occur under the proposed project, but it would otherwise have all the same impacts as those identified for the proposed project *plus* it would result in construction and operational impacts at the off-site location where the Central Shops buildings would be relocated (assumed to be Pier 90). With the exception of Mitigation Measure M-CR-1 (Documentation of Historical Resources and Interpretive Display), all of the mitigation measures identified for the proposed project would be required for this alternative, and additional mitigation measures could be required at the relocation site. The overall construction schedule would be slightly longer than that for the proposed project, adding up to about one year, but the overall area of surface disturbance would be the same as for the proposed project

(about 10 acres) plus about 3 acres for the relocation site. Assuming that the relocation site would be at Pier 90 (or a similar location with light industrial land use), this alternative would not substantially affect any additional sensitive receptors.

In summary, either the Pier 94 Backlands Alternative or the Historical Resources Relocation Alternative would be considered environmentally superior to the proposed project because either would avoid the proposed project's significant and unavoidable impact on historical resources associated with the demolition of Central Shops Buildings A and B. However, on balance, the Historical Resources Relocation Alternative would have a slight environmental advantage over the Pier 94 Backlands Alternative as the environmentally superior alternative. This is mainly because, although operational impacts would be substantially the same for these two alternatives, the construction impacts under the Pier 94 Backlands Alternative would have a substantially greater area of disturbance and affect more sensitive resources along the 4,000-foot pipeline corridor between the SEP and Pier 94 compared to the construction impacts of the Historical Resources Relocation Alternative.

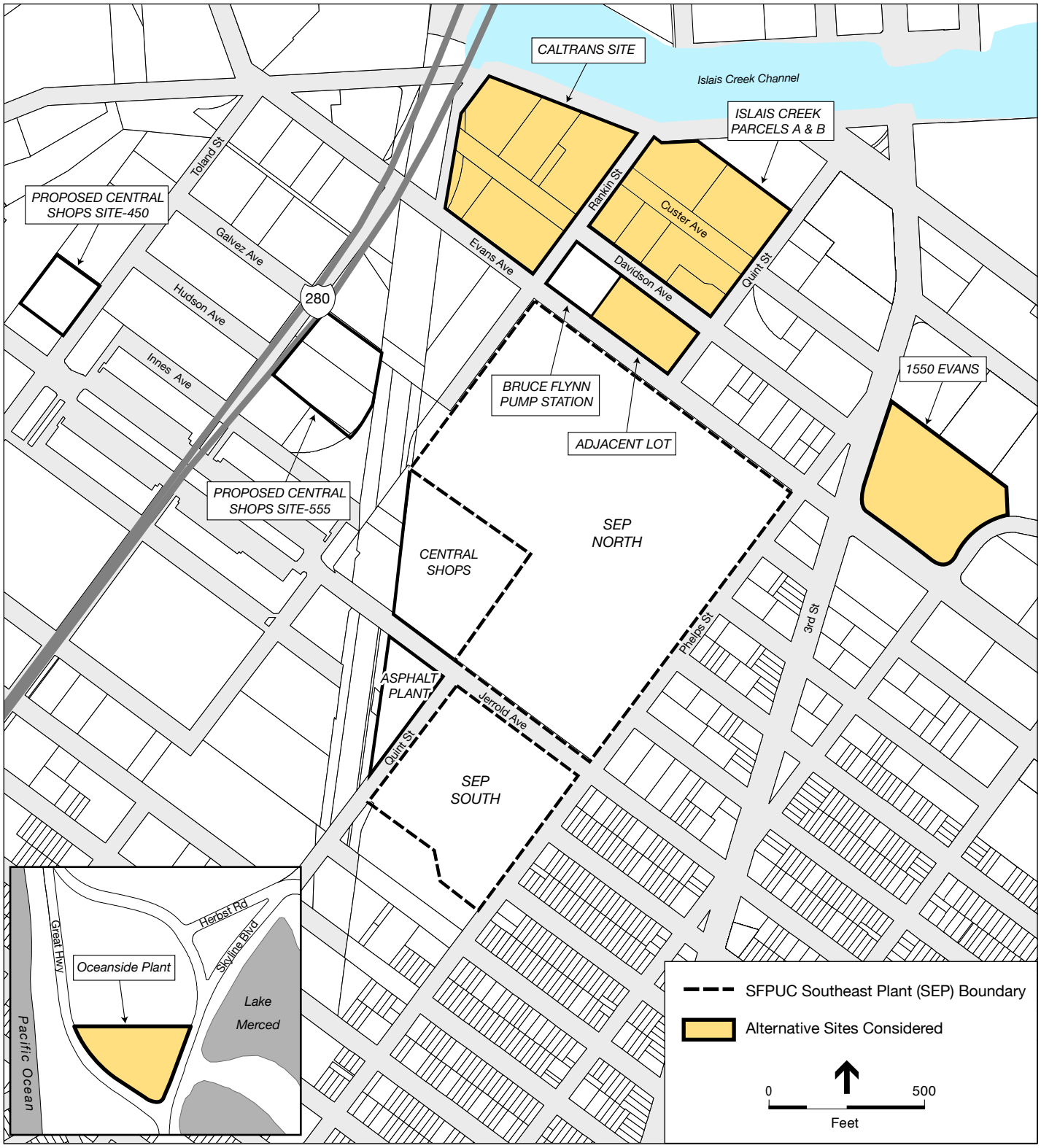
6.5 Alternatives Considered but Eliminated From Further Analysis

This section describes numerous potential alternatives that were considered for analysis in the EIR but were rejected from detailed analysis. As discussed in Section 6.2, above, the San Francisco Planning Department evaluated potential alternatives for their ability to avoid or reduce the significant adverse impacts attributable to the proposed project, their feasibility, and their ability to achieve most of the basic objectives of the project. In most cases, the Planning Department determined that the alternative concepts or locations were infeasible or unable to achieve most of the project's basic objectives, or would result in similar or more severe environmental impacts compared to those of the project. Some alternatives were rejected because they lacked distinct environmental advantages relative to the proposed project or the alternatives analyzed in Section 6.3 above.

This section presents a description of each potential alternative considered and the reasons for its elimination from further analysis, covering a total of 19 alternatives. The discussions include a brief description of the alternative, the source of the alternative concept, the effectiveness of the alternative to avoid or substantially reduce significant impacts of the proposed project, the feasibility of the alternative, and the ability to meet project objectives (using the objectives as numbered in Table 6-2, above). The alternatives considered are grouped according to the following categories: different locations, different site layouts, different preservation strategies for historical resources, and miscellaneous alternatives.

6.5.1 Alternative Site Locations

Seven alternative site locations or combinations of locations were considered, as described below. **Figure 6-7** shows the general locations of parcels considered in these alternatives.



SOURCE: Brown and Caldwell, CH2M Hill, Black and Veatch, Biosolids Digester Facilities Project Alternatives Analysis Report, December 2014; Southeast Digester Task Force, Review of the Biosolids Digester Facility Project by the Southeast Digester Task Force for the San Francisco Public Utilities Commission, Final Document, June 2, 2010.

SFPUC Biosolids Digester Facilities

Figure 6-7

Parcels Considered for Potential Alternative Sites

6.5.1.1 Project Site Plus SEP South

This alternative would develop the BDFP facilities at SEP South, Central Shops, Asphalt Plant, and Quint Street between Jerrold Avenue and the Caltrain right-of-way. This alternative would demolish all solids processing facilities at SEP South. Two facility configurations were considered. This alternative is from the Southeast Digester Task Force Report.[32]

Impact Reduction

This alternative lacks distinct environmental advantages relative to the proposed project or the SEP South/Quint Street Alternative. Compared to the BDFP, this alternative would result in greater project-level impacts on historical resources due to demolition of the historic digesters at SEP South, which are also contributors to a historic district; greater potential for impacts related to odors if the digesters were located at SEP South; and greater impacts on prehistoric archeological resources.

Feasibility

This alternative is feasible. However, it would entail greater risk to existing operations during construction, as the existing solids treatment needs to stay in operation. Also, construction at SEP South would be piecemeal (e.g., demolish/rebuild one digester at a time), so it would require more complicated construction sequencing. Temporary and/or interim facilities may also need to be built to sustain full plant operation throughout construction.

Ability to Meet Project Objectives

This alternative would meet most of the project's objectives. It would only partially meet Objective 8, because if the digesters are located at SEP South, limiting odors at the SEP property boundary would be more difficult than for the BDFP. It would not meet Objectives 11 and 12 because use of the SEP South site would require more complex construction, increasing construction duration and costs and thereby reducing rate payer affordability.

6.5.1.2 SEP South and Caltrans Site

This alternative would develop the BDFP facilities at SEP South and the Caltrans site (comprised of both privately- and Caltrans-owned parcels located north of Evans Avenue and west of Rankin Street). This alternative would demolish SEP South solids processing facilities and develop the proposed facilities at the above-referenced locations. New digesters would be constructed at SEP South. This alternative is from the Southeast Digester Task Force Report.[33]

[32] As described in the Southeast Digester Task Force Report, 2010, Site Plan Option 1a of the Digester Task Force would locate digestion processes on the current SEP South parcel; and Site Plan Option 1b of the Digester Task Force would locate digestion processes on the Central Shops site.

[33] As described in the Southeast Digester Task Force Report, 2010, the Caltrans site, comprised of eight parcel lots, is surrounded by Evans Avenue, Rankin Street, Islais Creek, and the railroad tracks.

Impact Reduction

Compared to the BDFP, this alternative would result in greater project-level impacts on historical resources due to demolition of the historic digesters at SEP South, which are also contributors to a historic district; greater impacts on prehistoric archeological resources; and greater impacts related to odors as the digesters would be located at SEP South closer to residences. The risk of damage associated with flooding would also be greater for facilities at the Caltrans site. However, this alternative would avoid demolition of Central Shops Buildings A and B and the associated significant impact on historical resources.

Feasibility

This alternative is feasible. However, site acquisitions, design, and construction would be more complicated than what is anticipated for the BDFP. Because three of the parcels on the Caltrans site are privately owned, eminent domain proceedings could be required to acquire the parcels. The 2 Rankin site (one of the parcels within the Caltrans site) is also considered as a potential site for a collection system improvement (e.g., for the Central Bayside System Improvement Project). Solids processing facilities would be developed at two sites 1,600 feet apart, reducing efficiency (e.g., due to the distance of underground connections between facilities, the need to pump sludge, the need for two set of facilities/equipment including control center, and separate odor control systems) and minimizing redundancy. Permanent closure of Davidson Avenue northwest of Rankin Street would be required. More complicated flood protection measures would also be required, as the Caltrans site is within the 100-year flood zone. Construction at SEP South would be piecemeal (e.g., demolish/rebuild one digester at a time) and would require more complicated construction sequencing. Temporary and/or interim facilities may also need to be built to sustain full plant operation throughout construction. This alternative would also entail greater risk to existing operations during construction compared to the project.

Ability to Meet Project Objectives

This alternative would meet most of the project's basic objectives. It would only partially meet Objectives 6, 8, and 10, because (1) the 1,600-foot separation of solids processing facilities would reduce reliability and operational flexibility, (2) limiting odors at the SEP property boundary would be more difficult due to locating digesters at SEP South closer to residences, and (3) locating solids processing facilities at the Caltrans site would place them within the 100-year flood zone, requiring more complex design measures in order to accommodate or adapt to expected sea level rise. It would not meet Objectives 11, and 12 because use of the SEP South site would require more complex construction, increasing construction duration and reducing rate payer affordability.

6.5.1.3 Caltrans Site, Islais Creek Parcels, and Bruce Flynn Pump Station Adjacent Lot

This alternative would develop the BDFP facilities at the combined Caltrans site, Islais Creek Parcels A and B, and Bruce Flynn Pump Station adjacent lot. This alternative is from the Southeast Digester Task Force Report.[34]

Impact Reduction

This alternative has no environmental advantages compared to the other alternatives carried forward, particularly the Pier 94 Backlands Alternative. While direct project impacts on historical resources would be avoided because Central Shops Buildings A and B would not be demolished, the risk of flooding at the sites identified for this alternative would be greater than the risk at the BDFP site. This alternative would not avoid or reduce the cumulative impact on the historic district, as it would replace the function of the existing digesters and facilitate the eventual removal of the digesters and associated structures comprising a substantial portion of a historic district.

Feasibility

This alternative is feasible. However, due to the multiple sites involved, site acquisition and construction would be more complicated than anticipated for the BDFP. Because three of the parcels within the Caltrans site are privately owned, eminent domain proceedings could be required to acquire the parcels. In addition, the 2 Rankin site (one of the parcels within the Caltrans site) is also considered as a potential site for a collection system improvement (e.g., for the Central Bayside System Improvement Project). Permanent street closures (e.g., Davidson Avenue) would be required, and underground pipe connections between facilities would be complicated by crossing multiple public rights-of-way. More complicated flood protection measures would also be required, as all of the proposed sites are within the 100-year flood zone.

Ability to Meet Project Objectives

This alternative would meet some of the basic project objectives. It would only partially meet Objectives 2, 6, 10, 11, and 12, for multiple reasons. Inclusion of multiple sites not currently owned by the SFPUC would affect timely construction of the proposed facilities and the ability to maintain ratepayer affordability. Relative to the BDFP, reliability and operational flexibility would be reduced due to the 1,600-foot distance between proposed and existing solids processing facilities. Locating the facilities at these more distant sites would not provide redundant infrastructure for existing processes. More complex design measures than what are proposed for the BDFP (such as elevating equipment and identifying access routes to the site from the SEP during flood conditions) would be required in order to accommodate or adapt to expected sea level rise.

[34] As described in the Southeast Digester Task Force Report, 2010. Parcels A and B are located adjacent to the Caltrans site, north of Davidson Avenue where existing warehouses are located. The Bruce Flynn Pump Station adjacent lot is located across from the SEP, between Rankin Street, Davidson Avenue, Evans Avenue, and Quint Street. A rail spur splits the property.

Limiting odors at the SEP property boundary would be more difficult due to the proximity of these sites to sensitive receptors.

6.5.1.4 SEP South/Asphalt Plant Site

This alternative would develop the proposed BDFP facilities at the Asphalt Plant and SEP South. This alternative would demolish all solids processing facilities at SEP South. This alternative is based on the site layout alternatives described in the Alternatives Analysis Report.[35]

Impact Reduction

While this alternative would avoid impacts on Central Shops Buildings A and B, it would result in impacts on historical resources due to potential demolition of buildings and other structures within the historic district (whereas the BDFP and other alternatives would replace this function, ultimately allowing for the future demolition of the digesters). The SEP South/Quint Street Alternative would achieve the same environmental advantages of this alternative, without demolition of the historic digesters.

Feasibility

This alternative is feasible. However, it would entail greater risk to existing operations during construction, as the existing solids treatment would need to stay in operation. Also, construction at SEP South would be piecemeal (e.g., demolish/rebuild one digester at a time), so it would require more complicated construction sequencing. This alternative would substantially disrupt existing solids operations, and temporary facilities may also be required to sustain full plant operation throughout construction.

Ability to Meet Project Objectives

This alternative would meet most of the project objectives. It would partially meet Objective 8, because it would be difficult to limit odors to the fence line. It would not meet Objectives 11 and 12, because use of the SEP South site would require more complex construction, increasing construction duration and reducing rate payer affordability compared to the BDFP.

6.5.1.5 Bruce Flynn Pump Station Adjacent Lot/Asphalt Plant/Central Shops

This alternative would develop the BDFP facilities at Bruce Flynn Pump Station adjacent lot (e.g., for biosolids dewatering), Asphalt Plant, and Central Shops. This alternative is based on the site layout alternatives described in the Alternatives Analysis Report.[36]

[35] Developed as part of preservation alternatives evaluation process, based on site layout alternatives described in SFPUC Biosolids Digester Facilities Project Alternatives Analysis Report, December 2014.

[36] Developed as part of preservation alternatives evaluation process, based on site layout alternatives described in SFPUC Biosolids Digester Facilities Project Alternatives Analysis Report, December 2014. Use of the Bruce Flynn Pump Station adjacent lot was considered to site unit processes that require frequent truck hauling (e.g., biosolids dewatering) or for future (post-2022) facilities.

Impact Reduction

The risk of damage from flooding would be greater under this alternative than under the BDFP due to siting at the Bruce Flynn Pump Station adjacent lot. This alternative would offer no substantial environmental benefits as compared to the BDFP, since it would result in the same or similar construction and operational impacts and therefore would not avoid or substantially reduce significant impacts of the proposed project.

Feasibility

This alternative is feasible. However, solids processing facilities would be developed at sites about 1,000 feet apart, reducing efficiency (e.g., due to the distance of underground connections between facilities, the need to pump sludge, the need for two sets of facilities/equipment including control center and separate odor control systems, etc.) and reducing operational redundancy. In addition, the Bruce Flynn Pump Station site is divided by an operating rail spur, which would complicate underground pipe connections between facilities across the rail spur.

Ability to Meet Project Objectives

This alternative would meet most of the project's basic objectives. It would not meet Objective 2 because the 1,000-foot separation of proposed facilities from other parts of the SEP and space constraints would reduce how efficiently existing SFPUC infrastructure and resources are used.

6.5.1.6 SEP South

This alternative would develop the proposed solids processing facilities at SEP South while rebuilding digesters in place (one at a time). This alternative is from the Needs Assessment Report.[37]

Impact Reduction

Compared to the BDFP, this alternative would result in different significant impacts on historical resources, because it would include demolition of the digesters at SEP South (which are contributors to a historic district) while retaining Central Shops Buildings A and B. This alternative would result in more severe impacts related to odors, as the digesters would be located at SEP South close to sensitive receptors. This alternative would also increase direct impacts on a known prehistoric resource at SEP south. The SEP South/Quint Street Alternative would better achieve the intent of this alternative by building the digesters farther from residences.

Feasibility

This alternative is feasible. Compared to the BDFP, this alternative would entail greater risk to existing operations because one digester would be out of commission at all times during construction. Construction at SEP South would be piecemeal. Temporary and/or interim facilities may also need to be built to sustain full plant operation throughout construction.

[37] As described in the Needs Assessment Report, 2016.

Ability to Meet Project Objectives

This alternative would meet some of the basic project objectives. It would not meet Objectives 1 and 3 because the same treatment process would be installed (instead of using new technology) and digester capacity would not increase to reliably treat projected 2045 flows and loads. It would partially meet Objectives 4 and 8 because it would not upgrade to Class A biosolids and instead would continue to produce Class B biosolids, and it would be difficult to achieve limiting odors at the fence line because of the proximity to residences. It would not meet Objectives 11 and 12 because use of the SEP South site would require more complex construction, increasing construction duration to about 25 years and reducing rate payer affordability compared to the BDFP.

6.5.1.7 Asphalt Plant and 1550 Evans Avenue Sites

This alternative would develop the BDFP facilities at 1550 Evans Avenue and the Asphalt Plant. This alternative is based on public comment received during the EIR scoping period.[38]

Impact Reduction

This alternative would avoid the project's significant unavoidable historical resource impacts because Central Shops Buildings A and B would be retained in place. Otherwise, this alternative would result in similar environmental impacts as the BDFP, because similar construction and operations activity would occur. The SEP South/Quint Street Alternative would better achieve the intent of this alternative.

Feasibility

This alternative is potentially feasible; however, there are other long-term uses envisioned for 1550 Evans Avenue, including replacement of the Southeast Community Facility, currently located at 1800 Oakdale Avenue, which could include an academic institution. Solids processing facilities would be developed at sites about 1,700 feet apart, increasing operational complexity (e.g., due to the amount of underground connections between facilities and the need to pump sludge) and reducing efficiency (e.g., the distance between the two sites is too far to optimize operations, as it would require two sets of facilities equipment including control center and separate odor control systems).

Ability to Meet Project Objectives

This alternative would meet most of the project's basic objectives. It would partially meet Objective 6 because, relative to the BDFP, efficiencies resulting from use of existing resources and facilities would not be maximized due to the 1,700-foot separation of solids processing facilities.

[38] As described in scoping comments from David Pilpel, adapted to include the Asphalt Plant due to space limitations at 1550 Evans Avenue.

6.5.2 Alternative Site Layouts

6.5.2.1 Digesters Adjacent to Jerrold Avenue

This alternative would develop the BDFP facilities at Central Shops, Asphalt Plant, and SEP South, with the digesters located adjacent to Jerrold Avenue. This alternative is based on the Alternatives Analysis Report.[39]

Impact Reduction

This alternative would not materially alter the impact conclusions for the BDFP, and in fact would locate the digesters closer to residences. Therefore, this alternative offers no environmental advantages and would not meet the requirements of the CEQA alternatives analysis.

Feasibility

This alternative is feasible.

Ability to Meet Project Objectives

This alternative would meet most of the project objectives. It would only partially meet Objectives 8, 11, and 12 for the following reasons: odor sources would be relatively close to the fence line, the alignment and arrangement of structures would be poor, and the alternative would require more complex construction, increasing construction duration and reducing affordability compared to the BDFP.

6.5.2.2 Digesters in Clustered Configuration

This alternative would develop BDFP facilities at Central Shops, Asphalt Plant, and SEP South, with the digesters in a layout with a more clustered configuration rather than linear layout. This alternative is based on the Alternatives Analysis Report.[40]

Impact Reduction

This alternative would not materially alter the impact conclusions for the BDFP. Therefore, this alternative offers no environmental advantages and would not meet the requirements of the CEQA alternatives analysis.

Feasibility

This alternative is feasible.

[39] As described in the BDFP Alternatives Analysis Report, 2014.
[40] As described in the BDFP Alternatives Analysis Report, 2014.

Ability to Meet Project Objectives

This alternative would meet most of the project objectives. It would only partially meet Objectives 6, 9, 11, and 12 for the following reasons: reliability and operational flexibility would be reduced due to limited consolidation and optimization of the site layout, the alignment and arrangement of structures would be poor, and the alternative would require more complex construction, increasing construction duration and reducing affordability compared to the BDFP.

6.5.2.3 Digesters in Two Rows

This alternative would develop the BDFP facilities at Central Shops, Asphalt Plant, and SEP South, with the digesters in a layout of two rows of three digesters. This alternative is based on the Alternatives Analysis Report.[41]

Impact Reduction

This alternative would not materially alter the impact conclusions for the BDFP. Therefore, this alternative offers no environmental advantages and would not meet the requirements of the CEQA alternatives analysis.

Feasibility

This alternative is feasible.

Ability to Meet Project Objectives

This alternative would meet most of the project objectives. It would only partially meet Objectives 8 and 9 because odor sources would be relatively close to the fence line and the alignment and arrangement of structures would be poor.

6.5.3 Alternative Approaches to Preserve Historical Resources

6.5.3.1 Retain Central Shops Buildings in Place

This alternative would develop the BDFP facilities as described in Chapter 2, *Project Description*, redesigned to include full preservation and reuse/repurpose of Central Shops Buildings A and B in place as part of the project. This alternative was identified in the Preservation Alternatives Memo as a full preservation alternative.[42]

Impact Reduction

This alternative would avoid significant impacts on individual historical resources by retaining the Central Shops buildings in place; however, impacts associated with construction duration

[41] As described in the BDFP Alternatives Analysis Report, 2014.
[42] Developed as part of preservation alternatives evaluation process for this EIR (FP2).

could increase. The environmental advantages of this alternative would be the same as those of the SEP South/Quint Street Alternative.

Feasibility

This alternative is infeasible for numerous reasons, including the following: (1) the location of Buildings A and B, in the middle of the BDFP site, constrains overall space available for required aboveground facilities as well as access to required underground facilities; (2) the total square footage of Buildings A and B (66,200 square feet) is inadequate for the proposed uses (requiring about 136,800 square feet); (3) the configuration would constrict operations, making them inefficient; and (4) space constraints would require use of other existing SEP areas and would interfere with ongoing SEP operations. Even if feasible, this alternative would require a complete redesign of project layout that would result in substantial project delay, and it would require disassembling and temporarily relocating Buildings A and B to construct underground project components before reconstructing them in place consistent with the Secretary of Interior's Standards.

Ability to Meet Project Objectives

Because this alternative is infeasible, it would not meet the project objectives.

6.5.3.2 Relocate Central Shops Buildings within SEP

This alternative would develop the BDFP facilities as described in Chapter 2, *Project Description*, redesigned to include relocation of Central Shops Buildings A and B within the SEP. This alternative was identified in the Preservation Alternatives Memo as a full preservation alternative.[43]

Impact Reduction

This alternative would avoid the impact of demolishing a historical resource by instead relocating the buildings elsewhere in the SEP and rehabilitating them consistent with the Secretary of Interior's Standards. If Central Shops Buildings A and B were to be relocated within the historic district, it would increase the proportion of non-contributors and thereby to a small degree reduce the integrity of the historic district. The environmental advantages of this alternative are the same as or less than those of the SEP South/Quint Street Alternative.

Feasibility

This alternative is infeasible because there is insufficient space to accommodate both Buildings A and B within the remaining SEP property. The largest open space (parking lot) within the SEP is about 57,700 square feet, which is less than the 66,200-square-foot area of the Central Shops buildings if they were put side by side without any setbacks.

[43] Developed as part of preservation alternatives evaluation process for this EIR (FP4).

Ability to Meet Project Objectives

Because this alternative is infeasible, it would not meet the project objectives.

6.5.3.3 Relocate Central Shops Buildings to SFPW Site

This alternative would develop the BDFP facilities as described in Chapter 2, *Project Description*, and relocate Central Shops Buildings A and B to the new SFPW Central Shops site opposite the Caltrain tracks and continue use at this new location. This alternative was identified in the Preservation Alternatives Memo as a full preservation alternative.[44]

Impact Reduction

This alternative would reduce historical resource impacts to a less-than-significant level by avoiding the impacts of demolition, while relocating Central Shops Buildings A and B in proximity to their original location, retaining their current use, and rehabilitating them consistent with the Secretary of the Interior's Standards. Otherwise, this alternative lacks distinct environmental advantages over Alternatives B, C, or D.

Feasibility

This alternative is infeasible, because SFPW needs to maintain an ongoing, operational Central Shops facility, such as under the current plan to complete construction of the new Central Shops facility before abandoning the old location and relocating to the new location.

Ability to Meet Project Objectives

Because this alternative is infeasible, it would not meet the project objectives.

6.5.3.4 Retain and Expand Central Shops Buildings

This alternative would develop the BDFP facilities at the Central Shops and Asphalt Plant sites, redesigned to retain both Buildings A and B in place, with expansion of the buildings (e.g. adding a second story or addition) consistent with the Secretary of the Interior's Standards. This alternative was identified in the Preservation Alternatives Memo as a partial preservation alternative.[45]

Impact Reduction

This alternative would reduce historical resources impacts due to demolition of Central Shops Buildings A and B to less-than-significant levels and lessen impacts on their integrity because adaptive modifications and reuse would be required to be consistent with the Secretary of the Interior's Standards. Otherwise, this alternative would have the same or similar impacts as the project. Alternatives B, C, and D would better achieve the environmental advantages of this alternative.

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[44] Developed as part of preservation alternatives evaluation process for this EIR (FP6).
[45] Developed as part of preservation alternatives evaluation process for this EIR (PP1).

Feasibility

This alternative is infeasible. Central Shops Buildings A and B are in the middle of the BDFP site, which has little to no space to spare, making the layout of this alternative inefficient and more costly than the project. The diagonal orientation of the BDFP facilities, compared with the rectilinear orientation of Central Shops Buildings A and B, makes retaining a portion of Buildings A and B problematic from a design standpoint. Even if feasible, this alternative would require a complete redesign of project layout that would result in substantial project delay, and it would require disassembling and temporarily relocating Buildings A and B to construct underground project components.

Ability to Meet Project Objectives

Because this alternative is infeasible, it would not meet the project objectives.

6.5.3.5 Retain a Portion of Central Shops Buildings

This alternative would develop the BDFP facilities at Central Shops and Asphalt Plant, redesigned to retain a portion of both Buildings A and B in place, such as one or two exterior glass curtain walls, or a portion of both buildings. This alternative was identified in the Preservation Alternatives Memo as a partial preservation alternative.[46]

Impact Reduction

This alternative would reduce the severity of the project's impacts on historical resources, but not to a less-than-significant level, and therefore would not provide substantial environmental benefit compared to the BDFP. Alternatives C and D would better achieve the intent of this alternative.

Feasibility

This alternative is infeasible. Central Shops Buildings A and B are in the middle of the BDFP site, which has little to no space to spare, making the layout of this alternative inefficient and more costly than the project. The diagonal orientation of the BDFP facilities, compared with the rectilinear orientation of Central Shops Buildings A and B, makes retaining a portion of the Buildings A and B problematic from a design standpoint. Even if feasible, this alternative would require a complete redesign of project layout that would result in substantial project delay, and it would require disassembling and temporarily relocating Buildings A and B to construct underground project components.

Ability to Meet Project Objectives

Because this alternative is infeasible, it would not meet the project objectives.

[46] Developed as part of preservation alternatives evaluation process for this EIR (PP2).

6.5.3.6 Retain a Portion of Central Shops Building A Only

This alternative would develop the BDFP facilities at Central Shops and Asphalt Plant, demolishing Building B and part of Building A; relocate a portion of Building A to Jerrold Avenue where it could fit within the BDFP site plan; and repurpose the relocated portion of Building A. This alternative was identified in the Preservation Alternatives Memo as a partial preservation alternative.[47]

Impact Reduction

This alternative would reduce the severity of the project's impacts on historical resources, but not to a less-than-significant level, and therefore would not provide substantial environmental benefit compared to the BDFP. Alternatives C and D would better achieve the intent of this alternative.

Feasibility

This alternative is feasible, as it would be possible to retain portions of one or two walls of Building A as a wall (or screen wall) and relocate it along Jerrold Avenue and integrate it with proposed facilities (e.g., Maintenance Shops 1 or 2). This alternative would require architectural redesign to integrate the historic buildings. Relocating portions of the walls of Building A would not be consistent with the Secretary of the Interior's Standards, would add cost, and would increase construction duration.

Ability to Meet Project Objectives

This alternative would meet most of the basic objectives of the project. It would not meet Objectives 11 and 12, because the construction schedule would be more complex and consequently the alternative would be less affordable than the BDFP.

6.5.3.7 Relocate One Central Shops Building Only

This alternative would develop the BDFP facilities at Central Shops and Asphalt Plant, demolishing either Central Shops Building A or Building B and relocating the other building to a similar industrial setting in San Francisco consistent with the Secretary of the Interior's Standards. This alternative was identified in the Preservation Alternatives Memo as a partial preservation alternative.[48]

Impact Reduction

This alternative would reduce the severity of the project's impacts on historical resources, but not to a less-than-significant level, and it would not sufficiently reduce the severity of the impact to provide adequate benefits of a partial preservation alternative. Buildings A and B are considered a single historical resource, and relocation of one building without the other would not meet the needs of a partial preservation alternative. Therefore, this alternative would not provide substantial

[47] Developed as part of preservation alternatives evaluation process for this EIR (PP3).
[48] Developed as part of preservation alternatives evaluation process for this EIR (PP4).

environmental benefit compared to the BDFP. Alternatives C and D would better achieve the intent of this alternative.

Feasibility

This alternative is potentially feasible, assuming an appropriate relocation site is available.

Ability to Meet Project Objectives

This alternative would meet most of the project objectives. It would partially meet Objectives 11 and 12, because the construction schedule would be more complex and a site with a similar industrial setting would have to be found. Consequently, the alternative would be less affordable than the BDFP.

6.5.4 Miscellaneous Other Alternative Strategies

6.5.4.1 Divert Wastewater Flows to the Oceanside Water Pollution Control Plant

This alternative would continue use of existing SEP solids processing facilities and construct a tunnel to divert wastewater flows to the Oceanside Water Pollution Control Plant for treatment ("Cayuga Diversion"). Additionally, liquid wastewater treatment would still occur at the SEP. This concept was based on public comment received during the EIR scoping period.[49]

Impact Reduction

This alternative would not preclude the need for new solids facilities at the SEP and thus lacks any environmental advantages over the project. This alternative would also result in environmental impacts at different locations, including tunnel construction sites as well as at the Oceanside Water Pollution Control Plant (where THP would be needed to treat excess solids). Therefore, this alternative would not meet the requirements of the CEQA alternatives analysis.

Feasibility

At a conceptual level, this alternative is potentially feasible, but no engineering studies have been conducted to determine actual feasibility.

Ability to Meet Project Objectives

If this alternative is feasible, it is assumed that the alternative would meet the treatment capacity for projected 2045 flows and loads, achieving Objective 3, but overall this alternative would not

[49] The Cayuga Diversion was discussed preliminarily during previous sewer system master planning efforts. In order to be a mitigation or alternative for the BDFP as suggested in scoping comments from David Pilpel, the Cayuga Diversion would need to shift a portion of untreated flows from the SEP across town to the Oceanside Water Pollution Control Plant. This would be a system-wide change to the collection and treatment system. At this time, the SSIP is prioritizing improving aging infrastructure, assuring reliable operations, and maintaining regulatory compliance over system-wide changes.

meet any of the project's other objectives. It would not replace existing SEP solids handling infrastructure, maximize efficiency of current treatment resources, beneficially use 100 percent of biosolids and biogas, build redundant infrastructure, improve seismic reliability, limit odors, provide visual improvements at the SEP, or adapt to sea level rise; thus, this alternative would not meet Objectives 1, 2, 4, 5, 6, 7, 8, 9, or 10. It would also not meet Objectives 11 and 12, since construction would be delayed for a minimum of several years and would have an unknown construction duration, and costs for conducting the required studies, design, environmental review, and construction of a tunnel to the Oceanside Water Pollution Control Plant would not maintain rate payer affordability. It is assumed this alternative would continue to produce Class B biosolids and use some of the biogas generated, but this alternative would not beneficially use 100 percent of these materials.

6.5.4.2 Use Railway Instead of Trucks for Hauling Biosolids

This alternative would develop the project as described in Chapter 2, *Project Description*, but would modify long-term operational practices to haul biosolids from the SEP using railway instead of trucks. This concept was based on public comment received during the EIR scoping period.[50]

Impact Reduction

This alternative would not materially alter the impact conclusions for the BDFP. While there could be a reduction in the distance, frequency, and number of truck trips for hauling biosolids and commensurate reduction in air pollutant emissions from trucks, there would be increased handling of biosolids from truck to rail and rail to truck and increased emissions associated with rail use; the net effect on regional air quality in the air basin is unknown. There are no significant impacts related to biosolids hauling included in the proposed project that would be alleviated by this alternative. Therefore, this alternative would not meet the requirements of the CEQA alternatives analysis.

Feasibility

This alternative is potentially feasible if a rail line is available to a Class A biosolids end use destination.

Ability to Meet Project Objectives

This alternative, if feasible, would meet most of the project's basic objectives. The only exceptions would be the uncertainty associated with meeting or partially meeting Objectives 11 and 12, due to unknown implications on the construction schedule if rail spurs are needed and unknown net effects on costs that affect rate payer affordability.

[50] As described in scoping comments from David Pilpel.

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FINAL ENVIRONMENTAL IMPACT REPORT – Volume 3

Biosolids Digester Facilities Project

PLANNING DEPARTMENT
CASE NO. **2015-000644ENV**

STATE CLEARINGHOUSE NO. 2015062073

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SAN FRANCISCO PLANNING DEPARTMENT

BIOSOLIDS DIGESTER FACILITIES PROJECT FINAL ENVIRONMENTAL IMPACT REPORT
Volume 3

Planning Department Case No. 2015-000644ENV
State Clearinghouse No. 2015062073

City and County of San Francisco
San Francisco Planning Department

A dot (●) indicates material that has been revised since publication of the Draft EIR. A dot with an asterisk (●*) is used in the Table of Contents to identify which sections of the document contain changes. Long changes are indicated with opening dots (❶) and closing dots (❶).

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CHAPTER 8
Introduction to Responses to Comments

8.1 Purpose of the Responses to Comments Document

The purpose of this Responses to Comments (RTC) document is to present comments on the Draft Environmental Impact Report (Draft EIR) for the proposed Biosolids Digester Facilities Project (BDFP or project), to respond in writing to comments on environmental issues, and to revise the Draft EIR as necessary to provide additional clarity. Pursuant to the California Environmental Quality Act (CEQA) Public Resource Code Sections 21091(d)(2)(A) and (B), the San Francisco Planning Department has considered the comments received on the Draft EIR, evaluated the issues raised, and is providing written responses that address each substantive environmental issue that has been raised by the commenters. In accordance with CEQA, the responses to comments focus on clarifying the project description and addressing physical environmental issues associated with the project. In addition, this RTC document includes text changes to the Draft EIR initiated by Planning Department staff.

None of the comments received provide new information that warrants recirculation of the Draft EIR. The comments do not identify new significant impacts or a substantial increase in the severity of previously identified impacts or feasible project alternatives or mitigation measures that are considerably different from those analyzed in the Draft EIR and/or that the project sponsor has not agreed to implement.

The Draft EIR together with this RTC document constitutes the Final EIR for the project in fulfillment of CEQA requirements consistent with CEQA Guidelines Section 15132. The Final EIR has been prepared in compliance with CEQA, including the CEQA Guidelines and the San Francisco Administrative Code, Chapter 31. It is an informational document for use by (1) governmental agencies (such as the City and County of San Francisco) and the public to aid in the planning and decision-making process by disclosing the physical environmental effects of the project and identifying possible ways of reducing or avoiding the potentially significant impacts; and (2) the Planning Commission and other City and County of San Francisco (CCSF or City) entities (such as San Francisco Public Utilities Commission [SFPUC] and the Board of Supervisors) where applicable prior to their decision to approve, disapprove, or modify the project.

This RTC document provides written responses to all substantive comments received during the public review period. It contains the following: (1) a list of persons, organizations, and public agencies commenting on the Draft EIR; (2) copies of comments received on the Draft EIR; (3) written responses to those comments; and (4) revisions to the Draft EIR to clarify or correct

information in the Draft EIR. See Section 8.3, below, for a description of the overall contents and organization of the combined Draft EIR and RTC document.

8.2 Environmental Review Process

8.2.1 Notice of Preparation and Public Scoping

The Planning Department sent a Notice of Preparation (NOP) to governmental agencies, organizations, and persons interested in the proposed project on June 24, 2015 (see Appendix NOP of the Draft EIR, Volume 2). During a 30-day public scoping period that ended on July 27, 2015, the Planning Department received three written comments from agencies and interested parties identifying environmental issues that should be addressed in the EIR. The comment letters received in response to the NOP are summarized in EIR Chapter 1, Table 1-1 and are included in Appendix NOP of the Draft EIR, Volume 2. In addition, a public scoping meeting was held on July 16, 2015 in the Alex Pitcher Room at the Southeast Community Facility, 1800 Oakdale Avenue, San Francisco, California to receive oral comments on the scope of the EIR. Oral comments were received from 10 speakers and are also summarized in the Draft EIR Chapter 1, Table 1-1. The Planning Department has considered all comments made by the public and agencies during the scoping period in preparing the EIR on the project.

In addition, the Native American Heritage Commission was contacted on November 25, 2015 to determine if there were known cultural sites within or near the area affected by the BDFP.[1] A list of Native American groups and individuals interested in the project was also requested and received from the Native American Heritage Commission. All eight contacts were sent letters on December 14, 2015, requesting their input on the project. No responses were received. Follow up phone calls conducted in February and March 2016 received two responses that were considered while preparing the EIR.

8.2.2 Draft EIR Public Review

The Draft EIR on the BDFP was published on May 3, 2017 and circulated to local, state, and federal agencies and to interested organizations and individuals for their review and comment. The Planning Department held a 45-day public review period, starting on May 4, 2017 and ending on June 19, 2017. Paper copies of the Draft EIR were made available for public review at the following locations: (1) San Francisco Planning Department, 1650 Mission Street, 1st Floor, Planning Information Counter, San Francisco, California; (2) San Francisco Main Library, 100 Larkin Street, San Francisco, California; and (3) Bayview Library, 5075 Third Street, San Francisco, California. Electronic copies of the Draft EIR could be accessed through the internet on the Planning Department website, Environmental Impacts and Negative Declarations webpage at the following address: http://sf-planning.org/sfpuc-negative-declarations-eirs. On May 3, 2017, the Planning Department also distributed notices of availability of the Draft EIR to over 2,500 interested parties, published

[1] Byrd, Brian F., Philip Kaijankoski, Rebecca Allen, and Matthew Russell, Archaeological Research Design and Treatment Plan for the Biosolids Digester Facility Project, Southeast Water Pollution Control Plant, San Francisco, California. Prepared for San Francisco Public Utilities Commission, October, 2016.

notification of its availability in a newspaper of general circulation in San Francisco (the San Francisco Chronicle), and posted nine notices at the project sites.

During the public review period, the Planning Department conducted a public hearing to receive oral comments on the Draft EIR. The public hearing was held before the San Francisco Planning Commission on June 1, 2017 at San Francisco City Hall. A court reporter present at the public hearing transcribed the oral comments verbatim and prepared a written transcript. See Attachment PH of this RTC document for the public hearing transcript. During the Draft EIR public review period, the Planning Department received comments from three public agencies, seven organizations, and nine private individuals. See Chapter 9, *List of Persons Commenting*, for a complete list of persons, agencies, and organizations commenting on the Draft EIR.

8.2.3 Responses to Comments Document and Final EIR

The comments received during the public review period are the subject of this RTC document, which addresses all substantive written and oral comments on the Draft EIR. Under CEQA Guidelines Section 15201, members of the public may comment on the project. Further, CEQA Guidelines Section 15204(a) states that the focus of public review should be "on the sufficiency of the [Draft EIR] in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated." In addition, "when responding to comments, lead agencies need only respond to significant environmental issues and do not need to provide all information requested by reviewers, as long as a good faith effort at full disclosure is made in the EIR." CEQA Guidelines Section 15088 specifies that the lead agency is required to respond to the comments on the major environmental issues raised in the comments received during the public review period. Therefore, this RTC document is focused on the sufficiency and adequacy of the Draft EIR in disclosing the significance of the environmental impacts of the project that was evaluated in the Draft EIR.

The Planning Department distributed this RTC document for review to the San Francisco Planning Commission, as well as to the agencies, organizations, and individuals who commented on the Draft EIR. The Planning Commission will consider the adequacy of the Final EIR—consisting of the Draft EIR and the RTC document—in complying with the requirements of CEQA. If the Planning Commission finds that the Final EIR complies with CEQA requirements, it will certify the Final EIR under CEQA.

If the Final EIR is certified, the SFPUC will then review and consider the Final EIR before making a decision to approve the proposed project. If the SFPUC decides to approve the project, it will adopt CEQA findings, including adopting or rejecting mitigation measures and alternatives to avoid or reduce significant impacts, and a mitigation monitoring and reporting program (MMRP). Consistent with CEQA Guidelines Section 15097, the purpose of the MMRP is to ensure implementation of the mitigation measures identified in the Final EIR and adopted by decision-makers to mitigate or avoid the project's significant environmental effects. CEQA also requires the adoption of findings prior to approval of a project for which a certified EIR identifies significant environmental effects (CEQA Guidelines Sections 15091 and 15092). If the EIR identifies significant adverse impacts that cannot be mitigated to less-than-significant levels and the project is approved,

the findings must reject project alternatives and include a statement of overriding considerations for those impacts (CEQA Guidelines Section 15093(b)). The SFPUC adopts the MMRP as a condition of project approval.

8.3 Document Organization

This RTC document is organized to complement the Draft EIR and follows the sequential numbering of chapters in the Draft EIR. The Draft EIR consists of Chapters S through 7 as follows:

- **Chapter S, *Summary*.** This chapter summarizes the project, identifies significant environmental impacts and mitigation measures, and describes the alternatives considered in this EIR, including the environmentally superior alternative. It also identifies areas of controversy and issues to be resolved.

- **Chapter 1, *Introduction*.** This chapter describes the purpose and organization of the EIR, as well as the environmental review process and additional public outreach efforts.

- **Chapter 2, *Project Description*.** This chapter describes the project (including project background and project objectives), summarizes project components, and provides information about project construction and operation. The chapter also lists permits and approvals relevant to the construction and operation of the BDFP.

- **Chapter 3, *Plans and Policies*.** This chapter describes applicable land use plans and policies and their relevance to the project and identifies any inconsistencies with those plans.

- **Chapter 4, *Environmental Setting and Impacts*.** This chapter is subdivided into sections for each environmental resource topic. Each section describes the environmental and regulatory setting, the criteria used to determine impact significance, and the approach to the analysis for that resource topic. It then presents analyses of potential environmental impacts as well as the project-specific mitigation measures that have been developed to address significant and potentially significant impacts. Each section also includes an evaluation of cumulative impacts with respect to that resource topic. The environmental resource topics are:

  - Land Use
  - Aesthetics
  - Population and Housing
  - Cultural Resources
  - Transportation and Circulation
  - Noise and Vibration
  - Air Quality
  - Greenhouse Gas Emissions
  - Wind and Shadow
  - Recreation
  - Utilities and Service Systems
  - Public Services
  - Biological Resources
  - Geology, Soils, and Paleontological Resources
  - Hydrology and Water Quality
  - Hazards and Hazardous Materials
  - Mineral Resources, Energy Resources, and Water Use
  - Agriculture and Forest Resources

- **Chapter 5, *Other CEQA Issues*.** This chapter discusses growth-inducing effects, identifies the significant environmental effects that cannot be avoided if the project is implemented, and describes significant irreversible impacts.

- **Chapter 6, *Alternatives*.** This chapter describes the alternatives to the project and compares their impacts to those of the project. This chapter also summarizes the alternatives that were considered but eliminated from further analysis.

- **Chapter 7, *Report Preparers*.** This chapter lists the authors of this EIR.

Technical and other supporting information for the Draft EIR is included as appendices to the Draft EIR.

This RTC document consists of Chapters 8 through 11 plus supplemental attachments, as follows:

- **Chapter 8, *Introduction to Responses to Comments*.** This chapter describes the purpose of the RTC document, the environmental review process, and the organization of the entire EIR.

- **Chapter 9, *List of Persons Commenting*.** This chapter lists the persons, agencies, and organizations that submitted comments on the Draft EIR and describes the coding and organization of comments.

- **Chapter 10, *Responses to Comments*.** This chapter presents the substantive comments received on the Draft EIR together with responses to those comments. The comments and responses in this chapter are organized by topic, covering several of the environmental topics addressed in Chapter 4 of the EIR. Similar comments on the same topic were received from multiple commenters. These comments are grouped together, and a single comprehensive response is provided.

- **Chapter 11, *Draft EIR Revisions*.** This chapter presents changes and additions to the Draft EIR. The Planning Department has made changes and additions to the Draft EIR in response to comments received on the Draft EIR and/or as necessary to clarify statements and conclusions made in the Draft EIR. In all cases, changes and additions are provided to clarify or correct content in the Draft EIR or to add information received after the release of the Draft EIR. None of the changes or additions in Chapter 11 affect the conclusions presented in the Draft EIR.

- ***Responses to Comments Attachments*.** The attachments include full copies of the written comments received on the Draft EIR (Attachment COM, Written Comments on Draft EIR, Coded) and the transcript of the public hearing held for the Draft EIR (Attachment PH, Public Hearing Transcript, Coded). Attachment COM and Attachment PH also show, in the margin of each letter or transcript, the bracketing and comment code used to identify comments and the corresponding response code.

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CHAPTER 9
List of Persons Commenting

This Responses to Comments (RTC) document provides written responses to comments received on the Draft Environmental Impact Report (Draft EIR) during the public review period, including all written comments submitted either by letter or email and all oral comments presented at the public hearing on the Draft EIR. This chapter lists all persons who submitted comments on the Draft EIR. Persons who submitted written comments are grouped according to whether they represent a public agency, an organization, or commented as an individual, as shown in **Table 9-1**. The complete set of written and oral comments received on the Draft EIR is contained in Attachment COM, Written Comments on the Draft EIR, Coded, and Attachment PH, Public Hearing Transcript, Coded.

The commenter codes were assigned to facilitate the preparation of responses, and there is a unique commenter code for each comment letter, email, and public hearing transcript based on the name of the agency, organization, or individual submitting the comment. Comments submitted by mail, email, or orally at the public hearing (as transcribed in the official public hearing transcript) are all coded and numbered the same way. The commenter code begins with a prefix indicating whether the commenter represents a public agency (A), an organization or business (O), or an individual (I). The prefix is followed by a hyphen and an acronym or name for the agency or organization, or the individual's last name. If a commenter submitted more than one set of comments, the acronym or name is followed by a number indicating the comment set (e.g., 1, 2, 3…). Within each category (public agencies, organizations, and individuals), commenters are listed in alphabetical order by code.

As described further in Chapter 10, *Responses to Comments*, the commenter codes are used to identify individual comments on separate topics within each comment letter, email, or public hearing transcript. Each individual comment from each commenter is bracketed and numbered sequentially following the commenter code. The bracketed comments and corresponding comment codes are shown in the margins of the comments in Attachments COM and PH. There is a unique comment code for each distinct substantive comment.

TABLE 9-1
PERSONS COMMENTING ON DRAFT EIR

Commenter Code	Name and Title of Commenter	Agency/Organization	Format	Date
Federal, State, Regional, and Local Agencies, Boards, and Commissions				
A-BAAQMD	Jean Roggenkamp, Deputy Executive Officer	Bay Area Air Quality Management District	Letter	July 28, 2017
A-CPC-Johnson	Christine Johnson, Commissioner	San Francisco Planning Commission	Hearing Transcript	June 1, 2017
A-SWRCB	Susan Stewart, Environmental Scientist	State Water Resources Control Board	Letter	June 16, 2017
Organizations				
O-BayviewCP-1	Dan Dodt	Bayview Community Planning	Hearing Transcript	June 1, 2017
O-BayviewCP-2	Dan Dodt	Bayview Community Planning	Letter	June 17, 2017
O-BHS	Adrian Card, President	Bayview Historical Society	Letter	June 19, 2017
O-BRITE	Steven Tiell	Bayview Residents Improving Their Environment	Letter and E-mail	May 30 and 31, 2017
O-BVHPCAC	Jack Gallagher	Bayview Hunters Point Citizens Advisory Committee	Letter	June 19, 2017
O-Greenaction	Bradley Angel, Executive Director	Greenaction for Health & Environmental Justice	Letter	June 26, 2017
O-PetCamp-1	Mark Klaiman	PetCamp	Hearing Transcript	June 1, 2017
O-PetCamp-2	Mark Klaiman	PetCamp	E-mail	June 19, 2017
O-SFWPM-1	Michael Janis, General Manager	San Francisco Wholesale Produce Market	Hearing Transcript	June 1, 2017
O-SFWPM-2	Michael Janis, General Manager	San Francisco Wholesale Produce Market	Letter	June 19, 2017
Individuals				
I-Ares	Ximena Ares		E-mail	May 24, 2017
I-Blacketer	Linda K. Blacketer, Proprietress		Letter	June 19, 2017
I-Hamman-1	Michael Hamman		Hearing Transcript	June 1, 2017
I-Hamman-2	Michael Hamman		Letter	June 19, 2017
I-Hamman-3	Michael Hamman		Letter	June 19, 2017
I-Hamman-4	Michael Hamman		Letter	June 20, 2017
I-Harney	Chris Harney, HC&M Commercial Properties, Inc		E-mail	June 26, 2017
I-Hinton	Rosalind Hinton, Member, Resilient Bayview		Letter	June 19, 2017
I-Karlin	Sean Karlin		E-mail	May 24, 2017
I-Kelly	Tony Kelly		Letter	June 26, 2017
I-Lawerence-1	Steve Lawrence		E-mail	May 4, 2017
I-Lawerence-2	Steve Lawrence		E-mail	June 14, 2017
I-Matlock	Perry Matlock		Letter	June 19, 2017

CHAPTER 10
Responses to Comments

10.1 Organization of Responses to Comments

The San Francisco Planning Department, as lead agency for the California Environmental Quality Act (CEQA) environmental review process for the environmental impact report (EIR) on the Biosolids Digester Facilities Project (BDFP or project), has reviewed all letters, emails, and oral testimony presenting comments received on the Draft EIR, as listed in Chapter 9, *List of Persons Commenting*. This chapter presents all substantive comments received on the Draft EIR and responses to those comments, organized by topic. The substantive comments contained in the letters, emails, and public hearing transcript have been bracketed and numbered, and this chapter groups together comments on the same topic and provides a comprehensive response on that topic. Substantive comments are those comments that relate to the project, the adequacy or accuracy of the EIR, or the environmental review process, and do not include comments such as a description of an agency or organization's mission or a reiteration of the BDFP project description. All comments and written materials submitted during the public review period, however, are considered by the Planning Department and provided to the decision-makers for their consideration.

Attachments COM and PH contain the full text of all comments received on the BDFP Draft EIR and show the bracketing and associated comment code. Each bracketed comment is assigned a unique comment code that corresponds to the type of commenter (i.e., public agency [A], organization [O], and individual [I]); an acronym or name for the agency, organization, or individual; and the sequentially numbered, bracketed comment from that commenter. For example, the comment letter from the Bay Area Air Quality Management District is coded A-BAAQMD; the first comment in the letter is coded A-BAAQMD.1, the second comment on a different topic is coded A-BAAQMD.2, and so on.

This chapter is organized generally in the same order as the topics presented in the Draft EIR. The topics of the comments and responses included in this chapter are shown below, and the prefix of the response code[1] used to cross-reference the responses with the comment code is shown in parentheses:

10.2 Project Description (PD)
10.3 Aesthetics (AE)
10.4 Cultural Resources (CR)
10.5 Transportation and Circulation (TR)
10.6 Air Quality and Greenhouse Gas Emissions (AQ)

[1] The bracketed comments in Attachments COM and PH also include a response code beneath the comment code so that a commenter can readily locate the response to individual comments within this chapter.

10.7 Hydrology and Water Quality (HY)
10.8 Hazards and Hazardous Materials (HZ)
10.9 Other CEQA Considerations (OC)
10.10 Alternatives (AL)
10.11 General Comments (GC)

Within each section of this chapter under each topic area, similar comments are grouped together by subtopic. Subtopics are assigned a response code prefix and then numbered sequentially for each subtopic in that resource area. For example, Cultural Resources (CR) comments are listed as CR-1, CR-2, CR-3, and so on. For each subtopic, there is a list of the comments addressed showing the unique comment code that identifies the commenter and the specific comment. Following the list of comment codes for each subtopic, the comments are presented verbatim (including font styling such as bolded or italicized text). Comments with identical text have been combined.

Following each comment or group of comments on a specified subtopic, a comprehensive response is provided that addresses issues raised in the comments and clarifies or augments information in the Draft EIR as appropriate. Each response is assigned a response code that reflects the subtopic; for example, the response to the Comment CR-1 comment group is provided under Response CR-1. In some cases, where a comment addresses more than one topic, the response includes a cross-reference to other responses. As appropriate, the responses also provide clarification of the information presented in the Draft EIR and may also include revisions or additions to the Draft EIR. Revisions to the Draft EIR are shown as indented text. New or revised text is double-underlined; deleted material is shown in strikethrough (~~strikethrough~~). Chapter 11, *Draft EIR Revisions*, presents all changes and revisions to the Draft EIR, including those made as part of a response to comments.

10.2 Project Description

The comments and corresponding responses in this section relate to the topic of the Project Description, presented in Draft Environmental Impact Report (EIR) Chapter 2. For ease of reference these comments are grouped into the following issues that the comments raise:

- PD-1: Project Objectives
- PD-2: Proposed Solids Treatment Process
- PD-3: Resiliency Planning

Comment PD-1: Project Objectives

This response addresses the following comment, which is quoted below:

I-Lawrence-2.1

"Ratepayers are to spend in the neighborhood of $1.5 billion for new digesters at SEP. Work and commissioning is to be completed May 2025. Objectives for the project include "meet treatment capacity for projected 2045 flows and loads." The City is growing, and is expected to continue to grow both jobs and residents. Recently growth has been faster than past estimates; growth projections keep being revised upward. The existing digesters were built in the early 1950s, and will have lasted seventy years. The proposed digesters may be adequate for only twenty years. Given the size and cost of the project, both in dollars and in disruption, and environmentally, the objective of meeting flows and loads for only twenty years seems questionable. While per person use of water has declined, has "load" per person for purposes here? One reads that more pills, household products, and other new challenges make their way into sewage. One reads that the average person is larger than in the past. Have these trends been considered? Is it environmentally sound to plan for a twenty-year period, especially when recent experience suggests that projections might be low?" (Steve Lawrence, Email, June 14, 2017)

Response PD-1

The comment does not address the adequacy or accuracy of the EIR; rather, the comment speaks to the merits of the proposed Biosolids Digester Facilities Project (BDFP). The comment will be transmitted to City decision-makers for consideration in their deliberations on whether to approve the proposed BDFP.

Based on projections by the Association of Bay Area Governments, the San Francisco Planning Department has projected population to year 2040, but not beyond, in the *San Francisco General Plan*.[1] The SFPUC then extrapolated the 2040 projections to 2045, which is the project's planning

[1] City and County of San Francisco, *San Francisco General Plan 2014 Housing Element Part 1: Data and Needs Analysis*, adopted April 27, 2015.

horizon.[2] The growth assumptions underlying the BDFP design capacity and the methodology used to project future flows and loads are presented in the SFPUC's 2014 *Wastewater Flow and Load Projections Technical Memorandum*.[3] The SFPUC elected to plan for an approximately 20+ year period based on available planning information and a typical design life for municipal wastewater treatment plants. Consistent with industry standards, the life expectancies associated with this project are anticipated to be 15-20 years for equipment and 50 years for buildings, structures and pipelines. BDFP equipment would be maintained and/or replaced over time to extend the life of the facilities beyond 2045.

The proposed facilities can be adapted in the future to changing conditions and/or increased population growth if needed. With the project's more efficient solids treatment technologies, including the pre-digestion thermal hydrolysis process, less digester tank capacity is required to accommodate future needs compared to what would be needed if the current solids handling treatment processes were maintained. Moreover, the SFPUC designed the layout of the BDFP such that additional facilities could be installed at the Southeast Plant in the future if needed (such as additional digester capacity through additional digested sludge storage). Any additional facilities not included in the BDFP would undergo separate environmental review in the future, when designed and proposed.

Comment PD-2: Proposed Solids Treatment Process

This response addresses the following comment, which is quoted below:

A-BAAQMD.7

"We also recommend that this project consider how it might be designed to allow for addition of additional anaerobic digestion infrastructure at the SEP, given that the [California] Air Resources Board is looking toward publicly owned treatment works as co-location opportunities for food waste management as part of its "Short-lived Climate Pollutant Reduction Strategy" (March 2017). Further, to meet the requirements of SB 1383 (Lara, 2016), the City and County of San Francisco, as well as all other local jurisdictions around the State, will need to divert 50 percent of organics wastes from landfill in 2020 and 75 percent in 2025. Given the requirements of SB 32 (Pavley, 2016) to reduce greenhouse gas emissions by forty percent below 1990 levels by 2030, there is further need to assure that long-haul trucking is not required to satisfy the intention of SB 1383. As such, there is growing need to identify opportunities close to or within San Francisco and the Bay Area to compost and/or digest organic materials. Given that this facility has been permitted for biodigestion, we encourage this project to consider potential co-location during its design and buildout. Such consideration may mean designing a project that is conducive to any or all of the following: (i) the addition of more biodigester vessels at this site, (ii) the upsizing or addition of biogas storage facilities at this site, (iii) the addition of infrastructure that will enable upgrading of biogas to renewable

[2] SFPUC, *Wastewater Flow and Load Projections Technical Memorandum*, prepared for San Francisco Public Utilities Commission Sewer System Improvement Program, updated February 2014.

[3] SFPUC, *Wastewater Flow and Load Projections Technical Memorandum*, prepared for San Francisco Public Utilities Commission Sewer System Improvement Program, updated February 2014.

natural gas, and (iv) the capacity to install piping that enables produced biogas to be transported via rail tanker or pipeline." (Jean Roggenkamp, Bay Area Air Quality Management District, Letter, July 28, 2017)

Response PD-2

The BDFP as proposed would not preclude the consideration of future installation of facilities that treat food waste. As noted in **Response PD-1**, above, the SFPUC designed and located the BDFP such that additional facilities (such as additional digested sludge storage) could be installed at the Southeast Water Pollution Control Plant in the future if needed. Any additional facilities not included in the BDFP would undergo separate environmental review in the future, when designed and proposed. In any case, this comment will be transmitted to City decision-makers for consideration in their deliberations on whether to approve the proposed BDFP.

Regarding compliance with Senate Bill (SB) 1383, as described on Draft EIR page 4.12-10, in 2002 the San Francisco Board of Supervisors set goals of achieving 75 percent diversion of wastes from landfills and incineration by 2010, and zero solid waste (i.e., 100 percent diversion) by a date determined once the 50 percent diversion goal was met (Ordinance 679-02). Following adoption of Ordinance 679-02, it was determined that the goal of 50 percent landfill diversion had been met in 2001, and the San Francisco Commission on the Environment established a goal of achieving zero solid waste by 2020 in Resolution 002-03-COE (dated March 6, 2003). The City achieved 75 percent landfill diversion in 2008 through the implementation of numerous programs and efforts. The San Francisco Department of the Environment has been directed by the Board of Supervisors to develop policies and programs to achieve zero waste by methods such as increasing producer and consumer responsibility. The San Francisco Board of Supervisors adopted the Mandatory Recycling and Composting Ordinance in 2009, which requires all of San Francisco to separate recyclables, compostables, and trash to be landfilled (Draft EIR page 4.12-11). The purpose of this ordinance is to send no compostable or recyclable material to landfills, which goes beyond the requirements of SB 1383. To achieve this goal, in addition to increasing consumer and producer responsibility, the City has partnered with Recology to pilot a program to capture organics from multifamily housing mixed waste by compressing the waste to extract the organics and sending the organic materials to digestion facilities owned by East Bay Municipal Utility District in Oakland, less than 15 miles from the Recology facility.[4] Implementation of the BDFP would not adversely affect the City's compliance with SB 1383, the City's goals to divert organic waste from landfills, or the City's pilot program with Recology, nor would it encourage any long-haul trucking to satisfy SB 1383 requirements.

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[4] San Francisco Department of the Environment, Jack Macy, personal communication with Larry Kass, ESA, August 24, 2017.

Comment PD-3: Resiliency Planning

This response addresses the following comment, which is quoted below:

I-Lawrence-1.1

"The proposed new digesters are to employ a new technology, THP. Will there be less resilience than now? San Francisco is subject to earthquake, flood or deluge, possibly tidal wave sea rise, and terror attack, any of which may change digester feedstock. Avoiding digester upset should be a priority. Digester upset, especially if extended in length, could harm San Francisco's livability and its economy. Will the new digesters (will the sewage treatment plant with them) be as resilient as what we have, or could have, and if not, what mitigations or steps are prudent?" (Steve Lawrence, Email, May 4, 2017)

Response PD-3

As required by CEQA, the Draft EIR evaluates physical environmental effects of the BDFP, including the potential for the BDFP to exacerbate existing environmental hazards.[5] As this comment does not address the adequacy or accuracy of the EIR, no further response is required under CEQA. Nonetheless, information pertaining to resiliency planning relative to the BDFP is provided below.

Resilient San Francisco defines resilience as "the capacity of individuals, communities, institutions, businesses and systems within a city to survive, adapt and grow, no matter what kinds of chronic stresses and acute shocks they experience."[6] In this case the amount of maintenance (and associated time offline) required at Southeast Water Pollution Control Plant solids processing facilities after chronic stress or a given acute shock (such as a seismic event) would reflect the facilities' resilience. The SFPUC intends for the new biosolids digester facilities to be more resilient than the existing digester system. As stated in Draft EIR Section 2.3 (page 2-19), explicit project objectives include, among others, adding infrastructure redundancy for critical processes to provide reliability and operational flexibility; improving seismic reliability; and designing and siting the new facilities to accommodate or adapt to expected sea level rise. The new facilities are designed to meet the latest building codes and seismic design requirements (see EIR Section 4.15.2.3, Draft EIR pages 4.15-14 to 4.15-17, and Impact GE-1, Draft EIR pages 4.15-20 to 4.15-21). The location of the new facilities is not in a defined flood zone or in an area known to flood (see EIR Section 4.16.1.4, Draft EIR page 4.16-5). Regardless, the new biosolids facilities would include features to address sea level rise and meet the requirements as defined by the Sea Level Rise checklist developed under the City's

[5] CEQA requires an evaluation of the project's physical environmental effects. Analysis of the effects of existing environmental conditions on a project's occupants or users is not required under CEQA, but CEQA does require an analysis of existing environmental hazards if the project might exacerbate them.

[6] City and County of San Francisco Office of Resilience and Recovery, *Resilient San Francisco: Stronger Today, Stronger Tomorrow*, April 18, 2016. Available online at http://sfgov.org/orr.

Capital Planning Committee (see EIR Section 2.4.2.2, Draft EIR pages 2-41 to 2-42, Section 4.16.2.3, Draft EIR pages 4.16-32 to 4.16-34, and Impact HY-8, Draft EIR pages 4.16-51 to 4.16-52).

As described on Draft EIR page 6-20, if the BDFP is not undertaken the SFPUC would need to implement an increased frequency of maintenance compared to either existing or future-with-project conditions, and would need a more rigorous program to repair and replace facilities for reliable operations. As described on Draft EIR page 6-21, the risk of upset of the proposed project would be lower than the risk associated with existing facilities. The existing facilities were built prior to current seismic standards, and are not designed for future sea level rise considerations. In addition, as discussed in Draft EIR Section 6.3.1.3 (starting on page 6-22), long-term continued use of the existing solids treatment facilities would result in an increasing risk of failure and shutdown the longer this equipment is used. The new digesters are designed in accordance with current engineering standards, which are developed to reduce the amount of maintenance work and offline time required for the facilities.

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10.3 Aesthetics

The comments and corresponding responses in this section relate to the topic of aesthetics, evaluated in Draft Environmental Impact Report (EIR) Section 4.3. For ease of reference, these comments are grouped into the following issues that the comments raise:

- AE-1: Aesthetic Impacts

Comment AE-1: Aesthetic Impacts

This response addresses the following comments, which are quoted below:

O-Greenaction.3 O-Greenaction.8

"A major concern is the projected increase in truck traffic. The project estimates a thirty to fifty percent increase in truck traffic to/from the Southeast Plant, and we consider 10-14 truck trips per day to be a large number of trips, particularly for a facility that operates 24 hours a day, 7 days a week, 365 days per year. We strongly encourage the project to explore ways to reduce and mitigate the increase in truck trips, particularly given the air quality overburden and environmental justice concerns in this community. Even if the trucks are using 2010 or new engines and if they are Tier 4 for pollution control, having over a dozen trucks rumbling into and out of the plant daily increases the intensity of impacts on the community, particularly if taking place in evenings, during the night, or over the weekend. We strongly encourage SFPUC to come up with a plan to mitigate the aesthetic and health impacts of this increase in truck traffic." (Bradley Angel, Greenaction for Health and Environmental Justice, Letter, June 26, 2017)

"We observe that the project proposes using 1500 Evans/Third and the adjacent Greenhouses as staging areas. The project also plans to use Pier 94 Backlands as a staging area. On aesthetic concerns, these choices are problematic and warrant mitigation. The construction phase of this project is planned for 2018-2023. This timeframe means that the community will have five years of construction equipment and materials, as well as ongoing truck traffic, piled in a visible parking lot on the main thoroughfare into and out of the neighborhood. We strongly encourage the project not to use 1500 Evans as a staging area and, instead, to use areas internal to the plant and behind walls more efficiently. We also encourage aesthetic mitigation for any use of the Greenhouses and of Pier 94 Backlands as staging areas." (Bradley Angel, Greenaction for Health and Environmental Justice, Letter, June 26, 2017)

Response AE-1

Operational Truck Traffic Visual Effects

The commenter expresses concern about aesthetic impacts of operational truck traffic. Section 4.3.3.2, Approach to Analysis (Draft EIR pages 4.3-18 - 4.3-20) describes the methodology used to evaluate project impacts on aesthetic conditions. The project's operations-phase impact on the existing

visual character of the site and its surroundings are evaluated under Impact AE-3 (Draft EIR pages 4.3-23 – 4.3-28), and were found to be less than significant; therefore, no mitigation is required. Consistent with the Approach to Analysis presented in Section 4.3.3.2, the analysis focused on long-term changes to the visual character of the project site and vicinity associated with the removal of existing structures and vegetation, construction of new facilities, and landscaping and street improvements, and the net effect on views of the site and vicinity resulting from these changes. Although not explicitly considered in Impact AE-3, the proposed change in the number of operations-phase truck trips associated with the project does not alter the conclusions of the analysis (and thus warrant the inclusion of a mitigation measure) for the following reasons. As stated in Draft EIR Chapter 2, *Project Description*, operational truck traffic would increase by approximately 3-4 trucks per day (from between 7 and 10 to between 10 and 14 biosolids hauling trips per day once the project is complete). This increase in operational truck traffic would be even higher under the No Project Alternative due to population growth and because the proposed BDFP treatment process would further condense the resulting biosolids. As identified in Appendix TR, single-unit trucks[1] comprise approximately seven percent of the average daily weekday traffic along Jerrold Avenue. The additional operational trucks (which would be routed on Evans Avenue rather than Jerrold Avenue in the future) would not visually contrast with the area's predominant industrial and warehouse land uses and associated vehicles in the area. Trucks would pass through the project vicinity and thus would not dominate views compared to other site features nor permanently block or obscure views. Thus, visual impacts of these truck trips would be less than significant and no mitigation is required.

Staging Area Visual Effects

Regarding the comment pertaining to the staging areas, as shown in Figure 2-2 of the DEIR (page 2-4), potential staging areas include Pier 94/96, 1550 Evans, Southeast Greenhouses, as well as areas within the Southeast Water Pollution Control Plant and the project site. The San Francisco Public Utilities Commission intends to maximize the use of the project area for staging to the extent feasible, balancing space requirements for construction and worker safety, but additional off-site staging area would still be needed. As described in Draft EIR Section 4.3.3.2, the analysis in the Draft EIR evaluated the potential visual impacts of the proposed temporary use of off-site staging areas, including assessing whether the project would substantially degrade the existing visual character of the site or its surroundings or damage scenic resources. The Biosolids Digester Facilities Project (BDFP) proposes to use 1550 Evans Avenue, not 1500 Evans Avenue, as a potential construction staging area. The parking lot at 1550 Evans Avenue is currently partially obscured by an approximately 6-foot-tall brick-red fence on Newhall Street and Evans Avenue. The parking lot is visible at locations immediately adjacent to the entry and exit gates on the property. Trees along the Evans-facing fence line also obscure views of the parking lot. Project effects on visual character of the 1550 Evans Avenue site are evaluated on Draft EIR page 4.3-21; as described therein, the San Francisco Public Utilities Commission would remove some perimeter trees and other landscaping along Evans Avenue and Newhall Street and within the site to facilitate use of the site for construction staging. No trees would be removed within 30 feet of Third Street, as there is an easement for the landscaping in this portion of the site. As shown in Draft EIR Appendix BIO, most

[1] Single-unit trucks are medium or heavy trucks in which the engine, cab, drive train, and cargo area are all one base frame (chassis).

trees nearest Evans Avenue within the site would remain. Based on the EIR analysis (included in Draft EIR page 4.3-21), while removal of some trees at 1550 Evans Avenue would somewhat lessen the overall visual quality of the site, the net change in visual quality would not be substantial, given that perimeter trees that would be retained would continue to provide visual interest (as well as screening), few viewing opportunities exist in the surround areas, and activities at the site would be similar to and visually compatible with surrounding land uses. Thus, visual impacts would be less than significant and mitigation would not be required.

The Draft EIR (page 4.3-21) also evaluated the effect on visual character that would result from use of the Southeast Greenhouses site for construction staging. Use of the site for construction staging would be temporary and (given the site's existing visual character and its future appearance following removal of structures at the site as part of the Southeast Greenhouses Demolition Project [see Draft EIR p. 4.1-10 for a description of this project]) was not found to cause a significant aesthetic effect. Thus, mitigation is not required. Note, however, that temporary noise barriers that may be erected in accordance with Mitigation Measure M-NO-1b (Draft EIR page 4.7-32) could also function as a visual barrier between the construction staging at the Southeast Greenhouses site and the surrounding neighborhood.

As described in Draft EIR Section 4.3.1.2 (page 4.3-10), the Pier 94 Backlands area is currently used for storage of large piles of dredged sand and other materials. The Pier 94 Backlands is surrounded by industrial uses; a railyard obscures the view of the Pier 94 Backlands from Cargo Way. The aesthetic effects of use of Piers 94 and 96 for construction staging are evaluated on Draft EIR pages 4.3-20 and 4.3-21. The existing visual quality of the staging areas is considered moderate to low based on the industrial, utilitarian character of land uses in the area, and views of the off-site staging areas are limited by intervening structures and other features (e.g., piles of dredged sand and demolition debris). The equipment and activities associated with project construction would not affect the existing visual character of the area or scenic resources due to intervening structures and similarity with current uses of the piers. As a result, the EIR analysis concluded that the impact of project construction on the visual character and scenic resources of staging on Pier 94 Backlands would be less than significant. Thus, mitigation is not required.

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10.4 Cultural Resources

The comments and corresponding responses in this section relate to the topic of cultural resources, evaluated in Draft EIR Section 4.5. For ease of reference, these comments are grouped into the following issues that the comments raise:

- CR-1: Historical Resources
- CR-2: Archeological Resources
- CR-3: Tribal Cultural Resources

Comment CR-1: Historical Resources

This response addresses the following comments, which are quoted below:

O-BayviewCP-2.1	O-BHS.1	I-Blacketer.2	I-Blacketer.3
I-Hamman-3.1	I-Hamman-3.2		

"Impacts on Individual Historic Elements - **The Central Shops** and Southeast Treatment Plant Streamline Moderne Industrial Historic District

"As noted in the EIR, the proposed project would result in the removal of the Central Shops (including Buildings A and B), a complex that is eligible for listing in the California and National Registers. (Vol 1. S-6)

"The removal of Buildings A and B at the Central Shops would cause a substantial adverse change in the significance of the historical resource because the project would demolish the physical characteristics that convey the resource's historical significance and that justify its individual eligibility for inclusion in the California and National Registers, resulting in a significant impact under CEQA Guidelines Section 15064.5." (Dan Dodt, Bayview Community Planning, Letter, June 17, 2017; Adrian Card, Bayview Historical Society, Letter, June 19, 2017)

"Recommendation

"Understanding that implementing Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display)

"'would reduce the severity of the impact…but would not reduce the severity of the impact to a less-than-significant level' and even though 'the impact would be significant and unavoidable with mitigation',

"we nevertheless recommend a combined solution for the loss of these historic resources. It is suggested that the complete and thorough **Mitigation Measure M-CR-1 be conducted, along with the implementation of Alternative C**, the Historical Resources Relocation, with the relocation of the Central Shops serving as the permanent public display and archival venue for the documentation and interpretive material. As indicated in M-CR-1:

"'the SFPUC shall provide a permanent display of interpretive materials (which may include, but are not limited to, a display of photographs, a brochure, educational website, or an exhibitive display)

….Development of the interpretive materials shall be supervised by an architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards…shall be placed in a prominent, public setting. A proposal describing the general parameters of the interpretive materials shall be approved by Planning Department Preservation staff prior to construction completion. The substance, media and other elements of such interpretive display shall be approved by Planning Department Preservation staff prior to completion of the project.'

"And as indicated in Alternative C:

"'*The Historical Resources Relocation Alternative, would consist of full construction and operation of the BDFP as proposed, plus the relocation of Central Shops Buildings A and B to a similar industrial setting in San Francisco. The relocation, rehabilitation, and reuse of Buildings A and B would be consistent with the Secretary of the Interior's Standards, and would reduce the significant and unavoidable impact on historical resources under the proposed project to a less than- significant level. Rather than demolishing Buildings A and B, the SFPUC would dismantle these structures such that they could be relocated consistent with the Secretary of the Interior's Standards for Rehabilitation.*'" (Dan Dodt, Bayview Community Planning, Letter, June 17, 2017)

"Recommendation

"We have reviewed the proposed Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display) which 'would reduce the severity of the impact…but would not reduce the severity of the impact to a less-than-significant level' and even though 'the impact would be significant and unavoidable with mitigation', and have also noted the Alternative C mitigation option -'The Historical Resources Relocation Alternative' - and understand that this 'would consist of full construction and operation of the BDFP as proposed, plus the relocation of Central Shops Buildings A and B to a similar industrial setting in San Francisco. The relocation, rehabilitation, and reuse of Buildings A and B would be consistent with the Secretary of the Interior's Standards, and would reduce the significant and unavoidable impact on historical resources under the proposed project to a less than-significant level. Rather than demolishing Buildings A and B, the SFPUC would dismantle these structures such that they could be relocated consistent with the Secretary of the Interior's Standards for Rehabilitation.'

"We recommend a combined solution for the loss of these historic resources. It is suggested that the complete and thorough Mitigation Measure M-CR-1 be conducted, along with the implementation of Alternative C, the Historical Resources Relocation, with the relocation of the Central Shops serving as the permanent public display and archival venue for the documentation and interpretive material, and establish this location as the Bayview Architectural Resources Archive.

"As indicated in M-CR-1:

"'the SFPUC shall provide a permanent display of interpretive materials; shall be supervised by an architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards; shall be placed in a prominent, public setting; a proposal describing the general parameters of the interpretive materials shall be approved by Planning Department Preservation staff prior to construction completion; with the substance, media and other elements of such interpretive display shall be approved by Planning Department Preservation staff prior to completion of the project.'

"And as indicated in Alternative C:

""The Historical Resources Relocation Alternative, would consist of full construction and operation of the BDFP as proposed, plus the relocation of Central Shops Buildings A and B to a similar industrial setting in San Francisco.' A port property on Pier 92 is suggested." (Adrian Card, Bayview Historical Society, Letter, June 19, 2017)

"As the party responsible for the 40 year-long restoration of a City Landmark in Bayview, I am also dismayed with the plan for wholesale destruction of the Streamline Moderne Industrial Historic District in Bayview and for the Display Greenhouse structures at McKinnon and Phelps Streets, both iconic markers in the area." (Linda K. Blacketer, Letter, June 19, 2017)

"Central Shops

"I do understand the need to locate the digesters to an area far removed from residents, and, as such, concur with the recommendations proposed to remove and relocate Central Shops A and B. I also recommend that a combined solution for the loss of these historic resources be implemented, including fulfillment of **Mitigation Measure M-CR-1 along with the implementation of Alternative C,** the Historical Resources Relocation, with the relocation of the Central Shops serving as the permanent public display and archival venue for the documentation and interpretive material." (Linda K. Blacketer, Letter, June 19, 2017)

"As an admirer of architecture, I am also dismayed with the plan for wholesale destruction of the Streamline Moderne Industrial Historic District in Bayview and for the Display Greenhouse structures at McKinnon and Phelps Streets, both iconic markers in the area and contributory to the historic district. The preservation of such buildings is crucial for the community to retain a sense of it's past and it's distinctive character." (Michael Hamman, Letter, June 19, 2017)

"Central Shops

"I do understand the need to locate the digesters to an area far removed from residents, and, as such, concur with the recommendations proposed to remove and relocate Central Shops A and B. I also recommend that a combined solution for the loss of these historic resources be implemented, including fulfillment of **Mitigation Measure M-CR-1 along with the implementation of Alternative C,** the Historical Resources Relocation, with the relocation of the Central Shops serving as the permanent public display and archival venue for the documentation and interpretive material. As I have had some experience in relocating building in my capacity as General Contractor I can attest to the fact that such a relocation would not be unduly expensive." (Michael Hamman, Letter, June 19, 2017)

Response CR-1

The comments express support for Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display, Draft EIR pages 4.5-44 – 4.5-45) and implementation of Alternative C (Historical Resources Relocation Alternative, described and evaluated starting on Draft EIR page 6-50), rather than the BDFP, and suggest that Mitigation Measure M-CR-1 and Alternative C be combined such that the interpretive display would be installed at relocated Buildings A and B.

As noted in the Draft EIR (page 6-55), Alternative C would substantially reduce the severity of impacts on historic architectural resources (Impact CR-1), but the cumulative impact on historical architectural resources would remain significant and unavoidable. The commenters' support for adoption of Alternative C and suggestion to relocate historic resources to Pier 92 are noted and will be transmitted to City and County of San Francisco (City or CCSF) decision-makers for consideration in their deliberations on whether to approve the BDFP, as proposed. As stated on Draft EIR page 6-51, the SFPUC identified a site at Pier 90 (not Pier 92) for Alternative C.

Regarding the display greenhouses, the Southeast Greenhouse Demolition project is a separate project previously approved by the SFPUC, which the Draft EIR considered in the analysis of cumulative impacts. As stated in Draft EIR Table 4.1-1 (page 4.1-10), the Southeast Greenhouse buildings, which include the display greenhouses, were constructed in 1986 and are not historic structures. Refer also to **Response OC-3** in Section 10.9 of this document.

Please note that Bayview Historical Society misidentifies the source of the quote as being on page S-6; the quote is included on Draft EIR page 4.5-43.

Comment CR-2: Archeological Resources

This response addresses the following comment, which is quoted below:

I-Matlock.3

"…Nonetheless, I wish to express my interest in the preservation of the Ohlone heritage site, CA-SFR-171. Since I have not been in a position to research the DEIR during the past 48 days, I am not prepared to address the DEIR adequately. Thus, I have enclosed some copies of the educational materials which my group, Save the Shellmounds, distributes.

"Please note, that CA-SFR-171 is a cultural treasure of the Ohlone, and that its protection ought to be of greatest importance. The Ohlone do not get to make the decisions about the preservation of their own heritage sites. The fate of shellmounds, cemeteries, village places, and other sacred sites is in the hands of property owners and politicians. The Ohlone and their heritage places have been controlled by others since the Spanish invasion of the 1770s. Destruction of these heritage places is a hate crime. Very few of the shellmounds, and other heritage places, are preserved. Once CA-SFR-171 has been destroyed, the opportunity to save this priceless monument has ended.

"Please, reconsider this project so that not only CA-SFR-171 remains intact, but also that any other shellmounds might be saved. SAVE THE SHELLMOUNDS!" (Perry Matlock, Letter, June 19, 2017)

Response CR-2

Educational materials provided by this commenter are included in Attachment COM, Written Comments on the Draft EIR, Coded.

The City recognizes the legal significance and cultural importance of CA-SFR-171, a National Register-eligible prehistoric archaeological site. The City has determined that a significant impact could result if ground-disturbing activities during project construction were to affect CA-SFR-171. The impact could be an adverse effect to the scientific significance of the resource and/or an adverse effect to its significance to associated Native American tribal groups.

The overall goal of the BDFP is to replace the existing aged and unreliable solids processing facilities at the Southeast Water Pollution Control Plant with new, modern, and efficient facilities to ensure the long-term sustainability of the Southeast Plant wastewater treatment system. Many of the existing solids treatment facilities at the wastewater treatment plant are over 60 years old, require significant maintenance, and are operating well beyond their useful life. The proposed project would adversely affect CA-SFR-171, as discussed in Impact CR-2 on Draft EIR pages 4.5-45 through 4.5-48.

The City has proposed Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery, Draft EIR pages 4.5-48 and 4.5-53). This mitigation measure formalizes the City's commitment to conduct archeological testing and monitoring (as well as data recovery, if warranted) consistent with the project's Archeological Research Design and Treatment Plan, in consultation with the City's Environmental Review Officer (ERO). This would reflect both the findings of archeological testing previously approved, planned and/or currently underway, and potential future project design changes. The measure also would require that the archeological testing and monitoring program be consistent with the City's standard protocols.

The mitigation measure also includes provisions for engaging and consulting with the Native American community, as follows:

> **Consultation with Descendant Communities**. On discovery of an archeological site associated with descendant Native Americans, the Overseas Chinese, or other potentially interested descendant group, an appropriate representative of the descendant group, the ERO, and the SFPUC shall be contacted. The representative of the descendant group shall be given the opportunity to monitor archeological field investigations of the site and to offer recommendations to the ERO and SFPUC regarding appropriate archeological treatment of the site, of recovered data from the site, and, if applicable, any interpretative treatment of the associated archeological site. A copy of the Final Archeological Resources Report shall be provided to the representative of the descendant group.

The City has determined that implementation of Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) and Mitigation Measure M-CR-2b (Accidental Discovery of Archeological Resources, Draft EIR pages 4.5-53 through 4.5-54) would reduce potential impacts on CA-SFR-171 to a less-than-significant level. Mitigation Measure M-CR-2a would formalize the SFPUC's commitment to conduct archeological testing and monitoring (as well as data recovery, if warranted) consistent with the project's Archeological Research Design and Treatment Program, in consultation with the City's Environmental Review Officer, to reflect both the findings of archeological testing previously approved, planned and/or currently underway, and any future project design changes. The measure also would require that the archeological testing and monitoring program be consistent with the City's standard protocols. Mitigation Measure M-CR-2b would ensure that (1) work would halt if archeological resources are inadvertently discovered during project implementation, and that (2) proper procedures are followed to ensure appropriate treatment of significant archeological resources.

In addition, the San Francisco Public Utilities Commission (SFPUC) intends to seek low-interest financing from the Environmental Protection Agency (EPA) through the Water Infrastructure Finance and Innovation Act (WIFIA) and the Clean Water State Revolving Fund (SRF), which would require consultation with the State Historic Preservation Officer and other consulting parties required under Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended (see Draft EIR page 2-70). The SRF Program is partially funded by the U.S. Environmental Protection Agency and administered by the SWRCB. EPA has authorized SFPUC to initiate NHPA Section 106 consultation.[1]

The Pier 94 Backlands Alternative would avoid impacts on CA-SFR-171, but the potential remains that this alternative could contribute to cumulative impacts on unrecorded archeological resources in the Pier 94 Backlands vicinity as well as along the pipeline route between the Pier 94 Backlands site and the Southeast Plant. However, as with the proposed project, implementation of Mitigation Measure M-CR-2a and Mitigation Measure M-CR-2b would ensure that potentially significant impacts on archeological resources would be mitigated to a less-than-significant level by conducting archeological testing and monitoring as well as ensuring that work would halt if archeological resources are inadvertently discovered.

Comment CR-3: Tribal Cultural Resources

This response addresses the following comments, which are quoted below:

A-SWRCB.3 I-Matlock.1

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[1] Letter from Andrew Sawyers, Director of Office of Wastewater Management, USEPA, to Jenan Saunders, Deputy State Historic Preservation Officer, Office of Historic Preservation, regarding Authorization for National Historic Preservation Act Section 106 Review for San Francisco Public Utilities Commission Biosoilids Digester Facilities Project, November 22, 2017.

"We have noted the statement in the footnote on page 4.5-1, that provisions for Assembly Bill No. 52 Native Americans: California Environmental Quality Act only apply to projects that have a notice of preparation (NOP) filed on or after July 1, 2015, and that the NOP for the Project was released June 24, 2015. Therefore, the Project is not subject to separate tribal cultural resources analyses." (Susan Stewart, SWRCB, Letter, June 16, 2017)

"…Initially, I must point out that the term 'midden' which is used in the DEIR to describe the Ohlone heritage site, CA-Sfr-171, is derogatory. 'Shellmound, village site, or cemetery' would be more accurate, for the word midden means 'dung hill.'" (Perry Matlock, Letter, June 19, 2017)

Response CR-3

Tribal Cultural Resources Consultation

As noted by the commenter and in the EIR, the NOP for the project was released on June 24, 2015; consequently, the project is not subject to a separate tribal cultural resources analysis pursuant to the provisions of Assembly Bill 52 (codified in Public Resources Code Sections 21074, 5097.94 et seq).

Although Public Resources Code Section 21074 does not apply, tribal consultation efforts were conducted for the project. On behalf of the San Francisco Planning Department, Far Western Anthropological Research Group (Far Western) contacted the Native American Heritage Commission (NAHC) on November 25, 2015, and requested a search of their Sacred Lands File to determine if there were known cultural sites within or near the project area. Far Western also requested a list of Native American groups and individuals for the project area. On December 14, 2015, the NAHC responded stating that no Native American cultural resources were reported from the Sacred Lands file records search. Far Western sent letters to the eight contacts on the NAHC list on December 14, 2015, requesting input on the project. No responses were received. Follow-up phone calls were completed in February and March 2016, and two responses were received. Ramona Garibay and Ann Marie Sayers both expressed their concern regarding the known prehistoric archeological site (CA-SFR-171) and stated that a Native American monitor should be present during ground disturbance.[2] As discussed above in **Response CR-2**, the City has proposed Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery, Draft EIR pages 4.5-48 and 4.5-53), formalizing the City's commitment to conduct archeological testing and monitoring (as well as data recovery, if warranted) consistent with the project's Archeological Research Design and Treatment Plan, in consultation with the City's Environmental Review Officer (ERO). The measure would require that the archeological testing and monitoring program be consistent with the City's standard protocols. The mitigation measure also includes provisions for

[2] Brian F. Byrd, Ph.D., *Archaeological Research Design and Treatment Plan for the Biosolids Digester Facilities Project, Southeast Water Pollution Control Plant, San Francisco, California*. Prepared for San Francisco Public Utilities Commission, October 2016.

engaging and consulting with the Native American community, as quoted in **Response CR-2**. The SFPUC sent letters to all eight contacts on December 4, 2017 to provide a project update.[3]

Cultural Resources Terminology

The term midden is commonly used in archeology in both the United States and elsewhere, and refers to "a large refuse heap, mound, or concentration of cultural debris associated with human occupation. The term includes such materials as discarded artifacts (e.g., broken pots and tools), food remains, shells, bones, charcoal and ashes, and may include the material in which the debris is encapsulated and modifications of this matrix. Midden debris usually contains decayed organic material, bone scrap, artifacts (broken and whole), and miscellaneous detritus. The long-term disposal of refuse can result in stratified deposits, which are useful for relative dating."[4] The terms 'shellmound', 'village site' and 'cemetery' are more specific terms used to describe certain archaeological features.

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[3] Letters to NAHC list recipients, sent by Karen Frye, SFPUC, December 4, 2017.

[4] Barbara Ann Kipfer, Archeology Wordsmith, 2017. Available online at https://archaeologywordsmith.com/lookup.php?terms=midden.

10.5 Transportation and Circulation

The comments and corresponding responses in this section relate to the topic of transportation and circulation, evaluated in Draft Environmental Impact Report (EIR) Section 4.6. For ease of reference, these comments are grouped into the following transportation-related issues that the comments raise:

- TR-1: Construction Impacts – Traffic Circulation
- TR-2: Construction Impacts – Emergency Access
- TR-3: Construction Impacts – Parking
- TR-4: Cumulative Transportation Impacts
- TR-5: Operational Transportation Impacts

Comment TR-1: Construction Impacts – Traffic Circulation

This response addresses the following comments, which are quoted below:

A-CPC-Johnson.2	O-BayviewCP-2.3	O-BayviewCP-2.10	O-BVHPCAC.1
O-BVHPCAC.7	O-BRITE.4	O-PetCamp-1.3	O-Petcamp-1.4
O-Petcamp-2.3	O-PetCamp-2.4	O-SFWPM-1.1	O-SFWPM-1.3
O-SFWPM-2.2	O-SFWPM-2.6	I-Ares.1	I-Blacketer.6
I-Harney.2	I-Karlin.2		

"I actually also was going to point out the -- both the air quality, where there was significant mitigation that was necessary. I would like the staff to further explain what alternative mitigations could have been considered and as well for the traffic and the circulation. I think specifically, when it comes to an EIR, we do look at traffic and circulation as an impact. And I think that we can take a look at what are the alternative, again, mitigations for some of the impacts that we're looking at." (Christine Johnson, Planning Commission, Public Hearing Comments, June 1, 2017)

"II. TRAFFIC, CIRCULATION and TRANSPORTATION

"In our work with the Bayview CAC and many others, we are also requesting additional review of the impact analysis with respect to traffic and circulation (Impact TR 1-5 incl.; Vol.1 s28) from the existing 'LS' -less than significant - status to the LSM condition, requiring mitigation. While the EIR indicates potential compliance with 'applicable regulations' and the incorporation of a 'traffic and control plan', no such plan is articulated or explored within the report, nor is there a suggested mitigation for alleviating the traffic and circulation impacts as outlined in the analysis.

"In addition to a request for a thorough and multi-agency review and written plan as a requirement prior to final certification of the EIR, several straightforward, feasible mitigations are proposed.

…

"Recommendations:

"1. Study and re-evaluate the conclusions drawn in the EIR regarding the significance of the traffic impacts, along with a more clearly articulated and written, multi-agency transportation and traffic plan prior to certification of the EIR."

(Dan Dodt, Bayview Community Planning, Letter, June 17, 2017; Jack Gallagher, Bayview Hunters Point Citizens Advisory Committee, Letter, June 19, 2017)

"Second, residents have historically been deeply concerned about the lack of accessibility between Bayview and Hunters Point neighborhoods with the rest of the City – we have one North/South route, and less than a handful of East/West routes (Evans, Jerrold, Oakdale, and Paul). This long-imposed exile is currently exacerbated by game-day traffic for the Giants and will be further stressed once the basketball arena opens, also around the time when BDFP construction will be in full affect. Constricting the flow of traffic on Evans and closing Jerrold means the community will effectively lose its two Northern-most E/W routes, leaving only Oakdale and Paul "unaffected". Both of which are already heavily used and Oakdale is in terrible condition and getting worse.

…

"One example from a family in our community demonstrates how these street closures could test the resiliency of an already fragile community, compromise the economic stability of families, and exacerbate delicate issues of equitable justice. This family has children at a school in Cole Valley – getting to the school requires two, 1-hour round-trips per day. They take either Evans or Jerrold to Caesar Chavez / 101. One parent takes CalTrain to San Jose for work (approximately a 1h45m door-to-door commute). The children are dropped off by 8:30 am and picked up before 6pm. For every minute they're late, it costs $5/min/child. This family has minimal resiliency in their day already and see a strong education as the most accessible path to generational economic mobility. Adding even a 5-10 minute delay in their day due to traffic as a result of these street closures (compounded by aforementioned systemic impacts) will impose a "social justice tax" of $50 - $100/per day – they have 2 kids and are already stretched thin to get to the school by 6pm. This family is not alone in their transit struggles as a direct consequence of living in the isolated Bayview neighborhood.

"BRITE calls on the SFPUC to define a construction and staging plan that does not call for Jerrold to close. Consider using existing road infrastructure within the SEP boundaries; instead of performing roadwork during Phase 1 to transform the traffic patterns through the produce market, use that time and funding to make roadway improvements within the SEP boundary to handle the construction and hazardous material traffic currently targeted for Jerrold." (Steven Tiell, Bayview Residents Improving Their Environment, Letter, May 30, 2017, and Email, May 31, 2017)

"Asking small businesses to comment on a 1400-page Draft EIR that does not even include the traffic control plan places us at a distinct disadvantage. This document is complicated, convoluted and technical, yet is still missing a critical component, the traffic control plan. Sorry.

"It's unfair to expect small businesses to be able to comment on this type of document when it is lacking such a critical component." (Mark Klaiman, PetCamp, Public Hearing Comments, June 1, 2017)

"Yet there are better alternatives available for traffic. Rather than sending trucks and buses down such a narrow street as Phelps Street, negatively impacting the small businesses that have already been negatively impacted for decades by the plant, traffic should be directed from Evans to Mendell to Jerrold or from Evans to Rankin directly into the plant.

"These routes would significantly lessen the impact on small businesses in the Bayview and should be prioritized over the Phelps Street locations. Thank you so much." (Mark Klaiman, Public Hearing Comments, June 1, 2017)

"I encourage you to investigate better alternatives then than sending all of this traffic on Phelps Street from Evans to Jerrold including routing traffic from Evans to Mendell Street to Jerrold or along Evans to Rankin and directly into the plant. In so doing the burden on small businesses in the Bayview would be significantly lessened, bicycle riders will be protected, and San Franciscans patronizing the businesses on Phelps Street will be safer." (Mark Klaiman, PetCamp, Email, June 19, 2017)

"Lastly, that small businesses are being asked to comment on the DEIR without completion of a Traffic Control Plan places small business at a significant disadvantage. The DEIR is already long and complicated; to ask small businesses to comment on such a document when it is lacking such a critical component as the Traffic Control Plan is simply untenable. The DEIR should be withdrawn from public comment until such time that the Traffic Control Plan is available." (Mark Klaiman, PetCamp, Email, June 19, 2017)

"While we understand the importance of the treatment plant's project, we have significant concerns and ask the Commission to consider that the project's description does not adequately reflect the Market's reinvestment plan nor our schedule. So long as Jerrold Avenue remains open on our site, we have challenges with the PUC's plan to use it for construction truck traffic as it severely impacts and impairs the operations of our businesses.

"The Market does not want the PUC's proposed construction truck routing to discourage, delay, or prevent the execution of our reinvestment plan, our path to needed improvements." (Michael Janis, San Francisco Wholesale Produce Market, Public Hearing Comments, June 1, 2017)

"Conclusion

"1. Project description in DEIR does not accurately reflect the Market's Reinvestment Plan or our schedule

"2. So long as Jerrold Avenue remains open on our site, we oppose the PUC's plan to use it for construction truck traffic as it severely impairs the operations and viability of our merchants

"3. The Market does not want PUC's proposed construction truck routing to discourage, delay, or prevent the execution of our Reinvestment Plan, which [is a] path to providing our merchants with new facilities" (Michael Janis, San Francisco Wholesale Produce Market, Public Hearing Comments, June 1, 2017)

"II. SFWPM Project Includes Changes to Jerrold Avenue Access

'To improve safety and security, and to enhance the efficiency of loading operations on the Market's main site, the SFWPM Project includes the eventual closure of the portion of Jerrold Avenue that bisects the Market, and the re-routing of through traffic around the Market onto Innes and Kirkwood Avenues. This change to the roadway network has always been a key part of the vision for the SFWPM Project. As of the time of this letter, SFMC anticipates that, in furtherance of the SFWPM Project, Jerrold Avenue will be unavailable to through traffic beginning in October of 2018. As such, the DEIR should be revised to include an update to the project description for the SFWPM Project that includes this anticipated timing for the rerouting of traffic around the Market. Additionally, as discussed below, the DEIR needs to consider impacts to the Market, the SFWPM Project, and the Biosolids Project that stem from the anticipated changes to the availability of the portion of Jerrold Avenue that runs through the Market.

"III. The DEIR Does Not Properly Consider And Mitigate Various Environmental Impacts

"A. Transportation and Circulation Impacts

"Transportation and circulation, in general, are significant issues in this portion of San Francisco. Due to the patchwork of PDR activities that have arisen over the years, many of the streets do not follow a typical street grid. In addition, a number of streets, including several streets around the Market, are either degraded or were never improved to current standards. The generally less-than-ideal condition and layout of the streets will be further strained by the boom of new development proposed in the neighborhood, as described in the DEIR's cumulative analysis. In particular, the DEIR identifies a total of forty (40) cumulative projects[1], twenty (20) of which are scheduled to overlap with the construction activities of the Biosolids Project, and eight (8) more of which may have some overlap depending on those projects' final construction timelines.[2]

"As described above, the SFWPM Project intends to close the portion of Jerrold Avenue that bisects the Market and begin to reconfigure and improve the surrounding roadways in or about October of 2018. In recognition of the need for greater security, and to mitigate the current operational conflicts caused by Jerrold Avenue's bisection of the main Market site, the closing of Jerrold Avenue and redirection of through traffic onto Innes and Kirkwood Avenues has always been a key component of the SFWPM Project.

"The DEIR shows that the Biosolids Project intends to use the to-be-closed portion of Jerrold Avenue through construction and operation of the facility.[3] The DEIR does not analyze what impacts the Jerrold Avenue closure would have on the Biosolids Project, and, in particular, how and where construction and operational truck traffic would be rerouted. Instead, the

transportation analysis assumes that the Biosolids Project will have continued access to Jerrold Avenue for truck off-haul, even beyond October 2018.

"Additional truck traffic from the Biosolids Project through the Market on Jerrold Avenue poses safety and operational constraint issues for all users of the Market due to the Market's intensity of loading operations on Jerrold Avenue. Currently, approximately thirty (30) produce merchants occupy warehouse space with loading docks that front on Jerrold Ave. Even under current conditions and traffic loads, this loading arrangement poses operational challenges and safety concerns. Indeed, this (in addition to food safety regulations) is one of the main reasons why the SFWPM Project envisions the eventual closure of Jerrold through the Market. The additional truck traffic caused by the Biosolids Project's use of Jerrold will exacerbate this already sub-optimal traffic coordination issue.

"For the reasons described above, the SFWPM Project intends to move as quickly as possible to close Jerrold Avenue through the Market. As such, we are keenly interested in making sure that the Biosolids Project does not depend on the Jerrold Avenue truck route in a way that would discourage, delay, or prevent the SFWPM Project from moving forward with the planned closure of Jerrold Avenue. The DEIR must address alternative routes that do not rely on Jerrold Avenue for ingress and egress to and from the Biosolids Project site.

"After the closure of Jerrold Avenue as part of the SFWPM Project, the Biosolids Project's most direct and logical alternative route, and the route for all other east-west through traffic, would be via Innes Avenue. Accordingly, the DEIR should study the Biosolids Project's potential use of Innes Avenue, rather than Jerrold Avenue. As noted above, the SFWPM Project plans include improving Innes and Kirkwood Avenues to improve general circulation through the area, both for safety and efficiency. These public improvements will benefit the neighborhood, generally, and the Biosolids Project, specifically. The Market, therefore, proposes coordinating the improvement of Innes Avenue and the creation of a new intersection connecting the improved Innes Avenue to the portion of Jerrold Avenue northeast of the SFWPM. An analysis of the coordinated design should be included in the DEIR and added to the Project Description for the Biosolids Project.

"Finally, the DEIR discusses how Evans Avenue, an east-west route parallel to Jerrold Avenue, offers one alternative travel path for the vehicles currently traveling on the section of Jerrold Avenue that will be closed during construction of the Biosolids Project.[4] The DEIR goes on to note that Evans Avenue has "sufficient capacity to accommodate diverted traffic without a substantial effect on local vehicle circulation."[5] However, this analysis leaves out any discussion of the SFPUC's Southeast Plant Headworks Replacement Project, one of the many cumulative projects in the area. That project contemplates closing at least one lane of Evans Avenue through project construction, which is estimated to occur between January 2018 and June 2024, as discussed in that project's Final Mitigated Negative Declaration. The DEIR must analyze the planned use of Evans Avenue in the context of the upcoming lane closure to determine whether there is sufficient capacity on Evans Avenue to serve as an alternative route for Jerrold Avenue traffic, given the proposed closure of travel lanes due to the SFPUC Headworks Project, as well as the planned closure of Jerrold as part of the SFWPM Project." (Michael Janis, San Francisco Wholesale Produce Market, Letter, June 19, 2017)

"In summary, the SFMC, Market, and SFWPM Project recognize the importance of the Biosolids Project to the City. However, as a vital business and adjacent site, it is important to the SFMC and Market that the Biosolids Project fits into the existing (and ever-growing and

changing) neighborhood. As such, it is our position that the DEIR is inadequate in its (1) failure to properly describe the SFWPM Project and the anticipated closure of Jerrold Avenue in connection therewith; (2) failure to consider transportation… impacts to the Market and the SFWPM Project…. We respectfully request that the DEIR be modified to address these inadequacies."

1. DEIR, p. 4.1-6 et seq., Table 4.1-1.
2. DEIR, p. 4.6-51.
3. DEIR, pp. 2-60, Figure 2-15; 2-61, Figure 2-16.
4. DEIR, p. 4.6-36.
5. DEIR, pp. 4.6-36 and 37.

(Michael Janis, San Francisco Wholesale Produce Market, Letter, June 19, 2017)

"While I support the BDFP for its potential to reduce the odors we currently experience from the existing water treatment plant, I am and have always been deeply concerned about the lack of accessibility of Bayview. In particular:

"- the existence of Caltrain tracks and lack of underpasses on all streets worsened by the permanent closure of the Quint bridge a couple of years ago: http://www.caltrain.com/projectsplans/Projects/Caltrain_Capital_Program/Quint_Street_Project.html;

"- the lack of an intake mechanism by the SFMTA to improve traffic signage, flow and pedestrian access and safety in the industrial zones that surround Bayview, making them hazardous deserts for bikers and pedestrians;

"- the lack of streets and routes of access to Bayview, being Jerrold, Evans and Third Street the only 3 routes available to Bayview residents and business to exit Bayview towards the West and North, where the most traditionally attractive features of SF are, including jobs.

"The above conditions make living in Bayview an isolating experience and an unsustainable one in view of the projected growth of the Bayview population in the next couple decades.

"I would be deeply grateful if you could please object to any additional proposed street closure, or any other measure or proposal that could reduce automotive and pedestrian accessibility of Bayview even further, including any temporary closure of Jerrold St." (Ximena Ares, Email, May 24, 2017)

"I am supporting the recommendations made by others in this regard, and outlined as follows:

"1. Study and re-evaluate the conclusions drawn in the EIR regarding the significance of the traffic impacts, along with a more clearly articulated and written, multi-agency transportation and traffic plan prior to certification of the EIR." (Linda K. Blacketer, Letter, June 19, 2017)

"Traffic Circulation-Phelps cannot handle any increase traffic and it will only get worse should Jerrold Avenue be closed to through traffic. Has access to the construction site off of **Rankin** at Evans been fully vetted? Can the site be accessed off of Oakdale with the re-opening of Quint Street in a more timely matter than what has been discussed to date? I would like to see that a thorough traffic analysis be completed taking into account these two other access options." (Chris Harney, Email, June 26, 2017)

"I understand that this is a major project that will take six years to complete and in that period significant east-west streets will need to be blocked, specifically Jerrold Ave and parts of Evans Ave.

"While you are focused on doing your best work, I hope that your plans take into account the folks who live and work in the Bayview and ensure we continue to have access to Cesar Chavez, Bayshore Blvd. and the freeways." (Sean Karlin, Email, May 24, 2017)

Response TR-1

The comments express concerns regarding the circulation impacts of the temporary closure of Jerrold Avenue during Biosolids Digester Facilities Project (BDFP) construction, including east-west access and on Phelps Street; request that the San Francisco Public Utilities Commission (SFPUC) keep Jerrold Avenue open during BDFP construction; and request consideration of alternative construction vehicle access routes or other ways to reduce traffic impacts, particularly on Phelps Street. Other comments state that a detailed Traffic Control Plan should have been included in the BDFP Draft EIR.

One comment states that the Draft EIR did not include an impact assessment of the permanent closure of Jerrold Avenue between Toland and Rankin Streets as part of the San Francisco Wholesale Produce Market (SFWPM, or produce market) Project, nor the temporary travel lane closures on Evans Avenue associated with the SFPUC's Southeast Plant Headworks Replacement Project. Cumulative impacts of the BDFP in combination with the Headworks Replacement Project and the SFWPM Project, including transportation and circulation impacts, were evaluated in the Draft EIR analysis. Refer to **Response TR-4** for responses regarding specific cumulative projects and associated street closures. Note that BDFP is not proposing any changes to the roadway configuration of Evans Avenue. This commenter (the produce market) also requests assurances from the SFPUC that BDFP construction trucks would be able to use alternative routes to the Southeast Water Pollution Control Plant (Southeast Plant or SEP) construction site when the SFWPM Project results in the permanent closure of Jerrold between Toland and Rankin Streets. In addition, the commenter requests assurances from the SFPUC that BDFP construction would not "discourage, delay, or prevent the execution of the SFWPM's reinvestment plan" or their schedule. The commenter requests coordinated design of the produce market's planned improvements to Innes Avenue. The commenter also states that the additional construction truck traffic through the produce market associated with BDFP construction would pose safety and operational constraint issues for produce market users due to the intensity of loading operations.

Other comments cite general concerns regarding lack of accessibility between the Bayview and other parts of the city due to the Caltrain tracks, closure of Quint Street, lack of overpasses, and lack of adequate procedures by the San Francisco Municipal Transportation Agency (SFMTA) to implement traffic signage and other improvements; and express objection to any additional street closures in the Bayview.

As discussed in Draft EIR Section 4.6, *Transportation and Circulation,* the Draft EIR did not identify any significant transportation and circulation impacts resulting from construction and operation of the BDFP; for this reason, no mitigation measures applicable to transportation and circulation were developed.

Temporary Jerrold Avenue Closure between the Caltrain Tracks and Phelps Street during BDFP Construction

As noted in the Draft EIR (e.g., page S-10, 2-41, and 2-55), the SFPUC is proposing the temporary closure of a segment of Jerrold Avenue to minimize conflicts and potentially hazardous conditions for pedestrians, bicyclists and general public vehicles due to construction vehicles traveling between the two construction sites north and south of Jerrold Avenue; and to construct a pipe chase[1] under Jerrold Avenue. During this time, the closed segment of Jerrold Avenue could be used as a staging/parking area. The SFPUC has now retained a Construction Manager General Contractor, who will work with the SFPUC to evaluate options to reduce the duration and/or alter the type (full or partial) of road closure while considering safety concerns and overall construction duration. (The selection of the Construction Manager General Contractor does not commit SFPUC to approving the BDFP.) In response to community concerns, the SFPUC is also hiring a Southeast Area Program Construction Manager (whose responsibilities are summarized on Draft EIR page 2-53) to plan the logistics and coordination among the various SFPUC projects to be constructed in the area. Following completion of BDFP construction, this segment of Jerrold Avenue would be reconstructed in accordance with Better Street Plan standards (see Figure 2-9 on Draft EIR page 2-40 and the discussion of long-term changes to Jerrold Avenue on page 2-39). The temporary closure of this segment of Jerrold Avenue would result in traffic using other available routes such as Evans Avenue, Oakdale Avenue and Third Street to access other roadways, including Cesar Chavez Street, Bayshore Boulevard, or the regional freeways. BDFP construction would not include any temporary travel lane or full roadway closures of Evans Avenue. As described in **Response TR-4**, the Draft EIR cumulative impact analysis considered the effects of BDFP in combination with the planned construction activities and travel lane closures on Evans Avenue associated with the Headworks Project.

The effects of the temporary closure of this segment of Jerrold Avenue and the effects of BDFP construction activities on travel on Phelps Street are described in Impact TR-1 (Draft EIR pages 4.6-35 to 4.6-46) and were determined to be less than significant. Draft EIR Figures 2-14 and 2-15 (pages 2-57 and 2-60) present the construction staging access plan for the project site and

[1] As described in the Draft EIR (page 2-41), pipe chases are covered trenches designed to carry multiple pipes (including, with respect to the pipe chase to be constructed under Jerrold Avenue, a pipeline to convey digester gas to the energy recovery and steam generation facilities).

haul routes, respectively. As described on Draft EIR page 4.6-36, the temporary closure of Jerrold Avenue to public through traffic would remove the approximately 6,800 daily vehicles currently traveling through this section and replace them with between about 35 and 50 daily eastbound (inbound) construction truck trips during the period of maximum construction truck traffic (about a five-month period), and 5 to 10 daily eastbound truck trips during the period of maximum construction workers (about a six-month period). Thus, during project construction there would be a substantial reduction in traffic volume on this segment of Jerrold Avenue. Other construction trucks are expected to access the project site via Evans Avenue and Rankin Street. As described on Draft EIR pages 4.6-36 - 4.6-38, both Oakdale Avenue and Evans Avenue have sufficient travel lane capacity to accommodate diverted traffic volumes without a substantial effect on local vehicle circulation. In addition, as discussed below, with the diversion of existing through traffic from Jerrold Avenue and with the additional BDFP construction traffic accessing the site from the west, it is not anticipated that there would be a noticeable increase in traffic congestion on Jerrold Avenue or on Phelps Street in the vicinity of Jerrold Avenue.

The comment about the economic effects of "even a 5-10 minute delay" due to the travel lane closures is noted, however, economic and social or quality of life effects of a project are generally not considered environmental impacts under CEQA unless there would be a physical impact on the environment or if such effects result in the need for the construction of new or physically altered facilities that would result in significant physical environmental effects. That is not the case here. Comments on socioeconomic or quality of life effects will be transmitted to City decision-makers for consideration in their deliberations on whether to approve the proposed BDFP. Please refer to **Response GC-2** in Section 10.11 of this document regarding comments pertaining to socioeconomic and quality of life effects. As indicated in the comment, Evans Avenue is already used by the resident with small children for access to Cesar Chavez Street/U.S. Highway 101 (Highway 101), and BDFP does not propose any closure or reduction in lane capacity of Evans Avenue. In addition, during BDFP construction, residents would also be able to use Oakdale Avenue one block south of Jerrold Avenue for access to Bayshore Boulevard and Highway 101.

Jerrold Avenue and Produce Market Operations

The addition of up to 50 BDFP-related trucks per day during the period of maximum construction truck traffic would not substantially affect traffic conditions on Jerrold Avenue or the produce market operations for the following reasons. As noted above, the temporary Jerrold Avenue closure would substantially decrease the number of vehicles (to less than 1 percent of existing) traveling on Jerrold Avenue west of Rankin Street, as vehicles other than those associated with the produce market would be detoured to other east-west streets, including Oakdale and Evans Avenues. Thus, with the 99 percent reduction in vehicles, the potential for through traffic to conflict with produce market operations would be noticeably reduced. Therefore, the use of Jerrold Avenue for BDFP construction would not severely impair produce market operations. In addition, the number of BDFP trucks traveling eastbound on Jerrold Avenue to the water pollution control plant would be low throughout the majority of the five-year BDFP construction period (i.e., outside of the peak five-month maximum construction truck demand period, there would be between 10 and 20 daily construction trucks per day for 11 months, and fewer than 10 daily construction trucks for 44 months). Lastly, these trucks would

travel primarily between 7:00 a.m. and 3:30 p.m., resulting in minimal overlap with produce market peak activities. As described in the *Final Mitigated Negative Declaration, San Francisco Wholesale Produce Market Project*[2] (page 81), market wholesale and distribution activities start around 8:00 p.m., with receiving continuing throughout the early morning. Wholesale activities increase between 3:00 a.m. and 7:00 a.m. and are largely completed by 9:00 a.m. Outbound merchant distribution activity travel takes place in the morning, with most of the trucks leaving before 9:00 a.m., and is mostly completed in the afternoon (1:00 to 4:00 p.m.) when trucks return empty from their deliveries.

Phelps Street and Construction Site Access Options

Some comments express concerns about increased traffic on Phelps Street, and others suggest the use of Rankin Street or internal roads at the water pollution control plant as alternatives to the temporary closure of Jerrold Avenue. The BDFP Draft EIR project description (on pages 2-51 to 2-70) provides detailed information on the transportation aspects of project construction. As indicated therein, the primary construction vehicle access route for construction haul trucks and deliveries to the project site would indeed be via Evans Avenue and Rankin Street; however, given the volume of construction truck traffic coupled with the constraints of routing traffic through the water pollution control plant (which must operate continuously), use of Rankin Street as the sole ingress/egress point is not considered a practical option. Draft EIR Figure 2-15 (page 2-60) presents proposed construction truck and delivery access, while Draft EIR Figure 2-16 (page 2-61) presents proposed operational truck access during project construction. These routes were developed based on current access routes to the water pollution control plant and preliminary plans for project construction, and were reviewed and vetted by City and County of San Francisco (City or CCSF) agencies involved in the project development and assessment (i.e., SFPUC, SFMTA, Planning Department). As shown on Figure 2-15, construction vehicles on Phelps Street would primarily include equipment deliveries and concrete trucks. The number of BDFP-related vehicles on Phelps Street would be greatest if the Southeast Greenhouses are used for construction staging and construction worker parking. However, primary construction truck access to the water pollution control plant would be via Evans Avenue at Rankin Street. Due to the temporary Jerrold Avenue closure, traffic volumes on Phelps Street would be generally similar to existing conditions, as the reduction in through traffic turning left or right onto Jerrold Avenue would be offset by the addition of BDFP construction-related traffic. Thus, during BDFP construction, it is not anticipated that there would be a noticeable increase in traffic volumes or congestion on Phelps Street. See **Response TR-3** regarding effects on parking and local businesses on Phelps Street.

One comment asks whether construction access via a re-opened Quint Street (in combination with Oakdale Avenue) could occur. Use of Quint Street for access to the water pollution control plant site would not be feasible, as the portion of Quint Street under the Caltrain tracks was permanently closed in October 2015 to accommodate the berm required to replace the old railroad bridge that was seismically inadequate, and to allow for a potential Caltrain station to be

[2] San Francisco Planning Department, *Final Mitigated Negative Declaration, San Francisco Wholesale Produce Market Project, Case No. 2009-1153E*, May 11, 2011, as amended July 5, 2011.

located at Oakdale Avenue in the future. The construction of the Quint-Jerrold Connector Road project (by the San Francisco County Transportation Authority) along the west side of the Caltrain tracks is not expected to be completed prior to the start of the BDFP construction (see Draft EIR page 4.1-10).

Produce Market's Proposed Permanent Closure of Jerrold Avenue between Toland and Rankin Streets

The existing produce market (Main Site) occupies approximately eight acres along Jerrold Avenue between Toland Street and Rankin Street, and is bisected north-south by the elevated Interstate 280 (I-280) freeway, which runs parallel to and above the existing Selby Street right-of-way. The Main Site possesses four primary building locations at the four quadrants defined by the intersection of Jerrold Avenue and I-280. The produce market is in the process of implementing a phased Master Plan to improve and expand the area available for its activities.

Pursuant to the *Final Mitigated Negative Declaration, San Francisco Wholesale Produce Market Project* (2011), the Master Plan would increase warehouse and office building square footage at the site from approximately 373,000 to 526,000 gross square feet, and implement street improvements (listed below) to control access to the site, better facilitate the flow of traffic around the site, and improve the existing transportation network in the project vicinity. That project includes phased implementation, with Phase I including construction of a new building at 901 Rankin Street and all of the roadway improvements identified below, demolition of a number of buildings, and rerouting of the Muni 23 Monterey bus route. Phase I was to begin in 2012 and be completed in fall 2013. Phase II (2017-2020) and Phase III (2015-2028) include construction and renovation of the Main Site. The City adopted the Final Mitigated Negative Declaration and approved a 60-year lease of the land to the produce market in 2012.[3] Approval of the lease was conditioned upon implementation of a Streetscape Plan for the Project site, as discussed in the General Plan Referral prepared for the lease.[4] Preparation of the Streetscape Plan is to be conducted in consultation with the San Francisco Planning Department and the Department of Public Works (now San Francisco Public Works).

The SFWPM Project as approved by the Planning Department includes the following circulation improvements, which the Streetscape Plan would incorporate:

- Vacation of a portion of Kirkwood Avenue east of Rankin Street on the 901 Rankin Street site.
- Vacation of the portion of Jerrold Avenue between Toland Street and Rankin Street. Vehicular traffic not related to the produce market will be rerouted to the north on an improved Innes Avenue. Produce market traffic will also use an improved Kirkwood Avenue between Toland and Rankin Streets for local access.

[3] San Francisco Board of Supervisors Resolution No. 0280-12, Ground Lease – Retention and Expansion of the San Francisco Wholesale Produce Market, passed July 17, 2012.

[4] San Francisco Planning Department, General Plan Referral, Case No. 2009.1153R, San Francisco Wholesale Produce Market Retention and Expansion Project, September 6, 2011.

- Lease of the portion of Selby Street (underneath I-280) between Innes and Kirkwood Avenues.
- Vacation of the Lettuce Lane and Milton I. Ross Lane rights-of-way, and a small portion of the Rankin Street right-of-way internal to the existing produce market.
- Dedication of portions of the land occupied by the produce market facilities to create two new intersections at Toland/Innes and Toland/Kirkwood.
- Dedication of a portion of existing produce market facilities to become a portion of the Innes Avenue right-of-way, to allow the connection of Innes Avenue to Toland Street and remove the existing Innes Avenue dead end from the existing street grid.
- Dedication of a portion of existing produce market facilities to become a portion of the Kirkwood Avenue right-of-way, to allow for the connection of Kirkwood Avenue to Toland Street and for the removal of the existing Kirkwood Avenue dead end from the existing street grid.
- Relocation of the portion of Rankin Street between Jerrold Avenue and Innes Avenue to parallel the existing and adjacent Caltrain right-of-way, and reconfiguration of the intersection of Jerrold Avenue and Rankin Street.

In addition, the produce market's planned street improvements necessitate permanent relocation of the Muni 23 Monterey bus route from Jerrold Avenue. As described in the BDFP Draft EIR (page 4.6-12), the Muni Forward 23 Monterey Muni service improvements have not yet been approved by the SFMTA board; this approval would have to occur prior to implementation of the street improvements. The SFMTA has not identified a schedule to bring this service improvement to the SFMTA board.

At this time, only the 901 Rankin Street building included as part of Phase I has been completed, and none of the proposed circulation changes (e.g., reconstruction and extension of Innes and Kirkwood Avenues) have been implemented. As described in the materials supporting Resolution 0280-12, the produce market is required to prepare and submit the Streetscape Plan associated with Phase II improvements to the City for review and approval one year prior to commencement of construction. As of late July 2017, San Francisco Public Works had not received the Streetscape Plan.[5] Because the Streetscape Plan has not yet been submitted to the City, the timing of the produce market Jerrold Avenue permanent roadway closure, as well as the roadway improvements on Innes Avenue, Kirkwood Avenue, and Rankin Street, were determined to be unknown.

As indicated above, the SFWPM Project, including the permanent closure of Jerrold Avenue between Toland and Rankin Streets, was included as a cumulative project in the BDFP Draft EIR (see, for example, Draft EIR page 4.6-58) with the produce market closure of Jerrold Avenue assumed in the future during BDFP operation (but not during BDFP construction). In its comments on the BDFP Draft EIR, the produce market has indicated that it intends to implement the Jerrold Avenue permanent roadway closure in October 2018. If that proves to be the case,

[5] J. Rivera, San Francisco Public Works, Personal Communication, July 31, 2017.

through access on Jerrold Avenue will be restricted by the produce market regardless of the BDFP. Nevertheless, the produce market's possible closure of Jerrold Avenue between Rankin and Toland Streets during BDFP construction would affect inbound trucks traveling empty to the water pollution control plant. As noted above, this includes approximately 35 to 50 daily trucks during the period of maximum construction truck traffic (for approximately five months), and 5 to 10 daily trucks during the period of maximum construction workers (for approximately six months). If inbound access to the water pollution control plant via Jerrold Avenue were not available (i.e., if the produce market permanent Jerrold Avenue roadway closure is implemented), inbound trucks would instead reach the site via alternative routes such as Cesar Chavez Street to Evans Avenue, Cesar Chavez to Third Street to Jerrold Avenue, or Bayshore Boulevard to Oakdale Avenue to Phelps Street. Because alternative access to the water pollution control plant is available for these vehicles, the use of Innes Avenue (as suggested in a comment) would not be warranted.

If the produce market closes Jerrold Avenue in October 2018 as noted by the commenter, the closure would overlap with BDFP soil excavation truck-traffic for three months (including overlap with the month of maximum construction truck traffic). After December 2018, the number of trucks accessing the water pollution control plant would be substantially lower than during soil excavation, as the demolition and excavation activities that generate the greatest number of construction haul trucks would be substantially completed. Either Cesar Chavez Street or Evans Avenue could accommodate the 50 trucks per day maximum that could no longer use Jerrold Avenue through the produce market; consequently, no substantial change to the discussion of impacts or impact determinations presented in the Draft EIR is warranted.[6] Thus, the BDFP would not discourage, delay, or prevent the produce market from moving forward with the planned closure of Jerrold Avenue between Toland and Rankin Streets or other planned produce market improvements.

The produce market also requests that the design of its planned improvements to Innes Avenue be coordinated with the BDFP, and included in the BDFP Draft EIR project description. However, as presented on Figure 2-12 (Draft EIR page 2-48), upon completion of the BDFP construction, all BDFP operational trucks (including chemical delivery, yellow grease loading, and biosolids trucks) would use Evans Avenue for access to the water pollution control plant, and would therefore not travel on Jerrold Avenue or the new roadways required to be constructed by the produce market. The produce market Innes Avenue improvements should not be part of the BDFP project description and no change to the Draft EIR is necessary. Regardless, the SFPUC will continue to coordinate with the produce market on the two projects.

[6] The level-of-service analysis conducted for the project did not identify any future potential capacity issues on Evans Avenue or Cesar Chavez Street. (Technical Memorandum Biosolids Digester Facilities Project – Case No. 2015.000644ENV, Intersection Level of Service Analysis Documentation, prepared by Adavant Consulting and LCW Consulting for Debra Dwyer [San Francisco Planning Department] and Karen Frye [San Francisco Public Utilities Commission], December 29, 2016.) In addition, both Evans Avenue and Cesar Chavez Street have multiple lanes each way, and the additional truck traffic (5 to 6 trucks per hour) would represent between 0.3 and 0.7 percent of the existing traffic on these roadways (800-900 vehicles per hour on Evans Avenue at Rankin Street, 950-2,200 vehicles per hour on Cesar Chavez Street at Bayshore Boulevard). Expected daily variations in traffic on these roadways (3 to 5 percent) are larger than the additional traffic generated by project construction once soil excavation is complete.

Traffic Control Plan

As indicated on Draft EIR page 4.6-23, the SFPUC would implement standard construction measures for the BDFP, which include implementation of a Traffic Control Plan prepared consistent with the requirements of the SFMTA's Blue Book. While a detailed Traffic Control Plan is typically prepared by the contractor prior to construction and not during environmental review (because it takes into account specific conditions on the streets that may be unknown at the time of preparation of the Draft EIR), the Draft EIR (pages 2-53 to 2-54) describes the various elements of the plan, the requirements of which would be included in the contract specifications for the project. The Traffic Control Plan would address circulation and detour routes, construction staging locations, roadside safety protocols, maintenance of bicycle and pedestrian access, and emergency vehicle access. The Traffic Control Plan would also include measures to reduce travel by construction workers in private automobiles, and a public information plan to provide residents and businesses with regularly updated information regarding project construction activities, duration, peak construction vehicle activities, and lane and full-roadway closures. In addition, given the number of planned and ongoing construction activities at the water pollution control plant, the SFPUC has issued a Request for Proposals to retain a Southeast Area Program Construction Manager to manage coordinated implementation of the Traffic Control Plans for the major projects being implemented at the water pollution control plant (including the BDFP and Headworks projects), as well as with other projects in the area. The selection of the Southeast Area Program Construction Manager does not commit SFPUC to approving the BDFP.

The Draft EIR project description (Chapter 2), including elements of the Traffic Control Plan, provides sufficient information on proposed construction activities to assess the transportation impacts of project construction (presented in Section 4.6, Transportation and Circulation, pages 4.6-1 to 4.6-61).

Comment TR-2: Construction Impacts – Emergency Access

This response addresses the following comments, which are quoted below:

O-BayviewCP-1.2 O-BayviewCP-2.5 O-BVHPCAC.3 I-Blacketer.5 I-Hamman-4.3

"It should also be noted that the sole northwest -- north-south access along Third Street at Islais Creek is a documented potential liquefaction zone. This is issue is about public safety in Bayview." (Dan Dodt, Bayview Community Planning, Public Hearing Comments, June 1, 2017)

"It should also be noted that the **sole NORTH bound** access, along Third Street @ Islais Creek, is a documented potential **liquefaction zone** and will be significantly compromised as a transportation route following a seismic event." (Dan Dodt, Bayview Community Planning,

Letter, June 17, 2017; Jack Gallagher, Bayview Hunters Point Citizens Advisory Committee, Letter, June 19, 2017)

"The only exit to the North, along Third Street, is the Islais Creek Bridge. This area is a noted potential liquefaction zone and will be significantly compromised during a seismic event. These transportation issues are life safety and quality of life issues. Please take these concerns seriously." (Linda K. Blacketer, Letter, June 19, 2017)

"The impacts to this community during an emergency especially a seismic event was not well considered. With all the main corridors into and out of the Bayview closed and the main bridge across the creek closed and the huge [increase] in [population] access into and especially out of the Bayview after an earthquake will be severely compromised. With no access how will we fight fires or evacuate the injured? This aspect must be further analyzed." (Michael Hamman, Letter, June 20, 2017)

Response TR-2

The comments raise concerns regarding vehicular access for the Bayview community during an emergency, such as following an earthquake, particularly in the northbound direction.

Transportation impacts related to emergency vehicle access during project construction are described in Impact TR-2 (Draft EIR pages 4.6-46 to 4.6-47) and were determined to be less than significant. As described on Draft EIR page 4.6-46, Jerrold Avenue would be closed to public through traffic during the five-year construction period, and the closed segment would be used for construction staging and parking. However, either emergency vehicles would be allowed access through Jerrold Avenue or a detour route would be provided, as determined through coordination with emergency service providers. Consequently, Jerrold Avenue could be available for emergency access in the event of an earthquake or other disaster. Note that there are two fire stations east of the project site (Station 49 at 1415 Evans Avenue and Station 25 at 3305 Third Street), as well as one to the west (Station 9 at 2245 Jerrold Avenue), that would continue to serve the Bayview neighborhood during emergencies.

While the impact analysis assumed the closure of Jerrold Avenue between the Caltrain tracks and the driveways west of Phelps Street for the entire five-year duration of project construction, as indicated in **Response TR-1**, SFPUC and the Construction Manager General Contractor will evaluate options to reduce the duration of the closure to the extent possible to balance the needs of construction and public safety.

Transportation impacts related to emergency vehicle access during project operations are described in Impact TR-3 (Draft EIR page 4.6-49) and were determined to be less than significant. The BDFP does not include any permanent roadway closures following completion of construction; consequently, BDFP operations would not affect emergency vehicle access into or out of the Bayview in the long term.

The commenters' concerns regarding north-south access along Third Street at Islais Creek being within a potential liquefaction zone are acknowledged; however, this condition would not be affected by either BDFP construction or operations. The Islais Creek Bridge Rehabilitation Project is described in **Response TR-4**, and would require a complete bridge closure for one to two months, during which time detour routes using Illinois Street, Evans Avenue, Cesar Chavez Street, and other north-south streets to the west, such as Potrero Avenue would be required. The construction contractor would be required to cause the least possible obstruction and inconvenience to the community, and provide travel lanes and routing for vehicular, pedestrian, and Muni riders, in a manner that would be safe and would minimize traffic congestion and delays. The City's Department of Emergency Management maintains a number of emergency plans to ensure that the City is ready to respond to a variety of threats and hazards.

Comment TR-3: Construction Impacts – Parking

This response addresses the following comments, which are quoted below:

O-PetCamp-2.2 I-Harney.3

"The businesses on Phelps Street cannot exist without easy street access and parking. Pet Camp's clients, for example, cannot take the Third Street Light Rail as is suggested in the DEIR. Pet Camp's clients must drive to Pet Camp often with multiple pets and belongings and more often than not with young children. The ability to safely drive on Phelps Street and to be able to park in close proximity to Pet Camp is essential to their continued patronage and the jobs created from such. As presented the DEIR would place Pet Camp's clients at serious risk of injury causing them to seek pet care elsewhere and thus placing both the business and the jobs it has created at serious risk as well.

"Phelps Street is a narrow street with two lanes of traffic, two lanes of parking and a bicycle route. It simply cannot sustain the proposed increase traffic while safely maintaining access to the small businesses located there. That the DEIR suggest that 5 years is only a temporary inconvenience reflects a complete lack of understanding of the burdens of running a small business. It is inconceivable that a small business could sustain itself for 5 years without clients being able to access it!" (Mark Klaiman, PetCamp, Email, June 19, 2017)

"With the proposed closure of Jerrold Avenue I do not see how one could overburden the neighborhood businesses and residents by proposing to use Phelps for construction staging/parking for this project. The local business count on this street parking for their livelihood. I would like to see a better solution for construction staging /parking for this should not be considered as a use for Phelps street which street parking should be reserved for local business and residents." (Chris Harney, Email, June 26, 2017)

Response TR-3

The comments raise concerns regarding construction-related activities affecting access on Phelps Street, particularly construction staging and parking, and the ability of visitors to park near the businesses. The response below addresses parking. As discussed under **Response TR-1** (section titled "Phelps Street and Construction Site Access Options"), due to the Jerrold Avenue closure, traffic volumes on Phelps Street during BDFP construction would be generally similar to existing conditions, as the reduction in through traffic turning left or right onto Jerrold Avenue would be offset by the addition of BDFP construction-related traffic. Refer also to **Response GC-2** in Section 10.11 of this document regarding effects on businesses.

The adequacy of parking supply relative to parking demand is no longer considered in determining the significance of project impacts under CEQA. However, the Draft EIR presents a discussion of the effect of the proposed project on parking demand and supply for informational purposes (pages 4.6-43 to 4.6-44), and evaluates whether the proposed project would result in secondary effects of people searching for available parking spaces. The secondary effects consider whether a substantial parking deficit could create hazardous conditions affecting traffic, transit, bicycles, or pedestrians and whether particular characteristics of the project or its site demonstrably render use of other modes infeasible, for example by causing significant transit delays.

As described in the Draft EIR (pages 2-55 to 2-59), BDFP construction staging and parking would occur on-site within the water pollution control plant, within the portion of Jerrold Avenue between the Caltrain tracks and Phelps Street that would be closed during project construction, and at off-site staging areas (1550 Evans Avenue, the Southeast Greenhouses, and/or Piers 94 and 96). BDFP construction staging and parking would not occur within the parking lane of Phelps Street, as stated by the commenter.

As presented on Table 4.6-15 (Draft EIR page 4.6-34), the shuttle service between the water pollution control plant and Piers 94 and 96 would only be required if the 1550 Evans Avenue site is not used as a staging area, as the maximum expected number of parked vehicles could be accommodated within the water pollution control plant and 1550 Evans Avenue sites. The worker shuttle service during BDFP construction would be required for approximately 16 months between April 2021 and July 2022. Figure 2-14 (Draft EIR page 2-57) shows the location of the proposed shuttle stop and route in the vicinity of the Southeast Plant. The BDFP construction employee shuttle bus would stop on Phelps Street at the approach to Jerrold Avenue. At this time, it is not known whether the stop would be a curb stop (the shuttle stops within the parking lane) or a pole stop (the shuttle stops within the travel lane). A curb stop would require temporary use of two to three existing parking spaces.

The SFPUC continues to conduct outreach to local businesses in the area to identify and address concerns around customer parking and access.[7]

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[7] SFPUC, BDFP Public Outreach, e-mail from K. Frye, November 7, 2017.

Comment TR-4: Cumulative Transportation Impacts

This response addresses the following comments, which are quoted below:

O-BayviewCP-1.1	O-BayviewCP-1.3	O-BayviewCP-2.4	O-BayviewCP-2.7
O-BayviewCP-2.8	O-BayviewCP-2.10	O-BVHPCAC.2	O-BVHPCAC.5
O-BVHPCAC.7	O-SFWPM-1.2	O-SFWPM-1.4	I-Blacketer.4
I-Blacketer.6	I-Hamman-1.1	I-Hamman-4.1	I-Kelly.4

"But on the third, related to transportation, traffic, and congestion -- both construction related and local -- I'm requesting the Commission consider a reevaluation of the conclusions drawn in the EIR. As noted, there are significant cumulative traffic and circulation impacts, including the closure of Jerrold from Phelps to Rankin for a period of approximately five to six years; the current existing lane closure and narrowing along the Evans Avenue alignment beginning in August 17th for the Headworks phase - now, that's not part of this EIR, but it is currently under construction -- with construction vehicles, manpower transportation, et cetera; the construction staging along the Phelps Avenue parking and the equipment relay.

"This is a narrow street, as Mark Klaiman had indicated, and includes many PDR businesses, residences, et cetera. And please note the circulation in the graphics.

"Please also note that nearby Palou Avenue will be under construction for a $3 1/2 million streetscape improvement plan beginning this year for a couple of years.

"Other projects by the Fire Department, SFPD, DPW, and others will and are impacting the adjacent streets. When considering these traffic and circulation impacts alone, one should consider that these crucial east-west arterials, particularly Evans and Jerrold, in a closed or blocked condition, will increase traffic on an already heavily used Oakdale Avenue and Palou alignments.

"These major streets in and out of Bayview provide the daily transportation routes for those who live and work in Bayview, for parents who take their kids to school and back, for employees and employers who must get to their jobs, and, most importantly serve as an essential transportation route in the event of a natural disaster or a major event." (Dan Dodt, Bayview Community Planning, Public Hearing Comments, June 1, 2017)

"As noted in the EIR, the long-term changes include the Quint Street berm construction, which closed under the -- under the Caltrain's bridge. But what's missing is a commitment and a plan in conjunction with that closure for a bypass road along the railroad alignment. The Quint Street connector bypass should be expedited and built as part of the PUC project prior to major construction in 2018, in my opinion, and should be urged by this Commission – "(Dan Dodt, Bayview Community Planning, Public Hearing Comments, June 1, 2017)

"Noted in the report are forty (40) projects considered in the cumulative impact analysis for traffic and circulation, with 25 of these projects, or 63% of the impact to Bayview, as SSIP and/or SFPUC related. (Table 4.1-1; Vol.1 p. 4.1.6).

"Specifically, the following projects noted in the analysis will severely impact the surrounding community and neighborhoods, in our opinion, with questionable 'public safety' and 'emergency routing' possibilities due to the closure or blocking of major East/West thoroughfares in Bayview:

">Current, existing lane narrowing/access along the Evans Street beginning in August 2017 for the Headworks phase; (Table item #1). Beginning in August, 2017, this work is under pre-development now and includes hundreds of construction vehicles, manpower transportation efforts, shuttles, and staging relays due to the SSIP early phase implementation. Evans Avenue is a major East/West arterial utilized by residents, businesses and visitors including City and County employees, USPS facility employees, SFFD manpower, residents of India Basin, Hunters-Point Shipyard, and thousands of residents, businesses and nonprofits throughout the community.

">Closure of Jerrold Avenue from Phelps to Rankin Street. Specifically, as noted in the EIR, is the 5-6 year closure of Jerrold Avenue between Phelps Avenue and Rankin Street. Another major East/West arterial, Jerrold is similarly traversed by thousands of residents, business owners, employees on a daily basis. The closure of Jerrold Avenue presents a very high level of concern for all nearby businesses and residents, and will significantly and negatively impact the quality of life for those utilizing this alignment.

">Construction staging along Phelps Avenue/ parking / equipment relay. This narrow street includes many active and essential PDR businesses and nearby residences. Note the circulation graphics contained in the EIR, with additive impacts to to [*sic*] staging areas at Evans and McKinnon Avenues and with routing from 1550 Evans Avenue and Piers 92-94 for construction employees and equipment.

"Not included in the cumulative impact analysis on traffic, and not mentioned in the BSFP-EIR, yet key to understanding the need for feasible mitigation as a requirement to LSM status are:

"> **Palou Avenue** streetscape improvement project -from Barneveld to Crisp Avenues- beginning late 2017, this is an approved $10m, SFDPW/SFMTA project with significant staging, parking, re-routing and daily traffic impacts on this heavily used East/West alignment.

"> **2245 Jerrold Avenue** - Project by **SFFD** - construction of SFFD Ambulance Deployment Facility - a $27m project slated for construction in 2020. As noted in the project conceptual design documentation, "The Project site is in an intensively developed area of San Francisco's Bayview neighborhood characterized by various warehouse, distribution and light industrial uses".

"> Re-routing of the **23 Muni Bus Line to Palou Avenue.** While the BSFP-EIR indicates relocation of the 23 Monterey Muni Line from Jerrold Avenue to Palou Avenue as a temporary measure during course of construction, the Palou Streetscape project indicates the eventual and permanent relocation of the 23 to Palou Avenue following the streetscape improvements. A temporary relocation of this public transportation element to Palou Avenue from Jerrold Avenue is neither practical nor safe during concurrent major construction on both E/W alignments.

"> Other: Multiple private construction projects for residential mixed-use, PDR, commercial improvements, etc. are under review and/or are being considered for the Third Street Corridor in Bayview between Williams Avenue and Evans Avenue for 2018-2025.

"When considering these traffic and circulation impacts alone, one should consider that these crucial East/West arterials (Evans, Jerrold, Palou), in a 'closed', 'blocked' or 'under construction' condition, will increase traffic on already heavily used E/W Oakdale Avenue.

"These major East/West street alignments, in and out of Bayview, provide the daily transportation routes for tens of thousands of individuals who live and work in Bayview, for parents who take their children to school and back, for employees and employers who must get to their jobs, and, most importantly serve as essential transportation routes in the event of a natural disaster such as an earthquake, flood, fire or other impactful 'event'. (see attachments 2-60, 61)" (Dan Dodt, Bayview Community Planning, Letter, June 17, 2017; Jack Gallagher, Bayview Hunters Point Citizens Advisory Committee, Letter, June 19, 2017)

"As noted in the EIR in section 2.4.2.1 Long-Term Changes to Local Roadway Network, 'In October 2015, Quint Street between Oakdale Avenue and the Caltrain tracks was permanently closed to through traffic as part of Caltrain's Quint Street Bridge Replacement project.' Also noted in the Impact Analysis Table 4.1-1; Vol.1 p. 4.1.6-14, are **two projects which we suggest provide partial solutions for feasible mitigation on these traffic impacts.**

"Item #24 (Table 4.1.1; Vol 1. p 4.1.10) - **The Quint Connector**

"This project would construct a new 950-foot-long roadway to provide access between existing Quint Street and Jerrold Avenue. The roadway would consist of two 13-foot-wide lanes (within a 50-footwide corridor), one northbound and one southbound. Construct a new 27-foot-wide curb cut located along the San Francisco Wholesale Produce Market property (Project 25, below); and install street trees and street lighting;

"Item #25 (Table 4.1.1; Vol 1. p 4.1.10) -**City and County of San Francisco Produce Market**

"Jerrold Avenue would be reconfigured to direct through traffic around the site onto Innes and Kirkwood Avenues. Innes Avenue would be improved and portions of the project site would also be dedicated to create two new intersections where Toland Street crosses Innes and Kirkwood Avenues. Rankin Street would be relocated between Kirkwood and Innes Avenues to parallel the west side of the Caltrain right-of-way, and the intersection of Rankin Street and Jerrold Avenue would be reconfigured. All roadway improvements would be constructed under Phase 1." (Dan Dodt, Bayview Community Planning, Letter, June 17, 2017; Jack Gallagher, Bayview Hunters Point Citizens Advisory Committee, Letter, June 19, 2017)

"Construction and implementation of the Quint Connector Road, prior to major construction at the SEP, will reduce pressure on the remaining, key E/W arterial (Oakdale Avenue) and allow local traffic to be routed to the NW along the alignment - to Innes, etc. and out to Bayshore and 101N in the short, medium and long term." (Dan Dodt, Bayview Community Planning, Letter, June 17, 2017; Jack Gallagher, Bayview Hunters Point Citizens Advisory Committee, Letter, June 19, 2017)

"Recommendations:

"1. Study and re-evaluate the conclusions drawn in the EIR regarding the significance of the traffic impacts, along with a more clearly articulated and written, multi-agency transportation and traffic plan prior to certification of the EIR.

"2. Completion of the Quint Street Connector by December 31, 2018.

"The **Quint Street Connector By-Pass** roadway plan should be **expedited and built, as part of the PUC project**, prior to major construction in 2018/19, in our opinion. An inter-agency cooperative effort is essential in this regard. Leadership and guidance from the Mayor's Office, the City Administrator's Office, the District 10 Supervisor, SFDPW, SFMTA, SFPUC, SFFD, SFPD, Union Pacific and the Department of Emergency Management is highly recommended and urged.

"3. Reconsideration of the temporary relocation of Muni 23 Monterey Bus line. SFPUC, with SFMTA as lead agency, to consider the cumulative impact of the Jerrold Street closure, the streetscape improvement project on Palou Avenue, the narrowing of Evans Avenue, and the heavily impacted Oakdale Avenue arterial due to the above concurrent projects." (Dan Dodt, Bayview Community Planning, Letter, June 17, 2017; Jack Gallagher, Bayview Hunters Point Citizens Advisory Committee, Letter, June 19, 2017)

"The Market seeks improved collaboration and coordination with the PUC on the redesign of all of the full length of Jerrold Avenue and neighboring streets and intersections. Thank you." (Michael Janis, SF Wholesale Produce Market, Public Hearing Comments, June 1, 2017)

"TRAFFIC and TRANSPORTATION

"As I've been revising this documentation with many others in the community, I am also requesting additional review of the impact analysis on traffic and circulation from the existing 'LS' -less than significant - status to the LSM condition, requiring mitigation. Of the 40 projects considered in the cumulative impact analysis for traffic and circulation, 63% of these are SFPUC related. (see Table 4.1-1; Vol.1 p. 4.1.6).

"There are multiple projects affecting the area, with many occurring simultaneously with the Biosolids Digester Project. Other projects that will affect transportation in the area are not listed in the EIR. For example, in addition to the partial closing of **Evans Street** beginning in August 2017; the **closure of Jerrold Avenue from Phelps to Rankin Street for** 5-6 years; the **construction staging along Phelps Avenue**; the **Palou Avenue** streetscape improvement project -from Barneveld to Crisp Avenues; the **2245 Jerrold Avenue** - construction of SFFD Ambulance Deployment Facility; ;the re-routing of the **23 Muni Bus Line to Palou Avenue**, the temporary closure of the Illinois Street Bridge at Islais Creek, we are potentially in real trouble when desiring to enter or exit our neighborhood by vehicle. There is also the relocation of the 23 Monterey Muni Line from Jerrold Avenue to Palou Avenue as a temporary measure during course of construction, but the Palou Streetscape project indicates the eventual and permanent relocation of the 23 to Palou Avenue following the streetscape improvements. Better planning is required for the transportation elements of the project, in my opinion." (Linda K. Blacketer, Letter, June 19, 2017)

"I am also recommending that the construction of the Quint Street bypass road be completed quickly. The loss of the Quint Street roadway due to the construction of the CalTrain berm and crossing has caused innumerable delays and traffic circulation problems for may in the community. I am supporting the recommendations made by others in this regard, and outlined as follows:

"1. Study and re-evaluate the conclusions drawn in the EIR regarding the significance of the traffic impacts, along with a more clearly articulated and written, multi-agency transportation and traffic plan prior to certification of the EIR.

"2. Completion of the Quint Street Connector by December 31, 2018. The **Quint Street Connector ByPass** roadway plan should be **expedited and built, as part of the PUC project**, prior to major construction in 2018/19, in our opinion. An inter-agency cooperative effort is essential in this regard. I ask the Mayor, Mr. Kelly(SFPUC), Mr. Nuru (SFDPW), Supervisor Cohen (D10) and other respected and effective City leaders to coordinate closely and purposely to see this project completed as soon as possible.

"3. Reconsideration of the temporary relocation of Muni 23 Monterey Bus line. Work with Muni/SFMTA to reconsider the placement of the 23 Monterey Bus from Palou to another location during the construction timeframe." (Linda K. Blacketer, Letter, June 19, 2017)

"And I'm here today to talk about a serious flaw in the EIR for this project.

"Specifically, I'm referring to the cumulative analysis of the traffic problems. As Mr. Dodt so accurately portrayed, the situation in the Bayview is we have three major north-south corridors of which one is Jerrold. Jerrold they're planning to close. Evans, they're going to reduce that to one lane in each direction controlled by a flag man. And Oakdale, we don't even know how badly that's going to be torn up when they do -- the PUC does their project at Oakdale and Phelps, 1800 Oakdale.

"So imagine, if you would, that they've disrupted Van Ness, but they've also closed Gough and Franklin. That would be a catastrophe for this city. And that is the nature of this perfect storm that the PUC is going to visit on our neighborhood.

"They -- by their analysis, there are 7,000 people a day that use that route. Those 7,000 people will be severely impacted. The businesses will be placed under a hardship.

"But that 7,000 is just the beginning. They failed to take into account the major projects that are being built in India Basin. The India Basin Project is 1250 units, the Shipyard is coming online with 900 units, Hunters View hundreds more, plus the projects up and down Third Street. The traffic will increase. It's going to be a lot worse than 7,000 in five years.

"Five-year temporary closure. Allow me to put that in perspective. In five years, your children will start college, graduate from college, get married, and have their first child before anyone can go down Jerrold Avenue. It's very possible you could all become grandparents before they open Jerrold Avenue. Five years is not a temporary closure. Five years is -- for many people of a certain age, that's a lifetime, a lifetime of severe inconvenience, economic hardship.

"I urge you, please, please, do not allow them to close Jerrold Avenue. It's going to be a major impact in our neighborhood" (Michael Hamman, Public Hearing Comments, June 1, 2017)

"As I've been revising this documentation with many others in the community, I am also requesting additional review of the impact analysis on traffic and circulation. For the following reasons:

"There are multiple projects affecting the area, with many occurring simultaneously and the EIR does not consider the cumulative impact of all these projects together. Several huge projects in the area were not considered at all, including the 1200 new housing units in the Build Inc project the 900 units in the Shipyard project as well as numerous projects on Third Street such as the Chris Harney project. In addition projects by other agencies such as the closing of the Third Street "Nishkin" bridge by DPW. I request a complete inventory of all the projects expected during this project be considered." (Michael Hamman, Letter, June 20, 2017)

"In the interest of reducing traffic and congestion, I also ask the PUC to live up to their promises to the neighborhoods by building the Quint Street Connector Bypass, as soon as feasible, to re-connect Oakdale and Jerrold Avenues" (Tony Kelly, Letter, June 26, 2017)

Response TR-4

The comments raise concerns regarding cumulative transportation impacts associated with the numerous projects currently underway or planned in the vicinity of the water pollution control plant. The comments identify several specific projects and concerns related to BDFP construction, addressed below, and state that significant cumulative transportation and circulation impacts would occur during BDFP construction. Reasons stated in the comments as causing significant cumulative impacts include the characteristics of the BDFP itself or the cumulative projects; cumulative projects that were not included in Draft EIR; effects on emergency access; and the assertion that a Traffic Control Plan is required to evaluate the significance of impacts. Commenters also identify strategies to improve circulation in the neighborhood.

Note that comments indicating that the Draft EIR does not contain a Traffic Control Plan and requests for inclusion of a Traffic Control Plan are responded to under **Response TR-1 (**under the heading "Traffic Control Plan"), and **Response TR-2** provides responses to comments regarding emergency access into and out of the Bayview-Hunters Point neighborhood. Refer to **Response GC-2** in Section 10.11 of this document for a response regarding socioeconomic effects.

Overview of BDFP Draft EIR Cumulative Analysis

The cumulative transportation impact analysis is presented on Draft EIR pages 4.6-51–4.6-61, and includes analysis of cumulative impacts during project construction (Impact C-TR-1, pages 4.6-52–4.6-58) and project operations and maintenance activities (Impact C-TR-2, 4.6-58–4.6-61). The cumulative impact analysis was conducted based on the transportation significance criteria presented on Draft EIR pages 4.6-23–4.6-25, and includes assessment of impacts on vehicles miles traveled, traffic safety, public transit, bicyclists, pedestrians, and emergency vehicle access. As described there, the San Francisco Planning Commission uses the vehicle miles traveled metric instead of automobile delay to evaluate the transportation impacts of projects; consequently,

degradation of vehicular delay and level of service (LOS) are no longer considered a significant impact under CEQA and are not reported in the Draft EIR. However, discussion of cumulative traffic circulation effects is provided in the Draft EIR for informational purposes. In addition, as described above in **Response TR-3**, while the adequacy of parking is no longer considered in determining the significance of project impacts under CEQA, the Draft EIR assesses whether the proposed project would result in secondary effects that could create hazardous conditions affecting traffic, transit, bicycles, or pedestrians and whether it could result in significant delays to transit. Cumulative transportation impacts were determined to be less than significant; therefore, mitigation measures are not required.

The cumulative impact analysis considered impacts from projects that would overlap with the BDFP temporally and, with respect to affected roadways, spatially. The majority of the cumulative projects identified in the comments are included in Draft EIR Table 4.1-1 (Draft EIR pages 4.1-6–4.1-15). The cumulative analysis was developed based on the most recently available information regarding cumulative project implementation to determine potential effects, and in particular, overlap with BDFP construction activities.

The following information is provided to clarify the characteristics of the BDFP and other cumulative projects identified by commenters as potentially contributing to a cumulative impact in combination with the BDFP. This information was included in the Draft EIR cumulative impact analysis, which for transportation and circulation concluded that construction-related cumulative impacts would be less than significant.

- **BDFP Temporary Closure of Jerrold Avenue**. The analysis of the proposed temporary closure of Jerrold Avenue between the Caltrain tracks and Phelps Street as part of BDFP construction, in combination with cumulative projects in the vicinity, was included in the BDFP Draft EIR. The effects of the temporary closure of Jerrold Avenue between the Caltrain tracks and Phelps Street, and effects of BDFP construction activities on travel on Phelps Street are described in Impact TR-1 on Draft EIR pages 4.6-35–4.6-46. Both Oakdale and Evans Avenues would offer alternative travel paths for vehicles currently traveling on this section of Jerrold Avenue that would be closed, and based on the traffic analysis conducted for the project, both streets have sufficient capacity to accommodate these diverted vehicles without a substantial effect on local vehicle circulation. **Response TR-1** provides additional discussion of the temporary closure of Jerrold Avenue. As noted in **Response TR-1**, in response to the community concerns regarding the closure of Jerrold Avenue for a five-year duration, the SFPUC construction contractor would evaluate options to reduce the duration and/or alter the type (full or partial) of the temporary closure of Jerrold Avenue.

- **BDFP Construction Shuttle on Phelps Street**. The construction worker shuttle bus from BDFP off-site construction parking at Piers 94 and 96 was included as part of the transportation analysis. As described on Draft EIR page 4.6-30, when construction workers park at the Piers 94 and 96 staging areas (expected to be needed for approximately 16 months, from April 2021 to July 2022), a worker shuttle bus service would be provided between the piers and the water pollution control plant. The shuttle service would run approximately one hour before and after the project construction worker arrival and

departure hours. Table 4.6-14 (Draft EIR page 4.6-33) presents the number of daily and a.m. and p.m. peak hour shuttle trips. Construction workers who park at the Southeast Greenhouses or 1550 Evans staging areas would walk between the staging area and the water pollution control plant.

- **SFPUC Southeast Plant Headworks Replacement Project (Cumulative Project No. 1).** As described on Draft EIR page 4.6-53, the Headworks Project would remove on-street parking on both sides of Evans Avenue adjacent to the water pollution control plant and would use the parking lane on the north side of the street to maintain four travel lanes on Evans Avenue throughout the approximately five-year construction period estimated for that project. The exception would be during a five-month period when one travel lane each way (rather than the existing two travel lanes each way) would be provided for a one-block segment of Evans Avenue between Rankin and Quint Streets to allow for construction between the water pollution control plant and the Bruce Flynn Pump Station that is located to the north of Evans Avenue. The circulation impacts of two, rather than four, travel lanes on Evans Avenue for the one block segment for a five-month period are discussed on Draft EIR pages 4.6-53 to 4.6-54. While BDFP-generated vehicles traveling to and from the water pollution control plant access at Rankin Street would continue to travel on Evans Avenue during the five-month period, the Headworks Traffic Control Plan would address the travel lane reduction, including use of advance construction warning signs, identification of alternative routes, and use of flaggers, as appropriate, to maintain vehicle flow with minimal disruption. Thus, east-west access on Evans Avenue would be maintained during construction of the Headworks Project. In addition, Cesar Chavez Street and Oakdale Avenue would continue to provide east-west arterial access to and from the Bayview during Headworks Project and BDFP construction. The temporary reduction in travel lanes for the one-block segment of Evans Avenue during the five-month period would not result in significant impacts on vehicular access in the area or result in traffic safety hazards. Overall, BDFP construction, in combination with the Headworks Project and other cumulative projects would not substantially affect traffic circulation in the area, and would result in less-than-significant cumulative construction-related traffic circulation impacts.

  Neither the Headworks project nor the BDFP includes any on-street construction staging or parking on either side of Phelps Street, although the Headworks project does include an off-street construction staging area along Phelps Street, on SFPUC property, and as described in **Response TR-3**, a shuttle stop may be located near the corner of Phelps Street and Jerrold Avenue for a limited duration of construction to transport workers between staging areas within Port property and the water pollution control plant as part of the BDFP. The Headworks project will have an off-street construction staging area within the water pollution control plant boundaries at the southwest corner of the intersection of Phelps Street and Evans Avenue, but would not remove any on-street parking spaces or travel lanes on Phelps Street. The Headworks Project may require some trenching along Phelps Street to install a sewer line from the construction trailers to an adjacent sewer manhole; however, this construction would be of very limited duration.

- **Southeast Community Facility Revitalization (Cumulative Project No. 20).** The Southeast Community Facility Revitalization project at 1800 Oakdale, cited in a comment, was evaluated as a cumulative project. Following a year-long community engagement process, the SFPUC Commission approved recommendations from the Southeast Community

Facility Commission and Citizen's Advisory Committee to initiate environmental review and design to relocate the Southeast Community Facility, currently located at 1800 Oakdale, to 1550 Evans, which is also a proposed staging area for the BDFP.[8, 9] Planning and design are underway to construct new facilities at 1550 Evans by 2022.[10] Therefore, it is possible that construction at 1550 Evans could be concurrent with and/or following completion of the BDFP construction. However, regardless of the timing, if work were to occur at this location, it would not require excavation within Oakdale Avenue.

- **Quint-Jerrold Connector Road (Cumulative Project No. 24).** The Quint-Jerrold Connector Road is a San Francisco County Transportation Authority (SFCTA) project that would restore local access eliminated by the Caltrain Quint Street Bridge Replacement Project in October 2015. The connector road would essentially restore north-south access on Quint Street, including access for pedestrians and bicyclists. In addition, the connector road would provide for local vehicular circulation (Quint Street is not a major north-south arterial). The connector road would be partially constructed on transMetro right-of-way (formerly owned by Union Pacific Railroad), and the SFCTA is currently in negotiations with transMetro for use of the right-of-way.[11] Once negotiations are completed, the SFCTA is expected to proceed with the project as planned. Construction of the connector road is anticipated to take one year.

- **San Francisco Wholesale Produce Market Expansion (Cumulative Project No. 25).** The SFWPM Project, including the permanent closure of Jerrold Avenue between Toland and Rankin Streets, was included as a cumulative project in the BDFP Draft EIR (see, for example, Draft EIR page 4.6-38). Refer to **Response TR-1** for a discussion of the timing of implementation of the Jerrold Avenue closure as part of that project.

Additional Projects Suggested for Inclusion in the Cumulative Analysis

Four proposed projects cited in the comments, the Palou Avenue Streetscape Improvement Project and Quesada Bike Lane, the 2245 Jerrold Avenue Emergency Medical Services Facility, the Hunters View project, and Islais Creek Bridge Rehabilitation, were not included in the list of cumulative projects in Draft EIR Table 4.1-1 (page 4.1-6). **Table 10.9-1** in Section 10.9, Other CEQA Considerations, describes these projects.

Based on the information provided below and in Table 10.9-1, inclusion of these projects in the cumulative scenario would not alter the cumulative transportation and circulation impact significance conclusions in the EIR, as discussed below for each project.

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8 From January through September 2016, the SFPUC initiated a broad-based stakeholder engagement process. Outreach efforts included surveys of area residents, public meetings, door-to-door campaigns and awareness surveys, and online engagement tools. (SFPUC, *Southeast Community Facility and Greenhouses: A Summary of Stakeholder Engagement and Preferences*, October 11, 2016. Available online at http://peir.sfwater.org/Modules/.aspx?documentID=10949)

9 SFPUC, Commission Resolution No. 16-0233, November 8, 2016.

10 SFPUC, Our New Home: Envisioning Our Bayview Together, 2017. Available online at http://sfwater.org/index.aspx?page=1183. Accessed on January 26, 2018. SFPUC has indicated completion of this project is anticipated in 2022.

11 Mike Tan, San Francisco County Transportation Authority, November 9, 2017.

- **Palou Avenue Streetscape Improvement Project and Quesada Avenue Bike Lane**.[12] This project includes streetscape improvements on a seven-block segment of Palou Avenue between Rankin and Jennings Streets and a new bicycle lane on Quesada Avenue between Third and Griffith Street, as described in Table 10.9-1. Traffic volumes on both streets are low, and neither component of the project involves substantial construction activity (i.e., there would be no excavation or work within the travel lanes for extended durations; see Table 10.9-1 for more details). Implementation of the project will take about one year, starting in April 2018.

- **2245 Jerrold Avenue Emergency Medical Services Facility**.[13] The Emergency Medical Services (EMS) Facility project would construct an EMS facility and a parking garage approximately 0.4 miles west of the water pollution control plant (see Table 10.9-1). The facility would replace an existing facility located on Evans Avenue between Newhall and Mendell Streets (east of the water pollution control plant). Presuming approval of the land transfer to the San Francisco Fire Department in late 2017, construction is anticipated to begin in 2018. Construction would take about 1.5 years, and would not generate a substantial amount of construction vehicle trips. The CEQA analysis conducted for this project did not identify any substantial construction or operational impacts.

- **Hunters View Project**.[14] The Hunters View Project includes revitalization of the existing Hunters View public housing site located about 0.7 miles southeast of the water pollution control plant. The project includes demolition of existing residential units and other facilities on the site, and construction of up to 800 residential units and other supporting land uses. The project is being developed in multiple phases to allow the market-rate units to come into the market such that the sale of these units would help subsidize public housing units. Phased construction also allows all existing residents to be temporarily relocated on-site during construction.[15] Phased construction of the Hunters View Project is currently underway: Phase 1 (267 units) was completed in 2013, Phase 2a (107 units) was completed in early 2017, Phase 2b (72 units) was in progress as of late 2017, and the remaining phases (up to 426 units) will be constructed between 2019 and 2023.[16] Consequently, construction vehicle trips associated with Phase 1 and Phase 2a of the Hunters View Project are included in the existing conditions in the BDFP Draft EIR. The final phase of the Hunters View Project construction activities are planned to end around the same time as the BDFP construction (i.e., around 2023), at which time Jerrold Avenue between the Caltrain tracks and Phelps Street would be reopened and reconstructed to Better Streets Plan standards.

[12] San Francisco Planning Department, CEQA Categorical Exemption Form, SFMTA – Palou Avenue Streetscape Improvement Project and Quesada Avenue Bike Lanes, January 20, 2017.
[13] San Francisco Planning Department, CEQA Categorical Exemption Form, 2245 Jerrold Ave SFFD Emergency Medical Services Facility, March 2, 2017.
[14] San Francisco Planning Department, Hunters View Redevelopment Project Environmental Impact Report, State Clearinghouse No. 20070168E, certified June 12, 2008.
[15] San Francisco Planning Department, Hunters View Redevelopment Project Environmental Impact Report, State Clearinghouse No. 20070168E, certified June 12, 2008
[16] Catherine Etzel, John Stewart Company, personal communication with Karen Lancelle, ESA, August 22, 2017.

- **Islais Creek Bridge Rehabilitation Project**.[17] The Islais Creek Bridge Rehabilitation Project would rehabilitate and repair the Islais Creek Bridge, as described in Table 10.9-1, and is currently undergoing environmental review. No change to the alignment or widening of the bridge is proposed. Prior to initiation of rehabilitation work, the construction contractor would be required to submit a Traffic Control Plan to the City's Traffic Engineer for review and approval. The contractor would be required to conduct construction activities to cause the least possible obstruction and inconvenience to the community, and provide travel lanes and routing for vehicular, pedestrian, and Muni riders, in a manner that would be safe and would minimize traffic congestion and delays. The bridge rehabilitation work is anticipated to require complete bridge closure for one to two months, during which time detour routes would be required. The detour routes could include use of Illinois Street, Evans Avenue, Cesar Chavez Street, and other north-south streets to the west, such as Potrero Avenue. The Traffic Control Plan for the Islais Creek Bridge Rehabilitation Project would be required to consider the one- to two–month bridge closure with other planned construction activities in the area, including the temporary closure of Jerrold Avenue as part of the BDFP, and temporary partial closure of two lanes on Evans Avenue as part of the Headworks project. During the one- to two-month bridge closure, BDFP construction traffic using this segment of Third Street (i.e., between Cesar Chavez Street and Cargo Way), would be routed to Illinois Street (i.e., one block to the east of Third Street), and therefore, the Islais Creek Bridge Rehabilitation Project would not substantially affect the cumulative impact analysis presented in the BDFP Draft EIR. A CEQA Categorical Exemption is being prepared for the project, and it is anticipated that the Islais Creek Bridge Rehabilitation Project would not result in any substantial construction impacts.

Commenter Suggestions to Improve Circulation

Commenter suggestions to improve circulation in the vicinity of the water pollution control plant focus on how BDFP implementation could be coordinated with select nearby cumulative projects.

- **Temporary Reroute of the Muni 23 Monterey Bus Route**. As noted by a commenter, and discussed on Draft EIR page 4.6-39, the five-year closure of Jerrold Avenue between the Caltrain tracks and Phelps Street would require the temporary rerouting of the 23 Monterey bus route. Because the SFMTA's Muni Forward project identified a service improvement that would permanently relocate the bus route from Jerrold Avenue onto Palou Avenue, the BDFP included this route as a proposed route during the BDFP construction period. A commenter cited concern regarding relocating the bus route to Palou Avenue during construction of the Palou Avenue Streetscape Project, and recommended reconsideration of the reroute. As discussed above, implementation of the Palou Avenue Streetscape Improvements would not involve substantial construction activity, and temporary relocation of the bus route to Palou Avenue would not be substantially affected by the streetscape implementation activities. However, depending on sequencing and actual schedule of the Palou Avenue Improvement Project, which is currently not known, the SFMTA may identify during preparation of the BDFP Traffic Control Plan an alternate route that avoids Palou Avenue. For example, instead of traveling

17 San Francisco Planning Department, Preliminary Project Assessment, Third Street Crossing of Islais Creek, Case No. 2014.0097U, March 14, 2014; Oscar Gee, San Francisco Public Works, personal communication with Karen Lancelle, ESA, August 28, 2017.

on Industrial Street to access Palou Avenue, the 23 Monterey could continue on Oakdale Avenue between Industrial and Phelps Streets. Impacts of such an alternative alignment, if it were to be used during the BDFP project construction, would be similar to those discussed on Draft EIR page 4.6-39, and as a result would be less than significant.

- **Coordination with Produce Market.** One comment requests improved collaboration and coordination between the SFPUC and the produce market on the redesign of the full length of Jerrold Avenue and neighboring streets and intersections. This request is noted. The SFPUC will continue to meet periodically with the produce market regarding implementation of the BDFP. The SFPUC's continued collaboration with local stakeholders would seek to improve project coordination and attempt to reduce traffic conflicts but would not affect the cumulative impact analysis or conclusions contained in the BDFP Draft EIR because any physical improvements to neighboring streets and intersections not currently planned would be covered in project-level CEQA review when proposed.

- **Construction of the Quint-Jerrold Connector Road.** As noted above, SFCTA is implementing the Quint Street Connector Road project, not SFPUC. For this reason, SFPUC does not control the schedule of this project. The connector road is not expected to be completed by December 2018, as recommended in a comment. The Quint-Jerrold Connector Road would not be required for BDFP construction trucks traveling to and from the water pollution control plant, and therefore, would not need to be constructed prior to initiation of BDFP construction.

Because cumulative transportation impacts were determined to be less than significant, no mitigation would be required. Thus, while SFPUC acknowledges the commenters' suggestions to include the Quint Street Connector Road Project and the San Francisco Wholesale Produce Market Expansion Project's roadway improvements as mitigation for transportation circulation impacts, they are not warranted.

Comment TR-5: Operational Transportation Impacts

This response addresses the following comment, which is quoted below:

O-Greenaction.3

"A major concern is the projected increase in truck traffic. The project estimates a thirty to fifty percent increase in truck traffic to/from the Southeast Plant, and we consider 10-14 truck trips per day to be a large number of trips, particularly for a facility that operates 24 hours a day, 7 days a week, 365 days per year. We strongly encourage the project to explore ways to reduce and mitigate the increase in truck trips, particularly given the air quality overburden and environmental justice concerns in this community." (Bradley Angel, Greenaction for Health and Environmental Justice, Letter, June 26, 2017)

Response TR-5

As described on Draft EIR page 4.6-24, the San Francisco Planning Commission uses a vehicle miles traveled metric instead of automobile delay or intersection levels of service (e.g., resulting from an increase in vehicles on affected roadways) in significance thresholds. The effects of the BDFP on vehicle miles traveled during operations were evaluated in Draft EIR Impact TR-3, starting on Draft EIR page 4.6-47. As discussed there, the VMT generated by the additional three to four trucks per day due to projected increases in solids loads associated with anticipated population growth could be offset somewhat by the additional market reuse options available for the Class A biosolids produced by the BDFP, which could be located closer to the site. The BDFP also would not substantially alter existing traffic circulation associated with facility operations, and would reroute operational truck trips to Evans Avenue, identified as a Freight Traffic Route in the SF General Plan (see Draft EIR page 4.6-3). For these reasons, impacts of BDFP operations on vehicle miles traveled were determined to be less than significant and no mitigation would be required. Refer to **Response AQ-1** for discussion of air quality impacts resulting from BDFP operations.

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10.6 Air Quality and Greenhouse Gas Emissions

The comments and corresponding responses in this section relate to the topic of air quality, evaluated in Draft Environmental Impact Report (EIR) Section 4.8. For ease of reference, these comments are grouped into the following air quality-related issues that the comments raise:

- AQ-1: Standard for Mitigating Construction-Related and Operational Impacts
- AQ-2: Construction-Related Air Quality Impacts
- AQ-3: Mitigation to Reduce Fugitive Dust
- AQ-4: Additional Mitigation to Reduce Construction-Related NO_x and $PM_{2.5}$ Emissions
- AQ-5: Additional Mitigation to Address Operational Criteria Air Pollutant Impacts
- AQ-6: Odor Issues
- AQ-7: Mitigation to Reduce GHG Impacts
- AQ-8: Inclusion of Air Quality Technical Report and Diesel Equipment Compliance Requirements

Comment AQ-1: Standard for Mitigating Construction-Related and Operational Impacts

This response addresses the following comments, which are quoted below:

A-BAAQMD.3 O-Greenaction.3 O-Greenaction.6 I-Kelly.1

"We also have identified project aspects that warrant additional review and/or clarification in the FEIR. The first of these aspects is the project's location. Two noteworthy programs have classified the location as a disadvantaged and vulnerable community that warrants heightened protection from air quality-related health risk. In San Francisco's Community Risk Reduction Plan (CRRP), this area has been designated an Air Pollution Exposure Zone (APEZ) and a Health Vulnerability zip code. At the Air District this area has been identified as an area with disproportionate air quality burden by our Community Air Risk Evaluation (CARE) program. The Air District's 2017 Clean Air Plan strives to eliminate the disparity in air quality between the eight CARE communities and the rest of the region by stabilizing and decreasing emissions around and in them. For this reason, we suggest that this project strive for "no net increase" in criteria air pollutant and toxic air contaminant emissions over existing conditions. We recommend this standard across construction and operation phases of the project. We strongly recommend that NOx and $PM_{2.5}$ emission increases associated with this project (i.e., those listed in Tables 4 and 14 of the AQTR) be reduced or offset by lower-emission equipment choices in this project, by revised operating plans or other equipment upgrades within the SEP, and/or by off-site initiatives. We recommend that any off-site mitigation occur in or immediately upwind of the communities affected by this project to assure consistency with SFPUC's environmental justice policy, the environmental justice report written for this project, and the community vulnerability concerns discussed above. We encourage more detailed equipment choices prior to finalization of the EIR to strive for no net increases in emissions and to assure consistency between the FEIR and the application for a Permit to Operate from the Air District." (Jean Roggenkamp, Bay Area Air Quality Management District [BAAQMD], Letter, July 28, 2017)

"A major concern is the projected increase in truck traffic. The project estimates a thirty to fifty percent increase in truck traffic to/from the Southeast Plant, and we consider 10-14 truck trips per day to be a large number of trips, particularly for a facility that operates 24 hours a day, 7 days a week, 365 days per year. We strongly encourage the project to explore ways to reduce and mitigate the increase in truck trips, particularly given the air quality overburden and environmental justice concerns in this community. Even if the trucks are using 2010 or new engines and if they are Tier 4 for pollution control, having over a dozen trucks rumbling into and out of the plant daily increases the intensity of impacts on the community, particularly if taking place in evenings, during the night, or over the weekend. We strongly encourage SFPUC to come up with a plan to mitigate the aesthetic and health impacts of this increase in truck traffic. Other than creating a more efficient trucking route, we see no such plan in the draft EIR." (Bradley Angel, Greenaction for Health and Environmental Justice, Letter, June 26, 2017)

"One of our significant concerns in this project is the expansion in the amount of production and combustion of biogas in the neighborhood. San Francisco has already designated the Bayview-Hunters Point neighborhood as a Health Vulnerability zip code in its Community Risk Reduction Plan. Increasing and burning 50 percent more biogas will exacerbate community health concerns, particularly given that part of the increase is in PM2.5 emissions. There is already considerable concern in the neighborhood about respiratory health and asthma rates in children. We strongly encourage SFPUC to offset any estimated increases in PM2.5 with actions that will reduce direct emissions in the Bayview-Hunters air shed. We repeat this call for any other increases in other criteria pollutant emissions associated with this project. We do not understand why SFPUC would increase the community health burden in this project instead of assiduously offsetting or reducing it." (Bradley Angel, Greenaction for Health and Environmental Justice, Letter, June 26, 2017)

"I am writing today in support of my neighbors in Bayview and their comments regarding the Biosolids Digester Facilities Project EIR, requesting additional review of the impact analysis for Air Quality (Section 4.8)." (Tony Kelly, Letter, June 26, 2017)

Response AQ-1

The comments (a) indicate that aspects of the project "warrant additional review and/or clarification" regarding the Biosolids Digester Facilities Project's (BDFP) location within an Air Pollution Exposure Zone (APEZ), a Health Vulnerability zip code, and an area identified in the Bay Area Air Quality Management District's (BAAQMD) Community Air Risk Evaluation (CARE) program; and (b) call for heightened protection from air quality-related health risks in these areas. The comments suggest that the project strive for "no net increase" in criteria air pollutant and toxic air contaminant emissions over existing conditions.

The Draft EIR describes the APEZ, Health Vulnerability designations and the CARE program on pages 4.8-11 to 4.8-12 and 4.8-63, and describes how the project is compared against thresholds specifically designed to address the increased air quality risks associated with its location in the APEZ and Health Vulnerability zip code on page 4.8-39. The Draft EIR also discusses the project's consistency with the CARE program (Draft EIR pages 4.8-63 to 4.8-64). In support of this program, the City and County of San Francisco (city) completed the San Francisco Community Risk Reduction Plan (CRRP), which included a city-wide health risk assessment (HRA). The CRRP-HRA provides the basis for the designation of APEZs in San Francisco and establishes more stringent thresholds for projects located within these zones. The APEZ and Health Vulnerability zip codes were the result of a joint effort by the city and the BAAQMD to identify areas with poor air quality and assess the cumulative exposures to air pollution throughout the city (Draft EIR page 4.8-11). Figure 4.8-2 (Draft EIR page 4.8-13) presents the APEZ and Health Vulnerability zip code boundaries in the project vicinity. Table 4.8-7 (Draft EIR page 4.8-40) presents a comparison of the thresholds applied to areas within and outside the Health Vulnerability zip codes, reflecting the increased health risks within these zip codes. Table 4.8-7 also indicates lower (more stringent, health-protective) thresholds for a project's incremental contribution to cumulative health risks when sensitive receptors are located within the APEZ. Because the project site is located within the APEZ and a Health Vulnerability zip code, the Draft EIR's impact analysis applies these lower (more stringent) thresholds. The thresholds applied in the Draft EIR analysis are equivalent to, or more stringent than, the California Environmental Quality Act (CEQA) significance thresholds that were recommended by the BAAQMD in its *Options and Justifications Report* (2009) and presented in Table 2-1 of the BAAQMD's *CEQA Air Quality Guidelines*.[1]

While the comments suggest that the project should strive to achieve no net increase in criteria air pollutant and toxic air contaminant emissions over existing conditions, application of such a threshold is not consistent with the CEQA significance thresholds implemented by the city (shown in Tables 4.8-6 and 4.8-7 on Draft EIR pages 4.8-36 and 4.8-40, which in turn are based on BAAQMD guidance), or with CEQA. As explained in CEQA Guidelines Section 15041, subdivision (a), "[a] lead agency for a project has authority to require feasible changes in any or all activities involved in the project in order to substantially lessen or avoid significant effects on the environment, consistent with applicable constitutional requirements such as the 'nexus' and 'rough proportionality' standard established by case law." (Citing *Nollan v. California Coastal Commission* (1987) 483 U.S. 825, *Dolan v. City of Tigard* (1994) 512 U.S. 374, and *Ehrlich v. City of Culver City* (1996) 12 Cal.4th 854; see also CEQA Guidelines, Section 15126.4, subd., (a)(4)(A), (B).) The rough proportionality standard means that the type and amount of mitigation must roughly correspond in size, degree, and intensity to the project impact. In other words, an agency may not impose mitigation on a project that is greater than necessary to mitigate a particular impact of the project to a less-than-significant level.

[1] Table 2-1 is presented on page 2-2 of both the May 2011 and May 2017 versions of BAAQMD's *CEQA Air Quality Guidelines*.

Comments also recommend that the project's construction-related and operational nitrogen oxides (NOx) and fine particulate matter ($PM_{2.5}$) emissions be reduced or offset by selecting lower-emission equipment for the project, by modifying operating plans or implementing other equipment upgrades at the Southeast Water Pollution Control Plant, or by off-site initiatives. For purposes of CEQA, there is no nexus (i.e., connection) to require mitigation of the project's *operational* NOx emissions or *construction-related and operational* $PM_{2.5}$ emissions because estimated operational NOx emissions and construction-related and operational $PM_{2.5}$ emissions would not exceed the city's significance thresholds and were therefore determined to be less than significant (Draft EIR pages 4.8-49 and 4.8-54). (Nonetheless, please refer to **Response AQ-5** for a discussion of expected reductions in operational NOx emissions to below existing levels, based on new information received since preparation of the Draft EIR.) Construction-related NOx emissions would, however, exceed the threshold level, and the Draft EIR recommends Mitigation Measures M-AQ-1a (Construction Emissions Minimization) and M-AQ-1b (Emission Offsets) to reduce NOx emissions. Implementation of these mitigation measures would reduce the project's construction-related NOx emissions to below the threshold levels. However, because the availability of sufficient NOx offset opportunities is uncertain and may require an agreement with a third party, the Draft EIR determined that construction-related NOx emissions during the first and third construction years may not be reduced to below threshold levels and conservatively determined this potential exceedance to be significant and unavoidable with mitigation. However, if NOx emissions offsets are achieved, then the project's construction-related NOx exceedance would be reduced to a less-than-significant level during all five construction years. Additionally, if NOx emissions offset projects are located in the vicinity of the water pollution control plant (as suggested above in Comment A-BAAQMD.3), then they would directly benefit neighbors by reducing NO_2 concentrations because NO_2, a component of NOx, can have adverse, but typically mild health effects (i.e., an increased risk of acute and chronic respiratory disease, as well as reduced visibility). Localized concentrations of NOx are not specifically considered a potential CEQA significant impact by the BAAQMD; the NOx emissions threshold is intended to limit NOx because it is a precursor to regional ozone formation, not because of its mild health effects. (See **Response AQ-4** below for more discussion of mitigation measures to reduce NOx and $PM_{2.5}$ emissions.) With respect to providing more detailed equipment choices prior to finalization of the EIR to assure consistency between the FEIR and the application for a Permit to Operate from the Air District, the air quality emissions modeling utilized conservative assumptions (see **Response AQ-5** for more explanation).

Regarding the request that San Francisco Public Utilities Commission (SFPUC) "offset any estimated increases in $PM_{2.5}$," the SFPUC completed an environmental justice analysis for the project separate from the CEQA process.[2] In accordance with SFPUC's 2009 Environmental Justice Policy, that report finds that localized $PM_{2.5}$ concentrations are disproportionately high in Bayview-Hunters Point compared to other parts of the city, and recommends that the SFPUC enact a $PM_{2.5}$

[2] Consistent with CEQA, economic or social effects of a project are not to be treated as significant effects on the environment (CEQA Guidelines Section 15131). The EIR focuses on physical environmental effects rather than socioeconomic effects. The SFPUC has completed a separate environmental justice analysis for the project: ESA, *Environmental Justice Analysis for Bayview-Hunters Point, Biosolids Digester Facilities Project and Community Benefits Program,* prepared for SFPUC, June 2017. Available online at www.sfwater.org/bdfp-ej-analysis.

offset program to reduce operational emissions from the turbines (which account for approximately 90 percent of the BDFP's estimated operational $PM_{2.5}$ emissions[3]) if source testing indicates that $PM_{2.5}$ emissions exceed 3.0 tons per year, with a goal of "no net increase" over future no-project conditions. The future no-project condition refers to the estimated condition with no modification to the water pollution control plant but accounting for population growth (and associated increases in the quantity of wastewater treated at the plant). The environmental justice report indicates that SFPUC should prioritize $PM_{2.5}$ reduction options that are located near the Southeast Plant and/or within the APEZ, followed by options located within the broader Bayview-Hunters Point neighborhood. The SFPUC will consider the recommendations of the environmental justice report separately from the CEQA process. For additional discussion of the SFPUC's environmental justice policy, and the environmental justice report prepared for this project, refer to **Response GC-4** in Section 10.11 of this document.

The comment stating that the 10 to 14 truck trips per day is a large number of trips for a facility that operates 24/7 and encouraging the SFPUC to mitigate the increase in truck trips requires clarification. As indicated in Draft EIR Table 4.6-16 (page 4.6-35), existing average daily truck trips total about 33 trucks per day including up to 10 trucks per day associated with biosolids hauling. With the project, a total of up to 36 truck trips per day would be generated, including up to 14 truck trips per day associated with biosolids hauling. This would represent a total net increase of three truck trips per day, comprised of an increase of four truck trips per day associated with biosolids hauling and a decrease of one truck trip per day associated with coarse and fine screenings hauling. This increase would be attributable to increased solids loads resulting from projected population growth by 2045 rather than the BDFP *per se*. A net increase in solids loading would occur irrespective of the BDFP.[4] As stated on Draft EIR page 4.8-37, such a small change in truck trips on local roadways would not substantially alter transportation-related criteria pollutant emissions.

Another commenter expresses support for comments by other Bayview neighbors for additional review of the air quality impact analysis. The commenter is referred to **Response AQ-2** regarding provision of more details from the impact assessment related to construction, **Response AQ-3** regarding the adequacy of fugitive dust mitigation, and **Responses AQ-4** and **AQ-5** for consideration of additional mitigation to reduce construction-related NOx and $PM_{2.5}$ emissions and operational criteria pollutant emissions.

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[3] See Table 12c of the *Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR* (AQTR). (Ramboll Environ, *Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR*, March 10, 2017. Available online at http://sfmea.sfplanning.org/SFPUC%20SEP%20Biosolids_AQTR_2017-03-10.pdf.**)**

[4] As indicated in Note g in Table 2-1 (Draft EIR page 2-7), *without implementation of the BDFP* the amount of biosolids generated and the number of haul trips would actually be greater because the proposed BDFP solids treatment processes would reduce the quantity of biosolids generated compared to existing solids treatment processes.

Comment AQ-2: Construction-Related Air Quality Impacts

This response addresses the following comments, which are quoted below:

O-BayviewCP-2.9 O-BVHPCAC.6 O-SFWPM-2.3 O-SFWPM-2.6

"In addition, and as a result of the completion of this Quint connector alignment, a portion of the deteriorating air quality issues noted as 'significant and unavoidable' during the construction process may be improved as the likely impacts of congested and idling automobiles, trucks and busses on the remaining Oakdale corridor could be reduced." (Dan Dodt, Bayview Community Planning, Letter, June 17, 2017; Bayview Hunters Point Citizens Advisory Committee, Letter, June 19, 2017)

"The discussion of and mitigation related to potential air quality impacts of the Biosolids Project on the environment is inadequate in its (1) failure to consider potential impacts to the SFWPM and (2) failure to consider and mitigate for dust related impacts. The DEIR should be revised to include a more comprehensive discussion of these issues.

"The entire air quality section of the DEIR[6] only has one passing reference to the Market and/or the SFWPM Project, and even then only in a footnote.[7] As described above, the Market is the primary source for San Francisco's produce, including that served in restaurants, sold in grocery stores, and consumed by San Francisco residents. Given the potential sensitivity of these operations to air quality impacts - including emissions, dust, and odors - the DEIR should have included within its analysis a discussion of the potential impacts specific to the Market and the SFWPM Project."

[6] DEIR, pp. 4.8-1 et seq.

[7] DEIR, p. 4.8-72, fn. 116

(Michael Janis, San Francisco Wholesale Produce Market, Letter, June 19, 2017)

"[A]s a vital business and adjacent site, it is important to the SFMC and Market that the Biosolids Project fits into the existing (and ever-growing and changing) neighborhood. As such, it is our position that the DEIR is inadequate in its … failure to consider … air quality…impacts to the Market and the SFWPM Project …. We respectfully request that the DEIR be modified to address these inadequacies." (Michael Janis, San Francisco Wholesale Produce Market, Letter, June 19, 2017)

Response AQ-2

The first comment presented above suggests that a portion of the project's construction-phase significant and unavoidable air quality impact could be reduced once the "Quint connector alignment" is completed because there would be less congestion (fewer idling vehicles). Note that the San Francisco County Transportation Authority is the entity overseeing implementation of

the Quint Connector Road; the SFPUC has no authority or control over its implementation. As described on Draft EIR page 4.1-10, the Quint Connector Road is expected to be constructed from late 2018 to 2019, depending upon land acquisition.

As shown in Draft EIR Table 4.8-9 (page 4.8-47), roughly 24 percent of reactive organics (ROG), 44 percent of NOx, and 15 percent of PM of the mitigated total construction criteria air pollutant emissions result from on-road construction vehicles traveling to and from the project site. These emissions are based on estimates of total vehicle miles traveled (VMT) and assume trip lengths ranging from 0.6 miles to 65 miles (one-way). Any reduction in VMT that might result from travel via the future Quint Connector Road (assuming that project is completed before or prior to completion of BDFP construction) would represent a very small fraction of total VMT. As such, while any reduction in traffic congestion associated with completion of this connector would help to reduce construction-related on-road criteria pollutant emissions, it would have a negligible effect on the Project impact and conclusions in the DEIR would remain the same. In any case, idling emissions from off-road equipment (also shown in Table 4.8-9) would not be affected by implementation of the Quint Street Connector Road and were assumed to be limited to two minutes, in accordance with the requirements of the Clean Construction Ordinance.

The comments that the air quality analysis fails to consider impacts on the San Francisco Wholesale Produce Market (SFWPM or produce market), and therefore is inadequate, requires clarification regarding localized versus regional effects of air pollutants, as well as the approach to evaluating health risk. For the purposes of CEQA, impacts associated with the project's increases in criteria air pollutants (evaluated under Impact AQ-1, beginning on Draft EIR page 4.8-43) are regional in nature (i.e., they affect regional air quality), and most health risks associated with criteria air pollutants are not localized (i.e., they do not necessarily affect adjacent receptors directly or especially) except for particulates (PM), which are evaluated in terms of $PM_{2.5}$ concentration. However, nuisance effects of fugitive dust and health risks associated with toxic air contaminant (TAC) emissions are more localized. Impacts and mitigation related to fugitive dust are discussed below in **Response AQ-3**. The Draft EIR (page 4.8-56) evaluated the project's health risk impacts on all receptors within 1 kilometer of the project site, which includes the produce market. As required by the City and BAAQMD CEQA guidelines, health risks evaluated for the project include lifetime excess cancer risk, chronic and acute health indices HI]), and $PM_{2.5}$ concentration. Cumulative health risks evaluated include lifetime excess cancer risk and $PM_{2.5}$ concentration. These health risks are based on inhalation risk factors only (and not ingestion) due to the types of airborne TAC emissions from major pollution sources such as traffic and stationary sources. The vast majority of these TACs are designated by the California Office of Environmental Health Hazard Assessment (OEHHA), the state agency responsible for providing guidance on evaluation of exposure to chemicals, as "inhalation only" and do not have multi-pathway effects (such as those resulting from ingestion).

The health risks of the project were evaluated at 20 meter intervals (designated as "receptors") up to 1 kilometer from the site (the "study area," as shown on Draft EIR Figure 4.8-5, page 4.8-57), consistent with the CRRP-HRA conducted by the city. Several of the receptor locations evaluated cover the produce market, but the specific results at these receptors were not reported in the Draft EIR, as only sensitive receptors (i.e., residential or other high sensitivity uses such as

daycares or medical facilities)[5] were evaluated. This is consistent with BAAQMD guidance, as non-sensitive receptors are not expected to have continuous exposure for an extended period (e.g., residential exposure assumes an infant is exposed all-day, every day for the complete construction period and lives in the same location for the first 30 years of their life). In addition, only the maximum impacts at sensitive receptors are required to be reported; the maximums for each health impact at sensitive receptors are shown in Draft EIR Tables 4.8-11, 4.8-12, 4.8-14, and 4.8-15 (pages 4.8-59, 4.8-61, 4.8-73, and 4.8-75, respectively). As such, health impacts from the project for the non-sensitive, worker receptors (adult) at the produce market would be much lower than those reported in the Draft EIR.

Note that these health impacts do not provide information on the health risks associated with the ingestion of any produce which is brought to, temporarily stored at, and distributed from the site. (As discussed above, the vast majority of TACs associated with the project is deemed an "inhalation only" risk by OEHHA and would not be expected to cause adverse health effects through deposition onto, and subsequent ingestion of produce.) Note also that the produce market is located at least approximately 200 feet upwind of the project's northern property line, and its upwind location would help to further minimize exposure to health impacts. The impacts on the products at the produce market would be further mitigated by the fact that the produce appears to mainly be stored indoors, which would limit its exposure to fugitive dust and other pollutants.

Comment AQ-3: Mitigation to Reduce Fugitive Dust

This response addresses the following comments, which are quoted below:

O-SFWPM-2.4 O-SFWPM-2.6 I-Karlin.3

"Among the potential air quality impacts to the Market are dust related impacts. Indeed, fugitive dust is specifically identified as part of Impact AQ-1.[8] The DEIR purports to address these issues through references to the San Francisco Construction Dust Control Ordinance[9] and the Biosolids Project's required compliance therewith. However, no mitigation measures specific to dust control or dust impacts are imposed on the Biosolids Project, including in response to Impact AQ-1. Instead, the sole focus on the mitigation measures for air quality is on emissions, with two emissions-related mitigation measures imposed.

"Given the sensitive nature of surrounding uses, including the Market's operations, and the DEIR's admission that fugitive dust is an impact from the Biosolids Project, mitigation measures should be imposed to ensure that any such impacts are less than significant, particularly given the Market's role in maintaining the City's public health. The Biosolids Project's compliance with the San Francisco Construction Dust Control Ordinance, in and of itself, is not adequate to mitigate these impacts."

[5] Refer to Draft EIR Section 4.8.1.2 (page 4.8-3) for a definition of sensitive receptors and a description of sensitive uses near proposed Biosolids Digester Facilities Project (BDFP) facilities and staging areas.

[8] DEIR, pp. 4.8-43 and 44.

[9] DEIR, pp. 4.8-31, 32, 35, 36, 43, and 44.

(Michael Janis, San Francisco Wholesale Produce Market, Letter, June 19, 2017)

"[A]s a vital business and adjacent site, it is important to the SFMC and Market that the Biosolids Project fits into the existing (and ever-growing and changing) neighborhood. As such, it is our position that the DEIR is inadequate in its … failure to require mitigation specific to air quality … impacts. We respectfully request that the DEIR be modified to address these inadequacies." (Michael Janis, San Francisco Wholesale Produce Market, Letter, June 19, 2017)

"We also appreciate keeping the dust to a minimum and protecting our community from toxic waste while you work on our pipes." (Sean Karlin, Email, May 24, 2017)

Response AQ-3

One commenter states that there are no mitigation measures specific to dust control and that compliance with the San Francisco Construction Dust Control Ordinance, in and of itself, is not adequate to mitigate dust impacts. Another commenter is concerned with health risks associated with exposure to dust from toxic waste.

As explained in the Draft EIR (page 4.8-43), the SFPUC and project contractors responsible for construction activities at the project site would be required to comply with the San Francisco Construction Dust Control Ordinance (San Francisco Health Code Article 22B and San Francisco Building Code Section 106A.3.2.6). The city adopted the ordinance to reduce the quantity of airborne dust generated during site preparation, demolition, and overall construction work in order to protect the health of the general public and on-site workers, to minimize public nuisance complaints, and to avoid orders to stop work by the Department of Building Inspection (DBI).

The Construction Dust Control Ordinance requires that the SFPUC submit a Dust Control Plan for approval by the San Francisco Department of Public Health (SFDPH). The plan must specify how construction dust on the site will be controlled. The Draft EIR (page 4.8-43) lists over a dozen measures (reprinted below) that could be included in this plan, and these measures are consistent with recommended dust control measures included in the BAAQMD's CEQA Guidelines. The plan would describe dust monitoring requirements, action levels that would require implementation of corrective actions, and corrective actions that would be implemented if action levels are exceeded or a dust complaint is received. For the BDFP, the dust control plan may include any of the following (or equivalent) measures to accomplish the goal of minimizing visible dust, as described on Draft EIR pages 4.8-43 and 4.8-44:

- Wet down areas of disturbed soil at least three times per day using non-potable water;

- Analyze wind direction and install upwind and downwind particulate dust monitors;
- Record particulate monitoring results;
- Hire an independent third party to conduct inspections and keep a record of those inspections;
- Establish requirements for when dust-generating operations have to be shut down due to dust crossing the property boundary or if dust within the property boundary is not controlled after a specified number of minutes;
- Establish a hotline for surrounding community members to call and report visible dust problems;
- Limit the area subject to dust-generating construction activities at any one time;
- Minimize on-site storage of excavated material or waste materials;
- Install dust curtains and windbreaks on the property lines on windward and down windward sides of construction, as necessary;
- Pave or apply water or non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas;
- Limit the amount of soil in hauling trucks to the size of the truck bed and walls and cover with a tarpaulin or other effective covers those trucks hauling soil, sand, and other loose materials;
- Establish a 15 mile-per-hour (mph) speed limit for vehicles entering and exiting construction areas;
- Sweep streets with water sweepers at the end of the day where visible soil material is present;
- Install and use wheel washers to clean truck tires if possible or otherwise brush off tires or tracks before they reenter City streets;
- Temporarily stop excavation, grading, and other construction activities when winds exceed 25 mph; and
- Hydroseed or apply soil stabilizers to previously graded areas for at least 10 calendar days; and sweep adjacent streets to reduce particulate emissions.

The produce market site is located at least approximately 200 feet upwind of the project's northern property line, and its upwind location would help to further minimize exposure to fugitive dust.

The requirements described above are mandatory for all construction projects in San Francisco. For example, San Francisco Building Code Section 106A.3.2.6 states as follows:

> "Dust control required. All applicants for a building, demolition, excavation, grading, foundation, or other permit required by this Code to construct a new building, to demolish a building, to substantially alter or to add to an existing building shall comply with the requirements for dust control and, in addition, for projects over a half acre the applicant will be required to submit a Dust Control Plan for approval by the San Francisco Health Department as set forth in Article 22B of the San Francisco Health Code."

The city's Construction Dust Control Ordinance establishes "best management practices" (BMPs), to reduce dust emissions during construction. An agency's decision to rely on BMPs to address a project's impacts has been upheld on numerous occasions under both federal and state law,[6] and the BAAQMD has acknowledged that implementation of BMPs represents sufficient insurance of avoiding significant impacts related to fugitive dust generated by construction activities.[7] Studies have demonstrated that the application of BMPs at construction sites has significantly controlled fugitive dust emissions.[8] Individual measures have been shown to reduce fugitive dust by anywhere from 30 percent to more than 90 percent. These studies support BAAQMD staff's recommendation that projects like the BDFP that implement these construction BMPs will reduce fugitive dust emissions to a less-than-significant level.[9]

The comment that BDFP compliance with existing regulations is not adequate to reduce dust impacts to a less-than-significant level is incorrect. California courts recognize that an agency may rely on compliance with existing regulations or requirements in finding a project's impacts would be less than significant.[10] In fact, reliance on compliance with the applicable regulatory framework is a common and widely accepted CEQA practice.

As stated on Draft EIR page 4.8-8, while dust can cause nuisance effects (i.e., watery eyes or irritation to the lungs, nose, and throat), adverse health effects associated with fugitive dust could occur if specific contaminants such as lead or asbestos are constituents in the soil. Such health-related impacts on the produce market and surrounding community are discussed in **Response HZ-2** in Section 10.8 of this document, and in Draft EIR Section 4.17, *Hazards and Hazardous Materials*.

Since the San Francisco Construction Dust Control Ordinance was adopted for the purpose of taking feasible available actions to reduce sources of particulate matter exposure, compliance with the regulations and procedures set forth by the Construction Dust Control Ordinance is feasible and mandatory, and would ensure that potential dust-related air quality impacts would be less than significant. For the reasons stated above, it was determined operations at the produce

6 See *Hapner v. Tidwell*, 621 F.3d 1239, 1246 (9th Cir. 2010) (citing use of BMPs to reduce soil disturbance during logging operations); *Envtl. Prot. Info. Ctr. v. U.S. Forest Serv.*, 451 F.3d 1005, 1015-16 (references to detailed BMPs incorporated into proposed timber sale supported the conclusion agency had taken "hard look" at project's impacts as required by National Environmental Policy Act); *Alaska Survival v. Surface Transp. Bd.*, 705 F.3d 1073, 1089 (9th Cir. 2013) (agency properly relied on BMPs imposed under the Clean Water Act as mitigation for wetlands impacts); and *Endangered Habitats League, Inc. v. County of Orange* (2005) 131 Cal.App.4th 777, 795-796 (upholding agency's reliance on mitigation measure requiring installation and maintenance of BMPs to address runoff).

7 BAAQMD, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, October 2009, pages 2 and 25.

8 Western Regional Air Partnership, *WRAP Fugitive Dust Handbook*, September 7, 2006. Available online at https://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf. Accessed on July 19, 2017.

9 Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, May 2017, page D-47.

10 See, for example, *Tracy First v. City of Tracy* (2009) 177 Cal.App.4th 1933 [holding agency could rely on project's compliance with Building Code's energy efficiency standards for conclusion that project would not have significant energy impacts, and therefore did not require mitigation]; *Oakland Heritage Alliance v. City of Oakland* (2011) 195 Cal.App.4th 884 (project's compliance with existing laws and regulations provided substantial evidence that seismic impacts would be less than significant).

market would not be significantly affected by dust generated by construction activities at the project site or by dust from the off-site transport of soil and other materials.

Comment AQ-4: Additional Mitigation to Reduce Construction-Related NO_x and $PM_{2.5}$ Emissions

This response addresses the following comments, which are quoted below:

A-BAAQMD.4 A-BAAQMD.6 A-CPC-Johnson.2 I-Blacketer.1 I-Hinton.4

"To mitigate its NOx emissions during construction, the project proposes Mitigation Measure M-AQ-1a, which will require that "equipment with engines greater than or equal to 140 horsepower must meet Tier 4 final standards; [and] equipment with engines less than 140 horsepower must meet Tier 2 standards and be equipped with diesel particulate filters (DPFs)" (p. 4.8-46). We recommend or affirm the use of this mitigation approach for both municipally-owned and contractor-owned equipment in this project. We also see in the same section that "at least 80 percent of haul trucks (i.e., trucks used to remove or deliver backfill soil, excavated soil, and demolition debris) used must have 2010 or newer engines." Unless or until there is a conflicting local business enterprise requirement, we encourage the project to strive for 100 percent of all haul trucks to be 2010 engines or newer." (Jean Roggenkamp, BAAQMD, Letter, July 28, 2017)

"To mitigate NOx emissions during the five years anticipated for construction, the project proposes funding off-site efforts that reduce emissions. The DEIR anticipates an offset price of $18,030 per weighted ton. Our expectation is that the price of offsets for NOx emissions alone is around $35,000 per weighted ton and is likely to rise during the course of the project. We strongly recommend revision of this cost estimate, while also noting that this pricing correction was raised by the Air District in a comment letter on the Seawall Project (dated June 7, 2017) and the Event Center & Mixed use Development at Mission Bay (dated July 20, 2015)." (Jean Roggenkamp, BAAQMD, Letter, July 28, 2017)

"I actually also was going to point out the -- both the air quality, where there was significant mitigation that was necessary. I would like the staff to further explain what alternative mitigations could have been considered and as well for the traffic and the circulation. I think specifically, when it comes to an EIR, we do look at traffic and circulation as an impact. And I think that we can take a look at what are the alternative, again, mitigations for some of the impacts that we're looking at." (Christine Johnson, Planning Commission, Public Hearing Comments, June 1, 2017)

"For example, it is determined that the BDFP would result in **significant and unavoidable impacts** in the areas of cultural resources and air quality that would remain significant and unavoidable even with implementation of feasible mitigation measures.

"AIR QUALITY

"On the air quality issue, I am troubled that there are no serious mitigation measures proposed to offset these proposed **air quality** conditions during a construction period that 'generate levels of '**nitrogen oxide emissions that would exceed significance thresholds** during **two of the five years** of construction and that would also be a **cumulatively considerable contribution to regional air quality conditions**.' Does this indicate that we should withhold breathing for a period of 2-5 years in Bayview?

"Surely there are serious plans to offset these deplorable conditions proposed for the tens of thousands of residents, including a number of elderly citizens, many young children, and thousands of active students and working adults. 'Significant and unavoidable' are profoundly disturbing descriptors.

"I believe that a robust and thoroughly vetted air quality monitoring and reporting plan be developed and implemented as the project proceeds, with local and consistent notification regarding serious air quality deficiencies present, plans for 'sheltering in place' or other actions as required on extremely bad air days, etc. A repeat of 'failed' or 'battery-less' air quality monitors, as witnessed during the denuding of Parcel A in the Hunters-Point Shipyard some years ago, for example, will not be tolerated in Bayview or by our City leadership. I'm sure that you can appreciate these concerns regarding air quality (or the lack thereof) and the overall environmental impact of this project." (Linda Blacketer, Letter, June 19, 2017)

"I would ask that you at the very least… 3. Enroll fenceline residents in the area in a long-term health study that seeks both to understand and mitigate the detrimental health effects of the "deteriorating air quality issues" that are noted as 'significant and unavoidable' during construction. This study should continue for all fenceline residents who live near the SFPUC Sewerage treatment plant and who will be exposed to significant and unavoidable pollution from the sewerage treatment facilities." (Rosalind Hinton, Letter, June 19, 2017)

Response AQ-4

One comment encourages the project to strive for 100 percent of all haul trucks to be 2010 or newer model engines. Other comments request further explanation regarding the adequacy of proposed mitigation to address NOx impacts and of alternative mitigation measures that could be used to reduce impacts to less-than-significant levels. Commenters also propose or request additional mitigation measures for BDFP air pollutant emissions.

Engine Requirements for Haul Trucks

The SFPUC considered the requirement for 100 percent of haul trucks to be 2010 or newer and determined that it was infeasible due to San Francisco Local Business Enterprise (LBE) requirements[11] and the fact that compliance with the California Truck and Bus Regulation's final requirement (mandating fleets with heavy trucks or buses to have 100 percent 2010 or newer

[11] LBE requirements are contained in San Francisco Administrative Code Chapter 14B, *Local Business Enterprise and Non-Discrimination in Contracting Ordinance*. Available online at http://sfgov.org/cmd/14b-local-business-enterprise-ordinance. Accessed on November 15, 2017.

model engines) is not required until January 1, 2023, after project construction.[12] However, to maximize use of 2010 or newer engines in all haul trucks, the following text in Mitigation Measure M-AQ-1a(A)(2) of Draft EIR (page 4.8-49) has been revised (new text is shown in double underline and deleted text is indicated with ~~strikethrough~~):

> ***"Engine Requirements.***
>
> 2. At least 80 percent of haul trucks (i.e., trucks used to remove or deliver backfill soil, excavated soil, and demolition debris) used must have 2010 or newer engines. The SFPUC should strive to exceed this requirement when possible; if trucks with 2010 or newer engines are available in the Contractor's, or subcontractor's fleet, then those should be used for the project.
>
> The SFPUC, through its Contractors Assistance Center, will work with the BAAQMD's Strategic Incentives Division and interested, eligible truckers to pursue funding to replace vehicles or retrofit engines to comply with the lower emissions requirement, including but not limited to conducting informational presentations at the Contractors Assistance Center to notify truckers about the grants and incentives and assisting with the completion of applications to the grant programs."

Adequacy of Mitigation for NOx Emissions

This commenter also "strongly recommends" that the SFPUC provide a greater amount of funds than is required under Mitigation Measure M-AQ-1b (Emissions Offsets) to fully offset the project's construction-related NOx emissions during the first and third years of construction. Under CEQA (as explained below), a lead agency can only impose mitigation on a project applicant to the extent necessary to reduce an impact to a less-than-significant level.

As explained in CEQA Guidelines Section 15041, subdivision (a), "[a] lead agency for a project has authority to require feasible changes in any or all activities involved in the project in order to substantially lessen or avoid significant effects on the environment, consistent with applicable constitutional requirements" including the following: (1) Mitigation measures must have an "essential nexus (i.e., connection)" to a legitimate government interest (CEQA Guidelines Section 15126.4, subdivision (a)(4)(A)); and (2) mitigation measures must also bear a "rough proportionality" to the project's adverse impacts. If the mitigation measure is an ad hoc exaction, it must be "roughly proportional" to the impacts of the project (CEQA Guidelines Section 15126.4, subdivision (a)(4)(B)).

The mitigation measure is required (i.e., there is a nexus) because the project's construction-related NOx emissions exceed the City's significance thresholds. Mitigation Measure M-AQ-1b (Emission Offsets) is identified to offset the portion of the project's construction-related NOx

[12] CARB, Truck and Bus Regulation Compliance Requirement Overview, December 18, 2017. Available online at https://www.arb.ca.gov/msprog/onrdiesel/documents/FSRegSum.pdf; CARB, Truck and Bus Regulation Small Fleet Option, August 15, 2016. Available online at https://www.arb.ca.gov/msprog/onrdiesel/documents/FAQsmall.pdf.

emissions, to the extent they exceed the significance threshold for NOx, by implementing either or a combination of the following: (1) directly implementing a specific offset program (such as replacing equipment); and/or (2) paying a mitigation offset fee to fund the implementation of one or more emission reduction projects within the air basin. The BAAQMD administers the Carl Moyer Program within the San Francisco Bay Area Air Basin (SFBAAB), which establishes the cost-effectiveness criteria for funding emissions reduction projects at a not-to-exceed amount of $30,000 (adjusted to reflect annual California Consumer Price Index adjustments between 2017 and the estimated first year of exceedance) per weighted ton of reactive organic gas (ROG), NOx, and PM emissions.[13,14] The program has established guidelines and criteria for the funding of emissions reduction projects.

Here, the proportionality of the mitigation to the air quality impact is based on the existing Carl Moyer Program cost-effectiveness criteria and a 5 percent administrative fee. For any NOx emissions still exceeding the city's significance thresholds after implementation of the offset program, the SFPUC would implement the other part of this mitigation measure through payment of the offset fee, which has a clear nexus between the project's construction-related air quality impacts and the BAAQMD's authority to implement emission reduction projects as part of the Carl Moyer Program. Therefore, the offset fee would be "roughly proportional" to the construction-related air quality impacts, using the offset funding equation of no less than $30,000 per weighted ton of NOx and a 5 percent administrative fee. The amount of $30,000 will be adjusted to reflect annual California Consumer Price Index adjustments between 2017 and the estimated first year of exceedance. The following text in Mitigation Measure M-AQ-1b (2) of Draft EIR (page 4.8-51) has been revised to reflect the updated funding equation (new text is shown in double underline and deleted text is indicated with ~~strikethrough~~):

> "2. Pay a mitigation offset fee to the Bay Area Air Quality Management District's (BAAQMD) Bay Area Clean Air Foundation (Foundation) in an amount to be determined at the time of the impact. The mitigation offset fee will be no less than ~~$18,030~~ $30,000 per weighted ton of ozone precursors per year requiring emissions offsets plus an administrative fee of no less than 5 percent, to fund one or more emissions reduction projects within the SFBAAB. The $30,000 will be adjusted to reflect annual California Consumer Price Index adjustments between 2017 and the estimated first year of exceedance. This fee will be determined by the Planning Department in consultation with the SFPUC and BAAQMD and based on the type of projects available at the time of impact. This fee is intended to fund emissions reduction projects to achieve reductions of 2.3 tons per year of ozone precursors."

[13] The following equation is used to calculate the Weighted Emissions Reductions: Weighted Emissions Reductions = NOx reductions (tons/year) + ROG Reductions (tons/year) + (20 x (PM Reductions (tons/year))).

[14] At the time the Draft EIR was circulated, the mitigation offset fee specified in the Carl Moyer Program Guidelines was $18,030, but the fee amount was in the process of being increased to $30,000. This increase was approved by the California Air Resources Board on April 27, 2017 and it was included in the 2017 revisions to the guidelines dated June 20, 2017. (California Air Resources Board, *Carl Moyer Program Guidelines 2017 Revisions, Volume I, Program Overview, Program Administration and Project Criteria,* updated June 20, 2017, pp. I and 1-6. Available online at https://www.arb.ca.gov/msprog/moyer/guidelines/2017gl/2017_gl_chapter_1.pdf.)

The San Francisco Planning Department met with the BAAQMD on June 14, 2017 and discussed the BAAQMD's suggestion that a higher fee may be warranted to reduce project emissions to a less-than-significant level and found that the BAAQMD could not establish that an increased rate beyond that of the Carl Moyer Program plus a 5 percent administrative fee could meet the "rough proportionality" standard required under CEQA. The Carl Moyer fee structure was reviewed and updated by the California Air Resources Board (CARB) in April 2017 and became fully implemented on June 20, 2017.[15] The offset rate specified in the above revised Mitigation Measure M-AQ-1b (Emission Offsets) is consistent with the rate established in the Carl Moyer Program.

Consideration of Alternative Mitigation Measures

During the development of Mitigation Measures M-AQ-1a and M-AQ-1b, multiple mitigation approaches were considered. Additional mitigation strategies considered during the environmental review process included requiring the use of all Tier 4 engines in construction equipment and requiring that 100 percent of haul trucks have 2010 or newer engines. Requiring the use of all Tier 4 engines was determined to be infeasible due to the unavailability of some off-road equipment types. The infeasibility of requiring 100 percent of haul trucks to have 2010 or newer engines is described above under the heading *Engine Requirements for Haul Trucks*.

As indicated on page 6-7, the Draft EIR did not identify any feasible alternatives to avoid or substantially reduce the severity of the BDFP's significant and unavoidable construction air quality impacts beyond Mitigation Measures M-AQ-1a and M-AQ-1b. Implementation of Mitigation Measures M-AQ-1a and M-AQ-1b could indeed reduce the project's NOx impact to a less-than-significant level during all five years of project construction, but because the availability of sufficient NOx offset opportunities is uncertain and may require an agreement with a third party, this impact was determined to be *significant and unavoidable with mitigation (*Draft EIR page 4.8-48).

Need for Additional Mitigation to Address Health Risks from NOx Emissions

Several commenters express concerns over the health risks from the "significant and unavoidable" impact during two of the five years of construction due to excessive NOx emissions. The commenters request further explanation of, or suggest, additional mitigation measures, such as a robust air quality monitoring and reporting plan, notification of residents, plans for "sheltering in place" on days with extremely poor air quality, and enrolling fenceline residents in the area in a long-term health study.

As discussed in the Draft EIR, the SFPUC would implement several measures (see Mitigation Measure M-AQ-1a) to reduce NOx beyond what is already required by the Clean Construction Ordinance. These include the use of equipment that meets the following emissions controls: equipment with engines greater than or equal to 140 horsepower must meet Tier 4 final standards; equipment with engines less than 140 horsepower must meet Tier 2 standards and be equipped with diesel particulate filters; at least 80 percent of haul trucks (i.e., trucks used to

15 *Ibid.*

remove or deliver backfill soil, excavated soil, and demolition debris) used must have 2010 or newer engines; and all diesel haul trucks and off-road equipment must use renewable diesel. These emission controls would reduce total NOx emissions by approximately 75 percent beyond what is required by the Clean Construction Ordinance.

The Draft EIR (page 4.8-49) identifies Impact AQ-1 as significant and unavoidable even with the implementation of Mitigation Measures M-AQ-1a and M-AQ-1b. This finding is based upon acknowledgement that implementation of an emissions offset project would either: (1) be conducted by the BAAQMD but would therefore be dependent in part on the actions of a third party and not fully within the control of the SFPUC, or (2) be implemented by the SFPUC, but sufficient direct SFPUC offset opportunities have not been fully verified. Thus, at this time, the appropriate conclusion is that the impact is significant and unavoidable with mitigation. Note that an offset project(s) would be imposed on, and thus be binding to, the SFPUC through adoption and implementation of Mitigation Measure AQ-1b. Such a project(s) would be implemented to offset the portion of NOx emissions that would exceed the threshold level, and would be designed to fully mitigate the project's impact during the first and third construction years, as explained on Draft EIR pages 4.8-46 and 4.8-48. Therefore, it is likely that NOx emissions would ultimately be mitigated to a less-than-significant level.

While direct SFPUC offset opportunities have not been fully verified, the SFPUC has evaluated and recommends those listed below in **Table 10.6-1**. If verified and approved, these opportunities could sufficiently offset the estimated NOx exceedances during construction years 1 and 3.

TABLE 10.6-1
SFPUC-RECOMMENDED POTENTIAL OFFSET PROJECTS

Department	Offset Opportunity	Offset Amount
SFPUC	Headworks Renewable Diesel[a]	1.24 tons over 5 years
Wastewater Enterprise	Trailer Generator Emergency Light Replacement[b]	0.21 tons/year
	Southeast Community Facility Generator Replacement[c]	0.08 tons/year
City Distribution Division	2000 Maingang Truck Replacement[d]	0.42 tons/year
	2000 Maingang Truck Replacement[d]	0.42 tons/year

NOTES:

[a] The Headworks Project at the Southeast Plant would be updated to use renewable diesel in all construction years, rather than only Year 5 as originally planned.

[b] An existing emergency light powered by a generator would be replaced with calendar year 2017 equivalent equipment. Emissions offsets calculated assuming the new equipment would operate at historical or permitted levels and that engine operational hours would occur evenly over all years of equipment operation.

[c] An existing Southeast Community Facility emergency generator would be replaced with a Tier 2 engine. Emissions offsets calculated assuming the new equipment would operate at historical or permitted levels and that engine operational hours would occur evenly over all years of equipment operation.

[d] Two existing year 2000 Maingang trucks would be replaced with calendar year 2017 equivalent equipment. Emissions offsets calculated assuming the new equipment would operate at historical levels and that odometer mileage would occur evenly over all years of equipment operation.

SOURCE: Memo from Karen Frye, SFPUC, BDFP Environmental Project Manager, to Carolyn Chiu, SFPUC, BDFP Project Manager, regarding Air Quality NOx Offsets for the Biosolids Digester Facilities Project, February 12, 2018.

NOx is comprised of nitrogen dioxide (NO_2) and nitric oxide (NO) emissions. Only the NO_2 component of NOx is recognized as being capable of causing harm to people. Regarding the health impacts of NO_2 emissions, the BAAQMD CEQA significance standards do not require an evaluation of localized impacts for NO_2 emissions because the entire state is in attainment for NO_2, and non-attainment of local NO_2 ambient air standards is not expected. In fact, since 1998, there have been no non-attainment areas for NO_2 in the United States.[16] As shown in Draft EIR Table 4.8-1 (page 4.8-5), the NO_2 1-hour standard was only exceeded one time between 2011 and 2015 at the BAAQMD Monitoring Station at 10 Arkansas Street, approximately 1.5 miles from the project. Therefore, despite all of the NO_2 emissions sources in the city, including vehicle emissions and other industrial sources, the NO_2 standards are not easily exceeded.

Although localized concentrations of NO_2 are not specifically considered a potential CEQA significant impact by the BAAQMD, the BAAQMD does have a total mass emissions rate standard (in units of tons per year) for NOx, of which NO_2 is a component. This emissions standard is put in place to ensure that project emissions of NOx are considered, as NOx is a precursor to ozone (in combination with volatile organic compounds [VOC] and sunlight).

San Francisco is in non-attainment for the 1-hour ozone standard and marginal non-attainment for the 8-hour ozone standard. As discussed in Draft EIR Section 4.8.1.3 (page 4.8-4), ozone is formed downwind of where its components are formed; therefore, the health impacts of ozone are not necessarily experienced by receptors immediately adjacent to emissions of NOx. In response to the comment regarding the potential for implementing a shelter-in-place program or other emergency procedures, these programs are typically not used or warranted for NOx emissions, since health impacts from NO_2 are typically mild. While the health effects of high concentrations of NO_2 can include an increased risk of acute and chronic respiratory disease and reduced visibility, since 1998 there have been no non-attainment areas for NO_2 in the United States, as noted earlier. The standards for attainment areas are set at levels to protect public health and the environment.

Comment AQ-5: Additional Mitigation to Address Operational Criteria Air Pollutant Impacts

This response addresses the following comment, which is quoted below:

A-BAAQMD.8

"At the time of the review of this DEIR, the Air District has not yet received a permit application for an Authority to Construct for this project because the SFPUC is still designing this facility. In light of your pending equipment choices and their impacts on your emissions estimates, we recommend that SFPUC seek quotes for a selective catalytic reduction system

[16] United States Environmental Protection Agency (USEPA), Green Book Nitrogen Dioxide (1971) Area Information, 2016. Available online at https://www.epa.gov/green-book/green-book-nitrogen-dioxide-1971-area-information. Accessed on January 23, 2018.

and/or low-NOx burners to determine whether a lower NOx limit is technologically feasible and cost-effective, particularly given that the proposed NOx limit for the turbine/duct burner (i.e., 25 ppm @ 15% oxygen) is based on a BACT determination from 1999. We recommend that the facility request emission factors and guarantees from the manufacturer for each planned piece of combustion equipment as an alternative to using the emission factor of 3.2E-3 kg methane/MMBtu from Table C-2 of 40 CFR 98. We recommend that the facility determine whether the new thermal hydrolysis process will increase precursor organic compounds in the biogas." (Jean Roggenkamp, BAAQMD, Letter, July 28, 2017)

Response AQ-5

The commenter asks whether a selective catalytic reduction (SCR) system or low NOx burners are technologically feasible and cost-effective, particularly given that the proposed NOx limit for the turbine/duct burner is based on a Best Available Control Technology determination from 1999. The commenter recommends that the SFPUC request emission factors and guarantees from the manufacturer for each piece of combustion equipment instead of using the specified emission factor. The commenter also recommends that the SFPUC determine whether the new thermal hydrolysis process (THP) would increase precursor organic compounds in the biogas.

The project's power-generating equipment (turbine) would be the primary combustion equipment proposed. Other combustion equipment would include the boilers and waste gas burners, both of which would only operate when the turbine is not operating, and the emergency generator, which would operate during emergencies and for limited testing. Two rounds of evaluation were conducted to determine alternatives for the combined heat and power facilities in the SFPUC's Combined Heat and Power Alternatives Analysis, Decision Technical Memorandum, dated December 2015.[17] In the first round, three combined heat and power alternatives were evaluated and compared: an internal-combustion engine, a mid-size gas turbine, and a small gas turbine. As described in the memo, most municipal wastewater combined heat and power installations use internal-combustion engines because of their high electrical efficiency. However, the water pollution control plant has two unique drivers that may make gas turbines a more viable combined heat and power alternative: (1) the need for steam generation, and (2) the need to meet stringent air emission limits. Gas turbines have higher exhaust flows and thus a greater ease of steam generation and lower air emissions compared to internal-combustion engines. The second round evaluated hybrid alternatives to complement the gas turbine to provide 100 percent biogas utilization over the planning period. Three hybrid alternatives were evaluated: gas turbine plus microturbines, gas turbine plus small internal-combustion engine, and gas turbine plus large internal-combustion engine. Factors considered in the selection of the power-generating equipment included financial factors and non-financial factors (chemical usage and hazardous waste generation, level of operating complexity, system maturity and reliability, level of maintenance required, footprint, load variation adaptability, backup power, regulatory compliance, and adaptability to future

[17] This memorandum is presented in Appendix B of the *BDFP Conceptual Engineering Report*, (SFPUC, March 2016). The Conceptual Engineering Report is available for public review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2015-000644ENV and can be made available electronically on request.

regulatory changes). The financial comparison was relatively equal among the alternatives considered. The proposed type of turbine (a recuperated turbine with a low NOx combustor) was recommended and selected primarily because of the lower air emissions and simpler operations and maintenance compared to other alternatives. The addition of selective catalytic reduction (SCR) to further reduce NOx was considered for the turbine exhaust. Based on the technical evaluation, an SCR was not included with the turbine exhaust system because it would provide minimal reduction of NOx emissions while potentially increasing $PM_{2.5}$ emissions.[18]

For the analysis in the Draft EIR, the NOx emission factors used for the turbine, microturbines, and waste gas burners are from manufacturer specifications. The NOx emission factors used for the emergency diesel engine and the boilers are based on limits of Best Available Control Technology from 2010 and 1993, respectively. Although the boiler limits are from 1993, they are the BAAQMD's BACT (Best Available Control Technology or currently accepted) limits.[19]

In response to BAAQMD's recommendation, the SFPUC obtained a NOx emission factor warranty from the turbine manufacturer.[20] The updated NOx emission factor identified in the warranty is 20 parts per million (ppm) based on proposed operational conditions, which is lower than the 25 ppm emission factor used in the Draft EIR analysis. With the updated NOx emission factor, the Project's turbine-related NOx emissions would be 4.5 tons per year lower than reported in the Draft EIR during both full operational scenarios (2023 and 2045). **Table 10.6-2** presents the project's net operational NOx emissions (project emissions minus existing [2014] emissions) for both NOx emission factors. As shown, the lower NOx emission factor results in no net increase in NOx emissions when compared to existing (2014) conditions, which also responds to the commenter's concerns regarding the project's increase in operational emissions included in Comment AQ-1.

The emission factor of 3.2E-3 kg methane/MMBtu referenced by the commenter was used to estimate methane emissions that, together with carbon dioxide (CO_2) and nitrous oxide (N_2O), comprise the total greenhouse gas (GHG) emissions from the combustion sources at the facility (turbine, microturbines, waste gas burners, and boilers). This is the method the facility is required to use to report GHG emissions to the state through the California Mandatory Reporting of Greenhouse Gas Emissions regulation (Title 17 California Code of Regulations, Sections 95100-95158).

[18] Memo from Tracy Stigers, Vice President of Brown and Caldwell, BDFP Consultant Team, to Carolyn Chiu, SFPUC, regarding Draft Environmental Impact Report (EIR) Comment Response related to a selective catalytic reduction (SCR) system, November 8, 2017.

[19] Bay Area Air Quality Management District, Best Available Control Technology (BACT) Guideline, Boiler or Water Heater – Landfill or Natural Gas, Revision 2, April 21, 1993. Available online at http://www.baaqmd.gov/~/media/files/engineering/bact-tbact-workshop/combustion/17-5-1.pdf?la=en.

[20] Leslie Witherspoon, Solar Turbines Incorporated, personal communication regarding NOx Emissions Warranty for the Digester Gas Fired *Mercury* 50 with Steven Scott, Black & Veatch, December 18, 2017.

TABLE 10.6-2
NET CHANGE IN TURBINE-RELATED NO*x* EMISSIONS USING EMISSION FACTOR WARRANTY

Turbine NOx Emission Factor	Project's Net Operational NOx Emissions Compared to Existing (2014) Conditions (tons/year)	
	2023	2045
25 ppm NOx	1.8 [a]	2.6[a]
20 ppm NOx	-2.7 [b]	-1.9[b]

NOTES:

[a] Draft EIR Table 4.8-10 and Table 14 in the *Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR*.

[b] Revised emissions using the same methodology as specified in the AQTR based on emissions factor identified by Leslie Witherspoon, Solar Turbines Incorporated, personal communication regarding NOx Emissions Warranty for the Digester Gas Fired *Mercury* 50 with Steven Scott, Black & Veatch, December 18, 2017.

SOURCE: Brown and Caldwell, SFPUC BDFP NOx Emissions Fact Sheet, February 12, 2018.

An increase of precursor organic compounds due to the proposed thermal hydrolysis process is not anticipated. The proposed thermal hydrolysis process is a digestion pre-treatment process that combines high temperature and high pressure followed by rapid decompression, making the solids more biodegradable and allowing for higher methane production during the subsequent anaerobic digestion process. The proposed thermal hydrolysis process could potentially result in a small increase in organic compounds in the biogas compared to the existing process; however, the biogas (along with any organics present in the biogas) is combusted in subsequent processes (e.g., turbine, boilers and/or duct burner, with waste gas burners as backup) and only the combustion products are emitted to the atmosphere. Combustion results in approximately 99 percent oxidation of the volatile organic compounds within the biogas. In addition, the precursor organics represent a *de minimis* (i.e., very minimal) fraction of the biogas, which is almost entirely methane and carbon dioxide. Lastly, the digester gas is treated to remove hydrogen sulfide, moisture, and siloxanes prior to combustion. Residual hydrogen sulfide removal would be accomplished via adsorption on an iron sponge media. Siloxane removal would be accomplished via adsorption to granular activated carbon or an alternate media, which would also likely remove the majority of the volatile organic compounds present, prior to combustion. For these reasons, higher emissions of precursor organic compounds are not anticipated compared to the existing processes.[21]

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[21] Memo from Tracy Stigers, Vice President of Brown and Caldwell, BDFP Consultant Team, to Carolyn Chiu, SFPUC, regarding Draft Environmental Impact Report (EIR) Comment Response related to the thermal hydrolysis process (THP), September 21, 2017.

Comment AQ-6: Odor Issues

This response addresses the following comments, which are quoted below:

A-BAAQMD.11 O-Greenaction.1

"As a final note, we noticed a statement on p. 4.8-29 of the DEIR that" ... based on the odor complaint history, the [Air District] does not consider the SEP to be ·a significant source of odors in the area." While the number of odor complaints has not resulted in designation of the SEP as a significant source of odors and although the project will improve odor control for biosolids digestion, the entirety of the treatment works is still considered a potentially significant odor source by the Air District." (Jean Roggenkamp, BAAQMD, Letter, July 28, 2017)

"We are pleased to start by acknowledging a potential benefit to the community from this project. The replacement and relocation of the decades-old digesters has the potential to reduce odiferous volatile organic compounds (aka "odors") for people who live adjacent to the plant along Phelps Avenue. While applauding this effort, we would be remiss not to point out that the biodigesters are responsible for only some of the odor from the Southeast Plant. We remain concerned about the odors emanating from the overall plant and its impact on the community. Given that wastewater processing is expected to increase 20 percent under the 2045 scenario reviewed in the draft EIR, we are concerned that odors emanating from the primary treatment portion of the Southeast Plant will get worse, particularly for the immediate neighbors. If this project is meant to decrease odors, we strongly recommend that SFPUC consider the net odors from the overall plant in light of the expected 20 percent increase in wastewater processing by 2045. From the standpoint of odor control, it is convenient but problematic to frame this project as related to only one portion of the Southeast Plant. We encourage SFPUC to look at overall odors as part of its final EIR." (Bradley Angel, Greenaction for Health and Environmental Justice, Letter, June 26, 2017)

Response AQ-6

In the first comment above, the BAAQMD indicates that, although the number of odor complaints has not resulted in designation of the water pollution control plant as a significant source of odors and the project would improve odor control for biodigestion, the BAAQMD still considers the entire water pollution control plant a potentially significant odor source.

In response to this comment, the following text on Draft EIR page 4.8-29 has been revised (new text is shown in double underline and deleted text is indicated with ~~strikethrough~~):

> "The BAAQMD is also the agency responsible for investigating and controlling odor complaints in the area. The BAAQMD enforces odor control by helping the public document a public nuisance. Upon receipt of a complaint, the BAAQMD sends an investigator to interview the complainant and to locate the odor source if possible. The BAAQMD typically brings a public nuisance court action when there are a substantial number of confirmed odor events within a 24-hour period. An odor source with five or

more confirmed complaints per year averaged over three years is considered to have a substantial effect on receptors. As indicated above (under *Odor Incidents*), the BAAQMD has received two confirmed odor complaints regarding odor at the SEP over the six-year period from January 1, 2009 through October 22, 2015. Thus, ~~based on~~ the odor complaint history at the Southeast Water Pollution Control Plant has not resulted in its designation by the BAAQMD ~~does not consider the SEP to be~~ as a significant source of odors in the area. Nonetheless, the BAAQMD still considers the entirety of the treatment works at the water pollution control plant to be a potentially significant odor source.[52a, 52b]

[52a] Roggenkamp, Jean, Bay Area Air Quality Management District. Letter to Tim Johnson, July 28, 2017.

[52b] The term "significant" in this paragraph refers to BAAQMD's assessment of the odor source, and is not the same as impact significance as defined under CEQA.

The revisions presented above do not alter the analysis or conclusions presented in the EIR because the BDFP is designed to reduce odors compared to existing conditions. The BDFP would replace existing odor control facilities with new facilities that include technologies identified by the BAAQMD as effective in reducing odor impacts from wastewater treatment plants (as discussed on Draft EIR page 4.8-68). The BDFP would also be designed to limit noticeable odors from BDFP facilities to the Southeast Plant property boundary, quantified as the 5 D/T criterion with 99 percent compliance based on a 1-hour average (as discussed on Draft EIR page 4.8-41).

The second comment acknowledges a potential benefit to the community in terms of reducing odors from solids processing, expresses concern about odors from the overall plant, and requests that the SFPUC and the EIR consider the net effect on odors from the water pollution control plant as a whole be considered in light of a projected 20 percent increase in wastewater processing by 2045.

As indicated on Draft EIR page 2-17, one of the goals of Sewer System Improvement Program is to limit plant odors to within the treatment facility's fenceline. Consistent with this goal, the SFPUC is incorporating odor control into many of the projects planned at the water pollution control plant. Regarding primary treatment in particular, the Primary/Secondary Clarifier Upgrades project at the water pollution control plant (described on Draft EIR page 4.8-77) includes installing odor control design features (covers, ventilation system) to reduce odors emanating from those facilities. The Draft EIR (pages 4.8-76 to 4.8-80) includes an evaluation of future cumulative odor conditions in the vicinity of the water pollution control plant. Future odor conditions were assessed based on a determination of how proposed changes at the Southeast Plant (i.e., the projects listed in Table 4.1-1, Draft EIR pages 4.1-6 to 4.1-15, in combination with the BDFP) could change existing odor conditions. Factors considered included whether odor incidents had been attributed to the water pollution control plant facilities with which each project was associated, and project characteristics, including whether odor control was proposed as part of the project's design (as is the case with the BDFP). The results, presented in Table 4.8-16 (Draft EIR pages 4.8-77 and 4.8-78), indicate that none of the projects would be expected to worsen existing odor conditions and some projects are expected to improve odor conditions. In addition to the qualitative assessment described above, as described on Draft EIR page 4.8-76, dispersion modeling was conducted for the BDFP in combination with the Headworks Replacement and Primary/Secondary Clarifier Upgrades projects; both of those projects involve

modifications to and/or replacement of facilities associated with existing odor sources, which would improve odor conditions. Figure 4.8-6 (Draft EIR page 4.8-79) presents the results of the dispersion modeling in terms of predicted future cumulative odor concentrations in the vicinity of the water pollution control plant, and reflects a predicted improvement in future cumulative odor conditions in the area compared to existing conditions.

Comment AQ-7: Mitigation to Reduce GHG Impacts

This response addresses the following comment, which is quoted below:

A-BAAQMD.5

"To mitigate its greenhouse gas emissions, the project states that "all diesel haul trucks and offroad equipment must use renewable diesel" (p. 4.8-46) as part of Mitigation Measure M-AQ-1a. We recommend or affirm the use of this mitigation approach for both municipally-owned and contractor-owned equipment in this project. Further, we recommend that this standard be extended to any portable diesel engines used in this project and to the backup generator installed in this project." (Jean Roggenkamp, BAAQMD; letter, July 28, 2017)

Response AQ-7

The commenter affirms the use of renewable diesel for haul trucks and off-road equipment and recommends that the SFPUC consider the use of renewable diesel in portable diesel engines and backup generators associated with this project. The purpose of requiring use of renewable diesel in all diesel-powered haul trucks and off-road equipment in Mitigation Measure M-AQ-1a is to reduce the project's NOx emissions, although reducing GHG (and ROG and particulate matter) emissions would be an added benefit. The use of renewable diesel in haul trucks and off-road equipment as part of Mitigation Measure M-AQ-1a results in emissions reductions of 5.3%, 0.27%, 15.5% and 15.6% for NOx, ROG, PM10, and PM2.5, respectively. The GHG emissions reductions associated with the use of renewable diesel are not specifically quantified here, as renewable diesel GHG benefits are the result of the full lifecycle of the fuel, and greatly depend on the feedstock source. However, for reference, the lifecycle analysis of renewable diesel under the Low Carbon Fuel Standard showed reductions in GHGs of about 15% to 80% depending on feedstock source.[22] With implementation of this mitigation measure, all portable diesel generators (municipally-owned and contractor equipment) used in construction would be required to use renewable diesel (they are included in the reference to "off-road equipment" in this mitigation measure) and this is reflected in air quality modeling results under the mitigated condition (see Draft EIR Table 4.8-9, page 4.8-47). With respect to operational emissions, the project's criteria pollutant emissions were determined to be less than significant (see Draft EIR Table 4.8-10, page 4.8-53). Although renewable diesel was not

[22] California Environmental Protection Agency, Staff Report, Multimedia Evaluation of Renewable Diesel, May 2015, pg 9. Available online at https://www.arb.ca.gov/fuels/diesel/altdiesel/20150521RD_StaffReport.pdf.

assumed to be used in the project's backup generators in the air quality modeling effort, the SFPUC has indicated that it would be used in backup generators because SFPUC Operations obtains diesel from the city's fill stations, and all of these stations provide renewable diesel for portable and stationary generators. Therefore, the less-than-significant criteria pollutant emissions that were identified in the Draft EIR for operation of backup generators would be even lower than estimated and would result in a secondary benefit of reduced GHG emissions because renewable diesel would be used. This less-than-significant impact (Impact AQ-2) would continue to be less than significant with use of renewable diesel in backup generators.

Comment AQ-8: Inclusion of Air Quality Technical Report and Diesel Equipment Compliance Requirements

This response addresses the following comments, which are quoted below:

A-BAAQMD.1 A-BAAQMD.10

"Air District staff want to compliment the City for producing a high-quality report that thoughtfully and meticulously explores air quality concerns. We find the separate air quality technical report (AQTR) quite helpful in understanding assumptions about impacts and recommend including it or key portions of it as an appendix in the final environmental impact report (FEIR)." (Jean Roggenkamp, BAAQMD, Letter, July 28, 2017)

"The Air District also wants to assure that diesel equipment used in this project complies with applicable registration requirements. Off-road diesel-powered equipment greater than 25 horsepower must be registered in the Diesel Off-Road On-line Registration System (DOORs) Database and display an Equipment Identification Number (EIN). Portable diesel-powered equipment must be permitted by the Air District as part of the Portable Equipment Registration Program (PERP), and we encourage SFPUC to pick the lowest emission equipment available for this project." (Jean Roggenkamp, BAAQMD, Letter, July 28, 2017)

Response AQ-8

The comment regarding the quality of the report is acknowledged.

The BAAQMD's recommendation that the entire *Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR* (AQTR) or key portions of it be included as an appendix to the Final EIR is noted. In its efforts to balance CEQA requirements for clear and concise yet sufficiently detailed information about potential environmental effects of a given project, the city selects the key information from such technical analyses for inclusion in the EIR section itself. The AQTR is part of the administrative record for the EIR and, as indicated in the Draft EIR (pages 4.8-9, 4.8-34, 4.8-38, 4.8-44, 4.8-58, and 4.8-60), is available for public review at the San Francisco Planning Department.

In response to this comment, the San Francisco Planning Department has also made the AQTR available online at: http://sfmea.sfplanning.org/SFPUC%20SEP%20Biosolids_AQTR_2017-03-10.pdf.

The BAAQMD also requests assurance that diesel equipment would comply with the specified registration requirements where applicable. If the project is approved, the SFPUC would comply with all applicable registration requirements and regulations.

With respect to the BAAQMD's encouragement for the SFPUC to pick the lowest emission equipment available, the San Francisco Clean Construction Ordinance requires contractors on city public works projects (like the BDFP) to use equipment that meets or exceeds Tier 2 standards for off-road engines and operates with the most effective CARB verified diesel emission control strategy available for the engine. In addition, the ordinance prohibits the use of portable diesel engines where access to alternative sources of power is available (see Draft EIR page 4.8-32 for details). Mitigation Measure M-AQ-1a requires contractors to meet even more restrictive emissions standards, thereby requiring use of the lowest emission equipment available for most engine sizes. All off-road equipment with larger engines (greater than or equal to 140 horsepower) must meet Tier 4 Final off-road emission standards, while equipment with smaller engines (less than 140 horsepower) must meet or exceed Tier 2 off-road emission standards and be equipped with diesel particulate filters, which is equivalent to a Level 3 verified diesel emission control strategy. Revisions to Mitigation Measure M-AQ-1a presented in **Response AQ-4** would further encourage the use of the lowest emission equipment in all haul trucks. The combination of the ordinance requirements and Mitigation Measures M-AQ-1a and M-AQ-1b would encourage use of low emission equipment for the project.

10.7 Hydrology and Water Quality

The comment and corresponding response in this section relates to the topics of hydrology and water quality, evaluated in Draft Environmental Impact Report (EIR) Section 4.16. The comment addresses the topic of sea level rise.

Comment HY-1: Sea Level Rise

This response addresses the following comment, which is quoted below:

A-SWRCB.2

"In section 4.16.1.5 regarding Sea Level Rise, on page 4.16-8, it states, "The sea level at the San Francisco tidal gauge has risen approximately 0.8 inches per year since 1897, resulting in about 0.6 foot of sea level rise between that time and 2015." Please clarify if this should be corrected to 0.08 (0.076) inches per year." (Susan Stewart, State Water Resources Control Board; letter, June 16, 2017)

Response HY-1

The commenter is correct; the sea level at the San Francisco tidal gauge has risen approximately 0.08 inch per year since 1897. Accordingly, the first sentence on Draft EIR page 4.16-8 is revised as follows (deleted text is shown in strikethrough; new text in double-underline):

"…risen approximately 0.0<u>8</u> inch per year since 1897, resulting in about 0.~~6~~<u>68</u> foot of sea level rise between that time and 2015."

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10.8 Hazards and Hazardous Materials

The comments and corresponding responses in this section relate to the topic of hazards and hazardous materials, evaluated in Draft Environmental Impact Report (EIR) Section 4.17. For ease of reference, these comments are grouped into the following issues that the comments raise:

- HZ-1: Asbestos
- HZ-2: Hazards to San Francisco Wholesale Produce Market and Community

Comment HZ-1: Asbestos

This response addresses the following comment, which is quoted below:

A-BAAQMD.9

"To assure that demolition associated with this project complies with Air District Regulation 11, Rule 2, this project may need to take multiple actions, which include but are not necessarily limited to a thorough asbestos survey by a certified asbestos consultant, removal of all regulated asbestos present, and a renovation and/demolition notification. We also observe that the SEP is within one quarter mile of the geologic ultramafic unit (JSP) on the Naturally Occurring Asbestos (NOA) geologic map of the area. Accordingly, we recommend that soil analysis be conducted to determine whether NOA is present where soil surfaces would be disturbed. Presence of NOA may trigger applicability of the Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying and Surface Mining Operations (CCR Title 17 Section 93105) and require dust mitigation measures, reporting, and submission of an Asbestos Dust Mitigation Plan. Should no NOA be found, the Air District recommends that construction dust best management practices (BMP) be implemented to control any fugitive dust during the construction phases." (Jean Roggenkamp, Bay Area Air Quality Management District, Letter, July 28, 2017)

Response HZ-1

This comment refers to requirements for the evaluation and investigation of asbestos that may be present in buildings that would be demolished under the project and naturally occurring asbestos that could be encountered in the soil that is excavated. Each of these is described below.

Asbestos in Building Materials

Draft EIR Section 4.17, Hazards and Hazardous Materials, describes Bay Area Air Quality Management District (BAAQMD) Regulation 11, Rule 2 (Asbestos Demolition, Renovation, and Manufacturing). Draft EIR pages 4.17-14 and 4.17-15 describe notification requirements for demolition work that may encounter asbestos-containing materials, and requirements for asbestos surveys and abatement. As discussed in Impact HZ-2 (Draft EIR page 4.17-27), the San Francisco Public Utilities Commission (SFPUC) would implement these regulatory requirements prior to demolition of any structures. Implementation of these requirements would ensure that impacts

related to encountering asbestos in building materials would be less than significant and no mitigation is necessary.

Naturally Occurring Asbestos

As discussed in Draft EIR Section 4.15, Geology, Soils, and Paleontological Resources (beginning on page 4.15-2), the geologic materials beneath the project site within which excavation is proposed (from shallowest to deepest) include artificial fill, young bay mud, and the upper layered sediments. Because neither young bay mud nor the upper layered sediments are ultramafic rock types, they would not likely contain naturally occurring asbestos. As discussed in Draft EIR Section 4.17, Hazards and Hazardous Materials (page 4.17-10), environmental investigations for each portion of the project site (i.e., the Southeast Water Pollution Control Plant, Central Shops, and Asphalt Plant) included analysis of the fill materials for naturally occurring asbestos. The samples were analyzed using California Air Resources Board Method 435 for the determination of asbestos content of serpentine aggregate, which has a detection limit of 0.25 percent asbestos. None of the soil samples analyzed contained asbestos at concentrations greater than 0.25 percent.[1] Naturally occurring asbestos was not identified in the near-surface soil samples from within the Pier 94 Backlands collected during a 2012 site investigation.[2]

Draft EIR Section 4.17, Hazards and Hazardous Materials, describes the Asbestos Airborne Toxic Control Measure (ATCM) and its relevance to the project. As discussed on Draft EIR page 4.17-15, the Asbestos ATCM would not apply to the project because no soil containing greater than 0.25 percent asbestos would be excavated or otherwise disturbed during construction at the project site or during grading to prepare the staging areas on Port of San Francisco property at Piers 94 and 96 and the Pier 94 Backlands.[3] Regardless, the project would implement construction dust best management practices for dust control in accordance with San Francisco's Dust Control Ordinance codified in Article 22B of the San Francisco Health Code. The dust control plan prepared in accordance with this ordinance would be subject to review and approval by the San Francisco Department of Public Health as described on Draft EIR page 4.17-31.

Based on this information, additional analysis of naturally occurring asbestos is not required and the Asbestos ATCM does not apply to project-related construction activities; the EIR already addresses the appropriate requirements for dust monitoring in areas that do not contain naturally occurring asbestos.

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1 Biosolids Digester Facilities Project (BDFP) Consulting Team, Environmental Site Investigation Report for San Francisco Department of Public Health Article 22A Compliance, May 2016.

2 T&R/RYCG, *Site Investigation Report*, *Pier 94 Backland Improvements and Amador Street Sanitary Pump Station*, *San Francisco*, *California*, June 15, 2012.

3 BDFP Consulting Team, Environmental Site Investigation Report for San Francisco Department of Public Health Article 22A Compliance, May 2016.

Comment HZ-2: Hazards to San Francisco Wholesale Produce Market and Community

This response addresses the following comments, which are quoted below:

O-SFWPM-2.5 O-SFWPM-2.6 O-BRITE.5

"**C. Hazards and Hazardous Materials Impacts**

"The DEIR's inadequacies with respect to its hazards and hazardous materials analysis are similar to, and potentially even more troubling than, its air quality analysis. The DEIR does not discuss the potential impacts of hazardous materials on the Market or the SFWPM Project. This failure to consider that the Market's operations could be significantly impacted by airborne hazardous materials, including as a result of off-haul of hazardous materials, or any other hazards related to the construction and operation of the Biosolids Project is a significant inadequacy."

"The DEIR has only a limited discussion of naturally occurring asbestos, which is a known and potentially significant issue in the area. Indeed, a number of potentially hazardous materials have been discovered in the soil around the Market during its construction activities. These potentially hazardous materials are often the result of fill material of various depths, and include serpentine rock (which contains naturally occurring asbestos), as well as petroleum hydrocarbons, heavy metals, and other similar contaminants related to the past use of the area for industrial and military purposes. Despite this documented history, the DEIR devotes only two paragraphs of Chapter 4.17 to discussing naturally occurring asbestos. Even more notable is the fact that only one impact analysis addresses asbestos, and there are no mitigation measures imposed to address it. Instead, the DEIR's analysis of Impact HZ-2 relies on the Biosolids Project's compliance with various Bay Area Air Quality Management District rules and regulations. Such limited analysis of a hazardous material known to be present in the area, with no proposed mitigation, is inadequate."

"As a general matter, the DEIR's analysis of hazardous materials (as well as air quality) fails to address the SFWPM and it's sensitive, food-related operations. While it does not appear from the DEIR that there will be any off-haul of hazardous materials through Jerrold Avenue (and thus through the SFWPM itself), the close proximity of the SFWPM to the Biosolids Project, which has confirmed hazardous materials on-site, requires some discussion and evaluation of potential food-related impacts." (Michael Janis, San Francisco Wholesale Produce Market, Letter, June 19, 2017)

"[A]s a vital business and adjacent site, it is important to the SFMC and Market that the Biosolids Project fits into the existing (and ever-growing and changing) neighborhood. As such, it is our position that the DEIR is inadequate in its … failure to consider … hazardous materials impacts to the Market and the SFWPM Project, and…failure to require mitigation specific to…hazardous materials impacts. We respectfully request that the DEIR be modified to address these inadequacies." (Michael Janis, San Francisco Wholesale Produce Market, Letter, June 19, 2017)

"This is also a good opportunity to pause and consider if it's in CCSF's best interest to have the most hazardous shipments travel through the primary distribution point for all fresh produce in CCSF – this is an issue of resiliency and food security as well." (Steven Tiell, Bayview Residents Improving Their Environment, Letter, May 30, 2017, and Email, May 31, 2017)

Response HZ-2

These comments address hazards posed to the San Francisco Wholesale Produce Market (SFWPM or produce market), specifically from dust containing naturally occurring asbestos and hazardous materials. As described below, the Biosolids Digester Facilities Project (BDFP) would not pose a hazard to the produce market or the surrounding community for multiple reasons discussed in the Draft EIR.

Naturally Occurring Asbestos

As described under **Response HZ-1**, environmental investigations for each portion of the project site included analyzing the fill materials for naturally occurring asbestos. The samples were analyzed by California Air Resources Board Method 435 for the determination of asbestos content of serpentine aggregate, and none contained asbestos at concentrations greater than 0.25 percent (the detection limit of California Air Resources Board Method 435).[4] The deeper geologic units that would also be excavated include the young bay mud and upper layered sediments, neither of which is an ultramafic rock type and thus would not include naturally occurring asbestos. For these reasons, there would be no hazards associated with airborne naturally occurring asbestos, and the Asbestos ATCM would not apply to the project (see Draft EIR page 4.17-15). No further discussion of the Asbestos ATCM is necessary and no mitigation is required because the soil excavated under the project would not contain naturally occurring asbestos.

Asbestos-Containing Building Materials

As described above under **Response HZ-1**, other forms of asbestos that may be encountered during construction include asbestos-containing materials within structures to be demolished. As discussed in the analysis of Impact HZ-2 (Draft EIR page 4.17-27), the SFPUC would be legally required to implement the BAAQMD's Regulation 11, Rule 2 (Asbestos Demolition, Renovation, and Manufacturing) before demolishing any structures. This regulation includes requirements for notification for demolition work that may encounter asbestos-containing materials, as well as requirements for asbestos surveys and emissions abatement. In accordance with this regulation, the contractor would implement controls during removal activities to ensure that there are no visible asbestos emissions to the outside air. Such measures may include wetting exposed asbestos-containing materials or providing exhaust controls to prevent asbestos emissions to the outside air, and constructing a containment barrier around the building and maintaining negative air pressure within the containment barrier. Implementation of these regulatory requirements would ensure that

[4] BDFP Consulting Team, Environmental Site Investigation Report for San Francisco Department of Public Health Article 22A Compliance, May 2016.

asbestos-containing materials are safely removed from any structure prior to demolition and that asbestos would not be dispersed into the air during the pre-demolition abatement.

There is a well-established regulatory framework and permitting process in place for addressing asbestos hazards during demolition, and compliance with these requirements is mandatory. It is therefore reasonable to assume that the project would comply with these requirements. Many decisions issued by California courts have recognized that an agency may rely on compliance with existing regulations or requirements in finding that a project's impacts would be less than significant. For example, *Tracy First v. City of Tracy* (177 Cal.App.4th 1933; 2009) held that an agency could rely on project compliance with a Building Code's energy efficiency standards for conclusion that a project would not have significant energy impacts and therefore did not require mitigation. In addition, *Oakland Heritage Alliance v. City of Oakland* (195 Cal.App.4th 884; 2011) also held that a project's compliance with existing laws and regulations provided substantial evidence that seismic impacts would be less than significant.

As concluded on Draft EIR page 4.17-27, implementation of the BAAQMD's legally required Regulation 11, Rule 2 (Asbestos Demolition, Renovation, and Manufacturing) is sufficient to ensure that impacts related to encountering asbestos in building materials would be less than significant and therefore no mitigation measures would be necessary. As a result, neither the produce market nor the wider public would be affected by asbestos emissions during the abatement of asbestos-containing materials or demolition of structures. No mitigation is necessary.

Construction-Generated Dust

Draft EIR Section 4.17, Hazards and Hazardous Materials (pages 4.17-2 through 4.17-7), describes the presence of chemicals in the soil at the Southeast Water Pollution Control Plant, Asphalt Plant, and Central Shops. Regarding the commenter's statement that the soil could contain hazardous materials, environmental investigations of the Southeast Water Pollution Control Plant, Asphalt Plant, and Central Shops sites have demonstrated that the site soil contains several chemicals, including total petroleum hydrocarbons as gasoline (TPH-gasoline), total petroleum hydrocarbons as diesel (TPH-diesel), total petroleum, volatile organic compounds, semi-volatile organic compounds, polychlorinated biphenyls, and metals. However, as discussed in Impact HZ-4 (Draft EIR pages 4.17-29 through 4.17-34), compliance with the dust control plan required under Article 22A of the San Francisco Health Code (also referred to as the Maher Ordinance) and San Francisco's Dust Control Ordinance would ensure that surrounding properties, including the produce market, would not be adversely affected as a result of dust emanating from construction activities within these materials. The requirements of the dust control plan are discussed on Draft EIR pages 4.8-43, 4.8-44, and 4.17-31 and in **Response AQ-3** in Section 10.6, Air Quality and Greenhouse Gas Emissions.

The dust control plan would be subject to review and approval by the San Francisco Department of Public Health, as described on Draft EIR page 4.17-31. The SFPUC would also be required to designate a third-party inspector to conduct inspections for visible dust during construction and keep records of those inspections.

Regarding the potential for dust from off-site transport, as shown on Draft EIR Figure 2-15 (Draft EIR page 2-60), only incoming (unloaded) trucks would use Jerrold Avenue through the produce market. Outgoing (loaded) trucks would use Rankin Street, Evans Avenue, and Cesar Chavez Street for access to either U.S. Highway 101 (Highway 101) or Interstate 280, and would not pass through the produce market. Further, in accordance with the Dust Control Ordinance, the amount of soil in hauling trucks would be limited to the size of the truck bed and walls, and trucks hauling loose materials (e.g., soil and sand) would be covered with a tarpaulin or other effective cover. With implementation of these measures, there would be no significant dust generation along the haul routes associated with the hauling of waste materials from the BDFP site.

In summary, compliance with the regulations and procedures set forth by the Dust Control Ordinance would ensure that potential dust-related air quality impacts would be less than significant, and that operations at the produce market would not be affected by dust generated by construction activities at the project site or by dust from the off-site transport of soil and other materials.

Use of Hazardous Materials in Project Operations

Regarding the operational use of hazardous materials, Table 2-9 (Draft EIR page 2-50) indicates the net change in the volume of chemicals and on-site fuels needed for the BDFP, which include polymer for thickening and dewatering of biosolids, ferric chloride for struvite control, and diesel for a backup generator. The BDFP would also use relatively small quantities of sulfuric acid and potassium permangate in the odor control systems, antiscalant, and sodium hypochlorite (similar to bleach) for the Digestion Cooling Tower, sodium sulfite for the boiler system, and propane gas for turbine startup. None of these materials is considered extremely hazardous. These materials would be stored in appropriate containers with spill containment systems, within proposed buildings, and handled in accordance with regulations for the safe storage and handling of hazardous materials. Handling of these materials would be consistent with existing SFPUC safety practices.

The SFPUC would continue to comply with the City and County of San Francisco's hazardous materials handling requirements specified in Article 21 of the San Francisco Health Code (discussed on Draft EIR pages 4.17-19 to 4.17-21). In accordance with this article, the SFPUC's Hazardous Materials Business Plan (HMBP) for the Southeast Water Pollution Control Plant that is on file with the San Francisco Department of Public Health would be revised to reflect the increased quantities of hazardous materials used. The HMBP includes chemical inventories, a program for reducing the use of hazardous materials and generation of hazardous wastes, site layouts, a program and implementation plan for training all new employees and annual training for all employees, and emergency response procedures and plans that provide for safe handling of hazardous materials, and also allows emergency responders to safely respond to a chemical emergency at the facility, if one were to occur. Any hazardous wastes produced would be managed in accordance with Articles 21 and 22 of the San Francisco Health Code.

Compliance with the San Francisco Health Code, which incorporates state and federal requirements, would minimize the potential for a release of hazardous materials at the Southeast

Water Pollution Control Plant and the potential exposure of the public to accidental releases of hazardous materials or waste. Compliance would also reduce the likelihood of a potential release that could cause environmental contamination. None of these chemicals are considered extremely hazardous materials that would require more stringent risk management procedures in accordance with Article 21A of the San Francisco Health Code.

Regarding chemical deliveries to the Southeast Water Pollution Control Plant, the existing truck route for chemical deliveries includes Jerrold Avenue through the produce market as shown on Draft EIR Figure 2-12 (Draft EIR page 2-48). Under the BDFP, the chemical delivery truck route would be changed, and chemical delivery trucks would use Rankin Street, Evans Avenue, and Cesar Chavez Street for access to either Highway 101 or Interstate 280 from the new Rankin Street entrance, as also shown on Draft EIR Figure 2-12 and described on Draft EIR pages 4.6-47 and 4.6-48. The number of chemical deliveries would remain approximately the same (fewer than six per day) and the delivery trucks would not pass through the produce market.

For the reasons discussed above, the increased use of hazardous materials during operation of the BDFP would not result in additional risks of chemical exposure at the produce market, either as a result of normal storage and use or from changes in chemical deliveries.

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10.9 Other CEQA Considerations

The comments and corresponding responses in this section relate to the California Environmental Quality Act (CEQA) process, the cumulative impact analysis and projects identified in Draft Environmental Impact Report (EIR) Section 4.1, and the State Revolving Fund (SRF) process. For ease of reference these comments are grouped into the following issues that the comments raise:

- OC-1: CEQA Process
- OC-2: Cumulative Impact Analysis
- OC-3: Cumulative Projects – Southeast Greenhouses Demolition
- OC-4: SRF Process

Regarding comments and responses pertaining to cumulative development in the project vicinity, refer also to **Response TR-4** in Section 10.5 of this document.

Comment OC-1: CEQA Process

This response addresses the following comments, which are quoted below:

I-Matlock.2 I-Hinton.5

"The 48 day comment period does not provide ample time for members of the public to study and respond to this DEIR." (Perry Matlock, Letter, June 19, 2017)

"I respectfully request also that you seriously consider the thoughtful recommendations of Dan Dodt and Bayview Community Planning." (Rosalind Hinton, Letter, June 19, 2017)

Response OC-1

When an EIR is submitted to the California State Clearinghouse for review by state agencies, which was the case for the BDFP Draft EIR, the public review period must be at least 45 days unless a shorter review period is approved by the State Clearinghouse. The 48-day BDFP comment period thus exceeds CEQA requirements for public comment periods, and is consistent with standard practice of the City and County of San Francisco.

Responses to comments provided by Dan Dodt and Bayview Community Planning are included in relevant portions of this response to comments document. **Table COM-1** (in Attachment COM) identifies the written comments received from Dan Dodt and Bayview Community Planning, and lists the topics under which responses to the comments are provided. **Table PH-1** (in Attachment PH) identifies the oral comments received from Dan Dodt and Bayview Community Planning, and lists the topics under which responses to the comments are provided.

Comment OC-2: Cumulative Impact Analysis

This response addresses the following comments, which are quoted below:

A-CPC-Johnson.3	O-Bayview CP-1.1	O-BayviewCP-2.4	O-BVHPCAC.2
I-Blacketer.4	I-Hamman-1.1	I-Hamman-4.1	

"I know that -- and I don't know -- hopefully I'm speaking slowly enough for the recorder -- that generally speaking for EIRs, we try to be very project specific. And so we'll take into account various projects. And there's actually a table in the EIR that looks at the various projects in the surrounding area to say what are we looking at when we talk about cumulative impact. But we don't get super detailed into their on-boarding plans or their phasing to look at the impacts for this particular project or any particular EIR.

"And I think that that's something we need to take a look at here. Five years is not a lifetime, but it is a long time. And I think it would be good for us to make sure we dotted all our Is and crossed our Ts when it comes to looking at how we can get this project done with the least amount of impact possible." (Christine Johnson, Planning Commission, Public Hearing Comments, June 1, 2017)

"Please also note that nearby Palou Avenue will be under construction for a $3 1/2 million streetscape improvement plan beginning this year for a couple of years. (Dan Dodt, Bayview Community Planning, Public Hearing Comments, June 1, 2017)

"Not included in the cumulative impact analysis on traffic, and not mentioned in the BSFP-EIR, yet key to understanding the need for feasible mitigation as a requirement to LSM status are:

"> **Palou Avenue** streetscape improvement project -from Barneveld to Crisp Avenues- beginning late 2017, this is an approved $10m, SFDPW/SFMTA project with significant staging, parking, rerouting and daily traffic impacts on this heavily used East/West alignment.

"> **2245 Jerrold Avenue** - Project by **SFFD** - construction of SFFD Ambulance Deployment Facility - a $27m project slated for construction in 2020. As noted in the project conceptual design documentation, "The Project site is in an intensively developed area of San Francisco's Bayview neighborhood characterized by various warehouse, distribution and light industrial uses". (Dan Dodt, Bayview Community Planning, Letter, June 17, 2017; Jack Gallagher, Bayview Hunters Point Citizens Advisory Committee, Letter, June 19, 2017)

"There are multiple projects affecting the area, with many occurring simultaneously with the Biosolids Digester Project. Other projects that will affect transportation in the area are not listed in the EIR. For example, in addition to the partial closing of **Evans Street** beginning in August 2017; the **closure of Jerrold Avenue from Phelps to Rankin Street** for 5-6 years; the **construction staging along Phelps Avenue**; the **Palou Avenue** streetscape improvement

project -from Barneveld to Crisp Avenues; the **2245 Jerrold Avenue** - construction of SFFD Ambulance Deployment Facility; ;the re-routing of the **23 Muni Bus Line to Palou Avenue**, the temporary closure of the Illinois Street Bridge at Islais Creek, we are potentially in real trouble when desiring to enter or exit our neighborhood by vehicle." (Linda K. Blacketer, Letter, June 19, 2017)

"They failed to take into account the major projects that are being built in India Basin. The India Basin Project is 1250 units, the Shipyard is coming online with 900 units, Hunters View hundreds more, plus the projects up and down Third Street." (Michael Hamman, Public Hearing Comments, June 1, 2017)

"There are multiple projects affecting the area, with many occurring simultaneously and the EIR does not consider the cumulative impact of all these projects together. Several huge projects in the area were not considered at all, including the 1200 new housing units in the Build Inc project the 900 units in the Shipyard project as well as numerous projects on Third Street such as the Chris Harney project. In addition projects by other agencies such as the closing of the Third Street "Nishkin" bridge by DPW. I request a complete inventory of all the projects expected during this project be considered." (Michael Hamman, Letter, June 20, 2017)

Response OC-2

The comment from Commissioner Johnson regarding the evaluation of cumulative project impacts is noted. Draft EIR Table 4.1-1 (beginning on page 4.1-6) describes the past, present and probable future projects that are considered in the list-based cumulative analyses; Figure 4.1-1 (Draft EIR page 4.1-17) shows their locations. Forty cumulative projects were included in Table 4.1-1, selected for inclusion based on the nature of the environmental effects examined in the Draft EIR, the location of each project, and the type of project. The cumulative analyses of the BDFP and other projects in the cumulative scenario are included within each Draft EIR topic section (Sections 4.2 through 4.19). Each topic section defines the geographic scope of the area affected by the cumulative effect, if any, and includes a reasonable analysis of the cumulative impacts of the relevant projects within the geographic scope. The analysis of cumulative impacts takes into consideration the characteristics particular to BDFP construction (e.g., the five-year construction schedule, closure of Jerrold Avenue). For example, the transportation analysis (beginning on Draft EIR page 4.6-22) quantified construction worker and truck trips for those cumulative projects with construction schedules overlapping the periods representing the greatest BDFP construction truck traffic (October 2018) and greatest BDFP construction worker traffic (May 2022); then, cumulative impacts related to seven different transportation-related impacts (e.g., traffic circulation, traffic safety, emergency access) were evaluated.

As stated in the specific Draft EIR topic sections (Sections 4.2 through 4.19), the BDFP cumulative analyses used a list-based approach, a projections approach, or a hybrid of the two as appropriate, to determine cumulative impacts of the BDFP in combination with other reasonably foreseeable projects. To better reflect the various approaches used in the individual cumulative analyses, the first paragraph on Draft EIR page 4.1-4 is revised as follows (new text is shown in double underline and deleted text is indicated with ~~strikethrough~~):

> As permitted in CEQA Guidelines Section 15130(b)(1), the analyses ~~analysis~~ in this EIR employs~~s~~ the list-based approach, a projections approach, or a hybrid of the two as appropriate~~, for defining projects to be considered in the cumulative impact analysis~~. In the list-based approach, ~~— that is,~~ the analysis is based on a list of past, present, and probable future projects that could result in related or cumulative impacts. A probable future project is defined as one that is "reasonably foreseeable," which is generally a project for which an application has been filed with the approving agency or that has approved funding. In the projections approach, projections contained in an adopted local, regional, or statewide plan, or related planning document, are summarized to describe or evaluate conditions contributing to the cumulative effect.

The second paragraph on Draft EIR page 4.1-4 is also revised to read:

> The following factors were used to determine an appropriate list of relevant projects to be considered in the list-based cumulative analyses:

The second paragraph on Draft EIR page 4.1-5 is revised to read:

> **Table 4.1-1** describes the past, present, and probable future projects that are considered in the list-based cumulative analyses (based on the factors described above), and their locations are shown on **Figure 4.1-1**.

Four proposed projects cited in the comments above were not included in list of cumulative projects in Draft EIR Table 4.1-1 (page 4.1-6). These projects include the Palou Avenue Streetscape Improvement Project and Quesada Bike Lane, the 2245 Jerrold Avenue Emergency Medical Services Facility, the Hunters View project, and Islais Creek Bridge Rehabilitation. **Table 10.9-1** describes these projects. As described in **Response TR-4** (Section 10.5), inclusion of these projects in the cumulative scenario would not alter the cumulative transportation and circulation impact significance conclusions in the EIR.

TABLE 10.9-1
ADDITIONAL PROJECTS SUGGESTED FOR INCLUSION IN CUMULATIVE IMPACT ANALYSIS

Project Name (Project Sponsor)	Project Description	Construction Dates
Palou Avenue Streetscape Improvement Project and Quesada Avenue Bike Lane (SFMTA)[a]	This project includes streetscape improvements on a seven-block segment of Palou Avenue between Rankin and Jennings Streets, about 1,000 feet from the BDFP project site. Improvements include color curb changes, removal of seven on-street parking spaces, transit stop consolidation, removal of existing shared roadway bicycle markings, and removal of one of two westbound travel lanes on the three-block segment of Palou Avenue between Newhall and Keith Streets. In addition, a new bicycle lane would be implemented on Quesada Avenue between Third and Griffith Street. Construction activities would include lane striping, signage, color curb changes, and other minor improvements, and would not include excavation or work within the travel lanes for extended durations.	April 2018-April 2019
2245 Jerrold Avenue (CCSF Fire Department)[b]	San Francisco Fire Department Station #9 is located at 2245 Jerrold Avenue. This project involves demolition of two structures south of the fire station and construction of a three-story, 30,344-gross-square-foot (gsf) EMS facility and a three-level, approximately 62,000 gsf parking structure behind the existing San Francisco Fire Department Fire Station 9 located on same block/lot. The proposed 47-foot-tall concrete parking structure would provide 121 parking spaces for various emergency vehicles as well as vehicles for trainees, employees, and visitors, and would also include an emergency generator, vehicle refueling pumps, and diesel and gasoline fuel tanks. The existing Fire Station 9 and an open shed would remain in use. This project site is about 2,270 feet west of the BDFP project site.	2018-2019 (1.5 years)
Hunters View Project (San Francisco Housing Authority and Hunters View Associates, LP)[c]	Hunters View is the first project to proceed under HOPE SF, an initiative to rebuild San Francisco public housing sites. When completed, the 22.5-acre Hunters View site will include 800 housing units, childcare facilities, a community center, playgrounds and parks, and 6,400 square feet of retail space. The site is approximately 0.7 mile southeast of the BDFP site. The project will include the demolition of all existing public housing units and other facilities on the site and result in a mixed-income community of up to 800 new residential units (with one-for-one replacement of the existing 267 public housing units). The project includes realignment of some existing streets as well as new streets and sidewalks. Up to 816 off-street parking spaces will be included at the site. Phase 1 was completed in 2013, Phase 2a was completed in early 2017, and the remaining phases would be constructed between 2019 and 2023.	Phased development: 2010 to 2023
Islais Creek Bridge Rehabilitation (San Francisco Public Works)[d]	SFPW would rehabilitate and repair the Islais Creek Bridge, located approximately 0.25-mile northeast of the Southeast Plant. The project would include repairing and replacing various components of the bridge to bring them up to current seismic and service standards and replacement and upgrades to bridge safety features; which would serve to increase the bridge's service life an additional 50 years. Without preventative replacement, repair, and seismic compliance, existing bridge wear and damage would worsen and ultimately compromise the structural integrity of the bridge. No change to the alignment or widening of the bridge is proposed. The construction contractor would be required to submit a Traffic Control Plan to the City's Traffic Engineer for review and approval.	2018-2019; bridge closure lasting 1-2 months in late 2018

SOURCES:

[a] San Francisco Planning Department, CEQA Categorical Exemption Form, SFMTA – Palou Avenue Streetscape Improvement Project and Quesada Avenue Bike Lanes, January 20, 2017.
[b] San Francisco Planning Department, CEQA Categorical Exemption Form, 2245 Jerrold Ave SFFD Emergency Medical Services Facility, March 2, 2017.
[c] San Francisco Planning Department, Hunters View Redevelopment Project Environmental Impact Report, State Clearinghouse No. 20070168E, certified June 12, 2008.
[d] San Francisco Planning Department, Preliminary Project Assessment, Third Street Crossing of Islais Creek, Case No. 2014.0097U, March 14, 2014; Oscar Gee, San Francisco Public Works, personal communication with Karen Lancelle, ESA, August 28, 2017.

Comment OC-3: Cumulative Projects - Southeast Greenhouses Demolition

This response addresses the following comments, which are quoted below:

O-BayviewCP-2.2	O-BHS.2	O-BRITE.3	I-Blacketer.2
I-Hamman-3.1	I-Hinton.2		

"2. Impacts of Other Project Components - **Display Building**

"'The most prominent features of the greenhouses are four tall, narrow structures near the edge of the property on Phelps Street. As a separate action from the BDFP, the San Francisco Public Utilities Commission(SFPUC) plans to demolish the existing structures at the Southeast Greenhouses site (refer to Table 4.1-1 in Section 4.1). The site would be used for construction staging for the project if it becomes available prior to BDFP construction.'

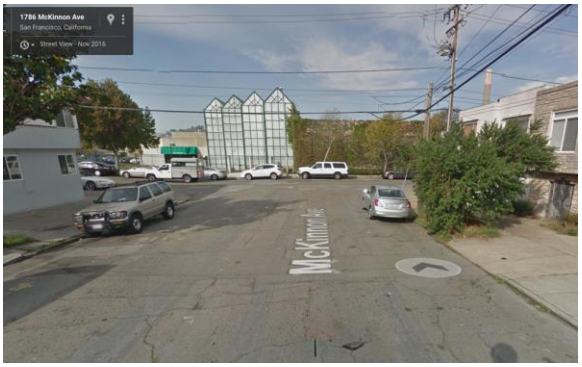
"Recommendation:

"The smaller, yet taller, glassed in greenhouse 'facade' - THE DISPLAY BUILDING is a striking and important community marker at the intersection of Phelps and McKinnon Avenues. As community planners and advocates for improving the physical environment where we live, the potential for losing these smaller buildings (if contemplated in Phase 1) seems antithetical to the goals we've set for ourselves in lifting this place in Bayview.

"These buildings have been recognized as remaining in our neighborhood greening and block improvement plans for some time and fulfill the Phase2 goals for the 'Model Block' as planned in 2006-2009.

"These DISPLAY BUILDINGS are noted in the EIR and Aecom report as the 'Display' buildings, and are not contiguous to the larger greenhouses also slated for demolition in the BDFP. The Aecom Due Diligence report -2015 does not indicate an imminent seismic failure of this particular location, as was reported by the SFPUC neighborhood outreach team in May, 2017. The path of least resistance may be to simply demolish the buildings in order to make way for a construction parking lot and staging area as mapped and noted in the EIR. Demolition of these structures add to the removal of community assets, bit by bit, in our opinion. An alternate, community use, is highly recommended.

"If it is indeed determined that occupancy of building is not recommended, yet the seismic integrity is not significantly compromised, the building would provide an ideal location as a community storage hub for cots, MREs, generators, first-aid supplies, water and many other emergency items for use by emergency responders on behalf of Bayview and beyond in the event of a impactful event or natural disaster. (Dan Dodt, Bayview Community Planning, Letter, June 17, 2017)



"2. **CULTURAL RESOURCES** Impacts of Other Project Components - Display Building

"We are opposed to the demolition and removal of the green framed, display buildings along Phelps Avenue, and suggest an alternate, community serving use for these modest structures. As noted in the EIR - 'The most prominent features of the greenhouses are four tall, narrow structures near the edge of the property on Phelps Street. As a separate action from the BDFP, the San Francisco Public Utilities Commission(SFPUC) plans to demolish the existing structures at the Southeast Greenhouses site (refer to Table 4.1-1 in Section 4.1). The site would be used for construction staging for the project if it becomes available prior to BDFP construction.

"Recommendation:

"These buildings have been recognized as remaining in our neighborhood greening and block improvement plans for some time and fulfill the Phase2 goals for the 'Model Block' as planned in 2006-2009, with the initial phase completed at City cost on the Newcomb Avenue alignment. These buildings are also noted in both the EIR and Aecom report as the 'Display' buildings, and are not contiguous to the larger greenhouses also slated for demolition in the BDFP. The Aecom Due Diligence report -2015 does not indicate an imminent seismic failure of this particular location.

"Demolition of these structures to make space for a construction staging and parking lot and staging area as mapped and noted in the EIR is mis-guided and needlessly destructive, in our opinion. Demolition of these structures also add to the incremental removal of known community assets. The display buildings are valued and admired by many in the community and stand out as an 'iconic marker' despite the modest architectural character and lack of recognition as an 'historic resource'

"An alternate, rather benign and easily implemented community use is highly recommended and is outlined by the Bayview Office for Community Planning. We concur with this assessment:

"If it is determined that occupancy of building is not recommended, yet the seismic integrity is not significantly compromised, the building would provide an ideal location as a community storage hub for cots, MREs, generators, first-aid supplies, water and many other emergency items for use by emergency responders on behalf of Bayview and beyond in the event of a impactful event or natural disaster. The community could clearly benefit from such an asset in light of the other significant impacts from this phase of the SSIP project" (Adrian Card, Bayview Historical Society, Letter, June 19, 2017)

"What we hear universally from residents is best described as outrage. First, with respect to the greenhouses, it would be minimally respectful to retain the glass "exhibit gallery" buildings and façade on Phelps at the intersection with McKinnon – these structures remind the community of their pride for being pioneers in creating urban, green-collar jobs. Furthermore, the cost to retain and repair these structures is surely competitive with the costs of leased trailers for office space (the EIR-identified use of that land)." (Steven Tiell, Bayview Residents Improving Their Environment, Letter, May 30, 2017, and Email, May 31, 2017)

"Display Buildings

"While the display buildings are not technically 'historic', they nonetheless provide a much needed and moderately attractive facade with which to block the industrial elements of the Water Treatment Plant beyond. Destruction of those elements in favor of a parking lot for trucks and staging makes little sense and appears to be entirely unavoidable. I clearly understand the need to demolish the large and low slung white greenhouse items and the concrete building (the ancillary structure), but the green-framed Display Houses do not need to be eliminated in the neighborhood for purposes of construction. It also appears that the funding to repair these Display buildings is minor overall, and clearly beneficial when one considers the placement and connection to the community. Save the Display Buildings." (Linda K. Blacketer, Letter, June 19, 2017; Michael Hamman, Letter, June 19, 2017)

"I would ask that you at the very least (1) Preserve the smaller, yet taller, glassed in greenhouse 'facade' - at the intersection of Phelps and McKinnon Avenues. A "display of interpretive materials" is not a suitable replacement for the actual assets that currently exist and can be used by the community." (Rosalind Hinton, Letter, June 19, 2017)

Response OC-3

The comments express opposition to demolition of the "Display Building" (also referred to as the Display House, exhibit gallery or exhibit hall) at the Southeast Greenhouses, and recommend that the building be retained. The Southeast Greenhouses Demolition is a separate project that would remove both the greenhouses and the Display Building and is not proposed as part of the BDFP;[1] it is described on BDFP Draft EIR page 4.1-10 (Item #21 in Table 4.1-1) and evaluated as a cumulative project. Approval of the BDFP would have no effect on the Southeast Greenhouses Demolition project. The cumulative environmental effects of the Southeast Greenhouses Demolition along with the BDFP and other cumulative projects were evaluated in the Draft EIR in each topic section (Sections 4.2 through 4.19). Approval of the Southeast Greenhouses Demolition project is anticipated in early 2018.

Comment OC-4: SRF Process

This response addresses the following comments, which are quoted below:

A-SWRCB.1 A-SWRCB.4

"We understand that the Department is pursuing Clean Water State Revolving Fund (CWSRF) financing for this Project. As a funding agency and a state agency with jurisdiction by law to preserve, enhance, and restore the quality of California's water resources, the State Water

[1] In June, 2017, the Planning Department found the demolition of the buildings at the Southeast Greenhouses exempt from CEQA (San Francisco Planning Department, CEQA Categorical Exemption for SFPUC – Revised Southeast Greenhouses Demolition Project. Case Number 2017-007807ENV, June 23, 2017).

Resources Control Board (State Water Board) is providing the following information on the EIR to be prepared for the Project.

"The State Water Board, Division of Financial Assistance, is responsible for administering the CWSRF Program.

…

"The CWSRF Program is partially funded by the United States Environmental Protection Agency and requires additional "CEQA-Plus" environmental documentation and review. Three enclosures are included that further explain the CWSRF Program environmental review process and the additional federal requirements. For the complete environmental application package please visit: http://www.waterboards.ca.gov/water issues/programs/grants loans/srf/srf forms.shtml. The State Water Board is required to consult directly with agencies responsible for implementing federal environmental laws and regulations. Any environmental issues raised by federal agencies or their representatives will need to be resolved prior to the State Water Board approval of a CWSRF financing commitment for the proposed Project. For further information on the CWSRF Program, please contact Mr. Ahmad Kashkoli, at (916) 341-5855." (Susan Stewart, State Water Resources Control Board, Letter, June 16, 2017)

"Please provide us with the following documents applicable to the proposed Project following the Department's California Environmental Quality Act (CEQA) process: (1) one copy of the draft and final EIR, (2) the resolution adopting the EIR and making CEQA findings, (3) all comments received during the review period and the Department's response to those comments, (4) the adopted Mitigation Monitoring and Reporting Program (MMRP), and (5) the Notice of Determination filed with the San Francisco County Clerk and the Governor's Office of Planning and Research, State Clearinghouse. In addition, we would appreciate notices of any hearings or meetings held regarding environmental review of any projects to be funded by the State Water Board." (Susan Stewart, State Water Resources Control Board, Letter, June 16, 2017)

Response OC-4

The comments from the State Water Resources Control Board (SWRCB) regarding the Clean Water State Revolving Fund program are noted. The San Francisco Public Utilities Commission (SFPUC) intends to pursue Clean Water State Revolving Fund financing for the Biosolids Digester Facilities Project (BDFP) and will comply with the environmental documentation and review requirements of the program, and provide the SWRCB with the documents requested in these comments.

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10.10 Alternatives

The comments and corresponding responses in this section relate to the topic of project alternatives, evaluated in Draft Environmental Impact Report (EIR) Chapter 6. For ease of reference these comments are grouped into the following issues that the comments raise:

- AL-1: Rail Transport Alternative
- AL-2: Other Comments on Alternatives

Comment AL-1: Rail Transport Alternative

This response addresses the following comments, which are quoted below:

O-Greenaction.4 I-Hamman-2.1 I-Hamman-2.2 I-Hamman-2.3 I-Kelly.3

"Other options of [operational biosolids hauling] transport should be explored, such as rail." (Bradley Angel, Greenaction for Health and Environmental Justice, Letter, June 26, 2017)

"I am a resident and business owner in the Bayview and I am writing today to request additional review of the impact analysis with respect to Air Quality (Section 4.8). The EIR divides the contributions to air quality into two categories, operations of the completed plant and thos[e] activities necessary to construct the plant. Of the activities that contribute to air quality some are impossible or difficult to mitigate successfully. However, one component does le[n]d itself to successful reduction and that is truck trips, both during construction project and trips during the operation by using rail to transport the construction material and the biosolids during operation of the plant.

"The primary pollutant generated by truck trips is NOx and the EIR projects a total of 31,123 lbs of NOx emitted in our neighborhood during the five years of construction (Section 4.8-8). In addition many tons will be emitted during the operational life of the project. Several methods of mitigation are recommended, nevertheless, *"the construction-related NOx emissions are considered significant and unavoidable with mitigation"* (4.8-49) in addition to the significant degradation of our air quality, these 71 truck trips a day will severely impact traffic and emergency access to our neighborhood (4.6-28).

"The EIR projects seventy one (71) construction truck trips a day for the duration of the project. These truck trips will also have a negative impact on traffic and emergency access. Rail transportation would ameliorate these impacts as well." (Michael Hamman, Letter, June 19, 2017)

"The use of rail transportation for hauling the biosolids during the operation of the plant was analyzed in Section 6.5.4-2. However that analysis is inadequate in several respects:

- "The analysis only considers the use of rail to haul the operation biosolids. It should consider the alternative of using rail for BOTH the operations biosolids and the

construction material. Especially the waste going to Altamont as there exists a well established process for rail transportation of that commodity. **I request this option be analyzed**.

- "The analysis assumes that all material needs to be trucked to the SFBR yard along Cargo Way. The possibility of loading directly onto rail cars at the site by constructing a loading spur off the nearby Quint Street lead needs to be analyzed. Such direct loading would achieve dramatic reduction in total truck trips. Furthermore such direct loading was once practiced at that location. **I request this option be analyzed."** (Michael Hamman, Letter, June 19, 2017)

"The use of rail transportation to transporting such bulk items has benefits beyond improving air quality.

- "Reducing truck trips will also reduce the impacts on traffic.
- "Using a rail spur will enhance the ability to organize the logistics of construction, possibly reducing the need for construction staging areas and "lay-down" space.
- "Moving freight by rail reduces greenhouse gas emissions by 75% over trucks (*"Freight Railroads Help Reduce Greenhouse Emissions"* ARR Study April 2017)
- "Utilizing the railroad infrastructure that currently exists next to the proposed project will reduce the degradation of our streets and highways caused by the tens of thousand heavy truck trips during the five year course of construction. And into the future with the operation of the new plant." (Michael Hamman, Letter, June 19, 2017)

"All that said:

"My comments are centered around the issues of truck traffic and their emissions. The EIR considers and recommends several methods of mitigation; but it goes on to say "*the construction-related NOx emissions are considered significant and unavoidable with mitigation*" (4.8-49). I must disagree – **a significant amount of the construction-related NOx emissions can be avoided** by utilizing rail transportation instead of trucks.

"Quoting my neighbor, Michael Hammann, in his EIR comments:

"'The primary pollutant generated by truck trips is NOx, and the EIR projects a total of 31,123 lbs of NOx emitted in our neighborhood during the five years of construction (Section 4.8-8)....

"'The use of rail transportation for hauling the biosolids during the operation of the plant was analyzed in Section 6.5.4-2. That analysis is inadequate in several respects:

- *"'The analysis only considers the use of rail to haul the operation biosolids. It should consider the alternative of using rail for BOTH the operations biosolids and the construction material. Especially the waste going to Altamont as there exists a well established process for rail transportation of that commodity.* ***I request this option be analyzed.***
- *"'The analysis assumes that all material needs to be trucked to the SFBR yard along Cargo Way. The possibility of loading directly onto rail cars at the site by constructing a loading spur off the nearby Quint Street lead needs to be analyzed. Such direct loading would achieve dramatic*

reduction in total truck trips. Furthermore such direct loading was once practiced at that location. ***I request this option be analyzed.'***

"I am certain that additional analysis will reach the same conclusion that other developers and contractors have found over the years – that rail transportation has less impact on air quality than truck traffic." (Tony Kelly, Letter, June 26, 2017)

Response AL-1

The comments request that the EIR evaluate hauling biosolids (during operation of the Biosolids Digester Facilities Project [BDFP]) as well as hauling construction materials via rail as alternatives in order to reduce truck trips and associated transportation and air quality impacts. The comments also request consideration of direct loading into rail cars from the project site via the Quint Street Lead rail spur.

Draft EIR Chapter 6, *Alternatives*, describes the purpose of and requirements for consideration of alternatives in an EIR, the alternatives selected for evaluation and the process by which they were selected, and alternatives that were considered but eliminated from analysis. As described in the Draft EIR (page 6-2), pursuant to the California Environmental Quality Act (CEQA) an EIR must include a range of reasonable alternatives to the project that are feasible, are capable of meeting most of the basic objectives of the project, and would avoid or substantially lessen any of the significant effects of the project. The term "feasible" as relevant to the evaluation of alternatives under CEQA is defined in California Public Resources Code Section 21061.1 as "capable of being accomplished in a successful manner within a reasonable period time, taking into account economic, environmental, social, and technological factors." Factors that may be taken into account when addressing the feasibility of alternatives include (but are not limited to) availability of infrastructure, jurisdictional boundaries, and whether the proponent can reasonably acquire, control, or otherwise have access to sites included in the alternatives.[1]

Railway Transport of Biosolids

As indicated in Draft EIR Section 6.5.4.2 (Draft EIR page 6-104), the use of the railway for hauling biosolids as part of long-term operations was considered but eliminated from further analysis. As discussed there, this option did not reduce any significant impacts or materially alter the impact conclusions for the BDFP. With implementation of the BDFP, there would be an increase of three truck trips per day on average (Draft EIR page 4.8-37). Due in part to this small increase in truck trips (among other factors discussed in Draft EIR Impact TR-3), operations-phase transportation impacts were determined to be less than significant and thus no mitigation was required (Draft EIR page 4.6-47). Similarly, such a small change in truck trips on local roadways would not substantially increase transportation-related criteria pollutant emissions or associated health risks (see Draft EIR pages 4.8-51 and 4.8-55). This information is summarized in Draft EIR Section 6.5.4.2 under the heading "Impact Reduction." As stated there, while there could be a reduction in the distance, frequency, and number of truck trips for hauling biosolids and commensurate reduction in air pollutant emissions from trucks, there would be increased handling of biosolids from truck

[1] CEQA Guidelines Section 15126.6(f)(1).

to rail and rail to truck and increased emissions associated with rail use; the net effect on regional air quality in the air basin is unknown. Consequently, while a "Rail Transport of Biosolids" alternative would meet most of the basic project objectives and was considered potentially feasible (conditioned upon the availability of a rail line between the Southeast Plant and a Class A biosolids end-use destination), it would not reduce any significant environmental impacts attributable to the project, as discussed on Draft EIR page 6-104. Use of the railway to haul biosolids lacked distinct environmental advantages relative to the proposed project or alternatives evaluated in Draft EIR Section 6.3, and was thus eliminated from further analysis.

Railway Transport of Construction Materials

Some comments suggest using rail haul for construction materials (assumed to include equipment and other construction materials as well as construction and demolition debris) in order to reduce truck trips, transportation impacts, and air quality impacts. The Draft EIR did not identify significant transportation and circulation impacts, but did identify significant construction-phase air quality impacts due to nitrogen oxide (NOx) emissions. As described on Draft EIR page 4.6-46, construction-related project impacts on transportation and circulation were determined to be less than significant due in part to implementation of a site-specific Traffic Control Plan that would establish measures to reduce traffic congestion and reduce potential traffic, bicycle, pedestrian, transit, and emergency vehicle access disruptions and safety hazards. As described in Draft EIR Section 4.8, Air Quality (beginning on page 4.8-43), NOx emissions generated during the first and third years of the five-year construction period would violate an existing air quality standard, both at the project level and cumulatively, even with implementation of maximum feasible mitigation measures for construction emissions minimization. Implementation of Mitigation Measure M-AQ-1b (Emission Offsets; Draft EIR page 4.8-50) could reduce these impacts to a less-than-significant level by reducing NOx emissions to below the threshold level within the same air basin; however, these impacts are still considered significant and unavoidable because sufficient direct offset opportunities have not been fully verified and because implementation depends on an agreement with a third party (the BAAQMD). While direct offset opportunities have not been fully verified, **Table 10.6-1** in Section 10.6, *Air Quality and Greenhouse Gas Emissions*, outlines potential mitigation projects the SFPUC has analyzed and recommended. If approved, these offset opportunities could sufficiently offset the NOx exceedances in years 1 and 3 of construction.

Two suggestions for railway transport of construction materials are made by commenters. Some comments suggest that direct rail loading of materials at the Southeast Plant be implemented. The San Francisco County Transportation Authority recently removed the rail spur adjacent to the project site's western boundary (labeled "Freight Rail Spur" on Figure 2-2, Draft EIR page 2-4) that previously connected the Southeast Plant to the San Francisco Bay Railroad line as part of the Quint Street Lead Track project (see Draft EIR page 4.1-12 for a description). Nonetheless, in response to these comments, the San Francisco Bay Railroad, which operates the San Francisco Bay Railroad Rail Yard and Transfer Facility (shown on Draft EIR Figure 4.2-2, page 4.2-4), was contacted to discuss the feasibility of using rail transport with direct loading at the Southeast Plant. A new rail spur would need to be installed in order to directly load materials from the Southeast Plant. Installation of a new rail spur would require coordination with UPRR (the land owner) as well as with the San Francisco Bay Railroad and the San Francisco County Transportation Authority. Due

to the extent of coordination required with these entities, it is unlikely that installation of a new rail spur would be feasible without delaying BDFP construction. SFPUC may pursue this option should installation of a new rail spur become practical; however, for the purposes of the BDFP EIR, the feasibility of a "Direct Loading at the Southeast Plant" alternative is uncertain.

Commenters also propose the use of rail instead of trucks to transport the portion of project construction and demolition debris destined for Altamont Landfill. This alternative would require new infrastructure at the Altamont Landfill. While railroad tracks pass near the landfill, there is no offloading infrastructure. Thus, infrastructure would have to be constructed at or near the landfill to transfer construction and demolition wastes into trucks which would then be driven the remaining distance. Constructing such facilities would require agreements with and approvals from numerous third parties, as SFPUC may need to acquire or secure access to lands owned by others or lands outside San Francisco's territorial jurisdiction to build the infrastructure. Furthermore, railway transport infrastructure at other construction materials origin and destination locations is considered unavailable (e.g., concrete trucks assumed to originate from within San Francisco) or unknown (e.g., the origin of some truck trips cannot be known at this time). Consequently, the feasibility of a Railway Transport of Construction Materials alternative is uncertain based on lack of available infrastructure and reliance on agreements with multiple third parties.

Comment AL-2: Other Comments on Alternatives

This response addresses the following comment, which is quoted below:

O-Greenaction.9

> "We would like to conclude that many of the concerns raised in this letter would be mitigated if the project moved the biosolids digestion and energy recovery to another location. We are disappointed to see that SFPUC has opted not to relocate these processes to Pier 94, given that it would more than double the distance between health-impacting operations and adjacent homes and a daycare facility. We are also concerned that this project will reduce the attractiveness of locating businesses in the area. It appears that SFPUC was able to dismiss this option by underestimating the amount of community impact that this expansion of the Southeast Plant would have on the community." (Bradley Angel, Greenaction for Health and Environmental Justice, Letter, June 26, 2017)

Response AL-2

This comment states that moving the BDFP to the Pier 94 location would reduce impacts.

The Draft EIR examines the physical environmental impacts of the BDFP, identifies feasible measures that could minimize significant adverse impacts, as required under CEQA (CEQA Guidelines Section 15126.4), and evaluates alternatives to the project. Pursuant to CEQA,

mitigation measures are not required for effects that are not found to be significant (CEQA Guidelines Section 15126.4). As described above under **Response AL-1** and in Section 6.1.2 (Draft EIR page 6-2), pursuant to CEQA an EIR must include a range of reasonable alternatives to a project that would feasibly meet most of the basic objectives of the project and would avoid or substantially lessen the significant effects of the project. Alternatives screening and selection (described on Draft EIR pages 6-2 through 6-9) focused on these factors, identifying alternatives that could reduce the severity of one or more significant impact.

The Draft EIR evaluates construction of the BDFP at the Pier 94 backlands (Draft EIR pages 6-30 through 6-50). The analysis discloses the scope and magnitude of physical environmental effects that could occur under the Pier 94 Backlands Alternative. With respect to the topics raised by the commenter (aesthetics, air quality, and general comments related to socioeconomic effects and environmental justice), under the Pier 94 Backlands Alternative, aesthetic impacts would be considered less than significant, as is the case for the proposed project, and construction-phase criteria air pollutants would be greater overall because of pipeline construction, while health risks could be lower because of the distance to sensitive receptors.[2] The discussion on Draft EIR page 6-88 summarizes the environmental trade-offs of implementing the BDFP at the Pier 94 Backlands compared to the proposed project. Refer to responses in Section 10.11 of this document regarding general comments related to socioeconomic effects and environmental justice. These comments will be transmitted to City decision-makers for consideration in their deliberations on whether to approve the proposed BDFP, select the Pier 94 Backlands Alternative, or select another of the alternatives.

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[2] Refer to Sections 10.3, Aesthetics, 10.6, Air Quality and Greenhouse Gas Emissions, and 10.11, General Comments, for responses to the specific comments raised by the commenter, Greenaction for Health and Environmental Justice.

10.11 General Comments

The comments and corresponding responses in this section relate to project merits or other topics not evaluated in the Draft Environmental Impact Report (EIR). For ease of reference these comments are grouped into the following issues:

- GC-1: Project Merits
- GC-2: Socioeconomic and Quality-of-Life Effects
- GC-3: Community Benefits and SFPUC Relationship to the Community
- GC-4: Environmental Justice

Comment GC-1: Project Merits

This response addresses the following comments, which are quoted below:

A-BAAQMD.2 A-CPC-Johnson.1 A-CPC-Johnson.4 O-PetCamp-1.1 I-Karlin.1

"…We commend the project on the greater recovery efficiency of biosolids digestion, the planned odor control improvements, and the reduction in emissions of volatile organic compounds and associated nuisance odors in the adjacent neighborhood. We further commend this project for its planned inclusion of renewable diesel fuel to reduce diesel emissions from the project." (Jean Roggenkamp, Bay Area Air Quality Management District, Letter, June 26, 2017)

"And so I'm happy to see that finally this project is before us today or least the Draft EIR. This is something that is needed. If we're not going to move the biodigester, which I know was a movement for a little while, we at least need to have it completely upgraded to a modern-day standard. It is an environmental justice issue that we have equipment that is so completely beyond its useful life still handling 80 percent of the solids in our city, wastewater in our city. So I think that's a good thing." (Christine Johnson, Planning Commission, Public Hearing Comments, June 1, 2017)

"But I think this is a great day for the City, for the Southeast, particularly for that area. And I'm happy to see this project coming online." (Christine Johnson, Planning Commission, Public Hearing Comments, June 1, 2017)

"All of that means that, after 20 years of confronting these issues, I'm very much looking forward to improvements being made at the Southeast Plant." (Mark Klaiman, Public Hearing Comments, June 1, 2017)

"I am a member of the Bayview-Hunters Point community. I understand that significant work is being planned for the southeast water treatment plant in the near future. Of course I support maintenance and upgrades to our city's utilities, especially one as important to our health as waste removal." (Sean Karlin, Email, May 24, 2017)

Response GC-1

The comments do not address the adequacy or accuracy of the EIR; rather, the comments speak to the merits of the proposed Biosolids Digester Facilities Project (BDFP). The comments will be transmitted to City decision-makers for consideration in their deliberations on whether to approve the proposed BDFP. Refer to **Response GC-4,** below, regarding environmental justice concerns.

Comment GC-2: Socioeconomic and Quality-of-Life Effects

This response addresses the following comments, which are quoted below:

O-BayviewCP-2.6	O-BRITE.4	O-BVHPCAC.4	O-Greenaction.10
O-PetCamp-1.2	O-PetCamp-2.1	O-SFWPM-2.1	I-Hamman-1.2
I-Hamman-4.2	I-Harney.1	I-Hinton.1	I-Hinton.3

"One example from a family in our community demonstrates how these street closures could test the resiliency of an already fragile community, compromise the economic stability of families, and exacerbate delicate issues of equitable justice. This family has children at a school in Cole Valley – getting to the school requires two, 1-hour round-trips per day. They take either Evans or Jerrold to Caesar Chavez / 101. One parent takes CalTrain to San Jose for work (approximately a 1h45m door-to-door commute). The children are dropped off by 8:30 am and picked up before 6pm. For every minute they're late, it costs $5/min/child. This family has minimal resiliency in their day already and see a strong education as the most accessible path to generational economic mobility. Adding even a 5-10 minute delay in their day due to traffic as a result of these street closures (compounded by aforementioned systemic impacts) will impose a "social justice tax" of $50 - $100/per day – they have 2 kids and are already stretched thin to get to the school by 6pm. This family is not alone in their transit struggles as a direct consequence of living in the isolated Bayview neighborhood." (Steven Tiell, Bayview Residents Improving Their Environment, Letter, May 30, 2017, and Email, May 31, 2017)

"We would like to see expanded attention to the socioeconomic impacts on the neighborhood in the final EIR, considering the drag on future business operations as well as the ongoing aesthetic and reputational impacts associated with living next to a large sewage treatment plant." (Bradley Angel, Greenaction for Health and Environmental Justice, Letter, June 26, 2017)

"That said, as a small business owner, I'm very concerned that, as drafted, the EIR will preclude me from benefiting from these improvements. As drafted, the EIR places an unfair burden on those businesses which have already been unfairly burdened by the plant. Specifically, as drafted, the EIR places an unfair amount of traffic burden on construction on those businesses located on Phelps Street.

"In case you're unaware, Phelps Street is a fairly narrow street with parking on both sides of the street, two lanes of traffic, and a bicycle route. Most of the businesses on Phelps Street are both destination locations and are the types of businesses that require their clients to drive to the business and to be able to park in close proximity.

"The Draft EIR completely fails to address this issue. Suggesting that since this is only a temporary burden -- a five-year temporary burden is something that small businesses can withstand -- reflects a lack of understanding of the cash-flow needs of small businesses, as well as the overall burdens of running a small business in San Francisco." (Mark Klaiman, Public Hearing Comments, June 1, 2017)

"It is based on that past experience that I understand the crippling effect the proposed DIER will have on my business and others on Phelps Streets if a change is not made to the proposed traffic patterns.

"As an active member of the Bayview business community, I have had the privilege to serve on both the Southeast Working Group and the Digester Task Force. Like many small businesses and residents who have suffered through odors and other noxious smells emanating from the Southeast Plant, I support the efforts to reduce this problem. But as drafted, the DEIR will preclude the very businesses that have suffered from the plant to still be in business when the project is completed." (Mark Klaiman, PetCamp, Email, June 19, 2017)

"As such, the City has a strong interest in protecting its investment by ensuring that (i) the Market can continue to operate successfully during the extended construction period required for the Biosolids Project, and (ii) that the SFWPM Project is able to continue moving forward in spite of the Biosolids Project." (Michael Janis, San Francisco Wholesale Produce Market, Letter, June 19, 2017)

"The economic impact that these road closures will have on the existing local businesses was not adequately analyzed. Many of these small businesses will not survive this loss of customers. This analysis need revision." (Michael Hamman, Letter, June 20, 2017)

"I am a commercial property owner here in San Francisco and I have several properties on the block bounded by Third, Jerrold, Innes and Phelps Street which are adjacent to the Southeast Treatment Plant. My commercial tenants will be negatively impacted by the proposed project. I am hopeful that the negative impacts can be mitigated with a well thought out development plan." (Chris Harney, Email, June 26, 2017)

"I would ask that you at the very least…Undergo additional review of the impact analysis with respect to traffic and circulation (Impact TR 1-5 incl.; Vol.1 s28) from the existing 'LS' -less than significant - status to the LSM condition, requiring mitigation. Current plans will have a devastating impact both to businesses, many of whom will leave the area if they cannot conduct business day-to-day, and residents." (Rosalind Hinton, Letter, June 19, 2017)

"The overarching issues - transportation, traffic and circulation - drive the question of public safety in Bayview and the quality of life for those directly and indirectly impacted by these multiple, intersecting projects. For the record, approximately 35,000 San Francisco citizens reside in the Bayview community and neighborhoods." (Dan Dodt, Bayview Community Planning, Letter, June 17, 2017; Jack Gallagher, Bayview Hunters Point Citizens Advisory Committee, Letter, June 19, 2017)

"…and [closure of Jerrold Avenue] will seriously degrade the quality of life for just about everybody who lives here." (Michael Hamman, Public Hearing Comments, June 1, 2017)

"The SFPUC project in the Bayview is of enormous concern to me. The communities, businesses and residential, along Phelps, 3rd and Jerrold are revitalizing and much more stable than they have been in many years, but are still quite fragile. The SFPUC expansion and upgrade in the area with its vast footprint and its 20-year timeline (when you put the discreet phases together) will have a devastating impact on the residents and businesses in the area, the property values, the quality of life, and just the simple ability to conduct business and get around and through the neighborhood.

"While SFPUC makes claims that it is mitigating the impact of its construction and upgrades, the actual neighborhoods impacted by the construction will undergo a scorched earth approach that has little regard for protecting community assets where the assets and the community currently exist." (Rosalind Hinton, Letter, June 19, 2017)

Response GC-2

In accordance with the California Environmental Quality Act (CEQA), the Draft EIR evaluated the physical environmental effects of the BDFP. Economic (e.g., property values) and social or quality-of-life effects of a project are not considered environmental impacts under CEQA (Guidelines Section 15131) unless there would be a physical impact on the environment (such as impacts addressed in the Draft EIR in the air quality, traffic, and noise sections) resulting from such effects, or if such effects result in the need for the construction of new or physically altered facilities that would result in significant physical environmental impacts. Comments on socioeconomic or quality-of-life effects will be transmitted to City decision-makers for consideration in their deliberations on whether to approve the proposed BDFP.

Many of the concerns expressed in the comments above relate to transportation and circulation during BDFP construction. The Draft EIR evaluated transportation and circulation impacts of

BDFP construction and operation in Section 4.6, *Transportation and Circulation*. Readers are also referred to **Response TR-1** in Section 10.5 of this document, which directly addresses community comments related to BDFP transportation and circulation impacts, including discussing the net changes in traffic along Phelps Street and Jerrold Avenue during BDFP construction. As indicated in **Response TR-1**, implementation of the BDFP would not impede continued operation of the San Francisco Wholesale Produce Market nor impair implementation of their project.

Refer to **Response TR-3** in Section 10.5 of this document for additional discussion of BDFP effects on parking. The San Francisco Public Utilities Commission (SFPUC) has conducted public outreach on the BDFP, including presenting to various community, business, and residential groups and conducting door-to-door merchant outreach, providing opportunities to identify and attempt to address concerns around customer parking and access.[1]

The BDFP proposes improvements to the existing aesthetic conditions along Jerrold Avenue. Consistent with Sewer System Improvement Program (SSIP) and BDFP objectives, the SFPUC aims to provide visual improvements as part of the BDFP that enhance the overall aesthetics at the Southeast Plant, and improve the public edges in a manner consistent with the surrounding neighborhood (Draft EIR page 2-19). Architectural, landscaping, and street improvements included in the BDFP (described in Draft EIR Section 2.4.3, pages 2-42 to 2-46, and further illustrated in Draft EIR Figures 4.3-8 and 4.3-9, pages 4.3-24 and 4.3-25) are designed to reduce the project's long term effects on the quality of life for the surrounding neighborhood.

The BDFP would also replace the existing solids treatment system with new biosolids handling facilities at a new location farther away from Phelps Street. As described in Impact AQ-5 (Draft EIR page 4.8-66 et seq.), odors from the solids treatment facilities both inside and outside the Southeast Plant boundary are expected to improve compared to existing conditions. Refer also to **Response GC-3**, below, for discussion of community benefits and the SFPUC's relationship to the community.

In accordance with CEQA, the Draft EIR evaluated the environmental effects of the entire BDFP, including the full construction period, the transition from existing to new solids processing facilities, and operation of the project. BDFP construction is expected to take approximately five years, from 2018 through 2023 (as shown in Draft EIR Table 2-10, page 2-52). Once construction of the BDFP is complete, transition from the existing solids processing facilities to the new solids processing facilities would require about two years; this would not require additional construction activities.

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[1] SFPUC, BDFP Public Outreach, e-mail from K. Frye, November 7, 2017.

Comment GC-3: Community Benefits and SFPUC Relationship to the Community

This response addresses the following comments, which are quoted below:

O-BRITE.1	O-BRITE.2	O-BRITE.4	O-Greenaction.5
O-Greenaction.7	I-Harney.4		

"In summary, BRITE strongly opposes the closure of Jerrold and would like to see efforts made to honor preexisting commitments to the community -- both in terms of the Jerrold street closure and a key component of the greenhouse community benefit." (Steven Tiell, Bayview Residents Improving Their Environment, Letter, May 30, 2017, and Email, May 31, 2017)

"As progress builds on the SE Wastewater Treatment facility, so does the feedback we hear from members of the community. After the publication of the draft EIR, we've heard discussion and displeasure with the call for Jerrold St to be "closed during construction". (EIR Vol 1, §2.1.1.2; §S.4.3;) Compounding this closure is the simultaneous realignment of lanes on Evans to also support this project. But there's more to this than road closures – the bigger picture is about the SFPUC's relationship with and commitments to the community and the isolation (and resilience) of Bayview.

"During the SFPUC-hosted community town hall March 18, 2017, Carolyn Chiu said, "the Jerrold Street closure would only happen late at night and would only impact the businesses at the produce market." Now, the draft EIR states the street will be completely closed during construction! This significant of a change, buried in a 500+ page, multi-volume document, further erodes what's left of the trust between the SFPUC and our community. This is a categorically unacceptable and unreasonable burden to place on our residents, especially when commitments have already been made to the community to avoid this very situation. This is the epitome of trying to pull a fast one and it is offensive to the community. Together with the seizure and demolition of the greenhouses – which were supposed to be a community benefit – the number and significance of flip-flops on commitments to the community by the SFPUC raises eyebrows among community stakeholders." (Steven Tiell, Bayview Residents Improving Their Environment, Letter, May 30, 2017, and Email, May 31, 2017)

"While the community strongly supports the BDFP project for its promise to eliminate odors beyond the fence line – odors which our community has been subject to for decades (odors that came with scaled back community benefits that were delinquent in being delivered and are now being repossessed) – the appetite for traffic disruptions of this magnitude are nil, as is the appetite for a complete demolition of the greenhouses site." (Steven Tiell, Bayview Residents Improving Their Environment, Letter, May 30, 2017, and Email, May 31, 2017)

"We understand that the location of the Southeast Plant is a geographic convenience for SFPUC. As a topographic low point it enables much of the wastewater system to be gravity fed and, therefore, more efficient to operate. Here we see a trade-off between efficiency and

equity. The Southeast Plant already processes 80 percent of the City and County's wastewater, but it does not provide what we consider a proportional amount of benefit to the neighborhood that supports it. Therefore, we want to echo calls made by the others to provide employment opportunities, both during construction and during ongoing operation, to members of the immediate community. We encourage SFPUC to hire local business enterprises (LBEs) in this project, while also encouraging SFPUC not to reduce but to enable LBEs to achieve the same environmental performance standards as required elsewhere in the project. For example, we observe that the project only requires 80 percent of haul trucks to use 2010 or newer engines. We understand that the 20 percent not required to achieve this standard are LBEs that might have older equipment. Rather than reducing the environmental standard, we would prefer that SFPUC see this project as a way for LBEs to modernize their fleets. Lowering an environmental standard and using a quota approach limits both the ongoing opportunities for an LBE and contributes to community health overburden. We hope that you consider and change your approach in the final EIR." (Bradley Angel, Greenaction for Health and Environmental Justice, Letter, June 26, 2017)

"When the Southeast Plant expanded considerably in 1982, SFPUC reached a compromise with the neighborhood that increased community resources. Specifically, it added a community education center and community greenhouses in return for its increased production. We see no such plan as part of this project, but we do see that the portion of the plant south of Jerrold Street and between Phelps and Quint Streets will be retired as part of this project. We understand that the SFPUC has chosen to treat demolition of this older equipment and plans for this site as a future project. As a consequence, the project discussed in the Draft EIR appears to take more from the neighborhood than it gives. That is, it will burden the neighborhood with five years of construction, and it will increase daily truck traffic during ongoing operation. It will increase the production and combustion of biogas immediately upwind of residences. While it strives to reduce odors from one portion of the plant, it ignores others while also making plans to increase wastewater processing. We fail to see why the community should be in favor of this project, given a lack of return for the people who will live with the inconveniences associated with this facility. We encourage you to correct this oversight in your final EIR and to engage with community members and community leaders as you do so." (Bradley Angel, Greenaction for Health and Environmental Justice, Letter, June 26, 2017)

"The BIT (Bayview Industrial Triangle) which includes Jerrold Avenue between Third and the Southeast Plant still is an area that has overhead utility lines, inadequate (non ADA) sidewalk curbs, lacking uniform street trees, no sidewalk lighting etc. Given all that is planned and knowing the hardship this multiyear build will place on local business and residents it would be nice to see real tangible community benefits being presented as part of the entire proposal." (Chris Harney, Email, June 26, 2017)

Response GC-3

Closure of Jerrold Avenue

At the SFPUC community open house held at the Bayview Opera House on March 18, 2017, Carolyn Chiu provided information on the closure of Jerrold Avenue to public through-traffic

24-hours per day during the five-year project construction period; this closure includes both daytime and nighttime, contrary to the comment above.[2] As discussed in **Responses GC-2** and **TR-1**, the transportation and circulation effects of the closure of Jerrold were evaluated in Draft EIR Section 4.6, Transportation and Circulation. As indicated in the Draft EIR (pp. 2-53 and 2-54), the Traffic Control Plan would include development of detour routes designed to minimize impacts on local street circulation and manage traffic around road closures in order to reduce the project's effects on the surrounding community. Refer to **Response TR-1** for additional discussion of this topic.

Southeast Greenhouses

As discussed in **Response OC-3**, in Section 10.9 of this document, the Southeast Greenhouses Demolition project is a separate project previously approved by the SFPUC, and is not proposed as part of the BDFP. The cumulative environmental effects of the Southeast Greenhouses Demolition along with the BDFP and other projects in the cumulative scenario were evaluated in the Draft EIR within each topic section (i.e., Draft EIR Sections 4.2 through 4.19).

To address the social and economic effects of an expansion of the Southeast Plant necessitated by amendments to the federal Clean Water Act in the 1980s, the City and the Bayview-Hunters Point community developed a plan, commonly called the "Southeast Community Mitigation Agreement" (the Community Agreement), to construct the Southeast Greenhouses and the Southeast Community Facility.[3] The Southeast Greenhouses began to operate in 1987. As part of its stated commitment to the Community Agreement, the SFPUC is launching an Interim Greenhouse Grants Program (the "Greenhouse Grant Program"). The SFPUC developed this grant program with the involvement of the local community in an effort to fulfill the SFPUC's goal of providing residents with educational and workforce development opportunities. The purpose of the Greenhouse Grant Program is to help Bayview-Hunters Point residents overcome barriers to employment through development of the skills needed to secure living-wage jobs in the horticulture and urban agriculture sectors (including aquaponics and hydroponics); agriculture-adjacent food industries (including but not limited to wholesale sales, transport and distribution, packing and manufacturing, and production and catering); and related green sectors.[4,5]

Community Engagement

The remaining comments grouped into this topic category, which discuss SFPUC's engagement with the community regarding the Southeast Plant and community benefits (discussed below), do not address the adequacy or accuracy of the EIR. The comments will be transmitted to City decision-makers for consideration in their deliberations on whether to approve the proposed BDFP.

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2 Carolyn Chiu, SFPUC, personal communication with Tim Johnston, San Francisco Planning Department, November 7, 2017.

3 ESA, *Environmental Justice Analysis for Bayview-Hunters Point, Biosolids Digester Facilities Project and Community Benefits Program*, prepared for SFPUC, June 2017. Available online at www.sfwater.org/bdfp-ej-analysis.

4 SFPUC, Solicitation for Grant Requests, PRO.0099(G): Interim Greenhouse Grant Program. Issued November 27, 2017.

5 SFPUC, Community Grant Program, 2017. Available online at http://sfwater.org/index.aspx?page=1212. Accessed on January 25, 2018.

Separate from the CEQA process, the SFPUC has made efforts to engage the local community pursuant to multiple SFPUC programs and policies. The SFPUC has conducted approximately 50 separate public outreach efforts related to the project, beginning in 2009 and continuing to present (see Section 1.3 of the Draft EIR). In addition to outreach associated with the SSIP and BDFP planning processes, relevant efforts include the Community Benefits Program and the Southeast Community Mitigation Agreement.

The BDFP is part of the SSIP, a wastewater capital improvement program that is the culmination of several years of wastewater system planning efforts, public meetings, and SFPUC workshops. SSIP guiding principles include maximizing employment and educational opportunities, in addition to the primary goals and levels of service identified in Draft EIR Table 2-3 (page 2-17). As part of the SSIP planning process, the nine-member Southeast Digester Task Force, an advisory group representing the local Bayview-Hunters Point community, was convened by the SFPUC in 2009-2010 for the purpose of reviewing and evaluating alternative concepts for replacing the Southeast Plant digesters (see Draft EIR Section 1.3.2, page 1-7). Then, between 2014 and 2016, the Southeast Working Group, made up of a cross-section of residents, business owners, and community group leaders based near the water pollution control plant, met routinely to gain updates on SFPUC projects and provide input on SFPUC projects and other activities near the water pollution control plant (see Draft EIR Section 1.3.3, page 1-7).

Community Benefits

SFPUC adopted Resolution No. 11-0008 (Community Benefits Policy) on January 11, 2011.[6] As specified in the resolution, SFPUC defines community benefits as "those positive effects on a community that result from the SFPUC's operation and improvement of its water, wastewater and power services." Referred to as the SFPUC's "good neighbor policy," the resolution "affirms and commits to the goal of developing an inclusive and comprehensive community benefits program to better serve and foster partnership with communities in all SFPUC service areas and to ensure that public benefits are shared across all communities." The resolution commits SFPUC to develop a Community Benefits Program and to devote sufficient resources and authority to staff for stakeholder and community engagement in design and implementation of SFPUC policies and projects; workforce development; environmental programs; economic development; support for arts and culture related to SFPUC's mission; educational programs; use of land in a way that maximizes health, environmental sustainability, and innovative ideas; diversity and inclusion programs; in-kind contributions and volunteerism; and improvement in community health.

As indicated in the Draft EIR (pages S-18 and 1-4), the SFPUC has conducted a separate environmental justice analysis concurrent with the BDFP, and prepared a stand-alone report titled *Environmental Justice Analysis for Bayview-Hunters Point, Biosolids Digester Facilities Project and Community Benefits Program* (Environmental Justice report).[7] See Chapter 6 of the Environmental Justice report for more information on the SFPUC's ongoing Community Benefits Program.

[6] SFPUC, Community Benefits Policy, SFPUC Commission Resolution No.11-0008, January 11, 2011. Available online at http://sfwater.org/modules/showdocument.aspx?documentid=3687.

[7] ESA, *Environmental Justice Analysis for Bayview-Hunters Point, Biosolids Digester Facilities Project and Community Benefits Program*, prepared for SFPUC, June 2017. Available online at www.sfwater.org/bdfp-ej-analysis.

Section 6.3 of the Environmental Justice report presents information about past, current, and intended or proposed future actions under the Community Benefits Program that seek to improve local employment of San Francisco residents and provide job training, experience, and search assistance, including the following:

- ***Local Hiring Policy and Local Business Participation***. SFPUC projects are covered by the San Francisco Local Hiring Policy for Construction and have a goal of 30 percent local hiring at this time, meaning that 30 percent of total construction work hours must be worked by San Francisco residents. For apprenticeships (entry-level jobs), this goal is increased to 50 percent. As of March 2017, SFPUC is achieving a 36 percent local hiring rate for San Francisco residents and 72 percent for San Francisco apprentices, exceeding the respective goals. This program has resulted in greater numbers of local hires within Bayview-Hunters Point compared to other neighborhoods, with 30 percent of the 231 San Francisco workers and 42 percent of the 58 San Francisco apprentices coming from District 10. Construction of the BDFP would comply with the local hiring policy, and several other SFPUC projects (e.g., the Headworks Facility Project) also are planned within Bayview-Hunters Point. The City also has a mandate for local community contractors to participate. Although the goals vary per contract, the SFPUC aims to maximize local participation on every project. As of March 2017, 196 contracts valued at $108 million have been awarded to SSIP LBE contractors. Of those contracts awarded to San Francisco businesses, 41 percent of those businesses are located in Bayview-Hunters Point (District 10).

- ***Youth Internships***. SFPUC supports the Mayor's Youth Jobs Plus Initiative as a part of an overall strategy to educate and prepare job seekers in local communities to be successful SFPUC applicants. More than 1500 youth and young adults annually benefit from internships through SFPUC and other partner agencies. While the youth served by SFPUC programs live all over the city, a large number come from the southeastern portion of the City. In 2016, the SFPUC sponsored paid internships for 188 youth and young adults from Bayview-Hunters Point. Since the program's inception in 2013, SFPUC has employed between 150 and 200 young people from Bayview-Hunters Point each summer, and SFPUC is committed to continuing this program, including in 2017.

- ***Baywork***. SFPUC is a signatory of Baywork, a consortium of water and wastewater agencies dedicated to workforce development. In 2016, Baywork secured funding to complete a regional labor market research initiative with JVS, a San Francisco-based non-profit career and skills development organization with over 40 years of experience in sector-based training and job search assistance in the Bay Area. The $150,000 grant is underway and will deliver a regional map of hiring needs and training opportunities and gaps within the region. This research will map the skills, training, and certification required for careers in the water/wastewater industry that are hard to fill, like electronic maintenance technicians, and will lay the foundation for new community college and training programs to fill these gaps.

The Environmental Justice report[8] (Section 6.4) also identified recommendations for the SFPUC Community Benefits Program.

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[8] ESA, *Environmental Justice Analysis for Bayview-Hunters Point, Biosolids Digester Facilities Project and Community Benefits Program*, prepared for SFPUC, June 2017. Available online at www.sfwater.org/bdfp-ej-analysis.

Comment GC-4: Environmental Justice

This response addresses the following comments, which are quoted below:

O-Greenaction.2 O-Greenaction.11 I-Kelly.2 I-Kelly.5

"We are extremely concerned that this project involves a 20 percent expansion of waste processing and biosolids production. This expansion may exacerbate community health burdens which are unacceptable. We must continue to point out the inequity, and object to the fact, that the Southeast Plant in Bayview Hunters Point continues to process almost all of the City's sewage and sewage from other cities.

"As you are well aware, Bayview Hunters Point (BVHP) residents bear the disproportionate burden of industrial and military base pollution in San Francisco. As you are also aware, residents suffer high rates of illnesses likely related to the many mobile and stationary pollution sources in the neighborhood. The California Environmental Protection Agency's CalEnviroScreen 3.0 has confirmed that BVHP residents are highly vulnerable to pollution due to environmental, health and socio-economic indicators - and in fact CalEnviroScreen ranks BVHP as one of the most at risk communities in the state to pollution." (Bradley Angel, Greenaction for Health and Environmental Justice, Letter, June 26, 2017)

"All decisions made by the City regarding this project must be consistent with environmental justice, be health protective, and reduce - not add - to the environmental burden in the community." (Bradley Angel, Greenaction for Health and Environmental Justice, Letter, June 26, 2017)

"I believe you will soon see a number of neighborhood groups throughout Bayview and the City come together in an official alliance for environmental justice in Southeast San Francisco; to that end, I am cc-ing these comments to some Bayview neighbors, members of the SFPUC CAC, and to Yolanda Manzone of the PUC, who is presenting a draft Environmental Justice Analysis of the project to neighborhood groups in the coming months." (Tony Kelly, Letter, June 26, 2017)

"I worked on the successful campaign for Proposition I in 2004, forcing Muni to replace their old diesel buses and improve their air quality standards. **All City agencies should take great care to minimize and mitigate their environmental impacts in this heavily-burdened neighborhood.** I look forward to the PUC acting responsibly in their construction and operation of the new Biosolids Digesters." (Tony Kelly, Letter, June 26, 2017)

Response GC-4

The comments above express concern about projected increases in the quantities of wastewater and biosolids at the Southeast Plant, the effects of the BDFP on the health of Bayview community members given existing environmental conditions, and environmental justice issues generally. The U.S. Environmental Protection Agency defines environmental justice as follows:[9]

> "The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies."

Wastewater Treatment and Biosolids Production

Regarding wastewater quantities, average dry weather wastewater flows to the Southeast Plant between 2010 and 2045 are projected to increase from 60.6 to 69.4 million gallons per day (Draft EIR Appendix HYD, page HYD-16), while biosolids production with implementation of the BDFP is projected to increase from 13,000 dry tons (2015) to 24,000 dry tons (2045; Draft EIR page 2-7). Note that wastewater influent and biosolids production are projected to increase at the treatment plant with or without implementation of the BDFP. In 2045 *without implementation of the BDFP*, the amount of biosolids generated and the number of haul trips would be greater (27,700 dry tons and 14 to 18 trips per day, respectively) because the proposed BDFP solids treatment processes would reduce the quantity of biosolids generated (and associated truck trips required for off-hauling) compared to existing solids treatment processes (see note g on Draft EIR Table 2-1, page 2-7). As discussed in Draft EIR Section 4.4, *Population and Housing*, the BDFP would not increase the plant's existing overall wastewater treatment capacity (Draft EIR page 4.4-7) and the solids treatment capacity that would be provided by the BDFP is based on current growth projections through 2040 prepared by the Association of Bay Area Governments, and extrapolated through 2045.

The water pollution control plant treats flows from a limited area of Daly City and Brisbane, representing about 2.5 percent of the total flow currently treated at the plant (refer to Draft EIR Section 2.2.2.2).

Health Impacts

The requirements of CEQA and Chapter 31 of the San Francisco Administrative Code guided preparation of the BDFP Draft EIR. In accordance with these requirements, the Draft EIR evaluates numerous effects on aspects of human health, including Air Quality (Section 4.8), Noise and Vibration (Section 4.7), and Hazards and Hazardous Materials (Section 4.17). Draft EIR Section S.5 (page S-11) summarizes all impacts identified for the project, the significance determination for each impact, and measures identified to avoid, reduce, or otherwise lessen significant impacts.

[9] United States Environmental Protection Agency (USEPA), *Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses,* April 1998. Available online at https://www.epa.gov/sites/production/files/2015-04/documents/ej-guidance-nepa-compliance-analyses.pdf.

The Draft EIR's discussion of local health risks and hazards from airborne pollution is presented in the following sections:

- ***Section 4.8.1.4*** (Draft EIR pages 4.8-9 – 4.8-13)**.** This section describes toxic air contaminants (TACs) and other pollutants of concern and how health risk assessments are used; modeling conducted by the City and the Bay Area Air Quality Management District (BAAQMD) to identify areas of poor air quality (termed the Air Pollutant Exposure Zone [APEZ]) and Health Vulnerable locations); and the City's *Community Risk Reduction Plan.* As shown in Figure 4.8-2 (Draft EIR page 4.8-13), the BDFP site and portions of the surrounding area are within the APEZ and Health Vulnerability zip codes.

- ***Section 4.8.3.2*** (under Local Health Risks and Hazards, Draft EIR pages 4.8-38 – 4.8-40) describes the thresholds of significance and approach to evaluating health risk from air pollutants. As discussed therein, a health risk assessment was prepared for the BDFP to provide quantitative estimates of health risks (in terms of increased excess lifetime cancer and non-cancer risks as well as localized $PM_{2.5}$ concentrations) from exposures to TACs and other pollutants of concern. The analysis accounted for background (existing) concentrations and risk levels, as estimated in the San Francisco Community Risk Reduction Plan Health Risk Assessment.

- ***Impact AQ-3*** (Draft EIR pages 4.8-55 – 4.8-62) presents the results of the analysis. The Draft EIR analysis determined that project-related construction and operational emissions increases would not expand the existing APEZ, and would not exceed significance thresholds for cancer risk and $PM_{2.5}$ concentrations at sensitive receptors within 1 kilometer of the project site. In summary, the impact was found to be less than significant.

Environmental Justice

The remaining comments in this topic, which encourage the City to make decisions consistent with environmental justice principles, do not address the adequacy or accuracy of the EIR. The comments will be transmitted to City decision-makers for consideration in their deliberations on whether to approve the proposed BDFP.

Consistent with the U.S. Environmental Protection Agency's definition referenced above, the SFPUC's Environmental Justice Policy (2009)[10] defines environmental justice as the fair treatment of people of all races, cultures, and incomes and believes that no group of people should bear a disproportionate share of negative environmental consequences resulting from the operations, programs, and/or policies of the SFPUC. The policy commits the SFPUC to the goals of environmental justice to prevent, mitigate, and lessen disproportionate environmental impacts of its activities on communities in all SFPUC service areas and to insure that public benefits are shared across all communities.

As discussed in the preceding response (and identified on Draft EIR pages S-18, 1-4, and 1-5), the SFPUC has prepared an environmental justice analysis of the BDFP as a separate, yet complimentary, analysis from what is required under CEQA. The environmental justice indicators examined in the analysis were selected based upon direct input from the local community. The

[10] SFPUC, Environmental Justice Policy, SFPUC Commission Resolution No.09-0170, October 13, 2009. Available online at http://sfwater.org/modules/showdocument.aspx?documentid=3686.

results of this evaluation and analysis are contained in the *Environmental Justice Analysis for Bayview-Hunters Point, Biosolids Digester Facilities Project and Community Benefits Program* (Environmental Justice report).[11] The Environmental Justice report documents the analysis of potential environmental justice effects of the BDFP, both in terms of its potential to exacerbate or to improve upon the selected environmental justice indicators and in terms of whether it would result in new disproportionately high and adverse effects on minority and low-income communities. As discussed in the preceding response, the report also contains a discussion of ongoing and proposed Community Benefits Program activities. The report (Section 5.4) also includes recommendations to improve outcomes of BDFP implementation and outreach related to environmental justice. The SFPUC will consider the Environmental Justice Report separate from the CEQA process. For more information on the Environmental Justice report, please see the SFPUC's Land Use and Environmental Justice web page: http://sfwater.org/index.aspx?page=654.

The SFPUC has incorporated commitments to environmental improvement into the design of the BDFP. As described in Section 5.3.1 of the Environmental Justice report, the project has been designed to be as far from residential receptors as feasible within the available site at the Southeast Plant and to incorporate turbine design features that decrease emissions of air contaminants compared to the existing internal combustion engines (by selecting low-emission turbines for the project) and that enhance the dispersal of emissions (by electing to build a taller turbine exhaust stack). One of the BDFP project objectives is to limit noticeable odors from BDFP facilities to the water pollution control plant property boundary, which would improve odor conditions outside the plant compared to existing conditions (Draft EIR page 2-19). See EIR Impact AQ-5 in Section 4.8, Air Quality (Draft EIR pages 4.8-66 to 4.8-70) for additional discussion of the project's odor-related impact.

While not part of project design, EIR Mitigation Measure M-AQ-1a (Construction Emissions Minimization, Draft EIR pages 4.8-49 to 4.8-50) requires cleaner construction equipment fuel and more stringent engine efficiencies than are required by the Clean Construction Ordinance, which would reduce emissions during project construction. Also refer to EIR Impacts AQ-1, AQ-2, and AQ-3 in Section 4.8, Air Quality (Draft EIR pages 4.8-43 to 4.8-62) for discussion of dust and criteria pollutant emissions during construction; criteria pollutant emissions during project operations; and toxic air contaminant emissions during project construction and operations, respectively.

[11] ESA, *Environmental Justice Analysis for Bayview-Hunters Point, Biosolids Digester Facilities Project and Community Benefits Program*, prepared for SFPUC, June 2017. Available online at www.sfwater.org/bdfp-ej-analysis.

CHAPTER 11
Draft EIR Revisions

11.1 Introduction

This chapter presents revisions to the Biosolids Digester Facilities Project (BDFP or project) Draft Environmental Impact Report (EIR) that was published on May 3, 2017. These revisions include both (1) changes made to text, tables, or figures in response to comments on the Draft EIR as discussed and presented in Chapter 10, as well as (2) staff-initiated text changes to correct minor inconsistencies, to add minor information or clarification related to the project, and to provide updated information where applicable. None of the revisions or corrections in this chapter substantially change the analysis and conclusions presented in the Draft EIR.

The chapter includes all revisions by reproducing the relevant excerpt of the Draft EIR in the sequential order by the chapter, section, and page that it appears in the document. Preceding each revision is a brief explanation for the text change, either identifying the corresponding response codes, such as Response AQ-4, where the issue is discussed in Chapter 10 or indicating the reason for a staff-initiated change. Deletions in text and tables are shown in strikethrough (~~strikethrough~~) and new text is shown in underline (<u>double-underline</u>).

11.2 Changes to the Draft EIR

11.2.1 Cover, Table of Contents, Acronyms, Abbreviations, Glossary, and Summary

To maximize use of 2010 or newer engines in all haul trucks as discussed in Response AQ-4, the following text in Mitigation Measure M-AQ-1a(A)(2) in Table S-2 of the Draft EIR (page S-30) has been revised:

> ***"Engine Requirements.***
>
> 2. At least 80 percent of haul trucks (i.e., trucks used to remove or deliver backfill soil, excavated soil, and demolition debris) used must have 2010 or newer engines. <u>The SFPUC should strive to exceed this requirement when possible; if trucks with 2010 or newer engines are available in the Contractor's, or subcontractor's fleet, then those should be used for the project.</u>
>
> <u>The SFPUC, through its Contractors Assistance Center, will work with the BAAQMD's Strategic Incentives Division and interested, eligible truckers to pursue funding to replace vehicles or retrofit engines to comply with the lower</u>

emissions requirement, including but not limited to conducting informational presentations at the Contractors Assistance Center to notify truckers about the grants and incentives and assisting with the completion of applications to the grant programs."

In response to comments, the following text in Mitigation Measure M-AQ-1b(2) in Table S-2 of the Draft EIR (page S-31) has been revised to reflect the updated funding equation:

"2. Pay a mitigation offset fee to the Bay Area Air Quality Management District's (BAAQMD) Bay Area Clean Air Foundation (Foundation) in an amount to be determined at the time of the impact. The mitigation offset fee will be no less than ~~$18,030~~$30,000 per weighted ton of ozone precursors per year requiring emissions offsets plus an administrative fee of no less than 5 percent, to fund one or more emissions reduction projects within the SFBAAB. The $30,000 will be adjusted to reflect annual California Consumer Price Index adjustments between 2017 and the estimated first year of exceedance. This fee will be determined by the Planning Department in consultation with the SFPUC and BAAQMD and based on the type of projects available at the time of impact. This fee is intended to fund emissions reduction projects to achieve reductions of 2.3 tons per year of ozone precursors."

11.2.2 Chapter 1: Introduction

No revisions were made to this chapter.

11.2.3 Chapter 2: Project Description

To reflect the SFPUC's pursuit of financing from the U.S. Environmental Protection Agency under the Water Infrastructure Finance and Innovation Act, Section 2.7.1 Federal Action and Approvals (Draft EIR page 2-70) is revised as follows as a staff-initiated change:

2.7.1 Federal Actions and Approvals

~~The project is not expected to require any federal permits or approvals.~~

- United States Environmental Protection Agency:
  - Consideration for Water Infrastructure Finance and Innovation Act loan and review of environmental review requirements that must be completed to apply for a loan

2.7.2 State Actions and Approvals

- State Historic Preservation Officer:
  - Review under Section 106 of the National Historic Preservation Act (as part of the Water Infrastructure Finance and Innovation Act and State Revolving Fund loan application process)

11.2.4 Chapter 3: Plans and Policies

No revisions were made to this chapter.

11.2.5 Chapter 4: Environmental Setting and Impacts

No revisions were made to this chapter, except for those in the following sections:

Section 4.1: Overview

As discussed in Response OC-2, the first paragraph on Draft EIR page 4.1-4 is revised as follows:

> As permitted in CEQA Guidelines Section 15130(b)(1), the analyses ~~analysis~~ in this EIR employ~~s~~ the list-based approach, a projections approach, or a hybrid of the two as appropriate~~, for defining projects to be considered in the cumulative impact analysis~~. In the list-based approach~~, — that is,~~ the analysis is based on a list of past, present, and probable future projects that could result in related or cumulative impacts. A probable future project is defined as one that is "reasonably foreseeable," which is generally a project for which an application has been filed with the approving agency or that has approved funding. In the projections approach, projections contained in an adopted local, regional, or statewide plan, or related planning document, are summarized to describe or evaluate conditions contributing to the cumulative effect.

The second paragraph on Draft EIR page 4.1-4 is also revised to read:

> The following factors were used to determine an appropriate list of relevant projects to be considered in the list-based cumulative analyses:

The second paragraph on Draft EIR page 4.1-5 is revised to read:

> **Table 4.1-1** describes the past, present, and probable future projects that are considered in the list-based cumulative analyses (based on the factors described above), and their locations are shown on **Figure 4.1-1**.

Section 4.5: Cultural Resources

To properly reflect the title of the subject report, footnotes number 8 (page 4.5-6), 49 (page 4.5-22), 70 (page 4.5-46), and 71 (page 4.5-46) in the Draft EIR are revised as follows as a staff initiated change:

> Kaijankoski, Philip, Brian F. Byrd, and Jack Meyer, ~~*DRAFT Preliminary Prehistoric Archaeological Testing Report for*~~ *FINAL A Geoarchaeological Study of the Islais Creek Estuary: A Framework for Future Project-Specific Archaeological Investigations at the Southeast Water Pollution Control Plant, San Francisco, California*. Far Western Anthropological Research Group, Inc., Davis, California. Prepared for the San Francisco Public Utilities Commission, September 2016.

Section 4.8: Air Quality

As discussed in Response AQ-6, the following text on Draft EIR page 4.8-29 has been revised:

> "The BAAQMD is also the agency responsible for investigating and controlling odor complaints in the area. The BAAQMD enforces odor control by helping the public document a public nuisance. Upon receipt of a complaint, the BAAQMD sends an investigator to interview the complainant and to locate the odor source if possible. The BAAQMD typically brings a public nuisance court action when there are a substantial number of confirmed odor events within a 24-hour period. An odor source with five or more confirmed complaints per year averaged over three years is considered to have a substantial effect on receptors. As indicated above (under *Odor Incidents*), the BAAQMD has received two confirmed odor complaints regarding odor at the SEP over the six-year period from January 1, 2009 through October 22, 2015. Thus, ~~based on~~ the odor complaint history at the Southeast Water Pollution Control Plant has not resulted in its designation by the BAAQMD ~~does not consider the SEP to be~~ as a significant source of odors in the area. Nonetheless, the BAAQMD still considers the entirety of the treatment works at the water pollution control plant to be a potentially significant odor source.[52a, 52b]
>
> [52a] Roggenkamp, Jean, Bay Area Air Quality Management District. Letter to Tim Johnson, July 28, 2017.
>
> [52b] The term "significant" in this paragraph refers to BAAQMD's assessment of the odor source, and is not the same as impact significance as defined under CEQA.

To maximize use of 2010 or newer engines in all haul trucks as discussed in Response AQ-4, the following text in Mitigation Measure M-AQ-1a(A)(2) of Draft EIR (page 4.8-49) has been revised:

> ***"Engine Requirements.***
>
> 2. At least 80 percent of haul trucks (i.e., trucks used to remove or deliver backfill soil, excavated soil, and demolition debris) used must have 2010 or newer engines. The SFPUC should strive to exceed this requirement when possible; if trucks with 2010 or newer engines are available in the Contractor's, or subcontractor's fleet, then those should be used for the project.
>
> The SFPUC, through its Contractors Assistance Center, will work with the BAAQMD's Strategic Incentives Division and interested, eligible truckers to pursue funding to replace vehicles or retrofit engines to comply with the lower emissions requirement, including but not limited to conducting informational presentations at the Contractors Assistance Center to notify truckers about the grants and incentives and assisting with the completion of applications to the grant programs."

Also in response to comments, the following text in Mitigation Measure M-AQ-1b(2) of Draft EIR (page 4.8-51) has been revised to reflect the updated funding equation:

> "2. Pay a mitigation offset fee to the Bay Area Air Quality Management District's (BAAQMD) Bay Area Clean Air Foundation (Foundation) in an amount to be determined at the time of the impact. The mitigation offset fee will be no less than

~~$18,030~~ $30,000 per weighted ton of ozone precursors per year requiring emissions offsets plus an administrative fee of no less than 5 percent, to fund one or more emissions reduction projects within the SFBAAB. The $30,000 will be adjusted to reflect annual California Consumer Price Index adjustments between 2017 and the estimated first year of exceedance. This fee will be determined by the Planning Department in consultation with the SFPUC and BAAQMD and based on the type of projects available at the time of impact. This fee is intended to fund emissions reduction projects to achieve reductions of 2.3 tons per year of ozone precursors."

Section 4.16: Hydrology and Water Quality

As discussed in Response HY-1, the first sentence on Draft EIR page 4.16-8 is revised as follows:

"…risen approximately 0.08 inch per year since 1897, resulting in about 0.~~6~~8 foot of sea level rise between that time and 2015."

11.2.6 Chapter 5: Other CEQA Issues

No revisions were made to this chapter.

11.2.7 Chapter 6: Alternatives

No revisions were made to this chapter.

11.2.8 Chapter 7: Report Preparers

No revisions were made to this chapter.

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ATTACHMENT COM

Written Comments on Draft EIR, Coded

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TABLE COM-1
WRITTEN PUBLIC COMMENTS

Commenter Code	Name and Title of Commenter	Format	Comment Number	Topic Code
Agencies				
A-BAAQMD	Jean Roggenkamp, Deputy Executive Officer, Bay Area Air Quality Management District	Letter, July 28, 2017	1	AQ-8: Inclusion of Air Quality Technical Report and Diesel Equipment Compliance Requirements
			2	GC-1: Project Merits
			3	AQ-1: Standard for Mitigating Construction-Related and Operational Impacts
			4	AQ-4: Additional Mitigation to Reduce Construction-Related NOx and $PM_{2.5}$ Emissions
			5	AQ-7: Mitigation Measures to Reduce GHG Impacts
			6	AQ-4: Additional Mitigation to Reduce Construction-Related NOx and $PM_{2.5}$ Emissions
			7	PD-2: Proposed Solids Treatment Process
			8	AQ-5: Additional Mitigation to Address Operational Criteria Air Pollutant Impacts
			9	HZ-1: Asbestos
			10	AQ-8: Inclusion of Air Quality Technical Report and Diesel Equipment Compliance Requirements
			11	AQ-6: Odor Issues
A-SWRCB	Susan Stewart, Environmental Scientist, State Water Resources Control Board	Letter, June 16, 2017	1	OC-4: SRF Process
			2	HY-1: Sea Level Rise
			3	CR-3: Tribal Cultural Resources
			4	OC-4: SRF Process
Organizations				
O-BayviewCP-2	Dan Dodt, Bayview Community Planning	Letter, June 17, 2017	1	CR-1: Historical Resources
			2	OC-3: Cumulative Projects – Southeast Greenhouses Demolition
			3	TR-1: Construction Impacts – Traffic Circulation
			4	TR-4: Cumulative Transportation Impacts, OC-2: Cumulative Impact Analysis
			5	TR-2: Construction Impacts – Emergency Access
			6	GC-2: Socioeconomic and Quality-of-Life Effects
			7	TR-4: Cumulative Transportation Impacts
			8	TR-4: Cumulative Transportation Impacts
			9	AQ-2: Construction-Related Air Quality Impacts
			10	TR-1: Construction Impacts – Traffic Circulation, TR-4: Cumulative Transportation Impacts

TABLE COM-1 (CONTINUED)
WRITTEN PUBLIC COMMENTS

Commenter Code	Name and Title of Commenter	Format	Comment Number	Topic Code
Organizations (cont.)				
O-BHS	Adrian Card, President, Bayview Historical Society	Letter, June 19, 2017	1	CR-1: Historical Resources
			2	OC-3: Cumulative Projects – Southeast Greenhouses Demolition
O-BRITE	Steven Tiell, Bayview Residents Improving Their Environment	Letter, May 30, 2017, and e-mail, May 31, 2017	1	GC-3: Community Benefits and SFPUC Relationship to the Community
			2	GC-3: Community Benefits and SFPUC Relationship to the Community
			3	OC-3: Cumulative Projects – Southeast Greenhouses Demolition
			4	TR-1: Construction Impacts – Traffic Circulation, GC-2: Socioeconomic and Quality-of-Life Effects, GC-3: Community Benefits and SFPUC Relationship to the Community
			5	HZ-2: Hazards to San Francisco Wholesale Produce Market and Community
O-BVHPCAC	Jack Gallagher, Bayview Hunters Point Citizens Advisory Committee	Letter, June 19, 2017	1	TR-1: Construction Impacts – Traffic Circulation
			2	TR-4: Cumulative Transportation Impacts, OC-2: Cumulative Impact Analysis
			3	TR-2: Construction Impacts – Emergency Access
			4	GC-2: Socioeconomic and Quality-of-Life Effects
			5	TR-4: Cumulative Transportation Impacts
			6	AQ-2: Construction-Related Air Quality Impacts
			7	TR-1: Construction Impacts – Traffic Circulation, TR-4: Cumulative Transportation Impacts
O-Greenaction	Bradley Angel, Executive Director, Greenaction for Health and Environmental Justice	Letter, June 26, 2017	1	AQ-6: Odor Issues
			2	GC-4: Environmental Justice
			3	AE-1: Aesthetic Impacts, TR-5: Operational Transportation Impacts, AQ-1: Standard for Mitigating Construction-Related and Operational Impacts
			4	AL-1: Rail Transport Alternative
			5	GC-3: Community Benefits and SFPUC Relationship to the Community
			6	AQ-1: Standard for Mitigating Construction-Related and Operational Impacts
			7	GC-3: Community Benefits and SFPUC Relationship to the Community
			8	AE-1: Aesthetic Impacts
			9	AL-2: Other Comments on Alternatives
			10	GC-2: Socioeconomic and Quality-of-Life Effects
			11	GC-4: Environmental Justice

TABLE COM-1 (CONTINUED)
WRITTEN PUBLIC COMMENTS

Commenter Code	Name and Title of Commenter	Format	Comment Number	Topic Code
Organizations (cont.)				
O-PetCamp-2	Mark Klaiman, Senior Counselor, PetCamp	E-mail, June 19, 2017	1	GC-2: Socioeconomic and Quality-of-Life Effects
			2	TR-3: Construction Impacts – Parking
			3	TR-1: Construction Impacts – Traffic Circulation
			4	TR-1: Construction Impacts – Traffic Circulation
O-SFWPM-2	Michael Janis, General Manager, San Francisco Wholesale Produce Market	Letter, June 19, 2017	1	GC-2: Socioeconomic and Quality-of-Life Effects
			2	TR-1: Construction Impacts – Traffic Circulation
			3	AQ-2: Construction-Related Air Quality Impacts
			4	AQ-3: Mitigation to Reduce Fugitive Dust
			5	HZ-2: Hazards to San Francisco Wholesale Produce Market and Community
			6	TR-1: Construction Impacts – Traffic Circulation, AQ-2: Construction-Related Air Quality Impacts, AQ-3: Mitigation to Reduce Fugitive Dust, HZ-2: Hazards to San Francisco Wholesale Produce Market and Community
Individuals				
I-Ares	Ximena Ares	E-mail, May 24, 2017	1	TR-1: Construction Impacts – Traffic Circulation
I-Blacketer	Linda K. Blacketer, Proprietress, The Sylvester House	Letter, June 19, 2017	1	AQ-4: Additional Mitigation to Reduce Construction-Related NOx and $PM_{2.5}$ Emissions
			2	CR-1: Historical Resources, OC-3: Cumulative Projects – Southeast Greenhouses Demolition
			3	CR-1: Historical Resources
			4	TR-4: Cumulative Transportation Impacts, OC-2: Cumulative Impact Analysis
			5	TR-2: Construction Impacts – Emergency Access
			6	TR-1: Construction Impacts – Traffic Circulation, TR-4: Cumulative Transportation Impacts
I-Hamman-2	Michael Hamman	Letter (1 of 3), June 19, 2017	1	AL-1: Rail Transport Alternative
			2	AL-1: Rail Transport Alternative
			3	AL-1: Rail Transport Alternative
I-Hamman-3	Michael Hamman	Letter (2 of 3), June 19, 2017	1	CR-1: Historical Resources, OC-3: Cumulative Projects – Southeast Greenhouses Demolition
			2	CR-1: Historical Resources

TABLE COM-1 (CONTINUED)
WRITTEN PUBLIC COMMENTS

Commenter Code	Name and Title of Commenter	Format	Comment Number	Topic Code
Individuals (cont.)				
I-Hamman-4	Michael Hamman	Letter (3 of 3), June 20, 2017	1	TR-4: Cumulative Transportation Impacts, OC-2: Cumulative Impact Analysis
			2	GC-2: Socioeconomic and Quality-of-Life Effects
			3	TR-2: Construction Impacts – Emergency Access
I-Harney	Chris Harney, HC&M Commercial Properties, Inc.	E-mail, June 26, 2017	1	GC-2: Socioeconomic and Quality-of-Life Effects
			2	TR-1: Construction Impacts – Traffic Circulation
			3	TR-3: Construction Impacts – Parking
			4	GC-3: Community Benefits and SFPUC Relationship to the Community
I-Hinton	Rosalind Hinton, Member, Resilient Bayview	Letter, June 19, 2017	1	GC-2: Socioeconomic and Quality-of-Life Effects
			2	OC-3: Cumulative Projects – Southeast Greenhouses Demolition
			3	GC-2: Socioeconomic and Quality-of-Life Effects
			4	AQ-4: Additional Mitigation to Reduce Construction-Related NOx and $PM_{2.5}$ Emissions
			5	OC-1: CEQA Process
I-Karlin	Sean Karlin	E-mail, May 24, 2017	1	GC-1: Project Merits
			2	TR-1: Construction Impacts – Traffic Circulation
			3	AQ-3: Mitigation to Reduce Fugitive Dust
I-Kelly	Tony Kelly	Letter, June 26, 2017	1	AQ-1: Standard for Mitigating Construction-Related and Operational Impacts
			2	GC-4: Environmental Justice
			3	AL-1: Rail Transport Alternative
			4	TR-4: Cumulative Transportation Impacts
			5	GC-4: Environmental Justice
I-Lawerence-1	Steve Lawrence	E-mail (1 of 2), May 4, 2017	1	PD-3: Resiliency Planning
I-Lawerence-2	Steve Lawrence	E-mail (2 of 2), June 14, 2017	1	PD-1: Project Objectives
I-Matlock	Perry Matlock	Letter, June 19, 2017	1	CR-3: Tribal Cultural Resources
			2	OC-1: CEQA Process
			3	CR-2: Archeological Resources

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

ALAMEDA COUNTY
Pauline Russo Cutter
Scott Haggerty
Rebecca Kaplan
Nate Miley

CONTRA COSTA COUNTY
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David Hudson
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Rod G. Sinks

SOLANO COUNTY
Pete Sanchez
James Spering

SONOMA COUNTY
Teresa Barrett
Shirlee Zane

Jack P. Broadbent
EXECUTIVE OFFICER/APCO

Connect with the Bay Area Air District:

July 28, 2017

Tim Johnston
Planning Department, City and County of San Francisco
1650 Mission Street, Suite 400
San Francisco, CA 94103

RE: EIR for the Biosolids Digester Facilities Project

Dear Mr. Johnston,

Bay Area Air Quality Management District (Air District) staff have reviewed the Draft Environmental Impact Report (DEIR) for the Biosolids Digester Facilities Project. This project demolishes buildings and reorganizes a portion of San Francisco's Southeast Water Pollution Control Plant (SEP) to add new solids treatment, odor control, energy recovery, and associated facilities to its wastewater treatment capabilities. The project imagines a construction period between 2018-2023, assumes full operation of the redesigned plant by 2025, and expects its highest operating level by 2045 after a 20 percent growth in population and associated wastewater processing needed. The combination of this increase in flows and more effective biosolids digester equipment is anticipated to increase biogas production by roughly 50 percent. The project plans to burn all of this biogas in a new cogeneration facility and to use all of the generated electricity and steam on site.

Air District staff submitted comments on this DEIR on June 26, 2017. This letter clarifies comments about asbestos management and supersedes our previous letter.

Air District staff want to compliment the City for producing a high-quality report that thoughtfully and meticulously explores air quality concerns. We find the separate air quality technical report (AQTR) quite helpful in understanding assumptions about impacts and recommend including it or key portions of it as an appendix in the final environmental impact report (FEIR). We commend the project on the greater recovery efficiency of biosolids digestion, the planned odor control improvements, and the reduction in emissions of volatile organic compounds and associated nuisance odors in the adjacent neighborhood. We further commend this project for its planned inclusion of renewable diesel fuel to reduce diesel emissions from the project.

1 **AQ-8**

2 **GC-1**

We also have identified project aspects that warrant additional review and/or clarification in the FEIR. The first of these aspects is the project's location. Two noteworthy programs have classified the location as a disadvantaged and vulnerable community that warrants heightened protection from air quality-related health risk. In San Francisco's Community Risk Reduction Plan (CRRP), this area has been designated an Air Pollution Exposure Zone (APEZ) and a Health Vulnerability zip code. At the Air District this area has been identified as an area with disproportionate air quality burden by our Community Air Risk Evaluation (CARE) program. The Air District's 2017 Clean Air Plan strives to eliminate the disparity in air quality between the eight CARE communities and the rest of the region by stabilizing and decreasing emissions around and in them. For this reason, we suggest that this project strive for "no net increase" in criteria air pollutant and toxic air contaminant emissions over existing conditions. We recommend this standard across construction and operation

3 **AQ-1**

phases of the project. We strongly recommend that NOx and PM2.5 emission increases associated with this project (i.e., those listed in Tables 4 and 14 of the AQTR) be reduced or offset by lower-emission equipment choices in this project, by revised operating plans or other equipment upgrades within the SEP, and/or by off-site initiatives. We recommend that any off-site mitigation occur in or immediately upwind of the communities affected by this project to assure consistency with SFPUC's environmental justice policy, the environmental justice report written for this project, and the community vulnerability concerns discussed above. We encourage more detailed equipment choices prior to finalization of the EIR to strive for no net increases in emissions and to assure consistency between the FEIR and the application for a Permit to Operate from the Air District. 3 **AQ-1** cont.

To mitigate its NOx emissions during construction, the project proposes Mitigation Measure M-AQ-1a, which will require that "equipment with engines greater than or equal to 140 horsepower must meet Tier 4 final standards; [and] equipment with engines less than 140 horsepower must meet Tier 2 standards and be equipped with diesel particulate filters (DPFs)" (p. 4.8-46). We recommend or affirm the use of this mitigation approach for both municipally-owned and contractor-owned equipment in this project. We also see in the same section that "at least 80 percent of haul trucks (i.e., trucks used to remove or deliver backfill soil, excavated soil, and demolition debris) used must have 2010 or newer engines." Unless or until there is a conflicting local business enterprise requirement, we encourage the project to strive for 100 percent of all haul trucks to be 2010 engines or newer. 4 **AQ-4**

To mitigate its greenhouse gas emissions, the project states that "all diesel haul trucks and off-road equipment must use renewable diesel" (p. 4.8-46) as part of Mitigation Measure M-AQ-1a. We recommend or affirm the use of this mitigation approach for both municipally-owned and contractor-owned equipment in this project. Further, we recommend that this standard be extended to any portable diesel engines used in this project and to the backup generator installed in this project. 5 **AQ-7**

To mitigate NOx emissions during the five years anticipated for construction, the project proposes funding off-site efforts that reduce emissions. The DEIR anticipates an offset price of $18,030 per weighted ton. Our expectation is that the price of offsets for NOx emissions alone is around $35,000 per weighted ton and is likely to rise during the course of the project. We strongly recommend revision of this cost estimate, while also noting that this pricing correction was raised by the Air District in a comment letter on the Seawall Project (dated June 7, 2017) and the Event Center & Mixed use Development at Mission Bay (dated July 20, 2015). 6 **AQ-4**

We also recommend that this project consider how it might be designed to allow for addition of additional anaerobic digestion infrastructure at the SEP, given that the California Air Resources Board is looking toward publicly owned treatment works as co-location opportunities for food waste management as part of its "Short-lived Climate Pollutant Reduction Strategy" (March 2017). Further, to meet the requirements of SB 1383 (Lara, 2016), the City and County of San Francisco, as well as all other local jurisdictions around the State, will need to divert 50 percent of organic wastes from landfill in 2020 and 75 percent in 2025. Given the requirements of SB 32 (Pavley, 2016) to reduce greenhouse gas emissions by forty percent below 1990 levels by 2030, there is further need to assure that long-haul trucking is not required to satisfy the intention of SB 1383. As such, there is growing need to identify opportunities close to or within San Francisco and the Bay Area to compost and/or digest organic materials. Given that this facility has been permitted for biodigestion, we encourage this project to consider potential co-location during its design and buildout. Such consideration may mean designing a project that is conducive to any or all of the following: (i) the addition of more biodigester vessels at this site, (ii) the upsizing or addition of biogas storage facilities at this site, (iii) the addition of infrastructure that will enable upgrading of biogas to renewable natural gas, and (iv) the capacity to install piping that enables produced biogas to be transported via rail tanker or pipeline. 7 **PD-2**

At the time of the review of this DEIR, the Air District has not yet received a permit application for an Authority to Construct for this project because the SFPUC is still designing this facility. In light of your 8 **AQ-5**

pending equipment choices and their impacts on your emissions estimates, we recommend that SFPUC seek quotes for a selective catalytic reduction system and/or low-NOx burners to determine whether a lower NOx limit is technologically feasible and cost-effective, particularly given that the proposed NOx limit for the turbine/duct burner (i.e., 25ppm @ 15% oxygen) is based on a BACT determination from 1999. We recommend that the facility request emission factors and guarantees from the manufacturer for each planned piece of combustion equipment as an alternative to using the emission factor of 3.2E-3 kg methane/MMBtu from Table C-2 of 40 CFR 98. We recommend that the facility determine whether the new thermal hydrolysis process will increase precursor organic compounds in the biogas.

8 **AQ-5** cont.

To assure that demolition associated with this project complies with Air District Regulation 11, Rule 2, this project may need to take multiple actions, which include but are not necessarily limited to a thorough asbestos survey by a certified asbestos consultant, removal of all regulated asbestos present, and a renovation and/or demolition notification. We also observe that the SEP is within one quarter mile of the geologic ultramafic unit (JSP) on the Naturally Occurring Asbestos (NOA) geologic map of the area. Accordingly, we recommend that soil analysis be conducted to determine whether NOA is present where soil surfaces would be disturbed. Presence of NOA may trigger applicability of the Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying and Surface Mining Operations (CCR Title 17 Section 93105) and require dust mitigation measures, reporting, and submission of an Asbestos Dust Mitigation Plan. Should no NOA be found, the Air District recommends that construction dust best management practices (BMP) be implemented to control any fugitive dust during the construction phases.

9 **HZ-1**

The Air District also wants to assure that diesel equipment used in this project complies with applicable registration requirements. Off-road diesel-powered equipment greater than 25 horsepower must be registered in the Diesel Off-Road On-line Registration System (DOORs) Database and display an Equipment Identification Number (EIN). Portable diesel-powered equipment must be permitted by the Air District as part of the Portable Equipment Registration Program (PERP), and we encourage SFPUC to pick the lowest emission equipment available for this project.

10 **AQ-8**

As a final note, we noticed a statement on p. 4.8-29 of the DEIR that "...based on the odor complaint history, the [Air District] does not consider the SEP to be a significant source of odors in the area." While the number of odor complaints has not resulted in designation of the SEP as a significant source of odors and although the project will improve odor control for biosolids digestion, the entirety of the treatment works is still considered a potentially significant odor source by the Air District.

11 **AQ-6**

Air District staff is available to assist the City in addressing these comments. For more information, or if you have any questions, please contact Chad White, Senior Planner, at (415) 749-8619 or via email at cwhite@baaqmd.gov.

Sincerely,

Jean Roggenkamp
Deputy Executive Officer

cc Director Edwin M. Lee
Director Hillary Ronen
Director Jeff Sheehy

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIGUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board

JUN 16 2017

Timothy P. Johnson
MP, Environmental Planner
RE: Biosolids Digester Facilities Project
San Francisco Planning Department
1650 Mission Street, Suite 400
San Francisco, CA 94103

Dear Mr. Johnson:

ENVIRONMENTAL IMPACT REPORT (EIR) FOR SAN FRANCISCO PLANNING DEPARTMENT (DEPARTMENT); BIOLSOLIDS DIGESTER FACILITIES PROJECT (PROJECT); SAN FRANCISCO COUNTY; STATE CLEARINGHOUSE NO. 2015062073

We understand that the Department is pursuing Clean Water State Revolving Fund (CWSRF) financing for this Project. As a funding agency and a state agency with jurisdiction by law to preserve, enhance, and restore the quality of California's water resources, the State Water Resources Control Board (State Water Board) is providing the following information on the EIR to be prepared for the Project.

The State Water Board, Division of Financial Assistance, is responsible for administering the CWSRF Program. The primary purpose for the CWSRF Program is to implement the Clean Water Act and various state laws by providing financial assistance for wastewater treatment facilities necessary to prevent water pollution, recycle water, correct nonpoint source and storm drainage pollution problems, provide for estuary enhancement, and thereby protect and promote health, safety and welfare of the inhabitants of the state. The CWSRF Program provides low-interest funding equal to one-half of the most recent State General Obligation Bond Rates with a 30-year term. Applications are accepted and processed continuously. Please refer to the State Water Board's CWSRF website at: www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/index.shtml.

The CWSRF Program is partially funded by the United States Environmental Protection Agency and requires additional "CEQA-Plus" environmental documentation and review. Three enclosures are included that further explain the CWSRF Program environmental review process and the additional federal requirements. For the complete environmental application package please visit: http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/srf_forms.shtml. The State Water Board is required to consult directly with agencies responsible for implementing federal environmental laws and regulations. Any environmental issues raised by federal agencies or their representatives will need to be resolved prior to the State Water Board approval of a CWSRF financing commitment for the proposed Project. For further information on the CWSRF Program, please contact Mr. Ahmad Kashkoli, at (916) 341-5855.

1
OC-4

It is important to note that prior to a CWSRF financing commitment, projects are subject to provisions of the Federal Endangered Species Act (ESA), and must obtain Section 7 clearance from the United States Department of the Interior, Fish and Wildlife Service (USFWS), and/or the United States Department of Commerce National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) for any potential effects to special-status species.

Please be advised that the State Water Board will consult with the USFWS, and/or the NMFS regarding all federal special-status species that the Project has the potential to impact if the Project is to be financed by the CWSRF Program. The Department will need to identify whether the Project will involve any direct effects from construction activities, or indirect effects such as growth inducement, that may affect federally listed threatened, endangered, or candidate species that are known, or have a potential to occur in the Project site, in the surrounding areas, or in the service area, and to identify applicable conservation measures to reduce such effects.

In addition, CWSRF projects must comply with federal laws pertaining to cultural resources, specifically Section 106 of the National Historic Preservation Act (Section 106 http://www.achp.gov/regs-rev04.pdf). The State Water Board has responsibility for ensuring compliance with Section 106, and must consult directly with the California State Historic Preservation Officer (SHPO). SHPO consultation is initiated when sufficient information is provided by the CWSRF applicant. If the Department decides to pursue CWSRF financing, please retain a consultant that meets the Secretary of the Interior's Professional Qualifications Standards (http://www.nps.gov/history/local-law/arch_stnds_9.htm) to prepare a Section 106 compliance report.

Note that the Department will need to identify the Area of Potential Effects (APE), including construction and staging areas, and the depth of any excavation. The APE is three-dimensional and includes all areas that may be affected by the Project. The APE includes the surface area and extends below ground to the depth of any Project excavations. The records search request should extend to a ½-mile beyond project APE. The appropriate area varies for different projects but should be drawn large enough to provide information on what types of sites may exist in the vicinity.

In addition, the Department will need to comply with Assembly Bill No. 52, (AB-52 Native Americans: California Environmental Quality Act) which requires a lead agency to begin consultation with a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project (https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140AB52).

Other federal environmental requirements pertinent to the Project under the CWSRF Program include the following (for a complete list of all federal requirements please visit: http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/docs/forms/application_environmental_package.pdf):

A. An alternative analysis discussing environmental impacts of the project in either the CEQA document (Negative Declaration, Mitigated Negative Declaration or Environmental Impact Report) or in a separate report.

B. A public hearing or meeting for adoption/certification of all projects except for those with little or no environmental impacts.

C. Compliance with the Federal Clean Air Act: (a) Provide air quality studies that may have been done for the Project; and (b) if the Project is in a nonattainment area or attainment area subject to a maintenance plan; (i) provide a summary of the estimated emissions (in tons per year) that are expected from both the construction and operation of the Project for each federal criteria pollutant in a nonattainment or maintenance area, and indicate if the nonattainment designation is moderate, serious, or severe (if applicable); (ii) if emissions are above the federal *de minimis* levels, but the Project is sized to meet only the needs of current population projections that are

used in the approved State Implementation Plan for air quality, quantitatively indicate how the proposed capacity increase was calculated using population projections.

D. Compliance with the Coastal Zone Management Act: Identify whether the Project is within a coastal zone and the status of any coordination with the California Coastal Commission.

E. Protection of Wetlands: Identify any portion of the proposed Project area that should be evaluated for wetlands or United States waters delineation by the United States Army Corps of Engineers (USACE), or requires a permit from the USACE, and identify the status of coordination with the USACE.

F. Compliance with the Farmland Protection Policy Act: Identify whether the Project will result in the conversion of farmland. State the status of farmland (Prime, Unique, or Local and Statewide Importance) in the Project area and determine if this area is under a Williamson Act Contract.

G. Compliance with the Migratory Bird Treaty Act: List any birds protected under this act that may be impacted by the Project and identify conservation measures to minimize impacts.

H. Compliance with the Flood Plain Management Act: Identify whether or not the Project is in a Flood Management Zone and include a copy of the Federal Emergency Management Agency flood zone maps for the area.

I. Compliance with the Wild and Scenic Rivers Act: Identify whether or not any Wild and Scenic Rivers would be potentially impacted by the Project and include conservation measures to minimize such impacts.

Following are specific comments on the City's draft EIR:

1. In section 4.16.1.5 regarding Sea Level Rise, on page 4.16-8, it states, "The sea level at the San Francisco tidal gauge has risen approximately 0.8 inches per year since 1897, resulting in about 0.6 foot of sea level rise between that time and 2015." Please clarify if this should be corrected to 0.08 (0.076) inches per year. 2 **HY-1**

2. We have noted the statement in the footnote on page 4.5-1, that provisions for Assembly Bill No. 52 Native Americans: California Environmental Quality Act only apply to projects that have a notice of preparation (NOP) filed on or after July 1, 2015, and that the NOP for the Project was released June 24, 2015. Therefore, the Project is not subject to separate tribal cultural resources analyses. 3 **CR-3**

Please provide us with the following documents applicable to the proposed Project following the Department's California Environmental Quality Act (CEQA) process: (1) one copy of the draft and final EIR, (2) the resolution adopting the EIR and making CEQA findings, (3) all comments received during the review period and the Department's response to those comments, (4) the adopted Mitigation Monitoring and Reporting Program (MMRP), and (5) the Notice of Determination filed with the San Francisco County Clerk and the Governor's Office of Planning and Research, State Clearinghouse. In addition, we would appreciate notices of any hearings or meetings held regarding environmental review of any projects to be funded by the State Water Board. 4 **OC-4**

Thank you for the opportunity to review the Department's draft EIR. If you have any questions or concerns, please feel free to contact me at (916) 341-5879, or by email at Susan.Stewart@waterboards.ca.gov, or contact Ahmad Kashkoli at (916) 341-5855, or by email at Ahmad.Kashkoli@waterboards.ca.gov.

Sincerely,

Susan Stewart

Susan Stewart
Environmental Scientist
Enclosures (3):

1. Clean Water State Revolving Fund Environmental Review Requirements
2. Quick Reference Guide to CEQA Requirements for State Revolving Fund Loans
3. Basic Criteria for Cultural Resources Reports

Cc: State Clearinghouse
(Re: SCH# 2015062073)
P.O. Box 3044
Sacramento, CA 95812-3044

CLEAN WATER STATE REVOLVING FUND

California Environmental Quality Act Requirements

State Water Resources Control Board
Division of Financial Assistance

The State Water Resources Control Board (State Water Board), Division of Financial Assistance, administers the Clean Water State Revolving Fund (CWSRF) Program. The CWSRF Program is partially funded by grants from the United States Environmental Protection Agency. All applicants seeking CWSRF financing must comply with the California Environmental Quality Act (CEQA), and provide sufficient information so that the State Water Board can document compliance with federal environmental laws. The "Environmental Package" provides the forms and instructions needed to complete the environmental review requirements for CWSRF Program financing. It is available at:

http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/srf_forms.shtml

We've got the **green**...
to keep California's **water clean**.
CLEAN WATER STATE REVOLVING FUND

LEAD AGENCY

The applicant is usually the "Lead Agency" and must prepare and circulate an environmental document before approving a project. Only a public agency, such as a local, regional or state government, may be the "Lead Agency" under CEQA. If a project will be completed by a non-governmental organization, "Lead Agency" responsibility goes to the first public agency providing discretionary approval for the project.

RESPONSIBLE AGENCY

The State Water Board is generally a "Responsible Agency" under CEQA. As a "Responsible Agency," the State Water Board must make findings based on information provided by the "Lead Agency" before financing a project.

ENVIRONMENTAL REVIEW

The State Water Board's environmental review of the project's compliance with both CEQA and federal cross-cutting regulations must be completed before a project can be financed by the CWSRF Program.

DOCUMENT REVIEW

Applicants are encouraged to consult with State Water Board staff early during preparation of CEQA document if considering CWSRF financing. Applicants shall also send their environmental documents to the State Water Board, Environmental Review Unit during the CEQA public review period. This way, any environmental concerns can be addressed early in the process.

REQUIRED DOCUMENTS

The Environmental Review Unit requires the documents listed below to make findings and complete its environmental review. Once the State Water Board receives all the required documents and makes its own findings, the environmental review for the project will be complete.

- ✓ Draft and Final Environmental Documents: Environmental Impact Report, Negative Declaration, and Mitigated Negative Declaration as appropriate to the project
- ✓ Resolution adopting/certifying the environmental document, making CEQA findings, and approving the project
- ✓ All comments received during the public review period and the "Lead Agency's" responses to those comments
- ✓ Adopted Mitigation Monitoring and Reporting Plan, if applicable
- ✓ Date-stamped copy of the Notice of Determination or Notice of Exemption filed with the County Clerk(s) and the Governor's Office of Planning and Research
- ✓ CWSRF Evaluation Form for Environmental Review and Federal Coordination with supporting documents

Contact Information: For more information related to the CWSRF Program environmental review process and requirements, please contact your State Water Board Project Manager or Mr. Ahmad Kashkoli at 916-341-5855 or Ahmad.Kashkoli@waterboards.ca.gov

CALIFORNIA Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS
waterboards.ca.gov

REVISED: FEB. 2014

CLEAN WATER STATE REVOLVING FUND

Basic Criteria for Cultural Resources Report Preparation

State Water Resources Control Board
Division of Financial Assistance

For Section 106 Consultation with the State Historic Preservation Officer (SHPO) under the National Historic Preservation Act

CULTURAL RESOURCES REPORT

The Cultural Resources Report must be prepared by a qualified researcher that meets the Secretary of the Interior's Professional Qualifications Standards. Please see the Professional Qualifications Standards at the following website at: ***http://www.cr.nps.gov/local-law/arch_stnds_9.htm***

The Cultural Resources Report should include one of the four "findings" listed in Section 106. These include:

"No historic properties affected"
(no properties are within the area of potential effect (APE; including below the ground).

"No effect to historic properties"
(properties may be near the APE, but the project will not have any adverse effects).

"No adverse effect to historic properties"
(the project may affect "historic properties", but the effects will not be adverse).

"Adverse effect to historic properties"
Note: Consultation with the SHPO will be required if a "no adverse effect to historic properties" or an "adverse effect to historic properties" determination is made, to develop and evaluate alternatives or modifications to the proposed project that could avoid, minimize or mitigate adverse effects on "historic properties."

RECORDS SEARCH

- A records search (less than one year old) extending to a half-mile beyond the project APE from a geographically appropriate Information Center is required. The records search should include maps that show all recorded sites and surveys in relation to the APE for the proposed project, and copies of the confidential site records included as an appendix to the Cultural Resources Report.
- The APE is three-dimensional (depth, length and width) and all areas (e.g., new construction, easements, staging areas, and access roads) directly affected by the proposed project.

NATIVE AMERICAN and INTERESTED PARTY CONSULTATION

- Native American and interested party consultation should be initiated at the planning phase of the proposed project to gather information to assist with the preparation of an adequate Cultural Resources Report.
- The Native American Heritage Commission (NAHC) must be contacted to obtain documentation of a search of the Sacred Lands Files for or near the project APE.
- All local Native American tribal organizations or individuals identified by the NAHC must be contacted by certified mail, and the letter should include a map and a description of the proposed project.
- Follow-up contact should be made by telephone and a phone log maintained to document the contacts and responses.
- Letters of inquiry seeking historical information on the project area and local vicinity should be sent to local historical societies, preservation organizations, or individual members of the public with a demonstrated interest in the proposed project.

Copies of all documents mentioned above (project description, map, phone log and letters sent to the NAHC and Native American tribal organizations or individuals and interested parties) must be included in the Cultural Resources Report.

Contact Information: For more information related to the CWSRF Program Cultural Resources and Requirments, please contact Mr. Ahmad Kashkoli at 916-341-5855 or Ahmad.Kashkoli@waterboards.ca.gov

PRECAUTIONS

A finding of ***"no known resources"*** without supporting evidence is unacceptable. The Cultural Resources Report must identify resources within the APE or demonstrate with sufficient evidence that none are present.

"The area is sensitive for buried archaeological resources," followed by a statement that ***"monitoring is recommended."*** Monitoring is not an acceptable option without good-faith effort to demonstrate that no known resource is present.

If ***"the area is already disturbed by previous construction"*** documentation is still required to demonstrate that the proposed project will not affect "historic properties." An existing road can be protecting a buried archaeological deposit or may itself be a "historic property." Additionally, previous construction may have impacted an archaeological site that has not been previously documented.

SHPO CONSULTATION LETTER

Submit a draft consultation letter prepared by the qualified researcher with the Cultural Resources Report to the State Water Resources Control Board. A draft consultation letter template is available for download on the State Water Board webpage at: ***http://www.waterboards.ca.gov/water_issues/programs/grants_loans/cwsrf_requirements.shtml***

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National Historic Preservation Act (NHPA)

Section 106 of the NHPA requires an analysis of the effects on "historic properties." The Section 106 process is designed to accommodate historic preservation concerns for federal actions with the potential to affect historic properties. Early consultation with appropriate government agencies, Indian tribes, and members of the public, will ensure that their views and concerns are addressed during the planning phase.

Historic properties (i.e., buildings, structures, objects, and archaeological sites 50 years or older) are properties that are included in the National Register of Historic Places or meet the criteria for the National Register.

Required Documents:

✓A draft State Historic Preservation Officer consultation request letter; and

✓A cultural resources report on historic properties conducted according to the Secretary of the Interior's Standards, including:

- A clearly defined Area of Potential Effect (APE), specifying the length, width, and depth of excavation, with a map clearly illustrating the project APE;
- A records search, less than one year old, extending to a half-mile beyond the project APE;
- Written description of field methods;
- Identification and evaluation of historic properties within the project's APE; and
- Documentation of consultation with the Native American Heritage Commission and local Native American tribes.

ADDITIONAL INFORMATION

If your project has the potential to affect biological resources or historic properties, the consultation process can be lengthy. Please contact the State Water Board staff early in your planning process to discuss what additional information may be needed for your specific project.

Please contact your State Water Board Project Manager or Mr. Ahmad Kashkoli at (916) 341-5855 or *Ahmad.Kashkoli@waterboards.ca.gov* for more information related to the CWSRF Program environmental review process and requirements.

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to keep California's **water clean**.
CLEAN WATER STATE REVOLVING FUND

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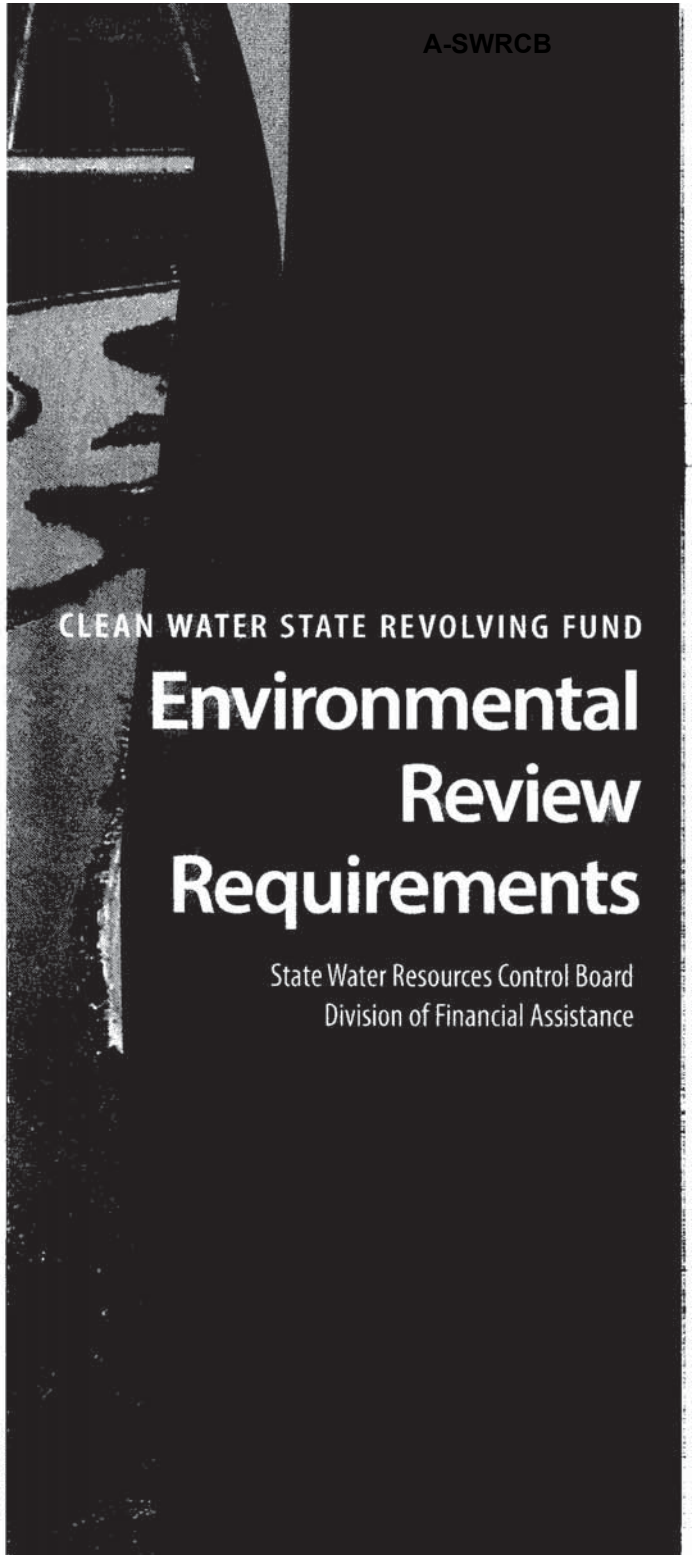

CLEAN WATER STATE REVOLVING FUND

Environmental Review Requirements

State Water Resources Control Board
Division of Financial Assistance

ENVIRONMENTAL REVIEW REQUIREMENTS

The Clean Water State Revolving Fund (CWSRF) Program is partially funded by the United States Environmental Protection Agency (EPA), and is subject to federal environmental regulations as well as the California Environmental Quality Act (CEQA). All applicants seeking CWSRF financing must comply with both CEQA and the federal cross-cutting regulations. The **"Environmental Package"** provides the forms and instructions needed to complete the environmental review requirements for CWSRF financing. The forms and instructions are available at: ***http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/srf_forms.shtml.***

Lead Agency/Applicant

The applicant will generally act as the "Lead Agency" for environmental review. It will prepare, circulate, and consider the environmental documents prior to approving the project. It also provides the State Water Board with copies of the CEQA documents, and a completed **"Environmental Evaluation Form for Environmental Review and Federal Coordination"** ***(http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/docs/forms/application_environmental_package.pdf)*** with supporting documents as part of the **"Environmental Package."**

Responsible Agency/State Water Board

The State Water Board acts on behalf of EPA to review and consider the environmental documents before approving financing. The State Water Board may require additional studies or documentation to make its own CEQA findings, as well as circulate CEQA documents and other environmental reports to relevant federal agencies for consultation before making a determination about the project financing.

The Applicant must address all relevant federal agencies' comments before project financing is approved.

FEDERAL CROSS-CUTTING REGULATIONS

The CWSRF Program requires consultation with relevant federal agencies on the following federal environmental regulations, if applicable to the project:

- Clean Air Act
- Coastal Barriers Resources Act
- Coastal Zone Management Act
- Endangered Species Act
- Environmental Justice
- Farmland Protection Policy Act
- Floodplain Management
- Magnuson-Stevens Fishery Conservation and Management Act
- Migratory Bird Treaty Act
- National Historic Preservation Act
- Protection of Wetlands
- Safe Drinking Water Act, Sole Source Aquifer Protection
- Wild and Scenic Rivers Act

The following is a brief overview of requirements for some of the key regulations.

Clean Air Act (CAA)

The CAA general conformity analysis only applies to projects in areas not meeting the National Ambient Air Quality Standards or subject to a maintenance plan.

If project emissions are below the federal "de minimis" levels then:

- A general conformity analysis is not required.

If project emissions are above the federal "de minimis" levels then:

- A general conformity determination for the project must be made. A general conformity determination can be made if facilities are sized to meet the needs of current population projections used in an approved State Implementation Plan for air quality.
- Using population projections, applicants must explain how the proposed capacity increase was calculated.

An air quality modeling analysis is necessary of all projects for the following criteria pollutants, regardless of attainment status:

- Carbon monoxide
- Lead
- Oxides of nitrogen
- Ozone
- Particulate matter (PM2.5 and PM10)
- Sulfur dioxide

Endangered Species Act (ESA)

The ESA requires an analysis of the effects on federally listed species. The State Water Board will determine the project's potential effects on federally listed species, and will initiate informal/formal consultation with the United States Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service, as necessary under Section 7 of the ESA.

Required Documents:

- ✓ A species list, less than one year old, from the USFWS and the California Department of Fish and Wildlife's Natural Diversity Database;
- ✓ A biological survey conducted during the appropriate time of year;
- ✓ Maps or documents (biological reports or biological assessments, if necessary); and
- ✓ An assessment of the direct or indirect impacts to any federally listed species and/or critical habitat. If no effects are expected, explain why and provide the supporting evidence.

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Community Planning

June 17, 2017

Mr. Timothy Johnston
San Francisco Planning Department
1650 Mission Street, Suite 400
San Francisco, CA 94103
fax 415- 558-6409
email: timothy.johnston@sfgov.org.

Re: BDFP-EIR Comment and Recommendation
Project Address: 750 Phelps Street, 1700 Jerrold Avenue, 1800 Jerrold Avenue, and 1801 Jerrold Avenue, San Francisco
Case No.: 2015-000644ENV

Dear Mr. Johnston,

Thank you for considering these comments and recommendations as you continue to evaluate the BDFP-EIR. Our recommendations are in two key areas: Cultural Resources and Traffic/Transportation and Circulation.

I. CULTURAL RESOURCES

1. Impacts on Individual Historic Elements - **The Central Shops** and Southeast Treatment Plant Streamline Moderne Industrial Historic District

1
CR-1

As noted in the EIR, the proposed project would result in the removal of the Central Shops (including Buildings A and B), a complex that is eligible for listing in the California and National Registers. (Vol 1. S-6)

"*The removal of Buildings A and B at the Central Shops would cause a substantial adverse change in the significance of the historical resource because the project would demolish the physical characteristics that convey the resource's historical significance and that justify its individual eligibility for inclusion in the California and National Registers, resulting in a significant impact under CEQA Guidelines Section 15064.5."*

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Recommendation

Understanding that implementing Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display)

'would reduce the severity of the impact…but would not reduce the severity of the impact to a less-than-significant level' and even though *'the impact would be significant and unavoidable with mitigation',*

we nevertheless recommend a combined solution for the loss of these historic resources. It is suggested that the complete and thorough **Mitigation Measure M-CR-1 be conducted, along with the implementation of Alternative C**, the Historical Resources Relocation, with the relocation of the Central Shops serving as the permanent public display and archival venue for the documentation and interpretive material. As indicated in M-CR-1:

" the SFPUC shall provide a permanent display of interpretive materials (which may include, but are not limited to, a display of photographs, a brochure, educational website, or an exhibitive display) ….Development of the interpretive materials shall be supervised by an architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards…shall be placed in a prominent, public setting. A proposal describing the general parameters of the interpretive materials shall be approved by Planning Department Preservation staff prior to construction completion. The substance, media and other elements of such interpretive display shall be approved by Planning Department Preservation staff prior to completion of the project."

And as indicated in Alternative C:

"The Historical Resources Relocation Alternative, would consist of full construction and operation of the BDFP as proposed, plus the relocation of Central Shops Buildings A and B to a similar industrial setting in San Francisco. The relocation, rehabilitation, and reuse of Buildings A and B would be consistent with the Secretary of the Interior's Standards, and would reduce the significant and unavoidable impact on historical resources under the proposed project to a less than- significant level. Rather than demolishing Buildings A and B, the SFPUC would dismantle these structures such that they could be relocated consistent with the Secretary of the Interior's Standards for Rehabilitation."

1
CR-1
cont.

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2. Impacts of Other Project Components - **Display Building**

'The most prominent features of the greenhouses are four tall, narrow structures near the edge of the property on Phelps Street. As a separate action from the BDFP, the San Francisco Public Utilities Commission(SFPUC) plans to demolish the existing structures at the Southeast Greenhouses site (refer to Table 4.1-1 in Section 4.1). The site would be used for construction staging for the project if it becomes available prior to BDFP construction.

Recommendation:

The smaller, yet taller, glassed in greenhouse 'facade' - THE DISPLAY BUILDING is a striking and important community marker at the intersection of Phelps and McKinnon Avenues. As community planners and advocates for improving the physical environment where we live, the potential for losing these smaller buildings (if contemplated in Phase 1) seems antithetical to the goals we've set for ourselves in lifting this place in Bayview.

2

OC-3

These buildings have been recognized as remaining in our neighborhood greening and block improvement plans for some time and fulfill the Phase2 goals for the 'Model Block' as planned in 2006-2009.

These DISPLAY BUILDINGS are noted in the EIR and Aecom report as the 'Display' buildings, and are not contiguous to the larger greenhouses also slated for demolition in the BDFP. The Aecom Due Diligence report -2015 does not indicate an imminent seismic failure of this particular location, as was reported by the SFPUC neighborhood outreach team in May, 2017. The path of least resistance may be to simply demolish the buildings in order to make way for a construction parking lot and staging area as mapped and noted in the EIR. Demolition of these structures add to the removal of community assets, bit by bit, in our opinion.

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An alternate, community use, is highly recommended.
If it is indeed determined that occupancy of building is not recommended, yet the seismic integrity is not significantly compromised, the building would provide an ideal location as a community storage hub for cots, MREs, generators, first-aid supplies, water and many other emergency items for use by emergency responders on behalf of Bayview and beyond in the event of a impactful event or natural disaster.

2 **OC-3** cont.

II. TRAFFIC, CIRCULATION and TRANSPORTATION

In our work with the Bayview CAC and many others, we are also requesting additional review of the impact analysis with respect to traffic and circulation (Impact TR 1-5 incl.; Vol.1 s28) from the existing 'LS' -less than significant - status to the LSM condition, requiring mitigation. While the EIR indicates potential compliance with 'applicable regulations' and the incorporation of a 'traffic and control plan', no such plan is articulated or explored within the report, nor is there a suggested mitigation for alleviating the traffic and circulation impacts as outlined in the analysis.

In addition to a request for a thorough and multi-agency review and written plan as a requirement prior to final certification of the EIR, several straightforward, feasible mitigations are proposed.

3 **TR-1**

Noted in the report are forty (40) projects considered in the cumulative impact analysis for traffic and circulation, with 25 of these projects, or 63% of the impact to Bayview, as SSIP and/or SFPUC related. (Table 4.1-1; Vol.1 p. 4.1.6).

Specifically, the following projects noted in the analysis will severely impact the surrounding community and neighborhoods, in our opinion, with questionable 'public safety' and 'emergency routing' possibilities due to the closure or blocking of major East/West thoroughfares in Bayview:

4 **TR-4**

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>**Current, existing lane narrowing/access along the Evans Street** beginning in August 2017 for the Headworks phase; (Table item #1). Beginning in August, 2017, this work is under pre-development now and includes hundreds of construction vehicles, manpower transportation efforts, shuttles, and staging relays due to the SSIP early phase implementation. Evans Avenue is a major East/West arterial utilized by residents, businesses and visitors including City and County employees, USPS facility employees, SFFD manpower, residents of India Basin, Hunters-Point Shipyard, and thousands of residents, businesses and non-profits throughout the community.

>**Closure of Jerrold Avenue from Phelps to Rankin Street.** Specifically, as noted in the EIR, is the 5-6 year closure of Jerrold Avenue between Phelps Avenue and Rankin Street. Another major East/West arterial, Jerrold is similarly traversed by thousands of residents, business owners, employees on a daily basis. The closure of Jerrold Avenue presents a very high level of concern for all nearby businesses and residents, and will significantly and negatively impact the quality of life for those utilizing this alignment.

4
TR-4
cont.

>**Construction staging along Phelps Avenue**/ parking / equipment relay. This narrow street includes many active and essential PDR businesses and nearby residences. Note the circulation graphics contained in the EIR, with additive impacts to to staging areas at Evans and McKinnon Avenues and with routing from 1550 Evans Avenue and Piers 92-94 for construction employees and equipment.

Not included in the cumulative impact analysis on traffic, and not mentioned in the BSFP-EIR, yet key to understanding the need for feasible mitigation as a requirement to LSM status are:

OC-2

> **Palou Avenue** streetscape improvement project -from Barneveld to Crisp Avenues- beginning late 2017, this is an approved $10m, SFDPW/SFMTA project with significant staging, parking, re-routing and daily traffic impacts on this heavily used East/West alignment.

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> **2245 Jerrold Avenue** - Project by **SFFD** - construction of SFFD Ambulance Deployment Facility - a $27m project slated for construction in 2020. As noted in the project conceptual design documentation, " The Project site is in an intensively developed area of San Francisco's Bayview neighborhood characterized by various warehouse, distribution and light industrial uses".

OC-2

> Re-routing of the **23 Muni Bus Line to Palou Avenue**. While the BSFP-EIR indicates relocation of the 23 Monterery Muni Line from Jerrold Avenue to Palou Avenue as a temporary measure during course of construction, the Palou Streetscape project indicates the eventual and permanent relocation of the 23 to Palou Avenue following the streetscape improvements. A temporary relocation of this public transportation element to Palou Avenue from Jerrold Avenue is neither practical nor safe during concurrent major construction on both E/W alignments.

> **Other:** Multiple private construction projects for residential mixed-use, PDR, commercial improvements, etc. are under review and/or are being considered for the Third Street Corridor in Bayview between Williams Avenue and Evans Avenue for 2018-2025.

4
TR-4
cont.

When considering these traffic and circulation impacts alone, one should consider that these crucial East/West arterials (Evans, Jerrold, Palou), in a 'closed', 'blocked' or 'under construction' condition, will increase traffic on already heavily used E/W Oakdale Avenue.

These major East/West street alignments, in and out of Bayview, provide the daily transportation routes for tens of thousands of individuals who live and work in Bayview, for parents who take their children to school and back, for employees and employers who must get to their jobs, and, most importantly serve as essential transportation routes in the event of a natural disaster such as an earthquake, flood, fire or other impactful 'event'. (see attachments 2-60, 61)

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It should also be noted that the **sole NORTH bound** access, along Third Street @ Islais Creek, is a documented potential **liquefaction zone** and will be significantly compromised as a transportation route following a seismic event.

5
TR-2

The overarching issues - transportation, traffic and circulation - drive the question of public safety in Bayview and the quality of life for those directly and indirectly impacted by these multiple, intersecting projects. For the record, approximately 35,000 San Francisco citizens reside in the Bayview community and neighborhoods.

6
GC-2

As noted in the EIR in section 2.4.2.1 Long-Term Changes to Local Roadway Network, "In October 2015, Quint Street between Oakdale Avenue and the Caltrain tracks was permanently closed to through traffic as part of Caltrain's Quint Street Bridge Replacement project." Also noted in the Impact Analysis table Table 4.1-1; Vol.1 p. 4.1.6-14, are **two projects which we suggest provide partial solutions for feasible mitigation on these traffic impacts.**

Item #24 (Table 4.1.1; Vol 1. p 4.1.10) - **The Quint Connector**

This project would construct a new 950-foot-long roadway to provide access between existing Quint Street and Jerrold Avenue.
The roadway would consist of two 13-foot-wide lanes (within a 50-foot-wide corridor), one northbound and one southbound.
Construct a new 27-foot-wide curb cut located along the San Francisco Wholesale Produce Market property (Project 25,below); and install street trees and street lighting;

Item #25 (Table 4.1.1; Vol 1. p 4.1.10) -

City and County of San Francisco Produce Market

Jerrold Avenue would be reconfigured to direct through traffic around the site onto Innes and Kirkwood Avenues. Innes Avenue would be improved and portions of the project site would also be dedicated to create two new intersections where Toland Street crosses Innes and Kirkwood Avenues. Rankin Street would be relocated between Kirkwood and Innes Avenues to parallel the west side of the Caltrain right-of-way, and the intersection of Rankin Street and Jerrold Avenue would be

7
TR-4

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www.bayview-hunterspoint.com bvhpwatch@mac.com

reconfigured. All roadway improvements would be constructed under Phase 1.

7 **TR-4** cont.

Construction and implementation of the Quint Connector Road, prior to major construction at the SEP, will reduce pressure on the remaining, key E/W arterial (Oakdale Avenue) and allow local traffic to be routed to the NW along the alignment - to Innes, etc. and out to Bayshore and 101N in the short, medium and long term. In addition, and as a result of the completion of this Quint connector alignment, a portion of the deteriorating air quality issues noted as 'significant and unavoidable' during the construction process may be improved as the likely impacts of congested and idling automobiles, trucks and busses on the remaining Oakdale corridor could be reduced.

8 **TR-4**

9 **AQ-2**

Recommendations:

1. Study and re-evaluate the conclusions drawn in the EIR regarding the significance of the traffic impacts, along with a more clearly articulated and written, multi-agency transportation and traffic plan prior to certification of the EIR.

2. Completion of the Quint Street Connector by December 31, 2018.

The **Quint Street Connector ByPass** roadway plan should be **expedited and built, as part of the PUC project**, prior to major construction in 2018/19, in our opinion. An inter-agency cooperative effort is essential in this regard. Leadership and guidance from the Mayor's Office, the City Administrator's Office, the District 10 Supervisor, SFDPW, SFMTA, SFPUC, SFFD, SFPD, Union Pacific and the Department of Emergency Management is highly recommended and urged.

10 **TR-1** **TR-4**

The Bayview Office for Community Planning is a non-governmental, non-public funded, community-based and independent organization of Bayview residents and business owners providing land-use and project review services, economic development planning efforts and merchant advocacy. Recommendations are presented to clients, Bayview community organizations, the San Francisco Planning Commission, Board of Permit Appeals, etc. BOCP work includes outreach to the SFPlanning Department, DBI, Bayview CAC, OCII, Resilient Bayview, the Bayview Business Alliance Project, the District 10 Supervisor's Office, and other community-based advocacy organizations and district merchants.
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3. **Reconsideration of the temporary relocation of Muni 23 Monterey Bus line**. SFPUC, with SFMTA as lead agency, to consider the cumulative impact of the Jerrold Street closure, the streetscape improvement project on Palou Avenue, the narrowing of Evans Avenue, and the heavily impacted Oakdale Avenue arterial due to the above concurrent projects.

10
TR-1
TR-4
cont.

Thank you for reviewing these comments and recommendations on Cultural Resources and Transportation items as outlined in the draft EIR. We look forward to hearing from you. Don't hesitate to contact us with any questions or comments.

Sincerely,

Dan Dodt
Bayview Community Planning

cc: Mayor's Office, San Francisco Board of Supervisors, Bayview Merchants Association, Merchants of Butchertown, India Basin Neighborhood Association, Bayview Hill Neighborhood Association, BMagic, Providence Community Organization, EDoT, Bayview CAC, Brite, 4800 HOA, 5800 HOA, Bayview block clubs, community members and groups, SFPD-Bayview Station, SFFD-Station #9, SEP/SSIP representatives.

The Bayview Office for Community Planning is a non-governmental, non-public funded, community-based and independent organization of Bayview residents and business owners providing land-use and project review services, economic development planning efforts and merchant advocacy. Recommendations are presented to clients, Bayview community organizations, the San Francisco Planning Commission, Board of Permit Appeals, etc. BOCP work includes outreach to the SFPlanning Department, DBI, Bayview CAC, OCII, Resilient Bayview, the Bayview Business Alliance Project, the District 10 Supervisor's Office, and other community-based advocacy organizations and district merchants.
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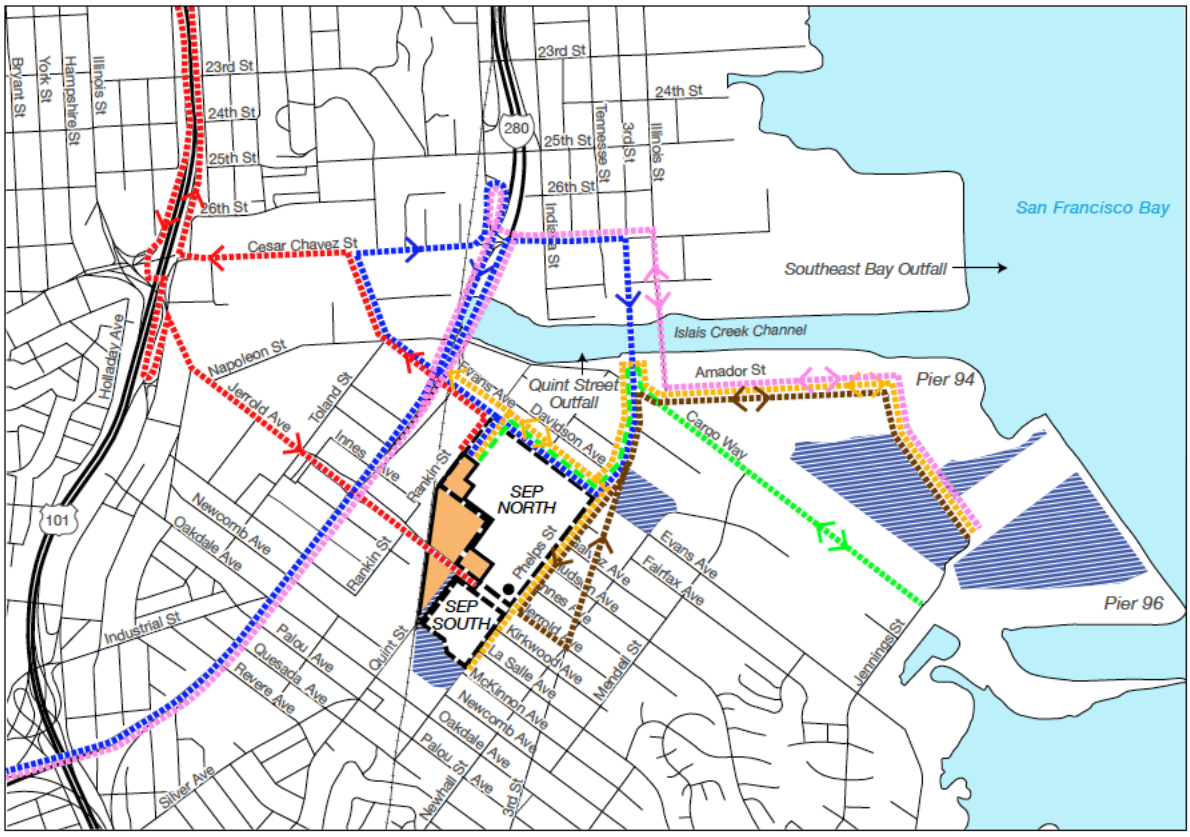


SFPUC Southeast Plant (SEP) Boundary

Project Site (Limited work at SEP North is also proposed to integrate liquid treatment facilities with BDFP facilities. In addition, street improvements would occur along Jerrold Avenue west of Phelps Street)

Potential Construction Staging Areas (Staging may also occur within the existing SEP boundary)

Excavated Soil (Altamont) and Lead/Asbestos Building Materials (Vacaville)

Recyclable and Unrecyclable Materials (Half Moon Bay)

Contaminated Excavated Soil (Rail Transfer)

Equipment Deliveries and Concrete Trucks (These trips could originate within or outside of San Francisco; routes to and from the project site and staging areas would vary)

Construction Worker Shuttle Bus

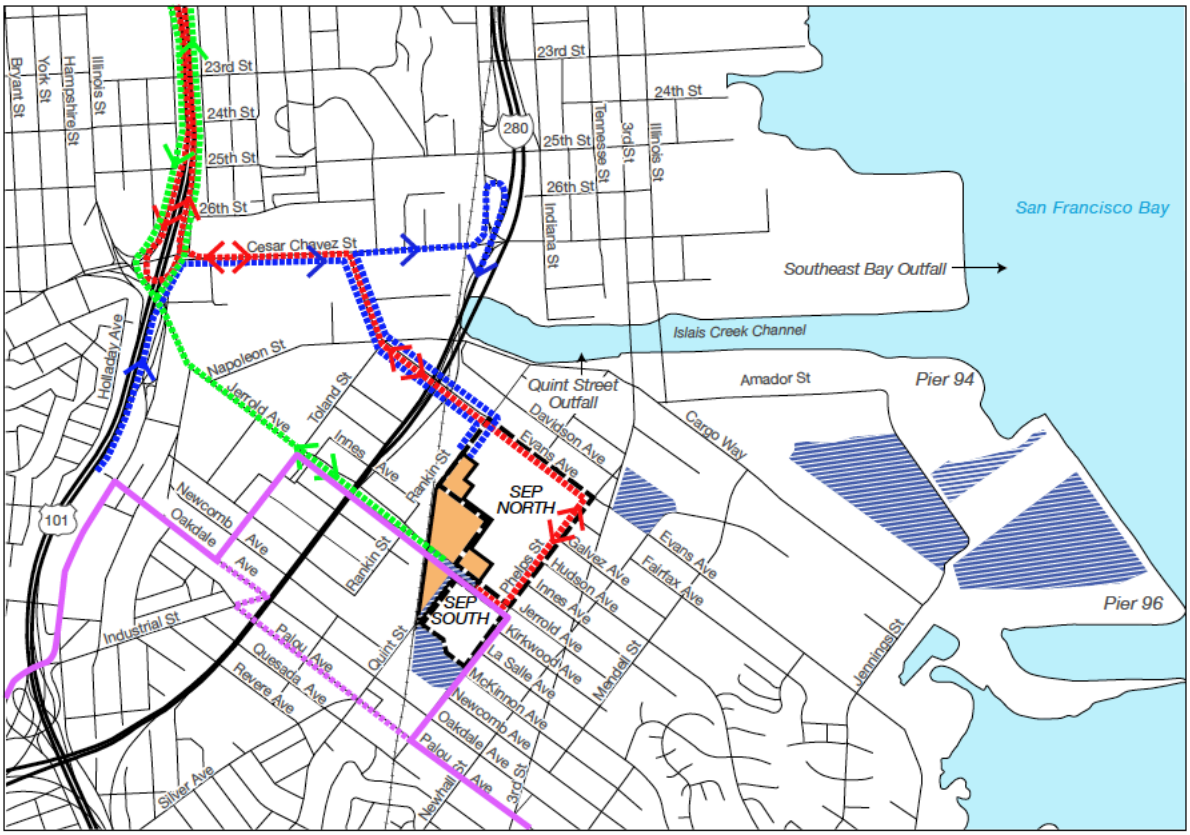
Equipment Deliveries to Piers 94/96

Shuttle Bus Stop

0 2000
Feet

SOURCE: San Francisco Public Works 2005 GIS data;
Adavant Consulting and LCW Consulting, Data developed in 2016 for BDFP

SFPUC Biosolids Digester Facilities
Figure 2-15
Construction Haul Routes



SFPUC Southeast Plant (SEP) Boundary

Project Site (Limited work at SEP North is also proposed to integrate liquid treatment facilities with BDFP facilities. In addition, street improvements would occur along Jerrold Avenue west of Phelps Street)

Potential Construction Staging Areas
(Staging may also occur within the existing SEP boundary)

Biosolids Off Haul During Nighttime Hours (2:00 a.m. to 3:00 a.m.)

Chemical Delivery Trucks, Yellow Grease Loadout, and Biosolids Off Haul During Daytime Hours

Grit Trucks (Half Moon Bay), Screening Trucks (Recology)

Existing Muni 23 Monterey Route

Temporary Relocation of Muni 23 Monterey Route

0 2000
Feet

SOURCE: San Francisco Public Works 2005 GIS data; Adavant Consulting and LCW Consulting, Data developed in 2016 for BDFP

SFPUC Biosolids Digester Facilities

Figure 2-16
SEP Operational Truck Routes During Project Construction

BAYVIEW HISTORICAL SOCIETY
preservation of place

Our Mission: To identify and preserve the sites and structures of architectural and historic significance in the Bayview-Hunters Point District, for the benefit of its residents and for the larger San Francisco community.
founded in 2004 registered and established public benefit organization: May 1, 2005

19 June 2017

Timothy Johnston
San Francisco Planning Department
1650 Mission Street, Suite 400
San Francisco, CA 94103

Subject: Case No.: 2015-000644ENV Biosolids Digester Facilities Project
Environmental Impact Report Draft

Mr. Johnston,

We are submitting comments on the Draft EIR with regard to Cultural Resources. Kindly forward these items to the project review team.

1. **CULTURAL RESOURCES** Impacts on Individual Historic Elements - The Central Shops and Southeast Treatment Plant Streamline Moderne Industrial Historic District

As noted in the EIR, the proposed project would result in the removal of the Central Shops (including Buildings A and B), a complex that is eligible for listing in the California and National Registers. (Vol 1. S-6) 'The removal of Buildings A and B at the Central Shops would cause a substantial adverse change in the significance of the historical resource because the project would demolish the physical characteristics that convey the resource's historical significance and that justify its individual eligibility for inclusion in the California and National Registers, resulting in a significant impact under CEQA Guidelines Section 15064.5'

1
CR-1

Recommendation

We have reviewed the proposed Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display) which 'would reduce the severity of the impact…but would not reduce the severity of the impact to a less-than-significant level' and even though 'the impact would be significant and unavoidable with mitigation', and have also noted the Alternative C mitigation option -

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preservation of place

'The Historical Resources Relocation Alternative' - and understand that this 'would consist of full construction and operation of the BDFP as proposed, plus the relocation of Central Shops Buildings A and B to a similar industrial setting in San Francisco. The relocation, rehabilitation, and reuse of Buildings A and B would be consistent with the Secretary of the Interior's Standards, and would reduce the significant and unavoidable impact on historical resources under the proposed project to a less than- significant level. Rather than demolishing Buildings A and B, the SFPUC would dismantle these structures such that they could be relocated consistent with the Secretary of the Interior's Standards for Rehabilitation.'

We recommend a combined solution for the loss of these historic resources. It is suggested that the complete and thorough Mitigation Measure M-CR-1 be conducted, along with the implementation of Alternative C, the Historical Resources Relocation, with the relocation of the Central Shops serving as the permanent public display and archival venue for the documentation and interpretive material, and establish this location as the Bayview Architectural Resources Archive.

1 **CR-1** cont.

As indicated in M-CR-1:
'the SFPUC shall provide a permanent display of interpretive materials; shall be supervised by an architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards; shall be placed in a prominent, public setting; a proposal describing the general parameters of the interpretive materials shall be approved by Planning Department Preservation staff prior to construction completion; with the substance, media and other elements of such interpretive display shall be approved by Planning Department Preservation staff prior to completion of the project.'

And as indicated in Alternative C:
"The Historical Resources Relocation Alternative, would consist of full construction and operation of the BDFP as proposed, plus the relocation of Central Shops Buildings A and B to a similar industrial setting in San Francisco. ' A port property on Pier 92 is suggested.

2. **CULTURAL RESOURCES** Impacts of Other Project Components - Display Building

We are opposed to the demolition and removal of the green framed, display buildings along Phelps Avenue, and suggest an alternate, community serving use for these modest structures. As noted in the EIR - 'The most prominent features of the greenhouses are four tall, narrow structures near the edge of the property on Phelps Street. As a separate action from the BDFP, the San Francisco Public Utilities Commission(SFPUC) plans to demolish the existing structures at the Southeast Greenhouses site (refer to Table 4.1-1 in Section 4.1). The site would be used for construction staging for the project if it becomes available prior to BDFP construction.

2 **OC-3**

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preservation of place

Recommendation:

These buildings have been recognized as remaining in our neighborhood greening and block improvement plans for some time and fulfill the Phase2 goals for the 'Model Block' as planned in 2006-2009, with the initial phase completed at City cost on the Newcomb Avenue alignment. These buildings are also noted in both the EIR and Aecom report as the 'Display' buildings, and are not contiguous to the larger greenhouses also slated for demolition in the BDFP. The Aecom Due Diligence report -2015 does not indicate an imminent seismic failure of this particular location.

Demolition of these structures to make space for a construction staging and parking lot and staging area as mapped and noted in the EIR is mis-guided and needlessly destructive, in our opinion. Demolition of these structures also add to the incremental removal of known community assets. The display buildings are valued and admired by many in the community and stand out as an 'iconic marker' despite the modest architectural character and lack of recognition as an 'historic resource'

An alternate, rather benign and easily implemented community use is highly recommended and is outlined by the Bayview Office for Community Planning. We concur with this assessment:

If it is determined that occupancy of building is not recommended, yet the seismic integrity is not significantly compromised, the building would provide an ideal location as a community storage hub for cots, MREs, generators, first-aid supplies, water and many other emergency items for use by emergency responders on behalf of Bayview and beyond in the event of a impactful event or natural disaster. The community could clearly benefit from such an asset in light of the other significant impacts from this phase of the SSIP project

2
OC-3
cont.

Thank you for your consideration.
Sincerely,

Adrian Card
President, Bayview Historical Society

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org

From: Steven Tiell [mailto:steve@tiellium.com]
Sent: Wednesday, May 31, 2017 11:26 AM
To: Johnston, Timothy (PUC); Huggins, Monica (CPC)
Cc: Cohen, Malia (BOS); Chicuata, Brittni (BOS); Hildreth, Casey; Gallagher, Jack (ADM); Chiu, Carolyn (PUC); Vaswani, Raj (POL)
Subject: Feedback on SEP BDFP EIR

Please find a letter from BRITE attached that should serve as a response to the recently issued EIR for the Biosolids Digester Facilities Project.

In summary, BRITE strongly opposes the closure of Jerrold and would like to see efforts made to honor pre-existing commitments to the community -- both in terms of the Jerrold street closure and a key component of the greenhouse community benefit. 1 GC-3

Thank you for accepting this input and integrating in the next iteration of the EIR.

BRITE
Bayview Residents Improving Their Environment

BAYVIEW RESIDENTS IMPROVING THEIR ENVIRONMENT
http://britesf.org | info@brightsf.org

Re: Feedback on Draft EIR for BDFP May 30, 2017

TO: Timothy Johnston, SFPUC
Monica Huggins, Administrative Assistant, SFPUC
CC: Malia Cohen, Supervisor District 10
Brittni Chicuata, Legilative Aide, Supervisor Cohen's Office
Casey Hildreth, Sr. Planner, SFMTA Livable Streets
Jack Gallagher, Bayview Hunter's Point Citizen's Advisory Committee
Carolyn Chiu, Project Manager, SFPUC
Captain Raj Vaswani, SFPD Bayview Station

The neighborhood group, BRITE (Bayview Residents Improving Their Environment), a registered 501(c)4 nonprofit, represents hundreds of residents of Bayview/Hunters Point (BVHP).

As progress builds on the SE Wastewater Treatment facility, so does the feedback we hear from members of the community. After the publication of the draft EIR, we've heard discussion and displeasure with the call for Jerrold St to be "closed during construction". (EIR Vol 1, §2.1.1.2; §S.4.3;) Compounding this closure is the simultaneous realignment of lanes on Evans to also support this project. But there's more to this than road closures – the bigger picture is about the SFPUC's relationship with and commitments to the community and the isolation (and resilience) of Bayview.

During the SFPUC-hosted community town hall March 18, 2017, Carolyn Chiu said, "the Jerrold Street closure would only happen late at night and would only impact the businesses at the produce market." Now, the draft EIR states the street will be completely closed during construction! This significant of a change, buried in a 500+ page, multi-volume document, further erodes what's left of the trust between the SFPUC and our community. This is a categorically unacceptable and unreasonable burden to place on our residents, especially when commitments have already been made to the community to avoid this very situation. This is the epitome of trying to pull a fast one and it is offensive to the community. Together with the seizure and demolition of the greenhouses – which were supposed to be a community benefit – the number and significance of flip-flops on commitments to the community by the SFPUC raises eyebrows among community stakeholders.

2
GC-3

What we hear universally from residents is best described as outrage. First, with respect to the greenhouses, it would be minimally respectful to retain the glass "exhibit gallery" buildings and façade on Phelps at the intersection with McKinnon – these structures remind the community of their pride for being pioneers in creating urban, green-collar jobs. Furthermore, the cost to retain and repair these structures is surely competitive with the costs of leased trailers for office space (the EIR-identified use of that land). Second, residents have historically been deeply concerned about the lack of accessibility between Bayview and Hunters Point neighborhoods with the rest of the City – we have one North/South route, and less than a handful of East/West routes (Evans, Jerrold, Oakdale, and Paul). This long-imposed exile is currently exacerbated by game-day traffic for the Giants and will be further stressed once the basketball arena opens, also around the time when BDFP construction will be in full affect. Constricting the flow of traffic on Evans and closing Jerrold means the community will effectively lose its

3
OC-3

4
TR-1

two Northern-most E/W routes, leaving only Oakdale and Paul "unaffected". Both of which are already heavily used and Oakdale is in terrible condition and getting worse.

4 cont.

While the community strongly supports the BDFP project for its promise to eliminate odors beyond the fence line – odors which our community has been subject to for decades (odors that came with scaled back community benefits that were delinquent in being delivered and are now being repossessed) – the appetite for traffic disruptions of this magnitude are nil, as is the appetite for a complete demolition of the greenhouses site.

GC-3

One example from a family in our community demonstrates how these street closures could test the resiliency of an already fragile community, compromise the economic stability of families, and exacerbate delicate issues of equitable justice. This family has children at a school in Cole Valley – getting to the school requires two, 1-hour round-trips per day. They take either Evans or Jerrold to Caesar Chavez / 101. One parent takes CalTrain to San Jose for work (approximately a 1h45m door-to-door commute). The children are dropped off by 8:30am and picked up before 6pm. For every minute they're late, it costs $5/min/child. This family has minimal resiliency in their day already and see a strong education as the most accessible path to generational economic mobility. Adding even a 5-10 minute delay in their day due to traffic as a result of these street closures (compounded by aforementioned systemic impacts) will impose a "social justice tax" of $50 - $100/per day – they have 2 kids and are already stretched thin to get to the school by 6pm. This family is not alone in their transit struggles as a direct consequence of living in the isolated Bayview neighborhood.

GC-2

TR-1

BRITE calls on the SFPUC to define a construction and staging plan that does not call for Jerrold to close. Consider using existing road infrastructure within the SEP boundaries; instead of performing roadwork during Phase 1 to transform the traffic patterns through the produce market, use that time and funding to make roadway improvements within the SEP boundary to handle the construction and hazardous material traffic currently targeted for Jerrold. This is also a good opportunity to pause and consider if it's in CCSF's best interest to have the most hazardous shipments travel through the primary distribution point for all fresh produce in CCSF – this is an issue of resiliency and food security as well.

5

HZ-2

Sincerely,
BRITE (Bayview Residents Improving Their Environment)
http://britesf.org

Bayview Hunters Point Citizens Advisory Committee

Michael Hamman, Chair
Ellouise Patton, Vice Chair

19 June 2017

Mr. Timothy Johnston
San Francisco Planning Department
1650 Mission Street, Suite 400
San Francisco, CA 94103
Fax 415- 558-6409
Email: timothy.johnston@sfgov.org.

Re: BDFP EIR Comments
Project Address: 750 Phelps Street, 1700 Jerrold Avenue, 1800 Jerrold Avenue, and 1801 Jerrold Avenue, San Francisco
Cross Street(s): Jerrold Avenue/Phelps Street
Block /Lot No.: 5262/009; 5281/001 Zoning District(s): P (Public Facilities); M-1 (Light Industrial); M-2 (Industrial) Plan Area: Bayview Hunters Point
Case No.: 2015-000644ENV

Dear Mr. Johnston,

The Bayview Hunters Point Citizens Advisory Committee ("CAC") provides community guidance to the Board of Supervisors, City boards, commissions and departments, including the Planning Commission and Planning Department regarding planning and development issues in Zone 2 of the Bayview Hunters Point Redevelopment Project Area.

As such, we are requesting additional review of the impact analysis with respect to traffic and circulation (Impact TR 1-5 incl.; Vol.1 s28) from the existing 'LS' -less than significant - status to the LSM condition, requiring mitigation. While the EIR indicates potential compliance with 'applicable regulations' and the incorporation of a 'traffic and control plan', no such plan is articulated or explored within the report, nor is there a suggested mitigation for alleviating the traffic and circulation impacts as outlined in the analysis. 1 TR-1

In addition to a request for a thorough and multi-agency review and written plan as a requirement prior to final certification of the EIR, several straightforward, feasible mitigations are proposed. Noted in the report are forty (40) projects considered in the cumulative impact analysis for traffic and circulation, with 25 of these projects, or 63% of the impact to Bayview, as SSIP and/or SFPUC related. (Table 4.1-1; Vol.1 p. 4.1.6). 2 TR-4

1 Dr. Carlton B. Goodlett Place, City Hall, Room 362, San Francisco, CA 94102
Telephone (415) 554-6272; Fax (415) 554-4849
Please address all mail or fax communication to Jack Gallagher, Office of City Administrator

O-BVHPCAC

Specifically, the following projects noted in the analysis will severely impact the surrounding community and neighborhoods, in our opinion, with questionable 'public safety' and 'emergency routing' possibilities due to the closure or blocking of major East/West thoroughfares in Bayview:

>**Current, existing lane narrowing/access along the Evans Street** beginning in August 2017 for the Headworks phase; (Table item #1). Beginning in August, 2017, this work is under pre-development now and includes hundreds of construction vehicles, manpower transportation efforts, shuttles, and staging relays due to the SSIP early phase implementation. Evans Avenue is a major East/West arterial utilized by residents, businesses and visitors including City and County employees, USPS facility employees, SFFD manpower, and residents of India Basin, Hunters-Point Shipyard, and thousands of residents, businesses and non-profits throughout the community.

>**Closure of Jerrold Avenue from Phelps to Rankin Street.** Specifically, as noted in the EIR, is the 5-6 year closure of Jerrold Avenue between Phelps Avenue and Rankin Street. Another major East/West arterial, Jerrold is similarly traversed by thousands of residents, business owners, employees on a daily basis. The closure of Jerrold Avenue presents a very high level of concern for all nearby businesses and residents, and will significantly and negatively impact the quality of life for those utilizing this alignment.

>**Construction staging along Phelps Avenue**/ parking / equipment relay. This narrow street includes many active and essential PDR businesses and nearby residences. Note the circulation graphics contained in the EIR, with additive impacts to to staging areas at Evans and McKinnon Avenues and with routing from 1550 Evans Avenue and Piers 92-94 for construction employees and equipment.

2
TR-4
cont.

Not included in the cumulative impact analysis on traffic, and not mentioned in the BSFP-EIR, yet key to understanding the need for feasible mitigation as a requirement to LSM status are:

> **Palou Avenue** streetscape improvement project -from Barneveld to Crisp Avenues- beginning late 2017, this is an approved $10m, SFDPW/SFMTA project with significant staging, parking, re-routing and daily traffic impacts on this heavily used East/West alignment.

OC-2

> **2245 Jerrold Avenue** - Project by **SFFD** - construction of SFFD Ambulance Deployment Facility - a $27m project slated for construction in 2020. As noted in the project conceptual design documentation, "The Project site is in an intensively developed area of San Francisco's Bayview neighborhood characterized by various warehouse, distribution and light industrial uses".

> Re-routing of the **23 Muni Bus Line to Palou Avenue**. While the BSFP-EIR indicates relocation of the 23 Monterery Muni Line from Jerrold Avenue to Palou Avenue as a temporary measure during course of construction, the Palou Streetscape project indicates the eventual and permanent relocation of the 23 to Palou Avenue following the streetscape improvements. A temporary relocation of this public transportation element to Palou Avenue from Jerrold Avenue is neither practical nor safe during concurrent major construction on both E/W alignments.

2

> **Other:** Multiple private construction projects for residential mixed-use, PDR, commercial improvements, etc. are under review and/or are being considered for the Third Street Corridor in Bayview between Williams Avenue and Evans Avenue for 2018-2025.

When considering these traffic and circulation impacts alone, one should consider that these crucial East/West arterials (Evans, Jerrold, Palou), in a 'closed', 'blocked' or 'under construction' condition, will increase traffic on already heavily used E/W Oakdale Avenue.

These major East/West street alignments, in and out of Bayview, provide the daily transportation routes for tens of thousands of individuals who live and work in Bayview, for parents who take their children to school and back, for employees and employers who must get to their jobs, and, most importantly serve as essential transportation routes in the event of a natural disaster such as an earthquake, flood, fire or other impactful 'event'. (See attachments 2-60, 61)

2 **TR-4** cont.

It should also be noted that the **sole NORTH bound** access, along Third Street @ Islais Creek, is a documented potential **liquefaction zone** and will be significantly compromised as a transportation route following a seismic event.

3 **TR-2**

The overarching issues - transportation, traffic and circulation - drive the question of public safety in Bayview and the quality of life for those directly and indirectly impacted by these multiple, intersecting projects. For the record, approximately 35,000 San Francisco citizens reside in the Bayview community and neighborhoods.

4 **GC-2**

As noted in the EIR in section 2.4.2.1 Long-Term Changes to Local Roadway Network, "In October 2015, Quint Street between Oakdale Avenue and the Caltrain tracks was permanently closed to through traffic as part of Caltrain's Quint Street Bridge Replacement Project." Also noted in the Impact Analysis Table 4.1-1; Vol.1 p. 4.1.6-14, are **two projects which we suggest provide partial solutions for feasible mitigation on these traffic impacts.**

Item #24 (Table 4.1.1; Vol 1. p 4.1.10) - **The Quint Connector**
This project would construct a new 950-foot-long roadway to provide access between existing Quint Street and Jerrold Avenue. The roadway would consist of two 13-foot-wide lanes (within a 50-foot-wide corridor), one northbound and one southbound. Construct a new 27-foot-wide curb cut located along the San Francisco Wholesale Produce Market property (Project 25, below); and install street trees and street lighting;

Item #25 (Table 4.1.1; Vol 1. p 4.1.10) - **City and County of San Francisco Produce Market**
Jerrold Avenue would be reconfigured to direct through traffic around the site onto Innes and Kirkwood Avenues. Innes Avenue would be improved and portions of the project site would also be dedicated to create two new intersections where Toland Street crosses Innes and Kirkwood Avenues. Rankin Street would be relocated between Kirkwood and Innes Avenues to parallel the west side of the Caltrain right-of-way, and the intersection of Rankin Street and Jerrold Avenue would be reconfigured. All roadway improvements would be constructed under Phase 1.

5 **TR-4**

Construction and implementation of the Quint Connector Road, prior to major construction at the SEP, will reduce pressure on the remaining, key E/W arterial (Oakdale Avenue) and allow local traffic to be routed to the NW along the alignment - to Innes, etc. and out to Bayshore and 101N in the short, medium and long term. In addition, and as a result of the completion of this Quint connector alignment, a portion of the deteriorating air quality issues noted as 'significant and unavoidable' during the construction process may be improved as the likely impacts of congested and idling automobiles, trucks and busses on the remaining Oakdale corridor could be reduced.

5 TR-4 cont.

6 AQ-2

Recommendations:

1. Study and re-evaluate the conclusions drawn in the EIR regarding the significance of the traffic impacts, along with a more clearly articulated and written, multi-agency transportation and traffic plan prior to certification of the EIR.

2. Completion of the Quint Street Connector by December 31, 2018.
The **Quint Street Connector By-pass** roadway plan should be **expedited and built, as part of the PUC project**, prior to major construction in 2018/19, in our opinion. An inter-agency cooperative effort is essential in this regard.

7 TR-1 TR-4

Leadership and guidance from the Mayor's Office, the City Administrator's Office, the District 10 Supervisor, SFDPW, SFMTA, SFPUC, SFFD, SFPD, Union Pacific and the Department of Emergency Management is highly recommended and urged.

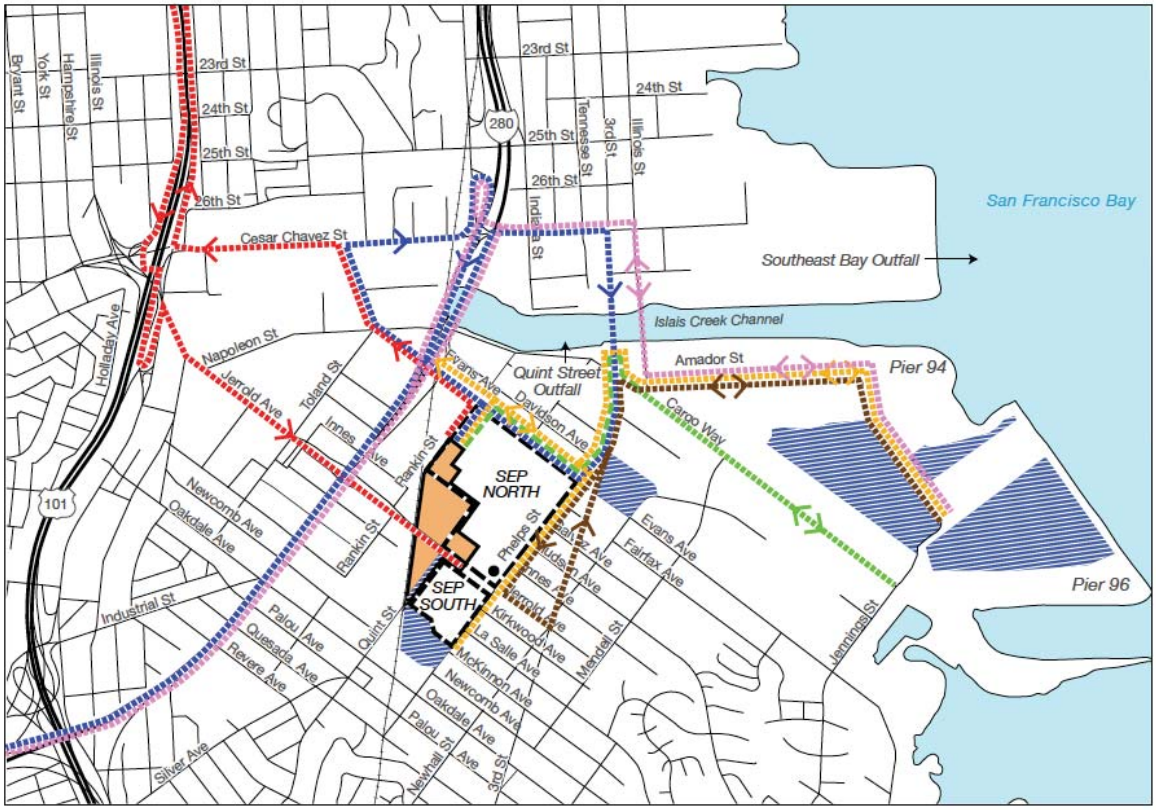
3. **Reconsideration of the temporary relocation of Muni 23 Monterey Bus line**. SFPUC, with SFMTA as lead agency, to consider the cumulative impact of the Jerrold Street closure, the streetscape improvement project on Palou Avenue, the narrowing of Evans Avenue, and the heavily impacted Oakdale Avenue arterial due to the above concurrent projects.

Thank you for considering these comments during the review process for the Bio solids Digester Facilities Project EIR.

Sincerely,

Bayview Hunters Point Citizens Advisory Committee

CC:
Members of the San Francisco Board of Supervisors
Sewer System Improvement Program



SFPUC Southeast Plant (SEP) Boundary

Project Site (Limited work at SEP North is also proposed to integrate liquid treatment facilities with BDFP facilities. In addition, street improvements would occur along Jerrold Avenue west of Phelps Street)

Potential Construction Staging Areas (Staging may also occur within the existing SEP boundary)

Excavated Soil (Altamont) and Lead/Asbestos Building Materials (Vacaville)

Recyclable and Unrecyclable Materials (Half Moon Bay)

Contaminated Excavated Soil (Rail Transfer)

Equipment Deliveries and Concrete Trucks (These trips could originate within or outside of San Francisco; routes to and from the project site and staging areas would vary)

Construction Worker Shuttle Bus

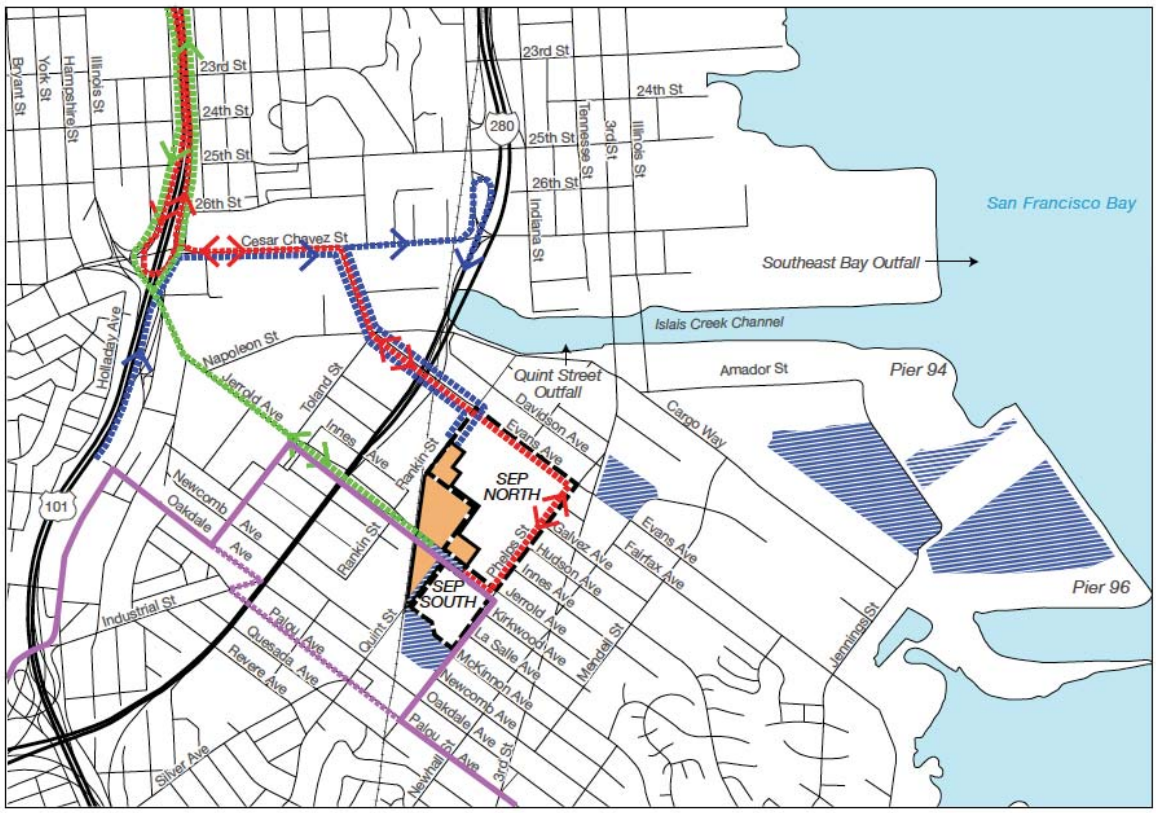
Equipment Deliveries to Piers 94/96

Shuttle Bus Stop

0 2000
Feet

SOURCE: San Francisco Public Works 2005 GIS data;
Adavant Consulting and LCW Consulting, Data developed in 2016 for BDFP

SFPUC Biosolids Digester Facilities
Figure 2-15
Construction Haul Routes



SFPUC Southeast Plant (SEP) Boundary

Project Site (Limited work at SEP North is also proposed to integrate liquid treatment facilities with BDFP facilities. In addition, street improvements would occur along Jerrold Avenue west of Phelps Street)

Potential Construction Staging Areas (Staging may also occur within the existing SEP boundary)

Biosolids Off Haul During Nighttime Hours (2:00 a.m. to 3:00 a.m.)

Chemical Delivery Trucks, Yellow Grease Loadout, and Biosolids Off Haul During Daytime Hours

Grit Trucks (Half Moon Bay), Screening Trucks (Recology)

Existing Muni 23 Monterey Route

Temporary Relocation of Muni 23 Monterey Route

0 2000 Feet

SOURCE: San Francisco Public Works 2005 GIS data; Adavant Consulting and LCW Consulting, Data developed in 2016 for BDFP

SFPUC Biosolids Digester Facilities

Figure 2-16

SEP Operational Truck Routes During Project Construction

GREENACTION

for Health & Environmental Justice

June 26, 2017

Tim Johnston
Planning Department, City and County of San Francisco
1650 Mission Street, Ste 400
San Francisco, CA 94103

RE: Greenaction for Health and Environmental Justice Comments on Draft EIR for the Five-Year Southeast Plant Renovation

Dear Mr. Johnston,

We have reviewed the Draft Environmental Impact Report (DEIR) that discusses a five-year renovation plan at San Francisco's Southeast Water Pollution Control Plant (Southeast Plant). On behalf of our many members who are residents of Bayview-Hunters Point, we have concerns and submit the following comments about this project.

We are pleased to start by acknowledging a potential benefit to the community from this project. The replacement and relocation of the decades-old digesters has the potential to reduce odiferous volatile organic compounds (aka "odors") for people who live adjacent to the plant along Phelps Avenue. While applauding this effort, we would be remiss not to point out that the biodigesters are responsible for only some of the odor from the Southeast Plant. We remain concerned about the odors emanating from the overall plant and its impact on the community. Given that wastewater processing is expected to *increase* 20 percent under the 2045 scenario reviewed in the draft EIR, we are concerned that odors emanating from the primary treatment portion of the Southeast Plant will *get worse*, particularly for the immediate neighbors. If this project is meant to decrease odors, we strongly recommend that SFPUC consider the net odors from the overall plant in light of the expected 20 percent increase in wastewater processing by 2045. From the standpoint of odor control, it is convenient but problematic to frame this project as related to only one portion of the Southeast Plant. We encourage SFPUC to look at overall odors as part of its final EIR.

1
AQ-6

We are extremely concerned that this project involves a 20 percent expansion of waste processing and biosolids production. This expansion may exacerbate community health burdens which are unacceptable. We must continue to point out the inequity, and object to the fact, that the Southeast Plant in Bayview Hunters Point continues to process almost all of the City's sewage and sewage from other cities.

2
GC-4

559 Ellis Street, San Francisco, CA 94109 Phone: 415-447-3904 Fax 415-447-3905
Email: greenaction@greenaction.org
Website: www.greenaction.org

As you are well aware, Bayview Hunters Point (BVHP) residents bear the disproportionate burden of industrial and military base pollution in San Francisco. As you are also aware, residents suffer high rates of illnesses likely related to the many mobile and stationary pollution sources in the neighborhood. The California Environmental Protection Agency's CalEnviroScreen 3.0 has confirmed that BVHP residents are highly vulnerable to pollution due to environmental, health and socio-economic indicators – and in fact CalEnviroScreen ranks BVHP as one of the most at risk communities in the state to pollution.

2
GC-4
cont.

A major concern is the projected increase in truck traffic. The project estimates a thirty to fifty percent increase in truck traffic to/from the Southeast Plant, and we consider 10-14 truck trips per day to be a large number of trips, particularly for a facility that operates 24 hours a day, 7 days a week, 365 days per year. We strongly encourage the project to explore ways to reduce and mitigate the increase in truck trips, particularly given the air quality overburden and environmental justice concerns in this community. Even if the trucks are using 2010 or new engines and if they are Tier 4 for pollution control, having over a dozen trucks rumbling into and out of the plant daily increases the intensity of impacts on the community, particularly if taking place in evenings, during the night, or over the weekend. We strongly encourage SFPUC to come up with a plan to mitigate the aesthetic and health impacts of this increase in truck traffic. Other than creating a more efficient trucking route, we see no such plan in the draft EIR. Other options of transport should be explored, such as rail.

3
TR-5
AQ-1
AE-1

4
AL-1

We understand that the location of the Southeast Plant is a geographic convenience for SFPUC. As a topographic low point it enables much of the wastewater system to be gravity fed and, therefore, more efficient to operate. Here we see a trade-off between efficiency and equity. The Southeast Plant already processes 80 percent of the City and County's wastewater, but it does not provide what we consider a proportional amount of benefit to the neighborhood that supports it. Therefore, we want to echo calls made by the others to provide employment opportunities, both during construction and during ongoing operation, to members of the immediate community. We encourage SFPUC to hire local business enterprises (LBEs) in this project, while also encouraging SFPUC not to reduce but to enable LBEs to achieve the same environmental performance standards as required elsewhere in the project. For example, we observe that the project only requires 80 percent of haul trucks to use 2010 or newer engines. We understand that the 20 percent not required to achieve this standard are LBEs that might have older equipment. Rather than reducing the environmental standard, we would prefer that SFPUC see this project as a way for LBEs to modernize their fleets. Lowering an environmental standard and using a quota approach limits both the ongoing opportunities for an LBE and contributes to community health overburden. We hope that you consider and change your approach in the final EIR.

5
GC-3

One of our significant concerns in this project is the expansion in the amount of production and combustion of biogas in the neighborhood. San Francisco has already designated the Bayview-

6
AQ-1

Hunters Point neighborhood as a Health Vulnerability zip code in its Community Risk Reduction Plan. Increasing and burning 50 percent more biogas will exacerbate community health concerns, particularly given that part of the increase is in PM2.5 emissions. There is already considerable concern in the neighborhood about respiratory health and asthma rates in children. We strongly encourage SFPUC to offset any estimated increases in PM2.5 with actions that will reduce direct emissions in the Bayview-Hunters air shed. We repeat this call for any other increases in other criteria pollutant emissions associated with this project. We do not understand why SFPUC would increase the community health burden in this project instead of assiduously offsetting or reducing it.

6
AQ-1
cont.

When the Southeast Plant expanded considerably in 1982, SFPUC reached a compromise with the neighborhood that increased community resources. Specifically, it added a community education center and community greenhouses in return for its increased production. We see no such plan as part of this project, but we do see that the portion of the plant south of Jerrold Street and between Phelps and Quint Streets will be retired as part of this project. We understand that the SFPUC has chosen to treat demolition of this older equipment and plans for this site as a future project. As a consequence, the project discussed in the Draft EIR appears to take more from the neighborhood than it gives. That is, it will burden the neighborhood with five years of construction, and it will increase daily truck traffic during ongoing operation. It will increase the production and combustion of biogas immediately upwind of residences. While it strives to reduce odors from one portion of the plant, it ignores others while also making plans to increase wastewater processing. We fail to see why the community should be in favor of this project, given a lack of return for the people who will live with the inconveniences associated with this facility. We encourage you to correct this oversight in your final EIR and to engage with community members and community leaders as you do so.

7
GC-3

We observe that the project proposes using 1500 Evans/Third and the adjacent Greenhouses as staging areas. The project also plans to use Pier 94 Backlands as a staging area. On aesthetic concerns, these choices are problematic and warrant mitigation. The construction phase of this project is planned for 2018-2023. This timeframe means that the community will have five years of construction equipment and materials, as well as ongoing truck traffic, piled in a visible parking lot on the main thoroughfare into and out of the neighborhood. We strongly encourage the project not to use 1500 Evans as a staging area and, instead, to use areas internal to the plant and behind walls more efficiently. We also encourage aesthetic mitigation for any use of the Greenhouses and of Pier 94 Backlands as staging areas.

8
AE-1

We would like to conclude that many of the concerns raised in this letter would be mitigated if the project moved the biosolids digestion and energy recovery to another location. We are disappointed to see that SFPUC has opted not to relocate these processes to Pier 94, given that it would more than double the distance between health-impacting operations and adjacent homes

9
AL-2

and a daycare facility. We are also concerned that this project will reduce the attractiveness of locating businesses in the area. It appears that SFPUC was able to dismiss this option by underestimating the amount of community impact that this expansion of the Southeast Plant would have on the community. We would like to see expanded attention to the socioeconomic impacts on the neighborhood in the final EIR, considering the drag on future business operations as well as the ongoing aesthetic and reputational impacts associated with living next to a large sewage treatment plant.

9 cont.

10 GC-2

All decisions made by the City regarding this project must be consistent with environmental justice, be health protective, and reduce – not add – to the environmental burden in the community.

11 GC-4

Thank you for consideration of these comments.

Respectfully submitted,

Bradley Angel

Bradley Angel
Executive Director

From: Mark Klaiman [mailto:Mark@petcamp.com]
Sent: Monday, June 19, 2017 7:10 AM
To: Johnston, Timothy (PUC)
Subject: Comments on Biosolids DEIR

Dear Mr. Johnston:

I am writing to express my great concern about the Draft Environmental Impact Report (DEIR) for the Biosolids Digester Project.

For the past 20 years I have owned and operated a small business at 525 Phelps Street, Pet Camp, directly across the street from the Southeast Water Treatment Facility. Over these two decades, my business like many others, has suffered through the ebb and flow of the San Francisco economy and been subject to every increasing burdens associated with operating small business in San Francisco. In addition to those "normal" burdens, running a business in the Bayview and especially at my specific location has subjected me to extra-ordinary burdens. While many business in the Bayview suffer from the lack of infrastructure, poor streets, graffiti, and dumping; my business has also had to suffer from the storage of 500 feet of light rail track across the street from my business for several years as part of the Third Street Light Rail's construction. It is based on that past experience that I understand the crippling effect the proposed DIER will have on my business and others on Phelps Streets if a change is not made to the proposed traffic patterns.

As an active member of the Bayview business community, I have had the privilege to serve on both the Southeast Working Group and the Digester Task Force. Like many small businesses and residents who have suffered through odors and other noxious smells emanating from the Southeast Plant, I support the efforts to reduce this problem. But as drafted, the DEIR will preclude the very businesses that have suffered from the plant to still be in business when the

1
GC-2

project is completed. The businesses on Phelps Street cannot exist without easy street access and parking. Pet Camp's clients, for example, cannot take the Third Street Light Rail as is suggested in the DEIR. Pet Camp's clients must drive to Pet Camp often with multiple pets and belongings and more often than not with young children. The ability to safely drive on Phelps Street and to be able to park in close proximity to Pet Camp is essential to their continued patronage and the jobs created from such. As presented the DEIR would place Pet Camp's clients at serious risk of injury causing them to seek pet care elsewhere and thus placing both the business and the jobs it has created at serious risk as well. 1cont. 2 TR-3

Phelps Street is a narrow street with two lanes of traffic, two lanes of parking and a bicycle route. It simply cannot sustain the proposed increase traffic while safely maintaining access to the small businesses located there. That the DEIR suggest that 5 years is only a temporary inconvenience reflects a complete lack of understanding of the burdens of running a small business. It is inconceivable that a small business could sustain itself for 5 years without clients being able to access it!

I encourage you to investigate better alternatives then than sending all of this traffic on Phelps Street from Evans to Jerrold including routing traffic from Evans to Mendell Street to Jerrold or along Evans to Rankin and directly into the plant. In so doing the burden on small businesses in the Bayview would be significantly lessened, bicycle riders will be protected, and San Franciscans patronizing the businesses on Phelps Street will be safer. 3 TR-1

Lastly, that small businesses are being asked to comment on the DEIR without completion of a Traffic Control Plan places small business at a significant disadvantage. The DEIR is already long and complicated; to ask small businesses to comment on such a document when it is lacking such a critical component as the Traffic Control Plan is simply untenable. The DEIR should be withdrawn from public comment until such time that the Traffic Control Plan is available. 4 TR-1

Respectfully,
Mark Klaiman

San Francisco's Most Award Winning Pet Care Facility

ELEVEN TIMES voted San Francisco's Best Overnight and Day Care Facility
2012 San Francisco Small Business Advocate of the Year
2008 San Francisco Green Business of the Year
2007 San Francisco Chamber of Commerce Excellence in Business Winner
2005 San Francisco Small Business of the Year

Mark Klaiman
Senior Counselor
Pet Camp
www.petcamp.com

Main Campground
525 Phelps Street
San Francisco, CA 94124
(415) 282-0700

Cat Safari
3233 Sacramento Street
San Francisco, CA 94115
(415) 567-0700

June 19, 2017

Via E-Mail

Timothy P. Johnston, MP
Environmental Planner
1650 Mission Street, Suite 400
San Francisco, CA 94103
E-Mail: Timothy.Johnston@sfgov.org

Re: Biosolids Digester Facilities Project, Case No. 2015-000644ENV
Comments on Draft Environmental Impact Report

Dear Mr. Johnston:

On behalf of the San Francisco Market Corporation ("SFMC"), which manages the San Francisco Wholesale Produce Market (the "Market"), I submit the following comments on the Draft Environmental Impact Report ("DEIR") for the SFPUC Biosolids Digester Facilities Project ("Biosolids Project"), Planning Department Case No. 2015-000644ENV.

I. The SFWPM Is A Vital Resource for San Francisco

The Market is the largest multi-tenanted produce wholesale and distribution facility in Northern California, spanning over 20 acres and including 485,000 square feet of warehouse and logistics space. We were created in 1963 when the City and County of San Francisco (the "City") relocated independent produce merchants from downtown San Francisco and built a shared facility in the Bayview-Hunters Point neighborhood to house them.

Since then, we have grown alongside the City and its produce industry. Our merchants, many of whom have been in operation for decades, sell and distribute a wide variety of produce to food businesses across the Bay Area. Today, the Market is the linchpin of San Francisco's world-class food and restaurant scene. We've become integral to the city's culinary fabric by providing the critical, behind-the-scenes infrastructure to wholesale and distribution businesses that link farmers to restaurants, independent grocery stores, and hotels.

Our work at the Market benefits the City in a number of key ways:

- *A Healthier Bay Area*: The Market supplies food businesses throughout the Bay Area with fresh, healthy, and affordable produce.

O-SFWPM-2

- *A Culinary Destination*: The Market is central to the supply chain that makes the City a delicious place to live and visit.

- *Business Incubator*: Home to over 30 businesses, the Market provides the space, expertise, and access to produce for anyone launching or growing a food business.

- *Support for Farmers*: The Market's merchants source from local and regional farms, providing critical market access for growing farms.

- *Job Creation*: The Market employs over 650 workers via its independent merchants, providing diverse employment opportunities within the important PDR sectors.

In January 2013, the City and SFMC finalized a long-term ground lease (the "SFWPM Lease") that envisions a comprehensive, phased redevelopment and expansion of the Market's facilities and infrastructure (the "SFWPM Project"). Through the operations, improvement projects, and activities contemplated as part of the SFWPM Project, the City has made a significant ongoing investment in the success of the Market. As such, the City has a strong interest in protecting its investment by ensuring that (i) the Market can continue to operate successfully during the extended construction period required for the Biosolids Project, and (ii) that the SFWPM Project is able to continue moving forward in spite of the Biosolids Project. 1 GC-2

II. SFWPM Project Includes Changes to Jerrold Avenue Access

To improve safety and security, and to enhance the efficiency of loading operations on the Market's main site, the SFWPM Project includes the eventual closure of the portion of Jerrold Avenue that bisects the Market, and the re-routing of through traffic around the Market onto Innes and Kirkwood Avenues. This change to the roadway network has always been a key part of the vision for the SFWPM Project. As of the time of this letter, SFMC anticipates that, in furtherance of the SFWPM Project, Jerrold Avenue will be unavailable to through traffic beginning in October of 2018. As such, the DEIR should be revised to include an update to the project description for the SFWPM Project that includes this anticipated timing for the rerouting of traffic around the Market. Additionally, as discussed below, the DEIR needs to consider impacts to the Market, the SFWPM Project, and the Biosolids Project that stem from the anticipated changes to the availability of the portion of Jerrold Avenue that runs through the Market. 2 TR-1

III. The DEIR Does Not Properly Consider And Mitigate Various Environmental Impacts

A. Transportation and Circulation Impacts

Transportation and circulation, in general, are significant issues in this portion of San Francisco. Due to the patchwork of PDR activities that have arisen over the years, many of the

O-SFWPM-2

streets do not follow a typical street grid. In addition, a number of streets, including several streets around the Market, are either degraded or were never improved to current standards. The generally less-than-ideal condition and layout of the streets will be further strained by the boom of new development proposed in the neighborhood, as described in the DEIR's cumulative analysis. In particular, the DEIR identifies a total of forty (40) cumulative projects[1], twenty (20) of which are scheduled to overlap with the construction activities of the Biosolids Project, and eight (8) more of which may have some overlap depending on those projects' final construction timelines.[2]

As described above, the SFWPM Project intends to close the portion of Jerrold Avenue that bisects the Market and begin to reconfigure and improve the surrounding roadways in or about October of 2018. In recognition of the need for greater security, and to mitigate the current operational conflicts caused by Jerrold Avenue's bisection of the main Market site, the closing of Jerrold Avenue and redirection of through traffic onto Innes and Kirkwood Avenues has always been a key component of the SFWPM Project.

The DEIR shows that the Biosolids Project intends to use the to-be-closed portion of Jerrold Avenue through construction and operation of the facility.[3] The DEIR does not analyze what impacts the Jerrold Avenue closure would have on the Biosolids Project, and, in particular, how and where construction and operational truck traffic would be rerouted. Instead, the transportation analysis assumes that the Biosolids Project will have continued access to Jerrold Avenue for truck off-haul, even beyond October 2018.

Additional truck traffic from the Biosolids Project through the Market on Jerrold Avenue poses safety and operational constraint issues for all users of the Market due to the Market's intensity of loading operations on Jerrold Avenue. Currently, approximately thirty (30) produce merchants occupy warehouse space with loading docks that front on Jerrold Ave. Even under current conditions and traffic loads, this loading arrangement poses operational challenges and safety concerns. Indeed, this (in addition to food safety regulations) is one of the main reasons why the SFWPM Project envisions the eventual closure of Jerrold through the Market. The additional truck traffic caused by the Biosolids Project's use of Jerrold will exacerbate this already sub-optimal traffic coordination issue.

For the reasons described above, the SFWPM Project intends to move as quickly as possible to close Jerrold Avenue through the Market. As such, we are keenly interested in making sure that the Biosolids Project does not depend on the Jerrold Avenue truck route in a way that would discourage, delay, or prevent the SFWPM Project from moving forward with the

2
TR-1
cont.

[1] DEIR, p. 4.1-6 *et seq.*, Table 4.1-1.

[2] DEIR, p. 4.6-51.

[3] DEIR, pp. 2-60, Figure 2-15; 2-61, Figure 2-16.

O-SFWPM-2

planned closure of Jerrold Avenue. The DEIR must address alternative routes that do not rely on Jerrold Avenue for ingress and egress to and from the Biosolids Project site.

After the closure of Jerrold Avenue as part of the SFWPM Project, the Biosolids Project's most direct and logical alternative route, and the route for all other east-west through traffic, would be via Innes Avenue. Accordingly, the DEIR should study the Biosolids Project's potential use of Innes Avenue, rather than Jerrold Avenue. As noted above, the SFWPM Project plans include improving Innes and Kirkwood Avenues to improve general circulation through the area, both for safety and efficiency. These public improvements will benefit the neighborhood, generally, and the Biosolids Project, specifically. The Market, therefore, proposes coordinating the improvement of Innes Avenue and the creation of a new intersection connecting the improved Innes Avenue to the portion of Jerrold Avenue northeast of the SFWPM. An analysis of the coordinated design should be included in the DEIR and added to the Project Description for the Biosolids Project.

2
TR-1
cont.

Finally, the DEIR discusses how Evans Avenue, an east-west route parallel to Jerrold Avenue, offers one alternative travel path for the vehicles currently traveling on the section of Jerrold Avenue that will be closed during construction of the Biosolids Project.[4] The DEIR goes on to note that Evans Avenue has "sufficient capacity to accommodate diverted traffic without a substantial effect on local vehicle circulation."[5] However, this analysis leaves out any discussion of the SFPUC's Southeast Plant Headworks Replacement Project, one of the many cumulative projects in the area. That project contemplates closing at least one lane of Evans Avenue through project construction, which is estimated to occur between January 2018 and June 2024, as discussed in that project's Final Mitigated Negative Declaration. The DEIR must analyze the planned use of Evans Avenue in the context of the upcoming lane closure to determine whether there is sufficient capacity on Evans Avenue to serve as an alternative route for Jerrold Avenue traffic, given the proposed closure of travel lanes due to the SFPUC Headworks Project, as well as the planned closure of Jerrold as part of the SFWPM Project.

B. Air Quality Impacts

The discussion of and mitigation related to potential air quality impacts of the Biosolids Project on the environment is inadequate in its (1) failure to consider potential impacts to the SFWPM and (2) failure to consider and mitigate for dust related impacts. The DEIR should be revised to include a more comprehensive discussion of these issues.

3
AQ-2

The entire air quality section of the DEIR[6] only has one passing reference to the Market and/or the SFWPM Project, and even then only in a footnote[7]. As described above, the Market is

[4] DEIR, p. 4.6-36.

[5] DEIR, pp. 4.6-36 and 37.

[6] DEIR, pp. 4.8-1 *et seq.*

O-SFWPM-2

the primary source for San Francisco's produce, including that served in restaurants, sold in grocery stores, and consumed by San Francisco residents. Given the potential sensitivity of these operations to air quality impacts – including emissions, dust, and odors – the DEIR should have included within its analysis a discussion of the potential impacts specific to the Market and the SFWPM Project.

3 cont.

Among the potential air quality impacts to the Market are dust related impacts. Indeed, fugitive dust is specifically identified as part of Impact AQ-1[8]. The DEIR purports to address these issues through references to the San Francisco Construction Dust Control Ordinance[9] and the Biosolids Project's required compliance therewith. However, no mitigation measures specific to dust control or dust impacts are imposed on the Biosolids Project, including in response to Impact AQ-1. Instead, the sole focus on the mitigation measures for air quality is on emissions, with two emissions-related mitigation measures imposed.

4 **AQ-3**

Given the sensitive nature of surrounding uses, including the Market's operations, and the DEIR's admission that fugitive dust is an impact from the Biosolids Project, mitigation measures should be imposed to ensure that any such impacts are less than significant, particularly given the Market's role in maintaining the City's public health. The Biosolids Project's compliance with the San Francisco Construction Dust Control Ordinance, in and of itself, is not adequate to mitigate these impacts.

C. Hazards and Hazardous Materials Impacts

The DEIR's inadequacies with respect to its hazards and hazardous materials analysis[10] are similar to, and potentially even more troubling than, its air quality analysis. The DEIR does not discuss the potential impacts of hazardous materials on the Market or the SFWPM Project. This failure to consider that the Market's operations could be significantly impacted by airborne hazardous materials, including as a result of off-haul of hazardous materials, or any other hazards related to the construction and operation of the Biosolids Project is a significant inadequacy.

5 **HZ-2**

The DEIR has only a limited discussion of naturally occurring asbestos, which is a known and potentially significant issue in the area. Indeed, a number of potentially hazardous materials have been discovered in the soil around the Market during its construction activities. These potentially hazardous materials are often the result of fill material of various depths, and include serpentine rock (which contains naturally occurring asbestos), as well as petroleum hydrocarbons, heavy metals, and other similar contaminants related to the past use of the area for

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[7] DEIR, p. 4.8-72, fn. 116.

[8] DEIR, pp. 4.8-43 and 44.

[9] DEIR, pp. 4.8-31, 32, 35, 36, 43, and 44.

[10] DEIR, pp. 4.17-1 *et seq.*

O-SFWPM-2

industrial and military purposes. Despite this documented history, the DEIR devotes only two paragraphs of Chapter 4.17 to discussing naturally occurring asbestos.[11] Even more notable is the fact that only one impact analysis addresses asbestos[12], and there are no mitigation measures imposed to address it. Instead, the DEIR's analysis of Impact HZ-2 relies on the Biosolids Project's compliance with various Bay Area Air Quality Management District rules and regulations. Such limited analysis of a hazardous material known to be present in the area, with no proposed mitigation, is inadequate.

As a general matter, the DEIR's analysis of hazardous materials (as well as air quality) fails to address the SFWPM and it's sensitive, food-related operations. While it does not appear from the DEIR that there will be any off-haul of hazardous materials through Jerrold Avenue (and thus through the SFWPM itself), the close proximity of the SFWPM to the Biosolids Project, which has confirmed hazardous materials on-site, requires some discussion and evaluation of potential food-related impacts.

5
HZ-2
cont.

IV. Conclusion

In summary, the SFMC, Market, and SFWPM Project recognize the importance of the Biosolids Project to the City. However, as a vital business and adjacent site, it is important to the SFMC and Market that the Biosolids Project fits into the existing (and ever-growing and changing) neighborhood. As such, it is our position that the DEIR is inadequate in its (1) failure to properly describe the SFWPM Project and the anticipated closure of Jerrold Avenue in connection therewith; (2) failure to consider transportation, air quality, and hazardous materials impacts to the Market and the SFWPM Project; and (3) failure to require mitigation specific to air quality and hazardous materials impacts. We respectfully request that the DEIR be modified to address these inadequacies.

6
TR-1
AQ-2
AQ-3
HZ-2

Very truly yours,

Michael Janis, General Manager
San Francisco Wholesale Produce Market

MJ

[11] DEIR, p. 4.17-10.

[12] DEIR, pp. 4.17-27 and 28.

O-Sylvester

The Sylvester House
1556 Revere Avenue
San Francisco,California
94124-2138

June 19, 2017

Mr. Timothy Johnston
San Francisco Planning Department
1650 Mission Street, Suite 400
San Francisco, CA 94103

Subject: Case No.: 2015-000644ENV **Biosolids Digester Facilities Project**
Environmental Impact Report Draft

Dear Mr. Johnston,

In reviewing the EIR for the SSIP project, there are a number of items that concern me deeply. For example, it is determined that the BDFP would result in **significant and unavoidable impacts** in the areas of cultural resources and air quality that would remain significant and unavoidable even with implementation of feasible mitigation measures.

AIR QUALITY

On the air quality issue, I am troubled that there are no serious mitigation measures proposed to offset these proposed **air quality** conditions during a construction period that 'generate levels of '**nitrogen oxide emissions that would exceed significance thresholds** during **two of the five years** of construction and that would also be a **cumulatively considerable contribution to regional air quality conditions**.' Does this indicate that we should withhold breathing for a period of 2-5 years in Bayview?

1
AQ-4

Surely there are serious plans to offset these deplorable conditions proposed for the tens of thousands of residents, including a number of elderly citizens, many young children, and thousands of active students and working adults. 'Significant and unavoidable' are profoundly disturbing descriptors.

I believe that a robust and thoroughly vetted air quality monitoring and reporting plan be developed and implemented as the project proceeds, with local and consistent notification regarding serious air quality deficiencies present, plans for 'sheltering in place' or other

actions as required on extremely bad air days, etc. A repeat of 'failed' or 'battery-less' air quality monitors, as witnessed during the denuding of Parcel A in the Hunters-Point Shipyard some years ago, for example, will not be tolerated in Bayview or by our City leadership. I'm sure that you can appreciate these concerns regarding air quality (or the lack thereof) and the overall environmental impact of this project.

1
AQ-4
cont.

CULTURAL RESOURCES

As the party responsible for the 40 year-long restoration of a City Landmark in Bayview, I am also dismayed with the plan for wholesale destruction of the Streamline Moderne Industrial Historic District in Bayview and for the Display Greenhouse structures at McKinnon and Phelps Streets, both iconic markers in the area.

2
CR-1

Display Buildings

While the display buildings are not technically 'historic', they nonetheless provide a much needed and moderately attractive facade with which to block the industrial elements of the Water Treatment Plant beyond. Destruction of those elements in favor of a parking lot for trucks and staging makes little sense and appears to be entirely unavoidable. I clearly understand the need to demolish the large and low slung white greenhouse items and the concrete building (the ancillary structure), but the green-framed Display Houses do not need to be eliminated in the neighborhood for purposes of construction. It also appears that the funding to repair these Display buildings is minor overall, and clearly beneficial when one considers the placement and connection to the community. Save the Display Buildings.

OC-3

Central Shops

I do understand the need to locate the digesters to an area far removed from residents, and, as such, concur with the recommendations proposed to remove and relocate Central Shops A and B. I also recommend that a combined solution for the loss of these historic resources be implemented, including fulfillment of **Mitigation Measure M-CR-1 along with the implementation of Alternative C**, the Historical Resources Relocation, with the relocation of the Central Shops serving as the permanent public display and archival venue for the documentation and interpretive material.

3
CR-1

415.822.3074 linda.blacketer@gmail.com

TRAFFIC and TRANSPORTATION

As I've been revising this documentation with many others in the community, I am also requesting additional review of the impact analysis on traffic and circulation from the existing 'LS' -less than significant - status to the LSM condition, requiring mitigation. Of the 40 projects considered in the cumulative impact analysis for traffic and circulation, 63% of these are SFPUC related. (see Table 4.1-1; Vol.1 p. 4.1.6).

There are multiple projects affecting the area, with many occurring simultaneously with the Biosolids Digester Project. Other projects that will affect transportation in the area are not listed in the EIR. For example, in addition to the partial closing of **Evans Street** beginning in August 2017 ; the **closure of Jerrold Avenue from Phelps to Rankin Street for** 5-6 years; the **construction staging along Phelps Avenue**; the **Palou Avenue** streetscape improvement project -from Barneveld to Crisp Avenues; the **2245 Jerrold Avenue** - construction of SFFD Ambulance Deployment Facility; ;the re-routing of the **23 Muni Bus Line to Palou Avenue**, the temporary closure of the Illinois Street Bridge at Islais Creek, we are potentially in real trouble when desiring to enter or exit our neighborhood by vehicle. There is also the relocation of the 23 Monterery Muni Line from Jerrold Avenue to Palou Avenue as a temporary measure during course of construction, but the Palou Streetscape project indicates the eventual and permanent relocation of the 23 to Palou Avenue following the streetscape improvements. Better planning is required for the transportation elements of the project, in my opinion.

4
TR-4
OC-2

The only exit to the North, along Third Street, is the Islais Creek Bridge. This area is a noted potential **liquefaction zone** and will be significantly compromised during a seismic event. These transportation issues are life safety and quality of life issues. Please take these concerns seriously. I am also recommending that the construction of the Quint Street bypass road be completed quickly. The loss of the Quint Street roadway due to the construction of the CalTrain berm and crossing has caused innumerable delays

5
TR-2

6
TR-4

415.822.3074 linda.blacketer@gmail.com

and traffic circulation problems for may in the community. I am supporting the recommendations made by others in this regard, and outlined as follows:

1. Study and re-evaluate the conclusions drawn in the EIR regarding the significance of the traffic impacts, along with a more clearly articulated and written, multi-agency transportation and traffic plan prior to certification of the EIR.

2. Completion of the Quint Street Connector by December 31, 2018.
The **Quint Street Connector ByPass** roadway plan should be **expedited and built, as part of the PUC project**, prior to major construction in 2018/19, in our opinion. An inter-agency cooperative effort is essential in this regard. I ask the Mayor, Mr. Kelly(SFPUC), Mr. Nuru (SFDPW) , Supervisor Cohen (D10) and other respected and effective City leaders to coordinate closely and purposely to see this project completed as soon as possible.

6 cont.
TR-1
TR-4

3. **Reconsideration of the temporary relocation of Muni 23 Monterey Bus line**. Work with Muni/SFMTA to reconsider the placement of the 23 Monterey Bus from Palou to another location during the construction timeframe.

Thank you very much for reviewing these comments on Air Quality, Cultural Resources and Transportation items as outlined in the draft EIR.

Sincerely,

Linda K. Blacketer
Proprietress, The Sylvester House
San Francisco City Landmark # 61
Bayview

415.822.3074 linda.blacketer@gmail.com

From: Ximena Ares [mailto:vxares@gmail.com]
Sent: Wednesday, May 24, 2017 11:21 AM
To: Johnston, Timothy (PUC)
Cc: betterbayview@yahoogroups.com; Cohen, Malia (BOS); Hildreth, Casey; Chan, Yoyo (BOS); daniel.carr@sfmta.com
Subject: Bayview resident Ximena Ares comment re EIR re Biosolids Digester Facilities Project (BDFP)

Dear Planner Johnson,

I'm writing to provide my comments for the EIR related to the BDFP. I'm a Bayview resident of 11 years and live 2 blocks from the BDFP site.

While I support the BDFP for its potential to reduce the odors we currently experience from the existing water treatment plant, I am and have always been deeply concerned about the lack of accessibility of Bayview. In particular:

- the existence of Caltrain tracks and lack of underpasses on all streets worsened by the permanent closure of the Quint bridge a couple of years ago: http://www.caltrain.com/projectsplans/Projects/Caltrain_Capital_Program/Quint_Street_Project.html;
- the lack of an intake mechanism by the SFMTA to improve traffic signage, flow and pedestrian access and safety in the industrial zones that surround Bayview, making them hazardous deserts for bikers and pedestrians;
- the lack of streets and routes of access to Bayview, being Jerrold, Evans and Third Street the only 3 routes available to Bayview residents and business to exit Bayview towards the West and North, where the most traditionally attractive features of SF are, including jobs.

1
TR-1

The above conditions make living in Bayview an isolating experience and an unsustainable one in view of the projected growth of the Bayview population in the next couple decades. **I would be deeply grateful if you could please object to any additional proposed street closure, or any other measure or proposal that could reduce automotive and pedestrian accessibility of Bayview even further, including any temporary closure of Jerrold St.**

I appreciate your willingness to listen and help.
'
All the best,
Ximena Ares

Quint Street Project

Subscribe to receive e-mail notifications about the Quint Street Bridge Replacement Project.

Scope & Need
Caltrain will remove the existing Quint Street Bridge which is over 100 years old and is at the end of its useful life with a new berm. The current bridge is deemed structurally deficient, does not meet existing seismic safety standards and must be replaced to ensure the safety of community members and Caltrain passengers. The new berm will be designed to allow for a potential Caltrain station to be located at Oakdale Avenue in the future.

The contract for the Quint Street Bridge Replacement project was awarded to Shimmick Construction Company, Inc. in August 2015.

Quint Street Project Construction Update

Construction of the Quint Street Project has been completed.

Closure of Quint Street between Newcomb and Jerrold Avenues began on October 5, 2015. During the closure, Caltrain has established traffic rerouting signs for pedestrians and motorists to help with traffic flow.

Construction Impacts
Work to replace the bridge with a new berm will begin in November 2015 and is expected to last 6 months. Closure of Quint Street between Jerrold Avenue and Oakdale Avenue is expected to begin on September 28, 2015 (or after). The San Francisco County Transportation Authority's Quint-Jerrold Connector Road project will follow the berm construction. The planned connector road will link Quint Street, just north of Oakdale Avenue, to Jerrold Avenue via a new road along the west side of the Caltrain tracks. More information regarding the Quint-Jerrold Connector Road project can be found at www.sfcta.org/quint.

During the closure, Caltrain will establish traffic rerouting signs for pedestrians and motorists to help with traffic flow. Please see traffic rerouting map below for details.

While a majority of the work will be completed during the day, in order to maintain rail operations, night and weekend work will be required for some construction activities.

Public Outreach & Community Engagement
In partnership with the San Francisco County Transportation Authority, Caltrain has participated in numerous community outreach events and meetings starting in 2012. Outreach activities included several open houses, multiple presentations to community groups and commissions, and multilingual notifications through email, mailings and flyers.

Caltrain will continue to engage the public in multiple venues to provide more information and collect feedback about the project.

Nearby residents and businesses will be notified via mail about upcoming construction impacts. Caltrain will continue to work with the San Francisco County Transportation Authority to build awareness about the project and its impacts.

Old Quint Street Bridge

New Quint Street Berm

Project Documents
Quint Street Project Fact Sheet (PDF) - Updated 9/14/15

Project Schedule

- Finalize Design: January 2015
- Berm Advertise and Procurement: February 2015 – July 2015
- Berm Construction: November 2015 – July 2016

For additional questions or concerns regarding this project, please call our dedicated Construction Outreach Line at 650.508.7726. For questions about Caltrain service, please contact our Customer Service Center at 800.660.4287

For questions regarding this project, please email quint@samtrans.com.

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Michael Hamman
702 Earl Street
San Francisco, CA 94124

June 19, 2017

Mr. Timothy Johnston
San Francisco Planning Department
1650 Mission Street, Suite 400
San Francisco, CA 94103
fax 415- 558-6409
email: timothy.johnston@sfgov.org.

Re: BDFP EIR Comments
Project Address: 750 Phelps Street, 1700 Jerrold Avenue, 1800 Jerrold Avenue, and 1801 Jerrold Avenue, San Francisco

Dear Mr. Johnston:

I am a resident and business owner in the Bayview and I am writing today to request additional review of the impact analysis with respect to Air Quality (Section 4.8). The EIR divides the contributions to air quality into two categories, operations of the completed plant and thos activities necessary to construct the plant. Of the activities that contribute to air quality some are impossible or difficult to mitigate successfully. However, one component does led itself to successful reduction and that is truck trips, both during construction project and trips during the operation by using rail to transport the construction material and the biosolids during operation of the plant.

The primary pollutant generated by truck trips is NOx and the EIR projects a total of 31,123 lbs of NOx emitted in our neighborhood during the five years of construction (Section 4.8-8). In addition many tons will be emitted during the operational life of the project. Several methods of mitigation are recommended, nevertheless, *"the construction-related NOx emissions are considered <u>significant and unavoidable</u> with mitigation"* (4.8-49) in addition to the significant degradation of our air quality, these 71 truck trips a day will severely impact traffic and emergency access to our neighborhood (4.6-28).

The EIR projects seventy one (71) construction truck trips a day for the duration of the project (. These truck trips will also have a negative impact on traffic and emergency access. Rail transportation would ameliorate these impacts as well.

1
AL-1

The use of rail transportation for hauling the biosolids during the operation of the plant was analyzed in Section 6.5.4-2. However that analysis is inadequate in several respects:

- The analysis only considers the use of rail to haul the operation biosolids. It should consider the alternative of using rail for BOTH the operations biosolids and the construction material. Especially the waste going to Altamont as there exists a well established process for rail transportation of that commodity. **I request this option be analyzed.**
- The analysis assumes that all material needs to be trucked to the SFBR yard along Cargo Way. The possibility of loading directly onto rail cars at the site by constructing a loading spur off the nearby Quint Street lead needs to be analyzed. Such direct loading would achieve dramatic reduction in total truck trips. Furthermore such direct loading was once practiced at that location. **I request this option be analyzed.**

2
AL-1

The use of rail transportation to transporting such bulk items has benefits beyond improving air quality.

- Reducing truck trips will also reduce the impacts on traffic.
- Using a rail spur will enhance the ability to organize the logistics of construction, possibly reducing the need for construction staging areas and “lay-down” space.
- Moving freight by rail reduces greenhouse gas emissions by 75% over trucks (*“Freight Railroads Help Reduce Greenhouse Emissions”* ARR Study April 2017)
- Utilizing the railroad infrastructure that currently exists next to the proposed project will reduce the degradation of our streets and highways caused by the tens of thousand heavy truck trips during the five year course of construction. And into the future with the operation of the new plant.

3
AL-1

Sincerely,

Michael Hamman

Michael Hamman
702 Earl Street
San Francisco, CA 94124

June 19, 2017

Mr. Timothy Johnston
San Francisco Planning Department
1650 Mission Street, Suite 400
San Francisco, CA 94103
fax 415- 558-6409
email: timothy.johnston@sfgov.org.

Re: BDFP EIR Comments
Project Address: 750 Phelps Street, 1700 Jerrold Avenue, 1800 Jerrold Avenue, and 1801 Jerrold Avenue, San Francisco

Dear Mr. Johnston:

I am a resident and business owner in the Bayview and I am writing today to request additional review of the impact analysis with respect to ***CULTURAL RESOURCES.***

As an admirer of architecture, I am also dismayed with the plan for wholesale destruction of the Streamline Moderne Industrial Historic District in Bayview and for the Display Greenhouse structures at McKinnon and Phelps Streets, both iconic markers in the area and contributory to the historic district. The preservation of such buildings is crucial for the community to retain a sense of it's past and it's distinctive character. 1 **CR-1**

Display Buildings
While the display buildings are not technically 'historic', they nonetheless provide a much needed and moderately attractive facade with which to block the industrial elements of the Water Treatment Plant beyond. Destruction of those elements in favor of a parking lot for trucks and staging makes little sense and appears to be entirely unavoidable. I clearly understand the need to demolish the large and low slung white greenhouse items and the concrete building (the ancillary structure), but the green-framed Display Houses do not need to be **OC-3**

eliminated in the neighborhood for purposes of construction. It also appears that the funding to repair these Display buildings is minor overall, and clearly beneficial when one considers the placement and connection to the community. Save the Display Buildings.

1 cont.

Central Shops

I do understand the need to locate the digesters to an area far removed from residents, and, as such, concur with the recommendations proposed to remove and relocate Central Shops A and B. I also recommend that a combined solution for the loss of these historic resources be implemented, including fulfillment of **Mitigation Measure M-CR-1 along with the implementation of Alternative C**, the Historical Resources Relocation, with the relocation of the Central Shops serving as the permanent public display and archival venue for the documentation and interpretive material. As I have had some experience in relocating building in my capacity as General Contractor I can attest to the fact that such a relocation would not be unduly expensive.

2 **CR-1**

Sincerely,

Michael Hamman

Michael Hamman
702 Earl Street
San Francisco, CA 94124

June 20, 2017

Mr. Timothy Johnston
San Francisco Planning Department
1650 Mission Street, Suite 400
San Francisco, CA 94103
fax 415- 558-6409
email: timothy.johnston@sfgov.org.

Re: BDFP EIR Comments
Project Address: 750 Phelps Street, 1700 Jerrold Avenue, 1800 Jerrold Avenue, and 1801 Jerrold Avenue, San Francisco

Dear Mr. Johnston:

I am a resident and business owner in the Bayview and I am writing today to request additional review of the impact analysis with respect to ***TRAFFIC and TRANSPORTATION***

As I've been revising this documentation with many others in the community, I am also requesting additional review of the impact analysis on traffic and circulation. For the following reasons:

- There are multiple projects affecting the area, with many occurring simultaneously and the EIR does not consider the cumulative impact of all these projects together. Several huge projects in the area were not considered at all, including the 1200 new housing units in the Build Inc project the 900 units in the Shipyard project as well as numerous projects on Third Street such as the Chris Harney project. In addition projects by other agencies such as the closing of the Third Street "Nishkin" bridge by DPW. I request a complete inventory of all the projects expected during this project be considered.

1
TR-4
OC-2

- The economic impact that these road closures will have on the existing

2
GC-2

local businesses was not adequately analyzed. Many of these small businesses will not survive this loss of customers. This analysis need revision.

2 cont.

- The impacts to this community during an emergency especially a seismic event was not well considered. With all the main corridors into and out of the Bayview closed and the main bridge across the creek closed and the huge incres in populating access into and especially out of the Bayview after an earthquake will be severly compromised. With no access how will we fight fires or evacuate the injured? This aspect must be further analyzed.

3 **TR-2**

Sincerely,

Michael Hamman

From: Christopher Harney [mailto:charney@hcmcommercial.com]
Sent: Monday, June 26, 2017 6:08 PM
To: Johnston, Timothy (PUC)
Subject: FW: BDFP EIR

Timothy,

I realized there was a typo in the email I sent you earlier. I meant to say Rankin Street…not Quint. I fixed it below.

Thanks for the time and consideration!!!

Chris Harney
HC&M Commercial Properties, Inc.
1234 Mariposa Street
San Francisco, CA 94107
415-865-6101 Office
415-999-6007 Mobile
DRE# 01108232

From: Christopher Harney
Sent: Monday, June 19, 2017 4:30 PM
To: 'timothy.johnston@sfgov.org'
Subject: BDFP EIR

Dear Mr. Johnston,

I am a commercial property owner here in San Francisco and I have several properties on the block bounded by Third, Jerrold, Innes and Phelps Street which are adjacent to the Southeast Treatment Plant. My commercial tenants will be 1 GC-2

negatively impacted by the proposed project. I am hopeful that the negative impacts can be mitigated with a well thought out development plan. My initial concerns are as follows:

1 (cont.)
GC-2

Traffic Circulation-Phelps cannot handle any increase traffic and it will only get worse should Jerrold Avenue be closed to through traffic. Has access to the construction site off of Rankin at Evans been fully vetted ? Can the site be accessed off of Oakdale with the re-opening of Quint Street in a more timely matter than what has been discussed to date? I would like to see that a thorough traffic analysis be completed taking into account these two other access options.

2
TR-1

With the proposed closure of Jerrold Avenue I do not see how one could overburden the neighborhood businesses and residents by proposing to use Phelps for construction staging/parking for this project. The local business count on this street parking for their livelihood. I would like to see a better solution for construction staging /parking for this should not be considered as a use for Phelps street which street parking should be reserved for local business and residents.

3
TR-3

The BIT (Bayview Industrial Triangle) which includes Jerrold Avenue between Third and the Southeast Plant still is an area that has overhead utility lines, inadequate (non ADA) sidewalk curbs, lacking uniform street trees, no sidewalk lighting etc.. Given all that is planned and knowing the hardship this multiyear build will place on local business and residents it would be nice to see real tangible community benefits being presented as part of the entire proposal.

4
GC-3

Your time and consideration in reviewing this proposal is much appreciated.

Chris Harney
HC&M Commercial Properties, Inc.
1234 Mariposa Street
San Francisco, CA 94107
415-865-6101 Office
415-999-6007 Mobile
DRE# 01108232

June 19, 2017

Mr. Timothy Johnston
San Francisco Planning Department 1650 Mission Street, Suite 400
San Francisco, CA 94103 fax 415- 558-6409
email: timothy.johnston@sfgov.org.

Re: BDFP-EIR Comment and Recommend Project Address: 750 Phelps Street, Jerrold Avenue, and 1801 Jerrold Av Case No.: 2015-000644ENV

Dear Mr. Johnson,

As a member of Resilient Bayview, I work with an impressive group of community leaders who seek to leverage resources on behalf of and with the varied communities in the Bayview.

The SFPUC project in the Bayview is of enormous concern to me. The communities, businesses and residential, along Phelps, 3rd and Jerrold are revitalizing and much more stable than they have been in many years, but are still quite fragile. The SFPUC expansion and upgrade in the area with its vast footprint and its 20-year timeline (when you put the discreet phases together) will have a devastating impact on the residents and businesses in the area, the property values, the quality of life, and just the simple ability to conduct business and get around and through the neighborhood.

While SFPUC makes claims that it is mitigating the impact of its construction and upgrades, the actual neighborhoods impacted by the construction will undergo a scorched earth approach that has little regard for protecting community assets where the assets and the community currently exist. I would ask that you at the very least

1 **GC-2**

1. Preserve the smaller, yet taller, glassed in greenhouse 'facade' - at the intersection of Phelps and McKinnon Avenues. A "display of interpretive materials" is not a suitable replacement for the actual assets that currently exist and can be used by the community.

2 **OC-3**

2. Undergo additional review of the impact analysis with respect to traffic and circulation (Impact TR 1-5 incl.; Vol.1 s28) from the existing 'LS' -less than significant - status to the LSM condition, requiring mitigation. Current plans will have a devastating impact both to businesses, many of whom will leave the area if they cannot conduct business day-to-day, and residents.

3 **GC-2**

3. Enroll fenceline residents in the area in a long-term health study that seeks both to understand and mitigate the detrimental health effects of the "deteriorating air quality

4 **AQ-4**

issues" that are noted as 'significant and unavoidable' during construction. This study should continue for all fenceline residents who live near the SFPUC Sewerage treatment plant and who will be exposed to significant and unavoidable pollution from the sewerage treatment facilities. 4 cont.

Thank you for reviewing these comments. I respectfully request also that you seriously consider the thoughtful recommendations of Dan Dodt and Bayview Community Planning. I look forward to hearing from you and hope to work with you in protecting the economic, cultural and physical assets of the Bayview as well as the health and prosperity of its residents. 5 **OC-1**

Sincerely,
Rosalind Hinton, PhD
Member, Resilient Bayview

From: Sean Karlin [mailto:sean.karlin@gmail.com]
Sent: Wednesday, May 24, 2017 8:33 PM
To: Johnston, Timothy (PUC); Frye, Karen (PUC)
Cc: Dan Dodt
Subject: Southeast Water Plant EIR

Hello Timothy Johnston

I am a member of the Bayview-Hunters Point community. I understand that significant work is being planned for the southeast water treatment plant in the near future. Of course I support maintenance and upgrades to our city's utilities, especially one as important to our health as waste removal. 1 **GC-1**

I understand that this is a major project that will take six years to complete and in that period significant east-west streets will need to be blocked, specifically Jerrold Ave and parts of Evans Ave.

While you are focused on doing your best work, I hope that your plans take into account the folks who live and work in the Bayview and ensure we continue to have access to Cesar Chavez, Bayshore Blvd. and the freeways. 2 **TR-1**

We also appreciate keeping the dust to a minimum and protecting our community from toxic waste while you work on our pipes. 3 **AQ-3**

I will not be able to attend next months hearing, but I did want to communicate my concerns to the planning dept.

Best of luck.

Sean D. Karlin
415.265.8691 m.

There is an inverse relationship between the number of transactions required to implement a decision and the likelihood of having any effect. - **Iron Law of Implementation**

Tony Kelly

250 Connecticut Street #6, San Francisco CA 94107 ♦ (415) 283-6607
tonykelly@astound.net

June 26, 2017

Mr. Timothy Johnston
San Francisco Planning Department
1650 Mission Street, Suite 400
San Francisco, CA 94103
By email: timothy.johnston@sfgov.org

Re: Biosolids Digester Facilities Project - EIR Comments
Project Address: 750 Phelps Street, 1700 Jerrold Avenue, 1800 Jerrold Avenue, and 1801 Jerrold Avenue, San Francisco

Dear Mr. Johnston:

I am a member of the Development Committee and the Executive Committee of the Potrero Boosters Neighborhood Association; I am writing today in support of my neighbors in Bayview and their comments regarding the Biosolids Digester Facilities Project EIR, requesting additional review of the impact analysis for Air Quality (Section 4.8). 1 **AQ-1**

I realize that these comments are being sent after the published deadline for EIR comments of June 19, 2017. However, I believe the issues I am discussing here have already been raised by Bayview neighbors of the project, and I am happy to lend my voice in support of them. (I believe you will soon see a number of neighborhood groups throughout Bayview and the City come together in an official alliance for environmental justice in Southeast San Francisco; to that end, I am cc-ing these comments to some Bayview neighbors, members of the SFPUC CAC, and to Yolanda Manzone of the PUC, who is presenting a draft Environmental Justice Analysis of the project to neighborhood groups in the coming months.) 2 **GC-4**

These comments are my opinions as an individual, since the Potrero Boosters Neighborhood Association has not yet taken a position regarding the project. However, the Boosters have for many years taken strong positions in support of their neighbors, especially on development, environmental, and EIR issues; and I will be asking the Association to take a formal position along the lines expressed in this letter.

All that said:
My comments are centered around the issues of truck traffic and their emissions. The EIR considers and recommends several methods of mitigation; but it goes on to say *"the construction-related NOx emissions are considered <u>significant and unavoidable</u> with mitigation"* (4.8-49). I must disagree – **a significant amount of the construction-related NOx emissions can be avoided** by utilizing rail transportation instead of trucks. 3 **AL-1**

Quoting my neighbor, Michael Hammann, in his EIR comments:

> *"The primary pollutant generated by truck trips is NOx, and the EIR projects a total of 31,123 lbs of NOx emitted in our neighborhood during the five years of construction (Section 4.8-8). . . .*
>
> *"The use of rail transportation for hauling the biosolids during the operation of the plant was analyzed in Section 6.5.4-2. That analysis is inadequate in several respects:*
>
> - *The analysis only considers the use of rail to haul the operation biosolids. It should consider the alternative of using rail for BOTH the operations biosolids and the construction material. Especially the waste going to Altamont as there exists a well established process for rail transportation of that commodity.* ***I request this option be analyzed.***
> - *The analysis assumes that all material needs to be trucked to the SFBR yard along Cargo Way. The possibility of loading directly onto rail cars at the site by constructing a loading spur off the nearby Quint Street lead needs to be analyzed. Such direct loading would achieve dramatic reduction in total truck trips. Furthermore such direct loading was once practiced at that location.* ***I request this option be analyzed."***

I am certain that additional analysis will reach the same conclusion that other developers and contractors have found over the years – that rail transportation has less impact on air quality than truck traffic.

3
AL-1
cont.

In the interest of reducing traffic and congestion, I also ask the PUC to live up to their promises to the neighborhoods by building the Quint Street Connector Bypass, as soon as feasible, to re-connect Oakdale and Jerrold Avenues.

4
TR-4

I worked on the successful campaign for Proposition I in 2004, forcing Muni to replace their old diesel buses and improve their air quality standards. **All City agencies should take great care to minimize and mitigate their environmental impacts in this heavily-burdened neighborhood.** I look forward to the PUC acting responsibly in their construction and operation of the new Biosolids Digesters.

5
GC-4

Please feel free to contact me with any questions, etc.

Sincerely,

Tony Kelly

Cc: Yolanda Manzone, SFPUC
Members of the SFPUC CAC
Greenaction for Health and Environmental Justice
Dan Dodt
Michael Hammann

From: Steve Lawrence [mailto:steveinsf@outlook.com]
Sent: Thursday, May 04, 2017 8:17 AM
To: Johnston, Timothy (PUC)
Cc: Frye, Karen (PUC)
Subject: Biosolids digesters project of SFPUC, Case No.: 2015-000644ENV -- comment

The proposed new digesters are to employ a new technology, THP. Will there be less resilience than now? San Francisco is subject to earthquake, flood or deluge, possibly tidal wave sea rise, and terror attack, any of which may change digester feedstock. Avoiding digester upset should be a priority. Digester upset, especially if extended in length, could harm San Francisco's livability and its economy. Will the new digesters (will the sewage treatment plant with them) be as resilient as what we have, or could have, and if not, what mitigations or steps are prudent? 1 **PD-3**

Steve Lawrence, resident

From: Steve Lawrence [mailto:steveinsf@outlook.com]
Sent: Wednesday, June 14, 2017 7:16 PM
To: Johnston, Timothy (PUC)
Subject: Biosolids digesters, 2015-000644ENV, comment on Draft EIR

Ratepayers are to spend in the neighborhood of $1.5 billion for new digesters at SEP. Work and commissioning is to be completed May 2025. Objectives for the project include "meet treatment capacity for projected 2045 flows and loads." The City is growing, and is expected to continue to grow both jobs and residents. Recently growth has been faster than past estimates; growth projections keep being revised upward. The existing digesters were built in the early 1950s, and will have lasted seventy years. The proposed digesters may be adequate for only twenty years. Given the size and cost of the project, both in dollars and in disruption, and environmentally, the objective of meeting flows and loads for only twenty years seems questionable. While per person use of water has declined, has "load" per person for purposes here? One reads that more pills, household products, and other new challenges make their way into sewage. One reads that the average person is larger than in the past. Have these trends been considered? Is it environmentally sound to plan for a twenty-year period, especially when recent experience suggests that projections might be low?

1
PD-1

Steve Lawrence

Perry Matlock
300 2nd Avenue No. 5
Petlenuc-Yelamu
Muwekma Ohlone Nation
San Francisco, CA 94118
415 221-4240
savetheshellmounds@gmail.com

RECEIVED
JUN 19 2017
CITY & COUNTY OF S.F.
DEPT. OF CITY PLANNING
ADMINISTRATION

Monday, June 19, 2017

Regarding the DEIR for the Biosolids Digester Facilities Project

Dear Timothy P. Johnston,

I was born and raised in San Francisco, and I have been a volunteer for various Native organizations for over 25 years. My focus continues to be education concerning Ohlone issues, especially the preservation of the ancient monuments and funerary places, the shellmounds. Initially, I must point out that the term "midden" which is used in the DEIR to describe the Ohlone heritage site, CA-Sfr-171, is derogatory. "Shellmound, village site, or cemetery" would be more accurate, for the word midden means "dung hill." 1 CR-3

The 48 day comment period does not provide ample time for members of the public to study and respond to this DEIR. Nonetheless, I wish to express my interest in the preservation of the Ohlone heritage site, CA-Sfr-171. Since I have not been in a position to research the DEIR during the past 48 days, I am not prepared to address the DEIR adequately. Thus, I have enclosed some copies of the educational materials which my group, Save the Shellmounds, distributes. 2 OC-1

Please note, that CA-Sfr-171 is a cultural treasure of the Ohlone, and that its protection ought to be of greatest importance. The Ohlone do not get to make the decisions about the preservation of their own heritage sites. The fate of shellmounds, cemeteries, village places, and other sacred sites is in the hands of property owners and politicians. The Ohlone and their heritage places have been controlled by others since the Spanish invasion of the 1770s. Destruction of these heritage places is a hate crime. Very few of the shellmounds, and other heritage places, are preserved. Once CA-Sfr-171 has been destroyed, the opportunity to save this priceless monument has ended. 3 CR-2

Please, reconsider this project so that not only CA-Sfr-171 remains intact, but also that any other shellmounds might be saved.

SAVE THE SHELLMOUNDS!

Perry Matlock

Perry Matlock

South City Won't Disturb Shell Mound

(5/27/1999) 5/28/99

Council rejects plan for big project near Ohlone Indian site

By Marshall Wilson
CHRONICLE STAFF WRITER

American Indians and environmentalists scored a victory yesterday when South San Francisco officials rejected a plan to build a hotel and offices next to a 5,000-year-old Ohlone settlement.

Nearly 50 people spoke for or against the proposed development, known as Terrabay III, during an often emotional four-hour hearing that began Wednesday and ended early yesterday.

Activists from throughout the Bay Area criticized a plan that would put an office building on one side of an Indian shell mound and burial site at the base of San Bruno Mountain and a restaurant and hotel on the other.

"To develop a sacred site is really wrong," said Fred Short, an American Indian from Alameda. "The mountain is sacred. To us, our people are still up there."

Those concerns were enough to persuade the City Council to reject plans for development that would flank the Indian site.

In a 4-to-0 vote, council members said they want no development north of the site but would consider development to the south, although how close or how large was left ambiguous.

Councilman John Penna, who runs a local realty company, abstains on Terrabay issues and did not cast a vote.

The council's decision was the latest chapter in a 30-year battle over the fate of San Bruno Mountain. Environmentalists have long fought any development on the mountain, which is also home to the endangered Mission Blue butterfly.

Dennis Breen, project manager for the developer, SunChase Inc. of Arizona, said plans for Terrabay's three phases already have been sharply scaled back from what was originally approved in 1982.

He said the proposed hotel, offices and restaurant would provide the city with taxes and jobs.

Moreover, the project design, he said, shows respect for the American Indian site, which would be left undisturbed.

If the council's action results in a further scaled-down project, it could have broad consequences.

As proposed, SunChase would have been obligated to contribute as much as $8.5 million for roadway improvements if the project was approved.

But less development would mean fewer SunChase dollars that would be used to relieve congestion.

In the coming weeks, city planners will meet with SunChase to determine how much development could be placed south of the Indian site.

Any revised plan would eventually need City Council approval.

Plans submitted by SunChase called for a 150-room hotel, 7,500-square-foot restaurant and 340,000-square-foot office building, with a 30-foot buffer zone around the 2.5-acre former Indian settlement.

Today, a casual observer would have trouble finding the site, situated off Highway 101 near the Brisbane border.

But American Indians and archaeologists say the mound is what is left of one of the oldest known Indian villages in the Bay Area.

"When it comes to desecrating our cemeteries, we are going to stand up and speak," Patrick Orozco of Watsonville told the council.

Orozco's and similar comments clearly had the desired effect.

Councilman Joe Fernekes said he wanted city planners and the developer to devise a plan that would leave "the Ohlone burial site alone."

Councilman Eugene Mullins first praised the project because it would put jobs along a major transit corridor.

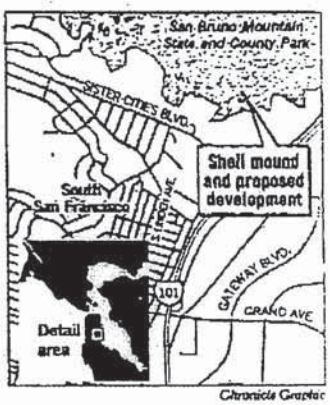
However, he said he could not support placing development so close to a site dear to American Indians.

Although opponents outnumbered supporters, the project drew praise from trade union representatives whose members stand to gain construction jobs if a final version is approved.

South City has a long history as a blue-collar union town.

Ohlone Indian Site Preserved

▶ SOUTH CITY
From Page A19



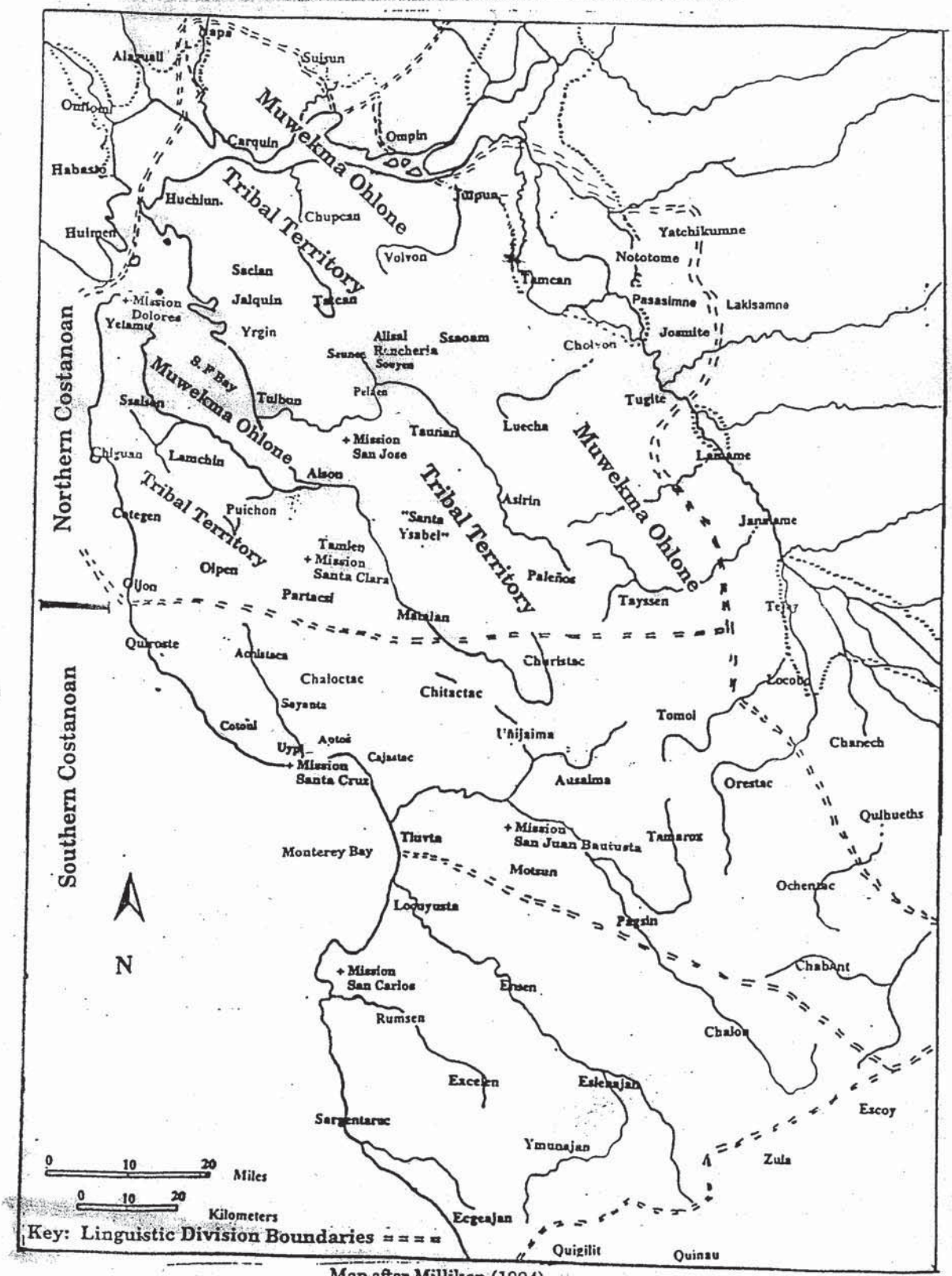
Chronicle Graphic

San Bruno Mountain Watch
P. O. Box 53
Brisbane, California 94005
(415) 467-6631 FAX (510) 843-3661

FOR THOUSANDS OF YEARS OHLONE PEOPLE HAVE LIVED IN THE BAY AREA AND ARE STILL ALIVE AND CONTINUE TO LIVE IN THE BAY AREA

- CALIFORNIA HAS SPECIFIC LAWS THAT DICTATE THAT IT IS PROHIBITED TO FURTHER DISTURB A GRAVE SITE ONCE IT HAS BEEN FOUND WITHOUT FOLLOWING THE GUIDELINES OF CHAPTER 1492, STATUTES OF 1982
- THE SHELLMOUNDS THAT CONTINUE TO BE DESECRATED BY CITY GOVERNMENTS ARE SACRED BURIAL SITES
- THEY ARE PLACES WHERE A WHOLE CIVILIZATION OF INDIGENOUS PEOPLE LIVED, RAISED CHILDREN, PRAYED AND BURIED THEIR ANCESTORS RESPECTFULLY
- THE INVESTORS, DEVELOPERS, BUSINESSES AND CITY GOVERNMENTS THAT DECIDED TO BUILD ON SACRED SITES HAVE A RESPONSIBILITY. CORPORATE AMERICA WOULD NEVER PLACE A STRIP MALL, THEATER OR HOTEL ON A CEMETARY ANYWHERE ELSE IN THE COUNTRY, BUT THEY REFUSE TO FOLLOW THEIR OWN LAWS AND CONTINUE TO DESECRATE AND DISTURB OUR BURIAL SITES
- GREED AND DESTRUCTION OF SACRED SITES CAN NOT BRING GOOD TO ANYONE
- THE ANCESTORS OF THE OHLONE PEOPLE CAN NOT REST IN PEACE AND WILL NOT REST AS LONG AS THE DESTRUCTION CONTINUES
- SUPPORT THE OHLONE PEOPLE IN TAKING A STAND AND NOT SUPPORTING BUSINESSES THAT CHOOSE TO MAKE PROFIT FROM THE DEAD ANCESTORS OF A PEOPLE THAT CONTINUES TO LIVE

Reconstructed Distribution of Costanoan Tribal Groups at the Time of Spanish Contact (Circa. 1769)



Map after Milliken (1994)

Tribal Information derived from: A. Taylor (1856), C. H. Merriam (1902-34), Harrington (1921-39), Levy (1978), C. King (1978, 1994), Hester (1978), Milliken (1983, 1991, 1994)

Control of Ancestral Remains

Rosemary Cambra

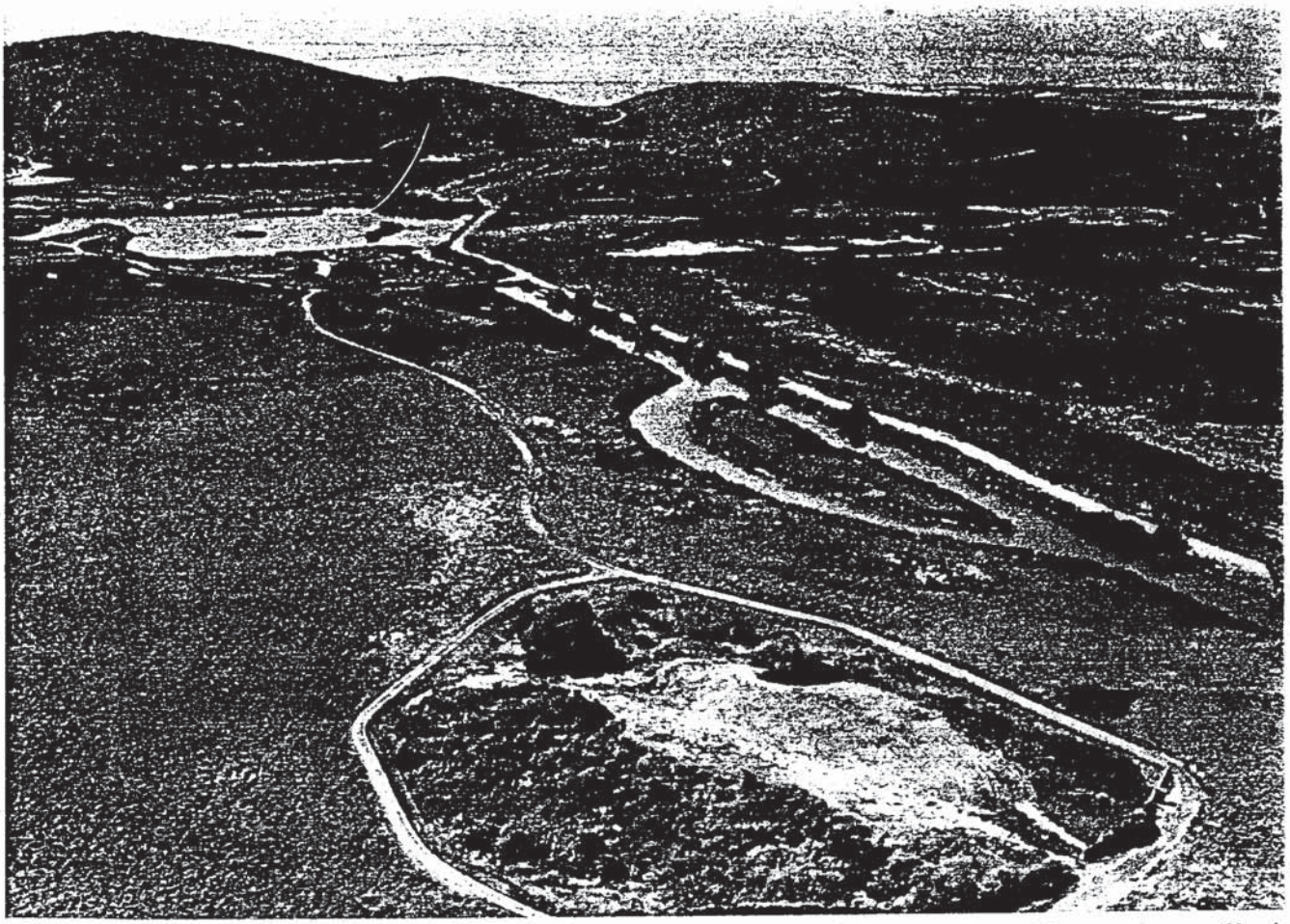
Recently the media has widely publicized what has been construed as a very controversial issue: the reburial of Native American ancestral remains currently held within the vaults and shelves of museums and other curational facilities. The recent decision by the Stanford University administration to consider a request made on behalf of documented Costanoan/Ohlone family members to have approximately 550 ancestral human remains reviewed for scientific merit (future research potential), proper curation and possible reburial, has sparked a storm of accusations, misinformation, and controversy in the scientific and Native American communities.

First of all it is not our intention to impede scientific inquiry relating to our heritage and ancestral remains. We are, however, concerned that the orientation of archaeological research, specifically relating to the Costanoan/Ohlone Territory, has been and is currently much undernourished. Many of our family members have reviewed the extant and generally inaccessible literature about our people (biological, prehistorical, and cultural) from the archaeological and historical records. We have determined that for the most part the archaeological community has resigned itself to removing us as living descendants from our ancestral past or what they call "the Archaeological Record." The history of anthropological thought and the development of regional models for prehistoric California is most remarkable when one views it with a native eye. We find ourselves looking at our rich ancestral past through the eyes and interpretive minds of an alien world view. Many archaeologists for purposes of continuity and from the way they were socialized within the discipline of anthropology, find it useful to pigeonhole our ancestral past into fictitious phases, facies, horizons, or other clever and catchy nomenclature. Seldom do they recognize that the human remains, along with the associated assemblage of ceremonial regalia, represent our ancestral past. What archaeologists tend to call "collections, materials or archaeological residues," we refer to as "our ancestral remains."

The history of anthropological and archaeological inquiry around the Bay Area and California was inspired by Dr. Kroeber at UC Berkeley at the turn of the century. Dr. Kroeber, in conjunction with his colleagues, attempted to "salvage" the remnant memory, culture, language, songs, and other working knowledge of their respective societies from the elders of various tribal groups before they died. Recognition of their efforts must be acknowledged even though they were somewhat purist in their world view. While some cultural anthropologists were busy interviewing the elders of the tribes, another group took an interest in the large shell mounds that dotted the San Francisco Bay shore. Interestingly, these anthropologists never tried to explain, based upon discussions with late 19th- and early 20th-century knowledgeable tribal people, how the mounds developed and specifically why so many burials were contained

Left: Norma Sanchez, Rosemary Cambra (Chairwoman of the Muwekma Indian Tribe), and Ann-Marie Sayers (Mutsun Indian Tribe).

Right: Robert Sanchez and Dolores Sanchez, Muwekma elders.



Partly excavated shellmound at Coyote Hills Regional Park, Fremont. Photo courtesy of East Bay Regional Park District. At the turn of the century there were 400 such mounds, all but a handful of which have been excavated or paved over.

therein. These early studies were focused upon the antiquity of the mound based upon volumetric shell analysis. Essentially the model developed was: take how many shellfish one individual eats per year, and extrapolate it through time based upon the overall estimated volume of shell at the site. In the late 1950s and 1960s other publications concerning the Alameda Bay Shore Mounds were published — for example the report on CA-ALA-328. In this report we are introduced to a complex stratified mound containing numerous burials. The archaeologists discuss the "ceremonial complex" at this site by the identification of the presence of charmstones, quartz crystals, red and yellow ocher, and other associated objects. What archaeologists fail to address is that these objects and "associations" are merely by-products of our ancestral "ceremonial complex," and that we performed funeral ceremonies when our people died and mourning ceremonies thereafter. The point is that the scientific community has done very little to help bridge the gap between the living descendants who trace their lineages through the missions and their pre-contact ancestral lifeways as interpreted through archaeological processes.

As a result of the recent storm of articles concerning Stanford's decision to consider the requests made by the concerned descendants, a newsletter has been published by a group of archaeologists called ACPAC, which essentially assails the decision made by Stanford University. Furthermore, there is an attempt within this newsletter to discredit our concerns as Native California Indian descendants, by reducing us to a negative image. They refer to us as nameless and faceless "activists." Similar tactics were employed by the government and media against the North Vietnamese people by reducing them to faceless "enemies" and "communists." Additionally, the ACPAC folks have determined that these few activists are bent upon destroying the collections and Indian culture by reburying ancestral remains back in the ground. We are surprised and chagrined that these supposed men of knowledge would stoop to such tactics. We don't have a Ph.D. in anthropology. We do, however, have our documented lineages that demonstrate that we are indeed descendants of the people buried within our ancestral territory.

The anthropological community, rather than reacting in such a hostile fashion, should recognize that Native American communities change through time. Change involves some loss. We no longer know how to start a fire with sticks. But how many anthropologists know how to harness a plow horse? Does their loss of "tradition" make them less Anglo? Change also brings gain, in our case the acquisition of knowledge and power. Knowledge and power were inaccessible to us during the past scores of years. Our parents' genera-

tion was socialized to accept a lower status in this society. Education and avenues to economic advancement were certainly not available to our people until the civil rights era. Rather than taking a position, based upon ignorance and misinformation, that is hostile to us, the scientific community should try to provide a forum for discussion in order to understand the dynamics of changing Native American communities. Have they forgotten their own basic curriculum? What do California anthropologists and archaeologists do these days? How does their work benefit the communities they are studying? How does their work benefit the greater society and upcoming generation of school children? We, Costanoan/Ohlone descendants, have seen much money spent on Bay Area pre-contact archaeology. However, we haven't seen the benefits passed on to the greater general public or to ourselves in the form of educational curriculum, public forums, or displays. We desire that the history of our rich heritage be known! For over ten thousand years our ancestral peoples have lived and died in California. We have been involved with local institutions and archaeologists, receiving training in current processes concerning "cultural resource management." We desire that, if there are impacts to our ancestral villages and cemeteries, and an archaeological recovery program must be formulated, then we want to be part of the decision-making process rather than being treated in the traditional "after the fact" token fashion. Furthermore, the research designs should incorporate a way to bridge the living descendants with their pre-contact past. In other words, if you are going to do archaeology, it better be good! We already know that you think we ate nuts and berries and hunted deer, but the literature is devoid of the rich culture and human qualities that were shared among us who inhabited the area of central California!

Regarding our concerns about our ancestral remains residing within the vaults at Stanford University, we want to offer the following:

1. Due to the historical nature of archaeology as a discipline within California there were no guidelines concerning the treatment of human remains as well as other curational standards until these past two decades.

2. When we were invited to review our ancestral remains housed at Stanford, we expressed that we would prefer that they be curated in a different and more sensitive fashion.

3. We inquired about what is the long- and short-term research and educational potential for these ancestral human remains now that Dr. Gerow has retired from Stanford.

4. We requested that an independent physical anthropologist be brought in as a consultant to assess the research and educational value of these ancestral human remains. Dr. Philip Walker from UC Santa Barbara was selected to do this assessment.

5. We requested that those human remains thought not to have any further research value for the scientific community be turned over to us for proper reburial.

6. And finally, if the assessment (of which we are awaiting the final results) does suggest that some of these ancestral remains do indeed have additional research potential prior to reburial, then we desire that the scientific community generate their research designs and propose their scope of work within a reasonable time frame. We desire as much as anybody else to know more about our ancestral lifeways and heritage. We want people to communicate their scientific proposals to us so that we can work with these scholars. We have proposed a partnership with the scientific community based upon mutual respect and sensitivity. We want those people who are most critical of our position to send us copies of their publications and communicate directly with us the scope of their concerns. We believe that there should be good research and this must be done in an atmosphere that is sensitive and respectful. Our ancestors were buried by their loved ones. They have patiently resided in the ground over the thousands of years. Even in death, they can still offer knowledge to the world around them. We feel that it is our duty to be the stewards of our ancestral people and heritage. We also believe that our rich history should be celebrated and not stereotyped. These bad feelings, accusations and corruption of the truth are a desecration of our traditions and a blemish on the face of academia and the scientific community. By creating a working partnership with the scholarly community, and by making intelligent and sensitive decisions concerning our ancestral past, we have the opportunity to enjoy our cultural revival and ensure the survival of our people well into the 21st century.

Rosemary Cambra is a spokesperson for the Costanoan/Ohlone Muwekma Tribe, and head of the Ohlone Families Consulting Service - San Jose.

Illustration by Scott Kimball © 1989. Courtesy of Orion *(Chico State University newspaper).*

Editors' Note: The success of the negotiations between Stanford University and members of the Costanoan/Ohlone community regarding the return and reburial of human remains has reverberated throughout the country. The Smithsonian Institution has since taken steps to allow the return of certain remains in its possession, and the Lowie Museum of Anthropology in Berkeley, after an initial display of reluctance, also seems ready to alter its policies.

At a recent meeting of the World Archeological Congress in Vermillion, South Dakota, the World Indigenous Congress recommended the adoption of the following:

1. Ensure that grave robbing and pot hunting done in the name of scientific inquiry, academic freedom, and professional development be ended immediately.

2. Those individuals, institutions, and governments responsible for the disinterment and curation of indigenous remains and grave goods bear the full cost of reburying same.

3. Advocate passage of enforceable laws which protect indigenous cemetaries, grave sites, and burial mounds.

4. Return all curated indigenous remains and associated sacred burial possessions to appropriate indigenous groups.

WE ARE MUWEKMA
Makin Muwekma
Welcome To Our Ancestral Birth Land!
Wipa! Makse-Mukiukenis lsi-wa-Warep

"Stand Up If You Can" Muwekma Monument

The present-day Muwekma Ohlone Tribe is comprised of all of the known surviving Native American lineages aboriginal to the San Francisco Bay region who trace their ancestry through the Missions Dolores, Santa Clara and San Jose. The aboriginal homeland of the Muwekma Tribe includes a large contiguous geographical area that historically crosscut linguistic and tribal boundaries that fell under the sphere of influence of the three missions between 1776 and 1836.

In 1906, as a result of the discovery of the 18 unratified California Indian Treaties (negotiated between 1851-1852), Charles E. Kelsey of San Jose, was named Special Agent by the Indian Service Bureau in Washington, D. C. to identify all of tribes and bands needing land. One of these tribes was the Verona Band of Alameda County residing in Pleasanton, Niles and surrounding towns near Mission San Jose. The direct ancestors of the present-day Muwekma Tribe were Federally Acknowledged as the Verona Band by the U.S. Government beginning in 1906. Since 1900, noted anthropologists and linguists such as A. L. Kroeber, E. W. Gifford, J. A. Mason, C. Hart Merriam and J. P. Harrington (between 1902 and 1934) interviewed the last fluent speakers of the languages. During this time these knowledgeable Verona Band Elders still employed the linguistic term "Muwekma" which means "The People" in the Ohlone languages spoken in the East and South San Francisco Bay.

During World War I, Muwekma men served overseas in the United States Armed Forces, and four of them (Tony Guzman, Alfred Guzman, Joseph Aleas, and Henry Nichols) are buried in the Golden Gate National Cemetery. Later, during World War II almost all of the Muwekma men served overseas in the various branches of the Armed Forces. Still landless, the Muwekma Tribe maintained their distinctive social ties and culture.

In 1984, the Muwekma Tribal government was formed and by 1989, the Tribal Council submitted a letter of intent to petition the US Government for Federal Acknowledgment. A petition was submitted at a White House meeting on January 25, 1995 and by May 24, 1996 the Bureau of Indian Affairs' Branch of Acknowledgment and Research (BAR) made a positive determination, but reluctantly acknowledged that:

> *The band was among the groups, identified as bands, under the jurisdiction of the Indian agency at Sacramento, CA. The agency dealt with the Verona Band as a group and identified it as a distinct social and political entity.*

Almost two years later, as a result of submitting more documentation, Deborah Maddox, Division Chief of Tribal Operation, issued a letter to the tribe stating that:

> *A review of the Muwekma submissions shows that there is sufficient evidence to review the petition on all seven of the mandatory criteria. The Bureau of Indian Affairs (BIA) is placing the Muwekma petition on the ready for active consideration list as of March 26, 1998.*

On December 8, 1999, the Muwekma Tribal Council filed a lawsuit against the Department of the Interior /BIA and on June 30, 2000, Federal District Judge Ricardo M. Urbina ruled in favor of the Muwekma Tribe.

Over the past 21 years, the Muwekma have politically, spiritually and culturally revitalized themselves and formed a formal tribal government in compliance with Congressional and the Department of the Interior's criteria. Presently, the Muwekma Tribe is seeking reaffirmation as a Federally Acknowledged Indian Tribe. The Muwekma have spent these past 21 years conducting research and submitting to the Branch of Acknowledgment and Research over several thousand pages of historical, anthropological and genealogical documentation as part of the petitioning process.

As a result of the vision employed by the Muwekma Tribal leadership, the Muwekma have potentially paved the way for other previously Federally Recognized tribes to follow for reaffirmation -- a court ordered Fast Track. Based upon the Federal court's decision the BIA has until July 30, 2001 to make its proposed finding and its final determination no later than March 11, 2002.

After all said and done, it will be approximately 96 years since the Verona Band was first Federally Acknowledged, and perhaps now the Muwekma Ohlone Tribe, can be treated as an **equal** in the eyes of other Federally Recognized Indian Nations. Furthermore, Muwekma's reaffirmation also sends a message to the larger dominant society, some of whom have emphatically stated and published that the "Costanoan/Ohlones are extinct" and/or that they "never have been Federally Recognized". Obviously these so-called "experts and authorities" are of the colonial mindset that continues to create policies and sow discord that seeks to erode the rights of the aboriginal inhabitants of this continent.

Aho!
The Muwekma Ohlone Tribe Of The San Francisco Bay Area

Makin Mak-Atuemi Muwekma-mak ic Eki'i i'nmatci-mak!
We will make things right for our People and dance for our children!

1358 Ridder Park Drive, San Jose, CA 95131 Ph: 408-441-6185 Fax: 408-441-6476 E-mail Muwekma@muwekma.org Website: www.muwekma.org

3rd annual Shellmound Walk in San Francisco Bay Area

By Stephanie Hedgecoke

Indian People Organizing for Change and the Vallejo Inter-Tribal Council's Indigenous Sacred Sites Preservation Committee held the second annual Shellmound Walk from Oct. 12 to 20 in the San Francisco Bay Area. Indigenous people and their supporters walked every day for two weeks to struggle to preserve their ancient burial mounds from real estate development and other devastation.

IPOC has stated that the walk is held to say that the original people of the Bay Area are not extinct, to honor the ancestors and call attention to their ongoing struggle, and to dismiss the disinformation that has been used historically to justify the destruction of their ancient temples.

Organizers kicked off the walk with announcements at the International Indian Treaty Council's annual Oct. 12 Sunrise Ceremony at Alcatraz on Indigenous Peoples' Day and an evening potluck dinner at the Intertribal Friendship House in Oakland.

This year the Shellmound Walk traveled through the East Bay and Marin County, going through Solano Community College, Glen Cove, Pt. Richmond, El Cerrito, and UC Berkeley; then across the Bay to Sausalito, Tiburon, San Anselmo, Lagunitas, Pt. Reyes and Kule Loklo. Kule Loklo is a former Miwok village now controlled by the Golden Gate National Recreation Area, which allows the Miwoks to interpret their former home, but not reside there.

The struggle to preserve the ancient shellmounds is a struggle focused on the survival of the many Pacific Coastal peoples who were twice colonized. Spain's conquistador army and priests built the mission system by forcibly rounding up and enslaving tens of thousands. During the Gold Rush, the U.S. moved in to enforce its proclamation of Manifest Destiny—that it had a right to take the continent from the Atlantic Ocean to the Pacific.

The Bay Area shellmounds are traditional cemeteries and ancient monuments of First Nations including the Ohlones, Coast Miwok, Bay Miwok, Mutsun, Plains Miwok, Yokuts, Wappo, Patwin and several other nations. They were temples made of shells, older than the pyramids in Egypt, and originally so huge that they appear as landmarks on the original Coast Guard maps of the area. Some of them have been carbon-dated at over 5,000 years.

Native traditions of caring for what shellmound activists call "living cemeteries" were disrupted by the genocidal attacks and land thefts of the Gold Rush days, followed by the institution of capitalist private property laws.

The Spanish looted the shellmounds, but the destruction of them began with the Gold Rush. A shellmound located in what is now Aquatic Park, north of San Francisco's Ghirardelli Square, was destroyed in 1861, reported Alexander Taylor in an "Indianology Series" in the May 1861 California Farmer and Journal of Useful Science. As late as 1909 Nels Nelson counted 425 still-existing shellmounds in an archeological report of the Stevenson Street Shellmound, which was located near the corner of Market and First streets in downtown San Francisco.

West Berkley shell mound.

The destruction of the shellmounds was officially excused via misrepresentation of what they actually were. Until recently archeologists downplayed the evidence of thousands of human burials, which prove these were funerary places like the pyramids. They purposely mischaracterized them as "middens" or garbage heaps. In his 1965 "The Archeology of San Francisco," Robert Suggs wrote: "The Emeryville shellmound was, in fact, little more than a huge garbage heap. ... Burials were also made in the discarded shells and debris."

The Emeryville Shellmound was 60 feet high and more than 600 feet in diameter, covering 19 acres. It formerly held at least four historical levels of burial sites going back at least 2,500 years. Recently a shopping mall was built over what was left of the lower level, despite complaints by construction workers that they were finding hundreds of human remains. Those reports were verified by archeologists but were glossed over by the local authorities to let greedy developers make profits.

Long-time shellmound activist Perry Matlock told WW: "The heartbreaking ongoing devastation of these ancient monuments should be stopped. They should receive UNESCO World Heritage status and be returned to the Native Nations."

For updates on future events write to IPOC, POB 796, Alameda, CA 94501; call the VITC at (707) 558-8776 (www.vallejointertribalcouncil.org); or e-mail the Shellmounder News at sfbayshellmounds@yahoo.com.

Information was gathered for this report by activists with the Shellmounder News and supporters of the Muwekma Ohlone Nation. The report of the Stevenson St. Shellmound is from the Coyote Press Archives of California Pre-History, "Archeological Excavations at CA-SFR-112," Allen G. Pastron, 1909.

Ancient Burial Sites Beneath Hunters Point Lots

August 6, 1991/San Francisco Independent/

By Rachel Gordon

Underneath the empty paint cans, rusted fenders, urban wildflowers and plastic oil containers scattered over Bayview-Hunters Point's undeveloped land may lie Native American burial sites, some as old as 4,000 years.

Descendants of the Ohlones, the Native Americans who were the first known people to inhabit the Bay Area, say there are at least 11 known burial sites in the city's southeast sector.

Members of the modern-day Ohlones recently cautioned city officials not to develop the land without taking the needs and rights of the Native Americans into account.

The city recently completed a master plan for the Bayview-Hunters Point area, which calls for developing much of the vacant land, primarily for housing.

"We do not want to stop any projects," said Irene Zwierlein, chairwoman of the Amah Tribe, a sub-group of the Ohlones. "We just want to make sure that proper care is taken."

No specific development projects for the Bayview-Hunters Point officially have been proposed, and it's possible that the areas of concern to the Native Americans will not be touched.

Under state and federal law, remains of Native Americans can be unearthed, but only under the watchful eyes of state-registered Native American archaeological consultants.

"We don't care what the plan is, we just want to make sure that process is followed," said Rosemary Cambra, chairwoman of the Muwekma Tribe, another Ohlone sub-group.

Native American consultants, such as Zwierlein and Cambra, oversee reburial of their ancestors' bones at another location, preferably as close to the original site as possible.

"The idea is not to decimate the remains," said Randall Dean, an archaeology specialist for the Planning Department.

In general, the excavated remains that pre-date the arrival of Europeans to the area in the 1760s are buried in Native American cemeteries; bones of people who came into contact with the Spanish explorers and missionaries may be buried in Christian cemeteries.

The reason Zwierlein and Cambra don't fight the excavations, they said, is simple.

"Indians do not stop projects, because if we did, (the planners and developers) wouldn't tell us where the sites are or what they've found," she said. "They'd just bulldoze over our ancestors' bones."

It still is unknown whether the areas Zwierlein pointed out are actual Ohlone burial sites, but the existence of ancient Native American shell mounds in those areas is known.

Shell mounds – remains of villages and camps given their name by the vast amount of shells left behind as food refuse – often include burial sites, said archaeologist Alan Leventhal, an expert on the Ohlones who teaches at Ohlone Community College in Fremont.

"The chances of finding human remains under shell mounds is extremely high," said Leventhal. "Some of the burial sites span several thousand years."

He said an estimated 450 shell mound sites encircle the brim of the San Francisco Bay. The Ohlones first began living near the bay shore 4,500 years ago.

The Bayview-Hunters Point area is one of the richest in historic Native American use.

Three sites, Zwierlein said, are at the Hunters Point Naval Shipyard; another three are situated just west of there at the tips of Palou and Thomas avenues.

Three are close to the Executive Park office development just west of Candlestick Park; the remaining two are at the intersection of Interstate 280 and the James Lick Freeway.

A quick glance at those areas doesn't readily reveal anything to the untrained eye, but, say archaeologists, history lurks underneath the surface.

While some shell mounds – covered with earth and grasses – may protrude from the ground like a small hill, others have been flattened during past development.

"Through the early part of this century," said Leventhal, "the top portions of the mounds in many cases were leveled off for construction projects, and the top portion of the burial grounds were destroyed.

"But when the buildings were later knocked down," he said, "we've been finding that burial grounds still exist below the surface."

THIS DRAWING IS FROM THE OHLONE WAY, BY MALCOLM MARGOLIN, HEYDAY BOOKS P.O. 9145, BERKELEY CA 94709

NEWS News, Notes & Comment

Centuries of persecution: *The Ohlone tribe's land was taken from it by the Spanish, Mexican, and American governments.*

The last burial ground

Ohlone fight to save shell-mound site. By Savannah Blackwell

AT THE TURN of the century, even after their lands were seized and their culture decimated, hundreds of burial sites for the Bay Area's Native Americans—the Ohlone tribe—remained intact. As many as 600 earthen shell mounds, in which they had interred their loved ones over thousands of years, could still be found throughout the region.

But today only a few undisturbed shell mounds (so named because oyster shells are frequently found in them) have been spared the bulldozer. The few remaining mounds symbolize sacred links to the past for the descendants of the Ohlone, the tribe that thrived in the Bay Area before the arrival of the Spanish in the late 1700s. And they provide evidence of long lost villages.

"They represent the legacy of the people who were here before," says Linda Yamane, who is of Ohlone descent. Rosemary Cambra, chair of the Muwekma/Ohlone Tribe, adds, "What is significant to my people is to respect these holy sites."

Tribe members, archaeologists, a Native American advocacy group, and an environmental organization are jointly fighting to preserve one such shell mound at the base of San Bruno Mountain, in San Mateo County. The site is located on land slated for commercial development. According to archaeologists, the mound is part of what was once the area's largest Ohlone village, known by records kept by early missionaries as Urebure or Sipliskin (also known as Siplichiquin). Cambra says the mound is 10,000 years old and contains the remains of 10,000 individuals.

According to South San Francisco City Council member John Penna, in the early 1990s Miley Holman, a San Francisco State University archaeologist, found evidence of human remains at the mound while taking sample borings for the site's previous developer, W.W. Dean Associates. Dean, Penna said, never released Holman's findings to the public.

Dean had planned to build a hotel complex on land that included the mound. South San Francisco's "specific land-use plan," which dictates what kind of development may occur in the city, allows for a hotel parking lot to cover the mound. And according to Penna, SunChase G.A. California I Inc., the new developer, plans to build a parking lot and a highway interchange on the site.

At a Dec. 18 South San Francisco City Council meeting, activists urged the council to refuse SunChase's request for a 10-year extension of Dean's preexisting development agreement until the shell mound could be preserved and deeded to the Ohlone. Despite warnings that the ancient gravesite would be jeopardized, the council voted in favor of the extension. SunChase has already entered the first phase of construction of a housing development called Terrabay near the shell mound.

Penna, who wants the site to be preserved for parkland or for use by the Ohlone, was the lone dissenter. "I don't believe we're pursuing the right course here," he said at the meeting.

Representatives of SunChase have declined to spell out their plans for the site. Martin Van Duyn, South San Francisco's chief planner, told council members that approving the extension did not mean they had ceded control of how the commercial site will be laid out, because SunChase must still apply for construction permits.

Penna said that although the council did approve a resolution calling for the mound to be preserved, the resolution will not necessarily stand up. Under the development agreement, if SunChase can show that commercial construction on the site will be lucrative for the city, the council will be hard-pressed to stop it, he said.

Dennis Breen, director of development for Sterling Pacific Management Services, the manager of the property, has refused an offer to purchase about 30 acres of the land, including the mound, which was made by Parnum Alston, president of the Environmental Mitigation Exchange Company. Alston proposed turning the land over to the state or to a nonprofit group—such as the Ohlone—for protection, as well as educational and cultural use. Breen told the *Bay Guardian* SunChase planned to consult with archaeologists regarding the mound but not with members of the Ohlone tribe.

The Muwekma/Ohlone, the International Indian Treaty Council (a Native American advocacy group), and San Bruno Mountain Watch (an environmental group that has fought development on the mountain [see "Tragic Mountain," 12/11/96]) vow to keep pressuring SunChase and the city council to preserve the site.

"Putting the mound into tribal ownership is the best thing we can do to try to make up for the terrors of the past," says treaty council volunteer Perry Matlock.

EEP

San Francisco Chronicle

BAY AREA
AND CALIFORNIA

TUESDAY, JUNE 16, 1992

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Bay Area Tribe Stakes Its Claim to the Presidio

Muwekma Ohlones say they were the original San Franciscans

By Carl Nolte
Chronicle Staff Writer

A group of Native Americans who say they are descendants of the original inhabitants of San Francisco are laying claim to the Presidio.

They say they have the right of first refusal when the Army withdraws from the Presidio in 1994, a claim that could throw a monkey wrench into plans to transform the post into a spectacular new national park.

The group is the Muwekma Ohlone tribe, which has 175 members and is based in San Jose.

Their claim goes back into the dim past of the Bay Area, a time before European settlement of the Pacific Coast, and raises a number of questions about California's nearly forgotten native people, including their rights and their very identity.

"From time immemorial this land has been Ohlone," said a statement issued by the Muwekma Tribe last week. "Therefore, the original indigenous Ohlone Muwekma ... tribe, here, now lay claim to first right of use to the Presidio.

"We will exercise that right of first refusal," said tribal administrator Norma Sanchez. "We want the land to be placed in trust for the tribe."

It is the first time Native Americans have claimed what would be federal parkland since Indians occupied Alcatraz Island more than 20 years ago. They were eventually evicted by federal marshals.

The National Park Service, which had been soliciting ideas for use of the Presidio, was pleased that the Indians responded to their call for proposals but astonished when the Ohlones claimed the whole post.

"We are looking forward to a continuing discussion," said Howard Levitt, chief of interpretation for the Golden Gate National Recreation Area. It was a matter, he said, for the secretary of the interior.

In Washington, however, they were not so understanding.

"Anybody can lay claim for anything if they want to," said Bob Walker, a spokesman for the Department of the Interior in Washington. "We will proceed under federal law with plans for the National Park Service to take charge of the property."

Walker said he does not know who has the right of first refusal to federal land, but he said the government is not giving up ownership of the Presidio, only transferring it to another agency.

"I don't know if this group of people claiming to be an Indian tribe has this right," he said.

His response touched on one of the principal difficulties of the Muwekma claim: The Ohlone tribe is not officially recognized as an Indian tribe by the federal government. Official recognition implies that the tribe existed in years past, lived in a specific territory and had certain rights, which may or may not include rights to land, such as the Presidio.

Although many California

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tribes — such as the Hoopa in far Northern California — are recognized by the government, many are not, including the Ahwahneechee, the original inhabitants of Yosemite Valley, many other Indian groups in the central Sierra — and the Ohlone people, who are descendants of the first Bay Area residents.

"The Ohlone are among 32 California tribes that are seeking recognition by the federal government," said Sanchez. She said seven steps are necessary and that the Muwekma tribe is working on the case. She also said a bill to recognize the 32 tribes has been introduced in Congress.

Native Americans Claim the Presidio

The other question is that although there is no doubt that what later was called the San Francisco Peninsula was inhabited by native peoples, there could be doubt that the Muwekma Ohlone are their descendants.

Evidence of Occupation

Evidence of Indian occupation of the Presidio was gathered by University of California anthropologists in the 19th century, indicating that the area had been settled for several thousand years.

According to Richard S. Levy of American Archeological Consultants, at least 1,400 people lived in San Francisco and San Mateo counties when Europeans "discovered" California. An additional 1,200 lived in the Santa Clara Valley, and about 2,000 lived in the East Bay area. These were people now called Ohlone, who inhabited an area from the Carquinez Strait to San Benito County.

The Spanish arrived in 1769 and established a mission they named San Francisco in June 1776, and they established the Presidio in the same year. A number of local Indians were converted to Christianity by the Franciscan padres, but many more died of diseases carried by Europeans.

The padres also impressed the Indians into work gangs; a lithograph exists showing Spanish soldiers with Indian workers in the Presidio in 1816.

Migration to East Bay

When the Mexican government took over the area, the missions were disbanded and the Indians were told they were free to leave. Many of the San Francisco Indians, who were Mexican citizens and Christian, went to the East Bay, where they had relatives.

Levy thinks that their descendants are still there.

"Sure, there are people who are descendants of the San Francisco people." he said. "I know for a fact there are descendants of the Mission San Jose Indians, Mission Santa Clara and Carmel Mission people."

Bay Area Indians have kept a low profile for a number of years. After the United States occupied California, many of them claimed to be Mexicans, rather than Indians, because the U.S. policy toward Indians was much harsher than the Mexican policy.

Tribe's Proposals

The Muwekma tribe has a number of proposals for the Presidio site, including health facilities for all California tribal people, a native housing village, a social services center, a California Indian museum and a tribal government-economic center.

They have submitted no detailed plans for any of these activities. Instead, they have asserted a claim to the whole post. "We would have jurisdiction over the whole Presidio." said tribal administrator Sanchez.

Levitt said one previous example of Indian claims to government land came in the 1970s when the Chumash tribe, which lives in Santa Barbara County, claimed Anacapa Island, which became part of the Channel Islands National Park. The claim was denied by the Secretary of the Interior and later was also turned down in the courts.

San Francisco Chronicle WEDNESDAY, NOVEMBER 20, 2002

Urban renewal atop sacred past

Ohlone protest Emeryville project

By Rick DelVecchio
CHRONICLE STAFF WRITER

Today's opening of a snazzy shoreline shopping center across the Bay Bridge from San Francisco marks the return to life of what had been one of the foulest industrial wastelands in the Bay Area.

But for some, it's a sad day. Underfoot at the Bay Street center in Emeryville are the remains of Ohlone Indians who occupied the site from 800 years before Christ until European contact 300 years ago.

And the dead have not gotten their due, says Perry Matlock of San Francisco, a volunteer with the International Indian Treaty Council who plans to join a handful of "shellmounders" in informational picketing today to tell shoppers about the archaeological history of the largest Indian shellmound in Northern California.

"Ohlone Indians are still alive and continue to live in the Bay Area," Matlock said. "This isn't an ancient forgotten cemetery. It's a living cemetery. Their great-great-great grandchildren are the Ohlone people who live among us."

Bay Street, a compact between the city of Emeryville and the developer Madison Marquette, has been hailed nationally as a model of urban land reclamation. The names of the tenants whose shops open today – Victoria's Secret, Williams-Sonoma, Old Navy and 20 others, with 35 more plus nine restaurants and a movie theater to come later this month and in December – signify the economic value attached to a spot once so dirty that a skull and crossbones would have been a fitting sign.

The ground at the mouth of Temescal Creek had been dumped on for more than a century. An amusement park and racetrack gave way to heavy industry in the 1920s.

In 1924, steam shovels chomped away the main feature of the Ohlone epoch, a 40-foot high burial mound, to make way for a paint factory. An archaeologist slipped in between bites to recover the remains of 700 Ohlone, which are still in storage at UC Berkeley.

When industry died off in the early 1990s, city leaders took over. Emeryville's redevelopment agency stripped the ground of dirt so toxic that anyone treading it had to wear a moon suit. Then, the agency hired a developer to carry out a one-shot transformation of the entire strip, with shops, entertainment, apartments and townhouses, and a hotel all arranged in the model of a village Main Street.

The city and developers had archaeologists and American Indian advisers involved from the outset. But despite $2 million spent on archaeological work alone, the debate goes on about whether the results were appropriate or far-reaching enough for what had been the largest of 400 Indian burial sites in Northern California.

"I'm astounded any community in this day and age would knowingly destroy a 2,500-year-old site," said Sandy Sher, a member of the Emeryville historical society. "To build on the site when you know there are still bodies there and to drive piles through the bodies – it's very offensive to the Native American descendants."

No descendants of the Bay Area Ohlone band are known to exist. But Katherine Perez of Stockton, who is one-quarter Ohlone, has been designated the "most likely descendant." She has served in that role under a state law requiring land users to tread lightly on American Indian archaeological sites.

"The city was so concerned about the cost," she said. "I would have liked to have seen them comb the entire site clean, but that didn't happen and wasn't going to happen, and was too costly."

The developer is creating a public garden on both sides of concrete-walled Temescal Creek to memorialize the Ohlone story. It will include a representation of the cone-shaped mound leveled in 1924, plantings of native vegetation and meditative water sculpture.

A community room inside the center will display replicas of artifacts found during the dig, which uncovered 200 sets of remains from a buried, 8-foot-deep section of the burial mound dated at 2,800 years old.

Opening later this week will be a city-sponsored Web site telling the Ohlone story more fully while providing aids for fourth- and fifth-grade teachers.

The mounds weren't religious sites as such. They served as community cemeteries on a site that had continuous occupation for thousands of years because of its rich store of food, primarily bat rays but also salmon, shellfish, whales and grizzly bears.

Eric Hohmann, vice president of development for Madison Marquette, defended the effort to memorialize the Ohlone story.

"The important thing to say is, when Madison Marquette came on the scene this site was nothing like a pristine, undisturbed field," he said, adding that the project never would have happened if the city had not cleaned up the site.

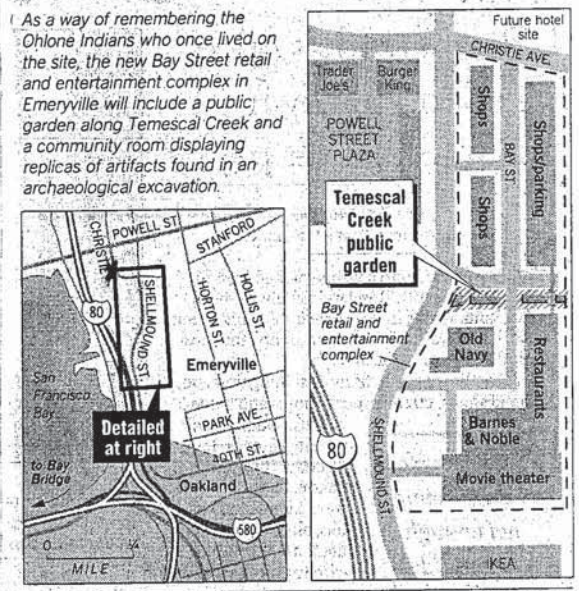
City Manager John Flores said the steps taken to memorialize the Ohlone story were part of an agreement with American Indian and community representatives. The agreement specified that workers disturb the site as little as possible.

▶ BURIAL
From Page A17

E-mail Rick DelVecchio at rdelvecchio@sfchronicle.com.

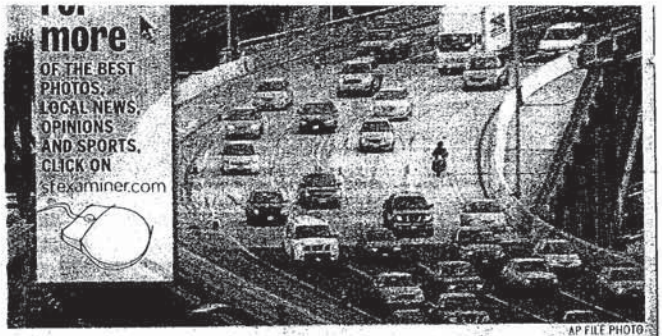
Bay Street retail and entertainment complex

As a way of remembering the Ohlone Indians who once lived on the site, the new Bay Street retail and entertainment complex in Emeryville will include a public garden along Temescal Creek and a community room displaying replicas of artifacts found in an archaeological excavation.



Source: Madison Marquette

TODD TRUMBULL/The Chronicle



AP FILE PHOTO

Deadly curve: The Bay Bridge S-curve was the site of a fatal accident Nov. 9, when a truck traveling 50 mph flipped and plummeted off the road, killing the driver.

Burial ground disturbed underneath Bay Bridge

Sunday, March 14, 2010

Ohlone remains were removed from ground beneath S-curve

By John Upton
Examiner Staff Writer

The Bay Bridge's deadly S-curve was built hundreds of feet above a Muwekma Ohlone tribal burial ground, and spirits whose bodies were unearthed and placed in storage are said to be restless.

The Ohlone were the first people to inhabit the Bay Area, where their burial grounds and other sacred sites are frequently unearthed.

At least 26 Ohlone skeletons were discovered between 2002 and 2004 in a burial ground at Yerba Buena Island, which was subsequently excavated to clear a path for a new Bay Bridge east span.

The east span replacement project has suffered billions of dollars in cost overruns and a decade of construction delays that could force motorists to navigate the temporary S-curve — a dogleg where the speed limit drops from 50 mph to 40 mph — until 2014. A truck driver was allegedly traveling at 50 mph when his pear-laden truck flipped Nov. 9 off the recently installed S-curve and plummeted to the former burial ground, where he died.

The California Highway Patrol responded by aggressively policing the speed limit and Caltrans placed addition striping, signs and other features on the S-curve, helping to slash the curve's high accident rate.

Bodies unearthed at the Ohlone burial ground were treated differently depending on which government owned the land where they were discovered.

Bodies found on state-owned land were appropriately ceremonially reburied elsewhere on the island, according to tribal spokeswoman Ann Marie Sayers, who led the ceremony.

Ohlone homeland

Counties that were part of the Muwekma Ohlone until the 18th-century arrival of the Spanish Empire.

- San Francisco
- San Mateo
- Santa Clara
- Alameda
- Contra Costa
- Napa*
- Santa Cruz*
- Solano*
- San Joaquin*

** Portion of the modern county was Muwekma Ohlone homeland*

Source: Muwekma Ohlone Tribe

But skeletons found on adjacent Coast Guard land were placed in storage because the tribe, which is recognized by California, has not been recognized by the United States since the 1930s.

Remains found on Coast Guard land at Yerba Buena Island could only be legally repatriated to the Ohlone people and reburied if the U.S. Department of Interior formally recognizes the tribe, according to Coast Guard spokesman Dan Dewell. The remains are stored securely, he said.

The remains of tens of thousands of Ohlone people excavated from various places, generally on federal land and placed in storage, could be ceremonially reburied if the tribe wins federal recognition through a lawsuit filed in 2003, according to Sayers.

"It creates confusion in the energy and frequency when they're not at peace or in the spirit world," Sayers said. "There are burials that want to be reinterred — they want to go back to the spirit world. When there are accidents on the Bay Bridge, it doesn't surprise me at all."

jupton@sfexaminer.com

INTERNATIONAL INDIAN TREATY COUNCIL
INFORMATION OFFICE
710 CLAYTON STREET #1 SAN FRANCISCO, CA 94117
TELEPHONE: (415) 566-0251
FAX: (415) 566-0442
EMAIL PEACE NET: IITC

April 6, 1992

To all concerned local, state and federal officials,

The International Indian Treaty Council, a Non-governmental Organization (NGO) advocating for the rights of Indigenous Peoples at the United Nations, supports the inherent land rights of all Indigenous Peoples. This "right to territory" is recognized under international law.

The IITC recognizes that the Muwekma Ohlone People of the San Francisco Bay Area have survived a bitter history which has disenfranchised them from their ancestral lands and denied them recognition as a distinct and independent People. This history includes enslavement in Mission communities in the early 1800's, forced removals and stealing of traditional lands, cultural destruction, and ongoing desecration of burial grounds and sacred sites.

As a critical aspect of their struggle to implement their basic right to self-determination, the Muwekma Ohlone People are currently seeking federal tribal recognition, along with more than 30 other California Indian Nations who have been relegated to the tragic and genocidal status of "landless Indians".

The Muwekma Ohlone have also initiated the process of regaining a portion of their traditional land base. Currently their priority is the return of the area in San Francisco known as the Presidio, soon to become unused federal land when the military pulls out. Under federal law, this land must be returned to the original "owners", the Muwekma Ohlone. This act of simple and straightforward justice, carried out at the earliest possible date, will be a significant step in reversing the policy of genocide through which many California Indian Peoples have been pushed to the brink of extinction, and California Indian Nations have become homeless in their own homelands.

The IITC strongly encourages all city, state and federal officials who have a part in the decision-making regarding the future of the Presidio to take immediate action towards its return to the Muwekma Ohlone.

The IITC also supports federal recognition for the Muwekma Ohlone Tribe as a critical step in their ability to engage in government-to government relations, and to exercise self-determination as a Sovereign People.

The IITC will continue to support the efforts of the Muwekma Ohlone People to reclaim their traditional lands, including the Presidio in San Francisco. 1992 is the year

for healing the wounds that have been inflicted upon Indigenous Peoples, but this healing will not begin until justice is done.

Respectfully,

William A. Means

William A. Means,
IITC Executive Director

cc: Muwekma Ohlone Tribal Council
President George Bush
Manuel Lujan, Secretary of the Interior
Senator Daniel Inouye, Chairman, Senate Select Committee On Indian Affairs
Congressman George Miller and Tad Johnson, House Committee on Interior and Insular Affairs
Mayor Jordan, City of San Francisco
Supervisor Willy Kennedy, San Francisco Board of Supervisors
United Nations Office of Human Rights
file

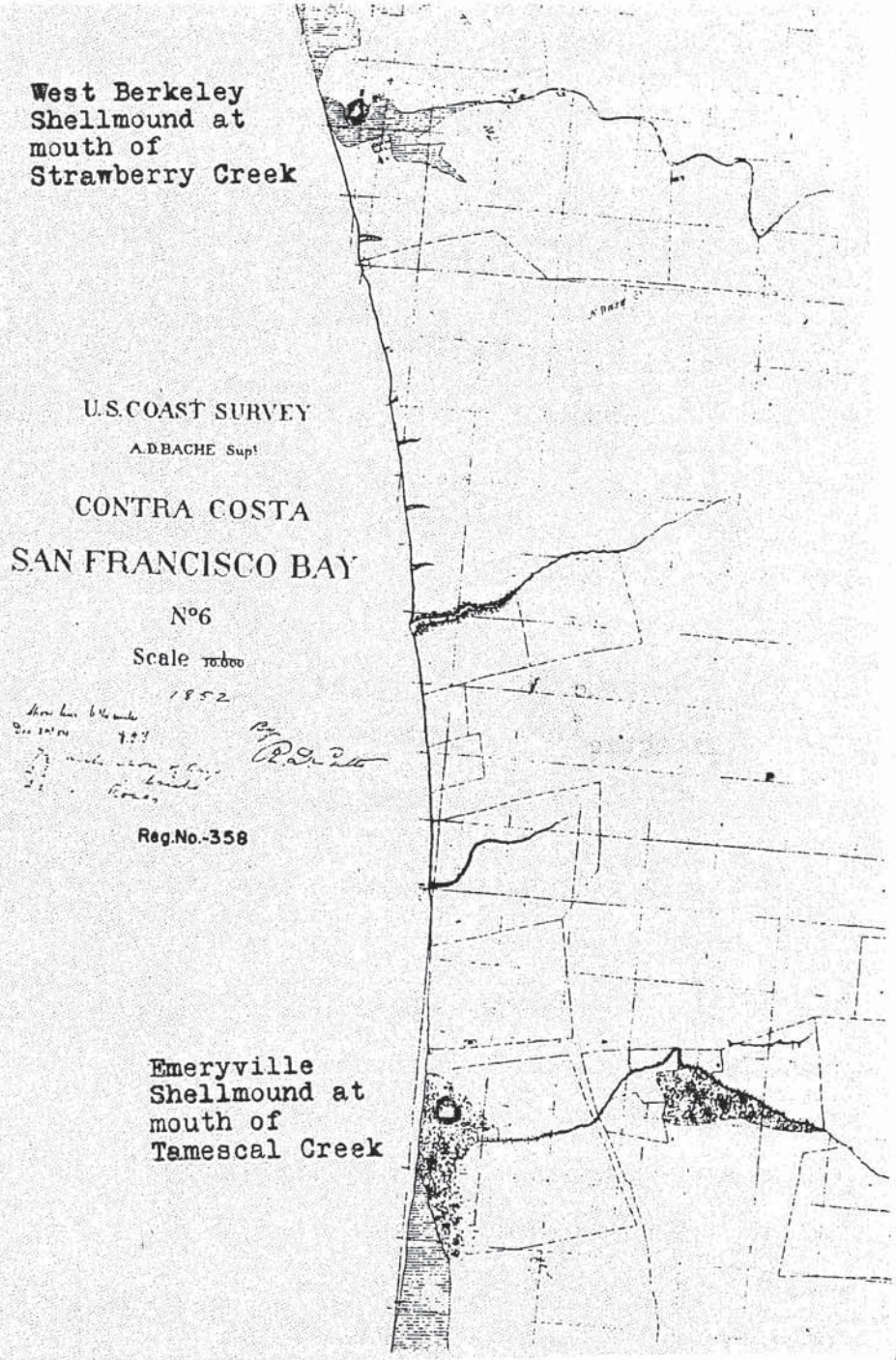
This map of "pre-invasion" Yelamu (San Francisco) shows village names and shellmound areas (the dots). The Muwekma Ohlone were federally acknowledged in 1906, and they continue to work with the government for full recognition. for more info, please see: muwekma.org, vallejointertribalcouncil.org, franciscodacosta.com

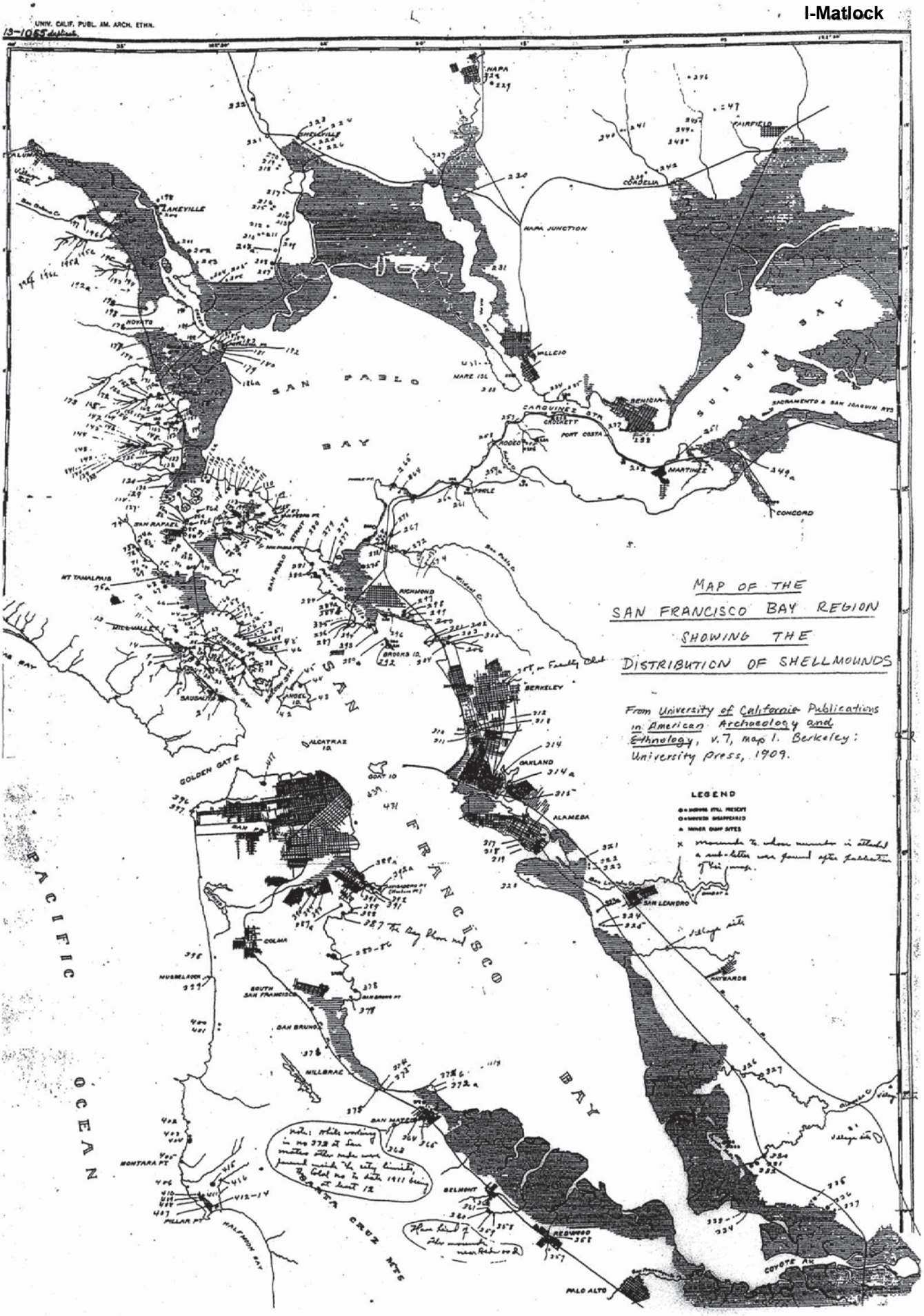
contact: shellmoundwalk@yahoo.com
produced by perry matlock 415-221-4240

SAVE THE SHELLMOUNDS!

Beneath the streets and landfill of Emeryville, San Francisco, and much of the Bay Area endure the ancient monuments and funerary places of the Muwekma Ohlone Nation, whose homeland is the San Francisco Bay Area. The Spanish invasion, beginning in the 1770s, delacerated the sovereignty, culture, religion, and language of the Muwekma Ohlone. Today, the physical legacy of the Spanish invasion includes the Mission Dolores and the Presidio's Officers' Club in San Francisco, for both structures were erected in the 1770s. However, the physical legacy of the Muwekma Ohlone has not received equal preservation nor respect. Prior to the Spanish invasion some 500 shellmounds lined the sea and bay shores of the San Francisco Bay Area. These mounds, generally consisting mostly of molluscan shells, were made by the Muwekma Ohlone for thousands of years, and act as cemeteries. Sadly, archaeologists have referred to these shellmounds as "middens." A "midden" is defined as a waste pile, for the word's origin occurs in Middle English/Norse, and means a "dung hill."

The Muwekma Ohlone term to describe a shellmound is not available or not known, for the destruction of the local language has brought much harm. Some of these shellmounds might not have functioned as cemeteries, yet in any case, they remain the cultural treasures of the Muwekma Ohlone Nation. The 1852 U.S. Coast Survey map on the right actually features two of the Muwekma Ohlone's shellmounds. The gargantuan size of these ancient monuments, perhaps wonders of the world, is attested, here. The Muwekma Ohlone continue to live amongst the now called San Francisco Bay Area, and they see these shellmounds as living cemeteries where their ancestors rest. To intentionally demolish a cemetery is universally considered a hate-crime. Unfortunately, no laws exist to prevent the erasure of Muwekma Ohlone cemeteries, the shellmounds. This is the homeland of the Muwekma Ohlone Nation. As new residents and visitors to their country, we ought to show the same respect we would expect to our far distant homelands and cemeteries.




UNIV. CALIF. PUBL. AM. ARCH. ETHN.
13-1065 duplicate
MAP OF THE
SAN FRANCISCO BAY REGION
SHOWING THE
DISTRIBUTION OF SHELLMOUNDS
From University of California Publications in American Archaeology and Ethnology, v.7, map 1. Berkeley: University Press, 1909.
LEGEND
SAN PABLO BAY
SUISUN BAY
SAN FRANCISCO BAY
PACIFIC OCEAN
GOLDEN GATE
NAPA
VALLEJO
MARE ISL.
BENICIA
MARTINEZ
CONCORD
PORT COSTA
CROCKETT
RODEO
PINOLE
SAN RAFAEL
RICHMOND
BERKELEY
OAKLAND
ALAMEDA
SAN LEANDRO
HAYWARDS
ALCATRAZ I.
GOAT I.
COLMA
SOUTH SAN FRANCISCO
SAN BRUNO
MILLBRAE
SAN MATEO
BELMONT
REDWOOD
PALO ALTO
COYOTE
MONTARA PT.
PILLAR PT.
HALFMOON BAY
SANTA CRUZ MTS.
MT TAMALPAIS
SAUSALITO
ANGEL I.
BROOKS I.
FAIRFIELD
CORDELIA
NAPA JUNCTION
SACRAMENTO & SAN JOAQUIN RYS

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ATTACHMENT PH

Public Hearing Transcripts, Coded

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TABLE PH-1
PUBLIC HEARING COMMENTS

Commenter Code	Name and Title of Commenter	Format	Comment Number	Topic Code
Agencies				
A-CPC-Johnson	Christine Johnson, Planning Commission	Hearing Transcript, June 1, 2017	1	GC-1: Project Merits
			2	TR-1: Construction Impacts – Traffic Circulation, AQ-4: Additional Mitigation to Reduce Construction-Related NOx and $PM_{2.5}$ Emissions
			3	OC-2: Cumulative Impact Analysis
			4	GC-1: Project Merits
Organizations				
O-BayviewCP-1	Dan Dodt, Bayview Community Planning	Hearing Transcript, June 1, 2017	1	TR-4: Cumulative Transportation Impacts, OC-2: Cumulative Impact Analysis
			2	TR-2: Construction Impacts – Emergency Access
			3	TR-4: Cumulative Transportation Impacts
O-PetCamp-1	Mark Klaiman, Senior Counselor, PetCamp	Hearing Transcript, June 1, 2017	1	GC-1: Project Merits
			2	GC-2: Socioeconomic and Quality-of-Life Effects
			3	TR-1: Construction Impacts – Traffic Circulation
			4	TR-1: Construction Impacts – Traffic Circulation
O-SFWPM-1	Michael Janis, General Manager, San Francisco Wholesale Produce Market	Hearing Transcript, June 1, 2017	1	TR-1: Construction Impacts – Traffic Circulation
			2	TR-4: Cumulative Transportation Impacts
			3	TR-1: Construction Impacts – Traffic Circulation
			4	TR-4: Cumulative Transportation Impacts
Individuals				
I-Hamman-1	Michael Hamman	Hearing Transcript, June 1, 2017	1	TR-4: Cumulative Transportation Impacts, OC-2: Cumulative Impact Analysis
			2	GC-2: Socioeconomic and Quality-of-Life Effects

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BEFORE THE

SAN FRANCISCO PLANNING COMMISSION

BIOSOLIDS DIGESTER FACILITIES PROJECT

PUBLIC HEARING ON THE

DRAFT ENVIRONMENTAL IMPACT REPORT

Thursday, June 1, 2017

San Francisco City Hall

One Dr. Carlton B. Goodlett Place

Commission Chambers, Room 400

San Francisco, California

Item No: 9

Case No.: 2015-000644ENV

Reported By: Deborah Fuqua, CSR #12948

APPEARANCES:

San Francisco Planning Commission:
President Rich Hillis (not present for this item)
Vice President Dennis Richards
Commissioner Joel Koppel
Commissioner Christine Johnson
Commissioner Myrna Melgar
Commissioner Kathrin Moore
Commissioner Rodney Fong (not present for this item)

Commission Secretary Jonas Ionin

Planning Staff:
Timothy Johnston, MP Environmental Planner
Carolyn Chiu, P.E., Senior Project Manager

PUBLIC COMMENT

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MARK KLAIMAN..... 8
MICHAEL JANIS..... 10
DAN DODT..... 13
MICHAEL HAMMAN..... 15

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Thursday, June 1, 2017 1:28 p.m.

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P R O C E E D I N G S

(Commission business and other items were heard)

SECRETARY IONIN: Case No. 2015-000644ENV Biosolids Digester Facilities Project. This is a draft environmental impact report. Please note that written comments will be accepted at the Planning Department until 5:00 p.m. on June 19th, 2017.

TIM JOHNSTON: Sorry for that delay. Good afternoon, President Hillis and Members of the Commission. I'm Tim Johnston with the Environmental Planning Section of the Planning Department, and I'm the EIR coordinator for the SFPUC's proposed Biosolids Digester Facilities Project.

Also here today is Carolyn Chiu, who is the SFPUC's project manager for this project. Should the Commissioners wish, Ms. Chiu can offer a brief project overview before I continue.

VICE PRESIDENT RICHARDS: Please, yes.

TIM JOHNSTON: Okay. Carolyn?

CAROLYN CHIU: Good afternoon, Commissioners. I'm Carolyn Chiu, SFPUC Project Manager.

This Biosolids Project is the largest capital

project in the SFPUC Sewer System Improvement Program. This project addresses the aging infrastructure and outdated technologies at the Southeast Wastewater Treatment Plant. Located at the Bayview-Hunters Point area, the Southeast Plant provides 80 percent of the city's sewage and stormwater treatment; hence, it is a cornerstone in our whole wastewater infrastructure in the city.

In this project, we will be replacing the solids handling portion of this treatment plant, basically, one half of the plant as shown in the figure here on the top, outlined in yellow.

We are planning to build on a new site adjacent to the existing plant, shown in the figure on the bottom, outlined in blue. The proposed site is comprised of portions of the existing plant, the decommissioned asphalt plant, and Central Shops.

Right here is an aerial view of the existing site [indicating]. And you see on the left side is Caltrain, and then on the bottom of the blue outline, you know, south of Jerrold, is that decommissioned asphalt plant. And above Jerrold Avenue is that Central Shops I talked about.

So some key features of this Biosolids Projects, the new facility will apply the best

available technology, be more efficient in effective treatment processes, will be able to reduce the number of digesters that we need. The level of treatment will improve to allow for more options for beneficial use of our treated biosolids. Additionally, we're going to generate renewable energy that will actually sustain the new biosolids treatment facility, which is basically half the power usage of the plant. And lastly, we're going to achieve our PUC's level of service goal, which is to limit the odors within the plant fence line.

And here is a rendering of the proposed new facilities. And you'll see that the digesters, which are the five vessels on the very top of the page, are the furthest from the neighbors, adjacent to the railroad tracks. And you'll see the energy recovery being on the asphalt plant on, basically, the left side of your screen.

And with that, I'm going to give the stage back to Tim. Thank you.

TIM JOHNSTON: Thank you, Carolyn.

I would now like to state that this is a hearing to receive comments on Draft Environmental Impact Report for Case No. 2015-000644ENV, which is a -- which assesses the impacts of -- on the

environment that could result from implementation of the Biosolids Digester Facilities Project. This Draft EIR was published on May 3rd, 2017. Links to pdf to this document were provided to you via the agenda for today's hearing.

The EIR determined that this project would result in significant and unavoidable impacts in the areas of air quality and cultural resources that would remain significant and unavoidable even with implementation of feasible mitigation measures.

On May 17th, 2017, the Historic Preservation Commission held a public hearing on the Draft EIR for the Biosolids Digester Facility Project. No comments from the public were offered, but the HPC reviewed the DEIR and agreed with the application of Mitigation Measure MCR1, requiring documentation of historic resources proposed for demolition and the installation of an interpretive display of the demolished historic resources in a publicly accessible location.

In addition, the HPC did not identify any historic resources affected by the proposed project beyond those identified in the Draft EIR, and the HPC concurred with the analysis and conclusion in the Draft EIR and concluded that the DEIR was adequate as relates to historic resources.

As a reminder, staff is not here today to respond to comments on the environmental analysis. Such comments will be transcribed and responded to in writing in a responses to comments document, which will respond to all verbal and written comments received during the draft public comment period and may include revisions made to the Draft EIR as appropriate.

This is not a hearing to consider approval or disapproval of the project. That hearing will be held by the SFPUC following certification of a Final EIR which we would expect in 2018.

Comments today from the public should be directed toward the adequacy and accuracy of the information contained in the Draft EIR. Commenters are asked to speak slowly and clearly so that a court reporter can produce an accurate transcript.

Commenters should also state their name and address or fill out a comment speaker card so that they can be sent a copy of the responses to comment document when it's completed. After comment from the general public, we'll also take any comments on the Draft EIR from the Planning Commission. The public comment period for this project began on May 4th, 2017 and extends until 5:00 p.m. on June 19th.

Unless the Commission Members have any

questions, I recommend that the public hearing be opened.

VICE PRESIDENT RICHARDS: Thank you.

Opening up to general public comment. I have three speaker cards -- two speaker cards, Mark Klaiman and Michael Janis.

MARK KLAIMAN: Good afternoon. My name is Mark Klaiman. I own and operate a small business at 525 Phelps Street, directly across the street from the Southeast Plant for the last 20 years. I've been actively involved in the digester project for several years, having worked on the Southeast Working Group and the Digester Task Force.

Like many small businesses on Phelps Street, both my employees, my customers, and myself have been confronted with smells that burn your nose or make your eyes tear. Also, like many businesses in the neighborhood, I've been confronted by who knows what bubbling out of the manhole covers. All of that means that, after 20 years of confronting these issues, I'm very much looking forward to improvements being made at the Southeast Plant.

O-PetCamp-1.1
GC-1

That said, as a small business owner, I'm very concered that, as drafted, the EIR will preclude me from benefiting from these improvements. As drafted,

2
GC-2

the EIR places an unfair burden on those businesses which have already been unfairly burdened by the plant. Specifically, as drafted, the EIR places an unfair amount of traffic burden on construction on those businesses located on Phelps Street.

In case you're unaware, Phelps Street is a fairly narrow street with parking on both sides of the street, two lanes of traffic, and a bicycle route. Most of the businesses on Phelps Street are both destination locations and are the types of businesses that require their clients to drive to the business and to be able to park in close proximity.

The Draft EIR completely fails to address this issue. Suggesting that since this is only a temporary burden -- a five-year temporary burden is something that small businesses can withstand -- reflects a lack of understanding of the cash-flow needs of small businesses, as well as the overall burdens of running a small business in San Francisco.

Asking small businesses to comment on a 1400-page Draft EIR that does not even include the traffic control plan places us at a distinct disadvantage. This document is complicated, convoluted and technical, yet is still missing a critical component, the traffic control plan.

2 **GC-2** cont.

3 **TR-1**

Sorry.

It's unfair to expect small businesses to be able to comment on this type of document when it is lacking such a critical component. Yet there are better alternatives available for traffic. Rather than sending trucks and buses down such a narrow street as Phelps Street, negatively impacting the small businesses that have already been negatively impacted for decades by the plant, traffic should be directed from Evans to Mendell to Jerrold or from Evans to Rankin directly into the plant.

These routes would significantly lessen the impact on small businesses in the Bayview and should be prioritized over the Phelps Street locations. Thank you so much.

VICE PRESIDENT RICHARDS: Thank you very much.

Next speaker, please.

MICHAEL JANIS: Good afternoon, Commissioners and staff leadership of the Planning Commission. I am Michael Janis of the San Francisco Wholesale Produce Market, and we are longtime adjacent neighbors to the Treatment Plant.

The Market, partnering with the City, has operated in our Bayview-Hunters Point neighborhood since 1963. But many of our current 30 merchant

3 **TR-1** cont.

4 **TR-1**

businesses began at the original Market District that is now home to the Golden Gateway Center.

Washington Vegetable Company is a great example. In 1931, the current operator's grandfather began the company in an alleyway on Washington Street, and, along with the other merchants in 1963, moved to the Market. The Market's 30 merchant businesses and their over 650 team members bring healthy, fresh-tasting produce to San Francisco and Bay Area residents and businesses. And they do that every day from midnight until 9:00 in the morning.

The Market serves -- they partner with farmers and growers of all sizes throughout the Bay Area, California, and the world. Our merchant customers are what make San Francisco the premier food destination of the world, be it our residents -- our restaurants, our neighborhood stores, caterers, or our blossoming food makers industry.

In addition to providing critical food infrastructure to our merchant businesses, the market adds value in the city's social service network, where our food recovery program prevents fresh healthy produce from going to waste and instead feeding the hungry and vulnerable populations.

To ensure we continue to be a food source and

generate jobs, our reinvestment project -- an expansion and capital improvement program -- is in place. Our first phase was completed in 2015 with the completion of an 82,000-square-foot LEED gold building that now houses Good Eggs and Mollie Stone's Markets.

In your packet, we have shared with you an aerial of our small section of the city and highlighted all of the nearby projects that are either in construction or very much under plan. We think and we hope that you will agree that significant changes are underway in our neighborhood today and comprehensive, coordinated, and effective planning is critical for long-term residents and businesses of our community.

While we understand the importance of the treatment plant's project, we have significant concerns and ask the Commission to consider that the project's description does not adequately reflect the Market's reinvestment plan nor our schedule. So long as Jerrold Avenue remains open on our site, we have challenges with the PUC's plan to use it for construction truck traffic as it severely impacts and impairs the operations of our businesses.

The Market does not want the PUC's proposed construction truck routing to discourage, delay, or prevent the execution of our reinvestment plan, our

O-SFWPM-1.1

TR-1

path to needed improvements.

The Market seeks improved collaboration and coordination with the PUC on the redesign of all of the full length of Jerrold Avenue and neighboring streets and intersections. Thank you.

VICE PRESIDENT RICHARDS: Thank you.

Mr. Dan Dodt.

Additional speakers, if you could line up on the television side.

DAN DODT: Good afternoon, Commissioners, my name is Dan Dodt. I'm a Bayview resident for over 30 years, business owner, member of the CAC in the Bayview.

My comments are in three areas, two of which, regarding the significant unavoidable impacts related to cultural resources -- the Central Shops -- and air quality, I'll provide in written form.

But on the third, related to transportation, traffic, and congestion -- both construction related and local -- I'm requesting the Commission consider a reevaluation of the conclusions drawn in the EIR. As noted, there are significant cumulative traffic and circulation impacts, including the closure of Jerrold from Phelps to Rankin for a period of approximately five to six years; the current existing lane closure

1 cont.

2
TR-4

O-Bayview
CP-1.1
TR-4

and narrowing along the Evans Avenue alignment beginning in August 17th for the Headworks phase -- now, that's not part of this EIR, but it is currently under construction -- with construction vehicles, manpower transportation, et cetera; the construction staging along the Phelps Avenue parking and the equipment relay.

This is a narrow street, as Mark Klaiman had indicated, and includes many PDR businesses, residences, et cetera. And please note the circulation in the graphics.

Please also note that nearby Palou Avenue will be under construction for a $3 1/2 million streetscape improvement plan beginning this year for a couple of years.

Other projects by the Fire Department, SFPD, DPW, and others will and are impacting the adjacent streets. When considering these traffic and circulation impacts alone, one should consider that these crucial east-west arterials, particularly Evans and Jerrold, in a closed or blocked condition, will increase traffic on an already heavily used Oakdale Avenue and Palou alignments.

These major streets in and out of Bayview provide the daily transportation routes for those who

1 cont.

TR-4
OC-2

live and work in Bayview, for parents who take their kids to school and back, for employees and employers who must get to their jobs, and, most importantly, serve as an essential transportation route in the event of a natural disaster or a major event.

It should also be noted that the sole northwest -- north-south access along Third Street at Islais Creek is a documented potential liquefaction zone. This is issue is about public safety in Bayview.

As noted in the EIR, the long-term changes include the Quint Street berm construction, which closed under the -- under the Caltrain's bridge. But what's missing is a commitment and a plan in conjunction with that closure for a bypass road along the railroad alignment. The Quint Street connector bypass should be expedited and built as part of the PUC project prior to major construction in 2018, in my opinion, and should be urged by this Commission --

SECRETARY IONIN: Thank you, sir. Your time is up.

DAN DODT: I'm sorry. We ask to engage the leadership in this building to get that done. Thank you very much.

VICE PRESIDENT RICHARDS: Michael Hamman.

MICHAEL HAMMAN: Commissioners, my name is

1 cont.

2 **TR-2**

3 **TR-4**

Michael Hamman. I'm a resident and business owner in the Bayview. And I'm here today to talk about a serious flaw in the EIR for this project.

Specifically, I'm referring to the cumulative analysis of the traffic problems. As Mr. Dodt so accurately portrayed, the situation in the Bayview is we have three major north-south corridors of which one is Jerrold. Jerrold they're planning to close. Evans, they're going to reduce that to one lane in each direction controlled by a flag man. And Oakdale, we don't even know how badly that's going to be torn up when they do -- the PUC does their project at Oakdale and Phelps, 1800 Oakdale.

I-Hamman-1.1

TR-4

So imagine, if you would, that they've disrupted Van Ness, but they've also closed Gough and Franklin. That would be a catastrophe for this city. And that is the nature of this perfect storm that the PUC is going to visit on our neighborhood.

They -- by their analysis, there are 7,000 people a day that use that route. Those 7,000 people will be severely impacted. The businesses will be placed under a hardship.

But that 7,000 is just the beginning. They failed to take into account the major projects that are being built in India Basin. The India Basin Project is

OC-2

1250 units, the Shipyard is coming online with 900 units, Hunters View hundreds more, plus the projects up and down Third Street. The traffic will increase. It's going to be a lot worse than 7,000 in five years.

Five-year temporary closure. Allow me to put that in perspective. In five years, your children will start college, graduate from college, get married, and have their first child before anyone can go down Jerrold Avenue. It's very possible you could all become grandparents before they open Jerrold Avenue. Five years is not a temporary closure. Five years is -- for many people of a certain age, that's a lifetime, a lifetime of severe inconvenience, economic hardship.

I urge you, please, please, do not allow them to close Jerrold Avenue. It's going to be a major impact in our neighborhood, and it will seriously degrade the quality of life for just about everybody who lives here. Thank you.

VICE PRESIDENT RICHARDS: Thank you very much, Mr. Hamman.

Any additional speakers on this item?

(No response)

VICE PRESIDENT RICHARDS: Seeing none, open up for Commissioner comments.

TR-4
OC-2

1
cont.

2
GC-2

Commissioner Johnson.

COMMISSIONER JOHNSON: Let me start with something positive.

So I remember my very first meeting on the Hunter's Point Shipyard CAC. And I drove down Third Street at the time and passed by -- at the time, I didn't know what it was. But I was, "What is that smell?" And, "What is that?" And it was the early evening. The wind shifted to the southeast at the same time basically every day. And it was incredible.

And I later learned that there was a biodigester facility, one of two in San Francisco, as presented by the PUC staff today. And so I'm happy to see that finally this project is before us today or least the Draft EIR. This is something that is needed. If we're not going to move the biodigester, which I know was a movement for a little while, we at least need to have it completely upgraded to a modern-day standard. It is an environmental justice issue that we have equipment that is so completely beyond its useful life still handling 80 percent of the solids in our city, wastewater in our city. So I think that's a good thing.

A-CPC-Johnson.1
GC-1

I actually also was going to point out the -- both the air quality, where there was significant

2
TR-1
AQ-4

mitigation that was necessary. I would like the staff to further explain what alternative mitigations could have been considered and as well for the traffic and the circulation. I think specifically, when it comes to an EIR, we do look at traffic and circulation as an impact. And I think that we can take a look at what are the alternative, again, mitigations for some of the impacts that we're looking at.

I know that -- and I don't know -- hopefully I'm speaking slowly enough for the recorder -- that generally speaking for EIRs, we try to be very project specific. And so we'll take into account various projects. And there's actually a table in the EIR that looks at the various projects in the surrounding area to say what are we looking at when we talk about cumulative impact. But we don't get super detailed into their on-boarding plans or their phasing to look at the impacts for this particular project or any particular EIR.

And I think that that's something we need to take a look at here. Five years is not a lifetime, but it is a long time. And I think it would be good for us to make sure we dotted all our Is and crossed our Ts when it comes to looking at how we can get this project done with the least amount of impact possible.

2 cont.

A-CPC-Johnson.3

OC-2

But I think this is a great day for the City, for the Southeast, particularly for that area. And I'm happy to see this project coming online.

VICE PRESIDENT RICHARDS: Thank you.

Any other Commissioner comments?

(No response)

VICE PRESIDENT RICHARDS: Seeing none, this item is closed.

(Whereupon, the proceedings adjourned at 1:51 p.m.)

4
GC-1

STATE OF CALIFORNIA)
) ss.
COUNTY OF MARIN)

I, DEBORAH FUQUA, a Certified Shorthand Reporter of the State of California, do hereby certify that the foregoing proceedings were reported by me, a disinterested person, and thereafter transcribed under my direction into typewriting and is a true and correct transcription of said proceedings.

I further certify that I am not of counsel or attorney for either or any of the parties in the foregoing proceeding and caption named, nor in any way interested in the outcome of the cause named in said caption.

Dated the 19th day of November, 2017.

DEBORAH FUQUA

CSR NO. 12948

San Francisco Wholesale Produce Market
Facts & Figures

San Francisco Planning Commission Hearing
June 1, 2017

About the Market

- City partner for over 50 years
- Critical food infrastructure for city, linking local farmers to City residents
- Supplier for grocers, restaurants, caterers, food makers, and corner stores
- Small business incubator
- Improves health of Bayview residents by increasing availability of fruit and vegetables
- Social Enterprise: financially sustainable with a mission driven by achieving social good

Operations, Jobs, & Merchants

- Business day is from 11pm to 9am
- Current Jobs on Site: 650
- Merchants Currently Operating on Site: 30

Programs

- Composting: In 2004, the Market piloted composting to prove its viability to City and now composts thousands of pounds of produce per month
- Food Recovery: 329,000 pounds of blemished food diverted from compost bins and sent to food kitchens, supplying 274,000 meals

Reinvestment Plan

- 2013: Market becomes 501c3 and signs new 60-year lease with City
  - Lease requires Market to rebuild entire campus and reroute Jerrold Avenue (*see attached existing and proposed roadway configuration plan*)
  - At time of lease, no adjacent projects were envisioned (*see attached neighboring projects plan*)
- Market's board-approved Reinvestment Plan includes
  - Already-completed 901 Rankin (*see attached image*)
  - Addition of food-focused maker space
  - Designs for new campus buildings

Conclusion

1. Project description in DEIR does not accurately reflect the Market's Reinvestment Plan or our schedule
2. So long as Jerrold Avenue remains open on our site, we oppose the PUC's plan to use it for construction truck traffic as it severely impairs the operations and viability of our merchants

O-SFWPM-1.3
TR-1

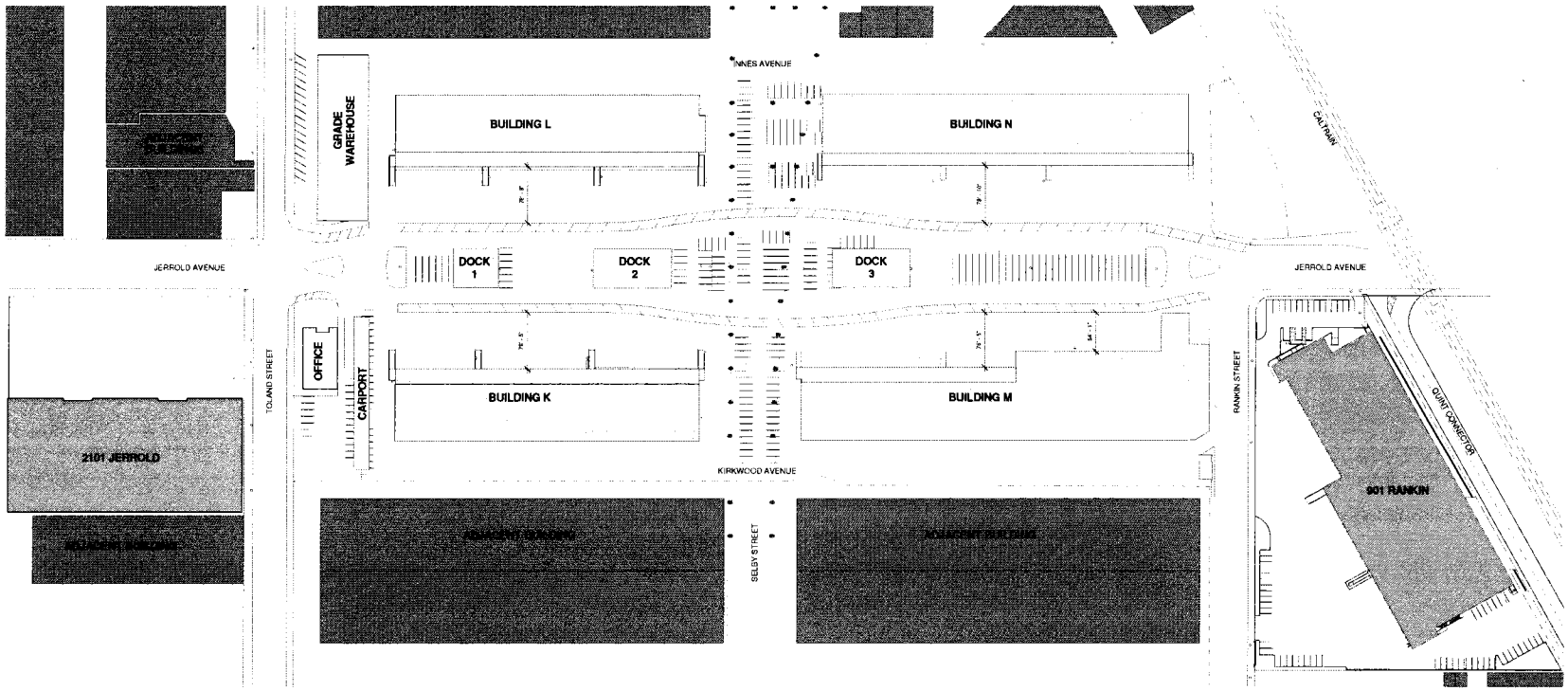
3. The Market does not want PUC's proposed construction truck routing to discourage, delay, or prevent the execution of our Reinvestment Plan, which path to providing our merchants with new facilities
4. The Market seeks improved collaboration and coordination with PUC on the redesign of the full length of Jerrold Avenue and neighboring streets and intersections

cont.

O-SFWPM-1.4

TR-4

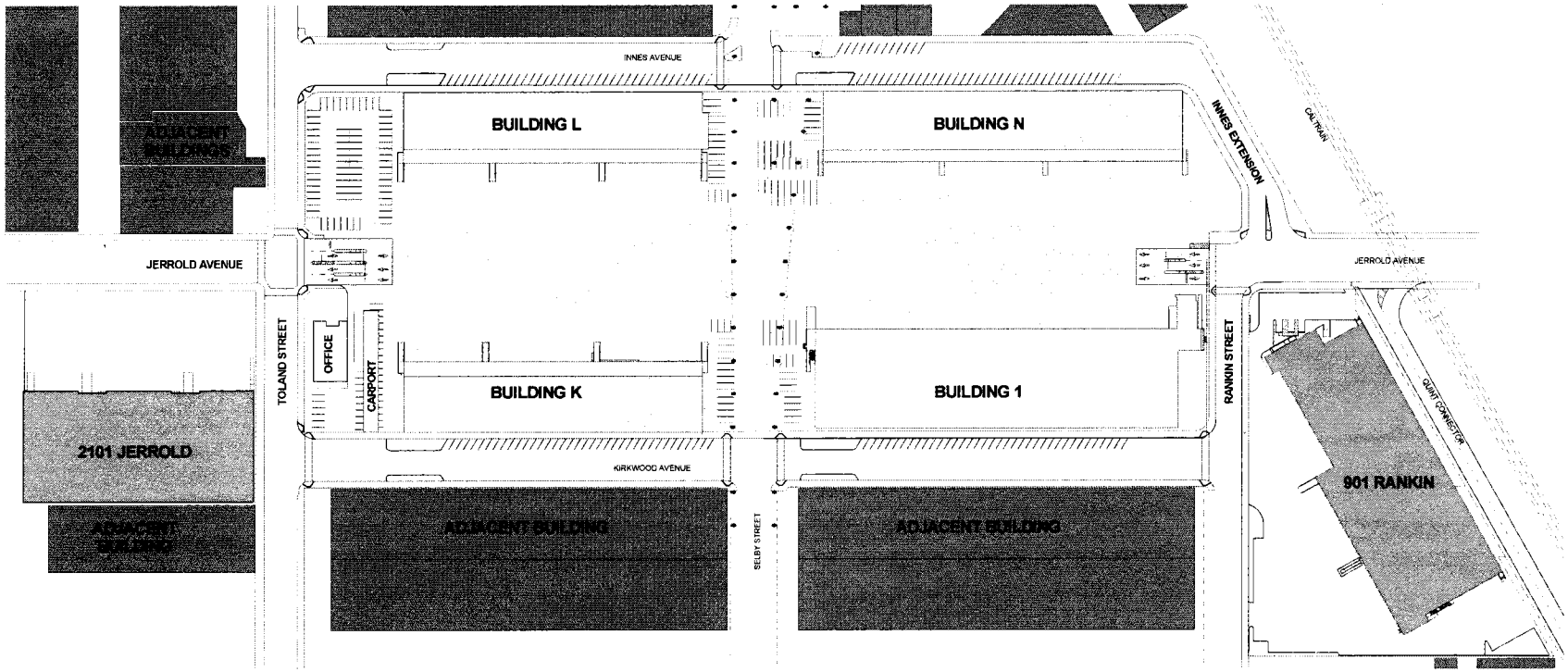
EXISTING CONDITIONS



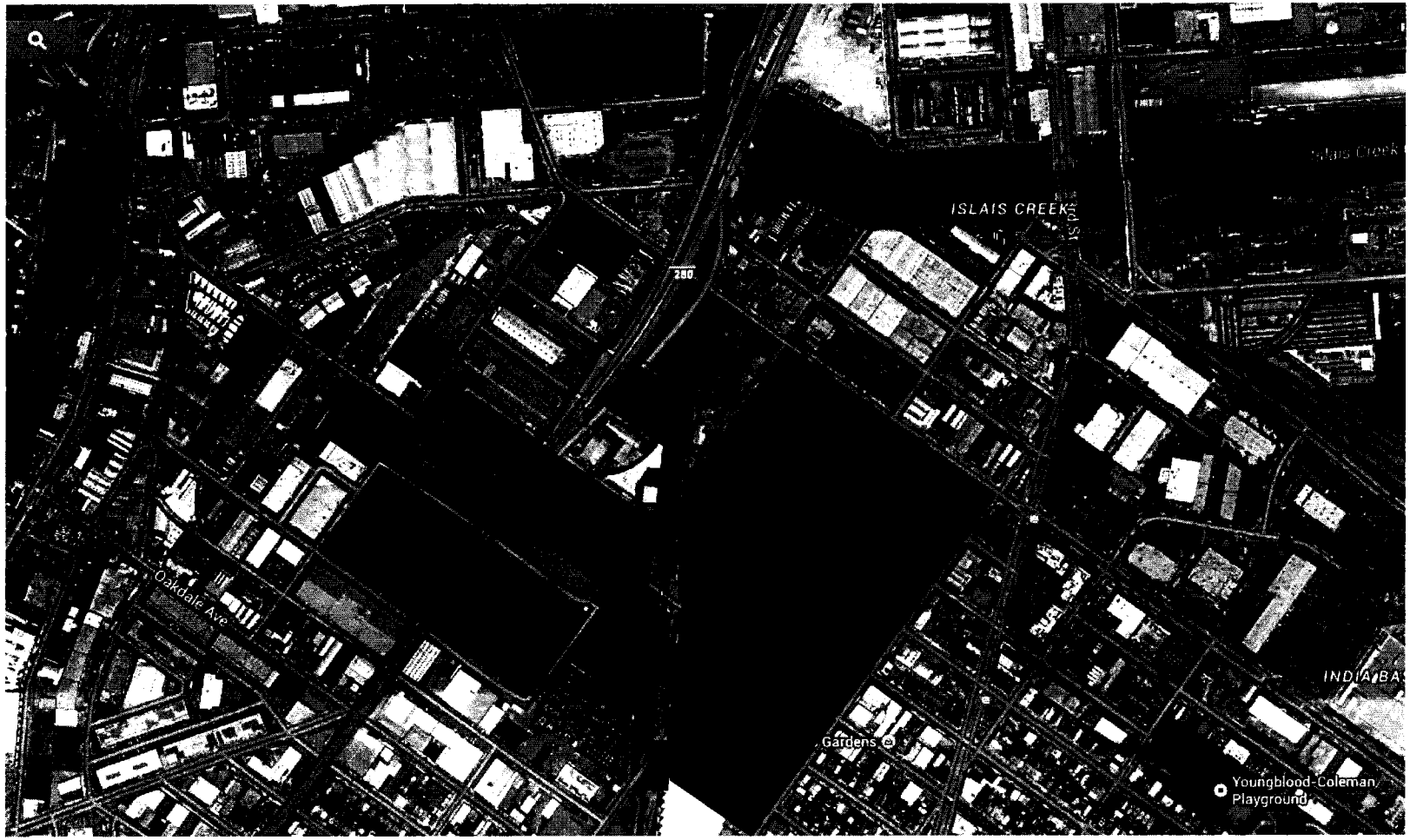
Jackson Liles
ARCHITECTURE
Jacksonliles.com

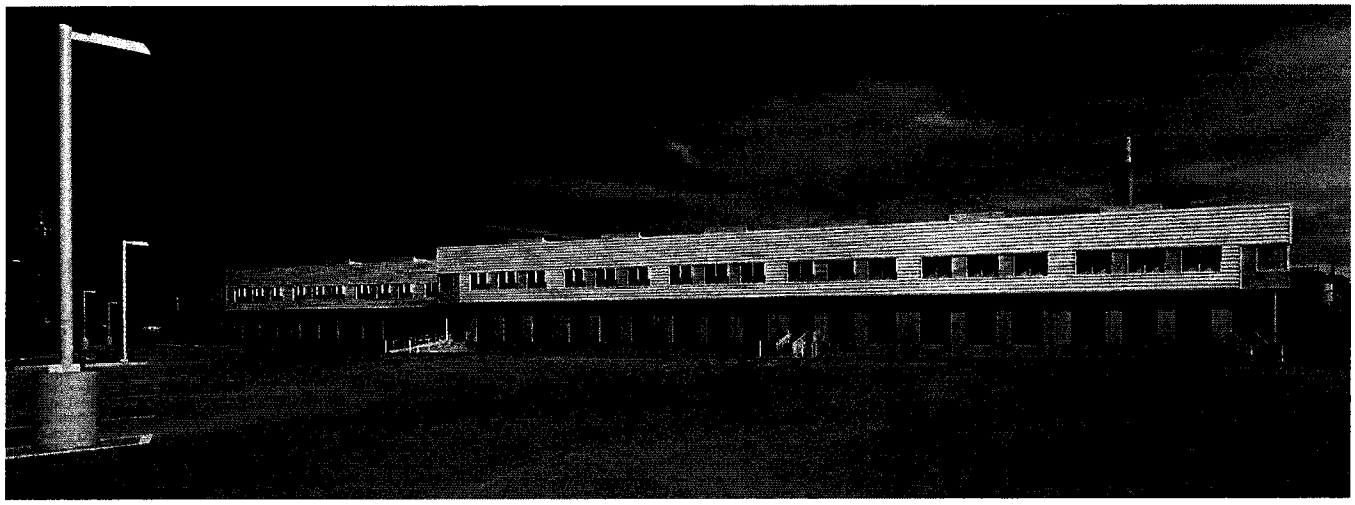
SAN FRANCISCO WHOLESALE PRODUCE MARKET 1

PLANNED ROADWAYS



SAN FRANCISCO WHOLESALE PRODUCE MARKET
AND NEIGHBORING PROJECTS





SAN FRANCISCO
MARKET CORPORATION

SAN FRANCISCO WHOLESALE
PRODUCE MARKET

Jackson Liles
ARCHITECTURE

[redacted]

Date & Issue

RETENTION & EXPANSION PROJECT

Date:	06/25/18
Scale:	
Job #:	
Revit File:	Z:\jobs\1410\Revit
Assembled By:	Author

(NEW CONSTRUCTION)

901 RANKIN DESIGN

001

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SAN FRANCISCO WHOLESALE PRODUCE MARKET

FOOD RECOVERY PROGRAM

Preventing fresh, healthy produce from going to waste

The Food Recovery Program aims to eliminate all food waste from the San Francisco Wholesale Produce Market. The Food Recovery Program:

Supplies Bay Area charitable organizations with a diverse selection of healthy fruits and vegetables that go to feeding the hungry and other vulnerable populations.

Allows our merchant businesses to lower their operating costs and increase available space in their limited cold storage units.

We have a long history of diverting food from going to landfill. Our merchants were the first participants of the green bin compost program created in 1996. Today, our merchants work with our Food Recovery Coordinator to donate all of their edible, but no longer sellable, produce.

The Program is making a difference!

329,253
POUNDS OF PRODUCE RECOVERED
Since August 2016

274,377
*MEALS PROVIDED**
**Based on an average meals size of 1.2 LBS*

329
CUBIC YARDS
DIVERTED FROM COMPOST BINS & FREED UP FROM WAREHOUSE SPACE

$94,538
*SAVED IN WASTE REMOVAL FEES**
**Assuming a fee of $287.35/cubic yard of compost removal*

"I would like to thank you for the wonderful produce we have been receiving. It's a huge help, and allows us to offer a seasonal variety to our clients!"
Bayview Senior Services

"[Your] food donations help us serve high quality food to the people who rely on us."
Mother Brown's Dining Room

ABOUT THE MARKET
The San Francisco Wholesale Produce Market (the "Market") is a diverse community of merchants with the widest selection of fruits and vegetables helping Northern Californian food businesses meet their customers' unique produce needs. As San Francisco's original – and only – wholesale produce market, we are creating a thriving and sustainable food center that delivers unique value to our customers while giving back to the community and neighborhood. We allocated in the Bayview district. For more info: FoodRecovery@sfproduce.org or call: 415-550-4495 Updated 5/22/17

San Francisco Planning

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San Francisco, CA 94103
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ADDENDUM 1 TO ENVIRONMENTAL IMPACT REPORT

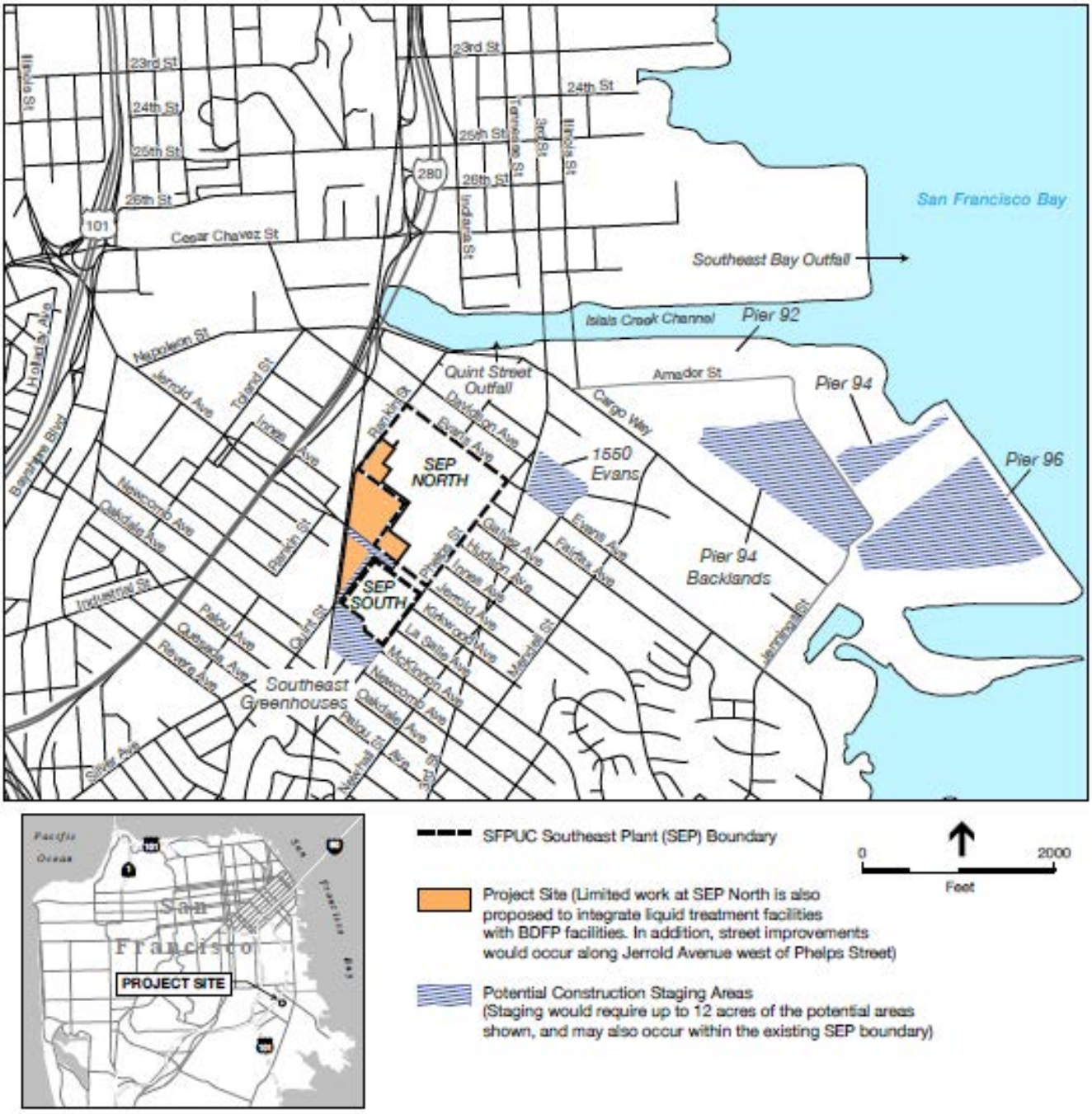
Date of Publication of Addendum:	July 12, 2024
Date of Certification of Final EIR:	March 8, 2018
EIR Case No.:	**2015-000644ENV**
Project Title:	Biosolids Digester Facilities Project
Project Modification:	Biogas Utilization System
Modified Project Case No.	**2015-000644ENV-03**
Location:	Southeast Water Pollution Control Plant 750 Phelps Street, San Francisco, CA
Project Sponsor:	San Francisco Public Utilities Commission Karen Frye, (415) 554-1652, kfrye@sfwater.org
Lead Agency:	San Francisco Planning Department
Staff Contact:	Julie Moore, (628) 652-7566, Julie.Moore@sfgov.org

1.0 Background

On March 8, 2018, the San Francisco Planning Commission certified the Final Environmental Impact Report (FEIR) for the Biosolids Digester Facilities Project (Biosolids or approved project) at the Southeast Water Pollution Control Plant (Southeast Plant), located in the southeast part of San Francisco (**Figure 1**).[1] Originally built in 1952 with major upgrades in 1982 and 1996, the Southeast Plant is the City's largest wastewater treatment facility, treating approximately 80 percent of San Francisco's sewage and stormwater flows. The approved project includes the construction and operation of a new solids treatment process, odor control, energy recovery, and associated facilities to replace outdated existing facilities with more reliable, efficient, and modern technologies. Biosolids are the recyclable solid materials removed from the wastewater during the wastewater treatment process and digesters are the major facilities used in the solids treatment process.

1 San Francisco Planning Department, *Biosolids Digester Facilities Project Final Environmental Impact Report*, Planning Department Case No. 2015-000644ENV, State Clearinghouse No. 2015062073 certified March 8, 2018. Available online at: http://tinyurl.com/BDFPFEIR.

Figure 1 Project Location



Source: FEIR Figure 2-1

2.0 Approved Project Summary and Status

This section provides a brief overview of the project evaluated in the FEIR, the status of facilities construction, and minor modifications.

2.1 Components

The key components of the approved project include:

- Replacement and relocation of the solids processing treatment processes with new facilities
- Energy recovery facilities to reuse 100 percent of the digester gas generated by the proposed solids processing facilities to produce energy for heating and power uses at the Southeast Plant
- Odor control facilities to collect and treat odors from solids handling and energy recovery facilities
- Water systems and pump stations
- Support facilities such as buildings for operations and maintenance staff
- Various utility piping and electrical facilities
- Landscaping and architectural improvements

2.2 Status

Construction of the approved project began in early January 2020 and is in the fifth year of construction. All the buildings at the former Asphalt Plant and the Central Shops have been demolished; the majority of soil excavation and off hauling has been completed; foundations for most new facilities (including piles) have been installed; and the new biosolids digester facilities are partially constructed. The largest facilities, including the new solids pretreatment facility (Facility 600) and five new anaerobic digester tanks (Facility 610), along with the iron chloride storage tanks (Facility 913), and W2 pump station (Facility 921) have been erected with mostly internal work remaining such as, but not limited to, installing stairs and elevators, mechanical equipment, HVAC equipment, plumbing, equipment installation, and architectural finishes. The remaining buildings to be erected above ground level (the foundations, including excavation and piles are complete) are the smaller digestion cooling towers (Facility 604), thermal hydrolysis (Facility 605), solids odor control (Facility 606), steam generation (Facility 607), waste gas burners (Facility 613), and biosolids dewatering (Facility 615). Also continuing are excavation and installation of utility piping throughout the approved project area. As new facilities are completed there will be process testing, commissioning, and startup and integration with existing facilities.

The FEIR estimated project construction would take five years from February 2018 through January 2023, followed by two and a half years of performance testing, start-up, and commissioning. However, construction of the approved project did not start until about January 2020 and construction is expected to take 1.5 years longer than previously estimated, independent of the project revisions analyzed in this addendum.

Since FEIR certification, the SFPUC has proposed a number of minor changes to the approved project such as, additional dewatering wells; geotechnical potholes and test piles; a rerouted pipeline; additional

work, staging, and parking areas (and the removal of other staging areas); alternative effective air quality mitigation; removal of Maintenance Shops 1 and 2; reducing the size of the Odor Control Building; adding a new Steam Generation Facility; and, adding an Interim Sidestream Nutrient Removal Facility to reduce nutrients (mainly nitrogen) from treated effluent to improve effluent water quality. The Planning Department determined these were minor project modifications that would clearly not alter the FEIR conclusions and documented the determinations with memoranda to the case file. These previously reviewed minor project modifications, summarized in Section 4.0 below, were each approved by the SFPUC. As such, they are now considered to be part of the approved project and are discussed in this addendum where relevant.

3.0 Proposed Modifications to the Project

As discussed in the FEIR, a key objective of the approved project is the beneficial reuse of 100 percent of the digester gas generated by the Southeast Plant. To achieve this, the approved project included an energy recovery/cogeneration facility in which boilers and a turbine generator would burn the digester gas (or biogas) in turbines to convert it to heat, steam, and electricity that would then be used to operate the new biosolids facilities (called the "energy recovery system" in the FEIR). However, the SFPUC is now proposing to revise the approved project to convert the digester gas into pipeline-quality, renewable natural gas for injection into PG&E's existing natural gas pipeline, referred to hereafter as the "biogas utilization system." Consequently, the energy recovery system components would be removed from the approved project as shown in **Figure 2**. This alternative end-use of the digester gas would result in a smaller footprint of new facilities to be constructed and simplify Southeast Plant operations.

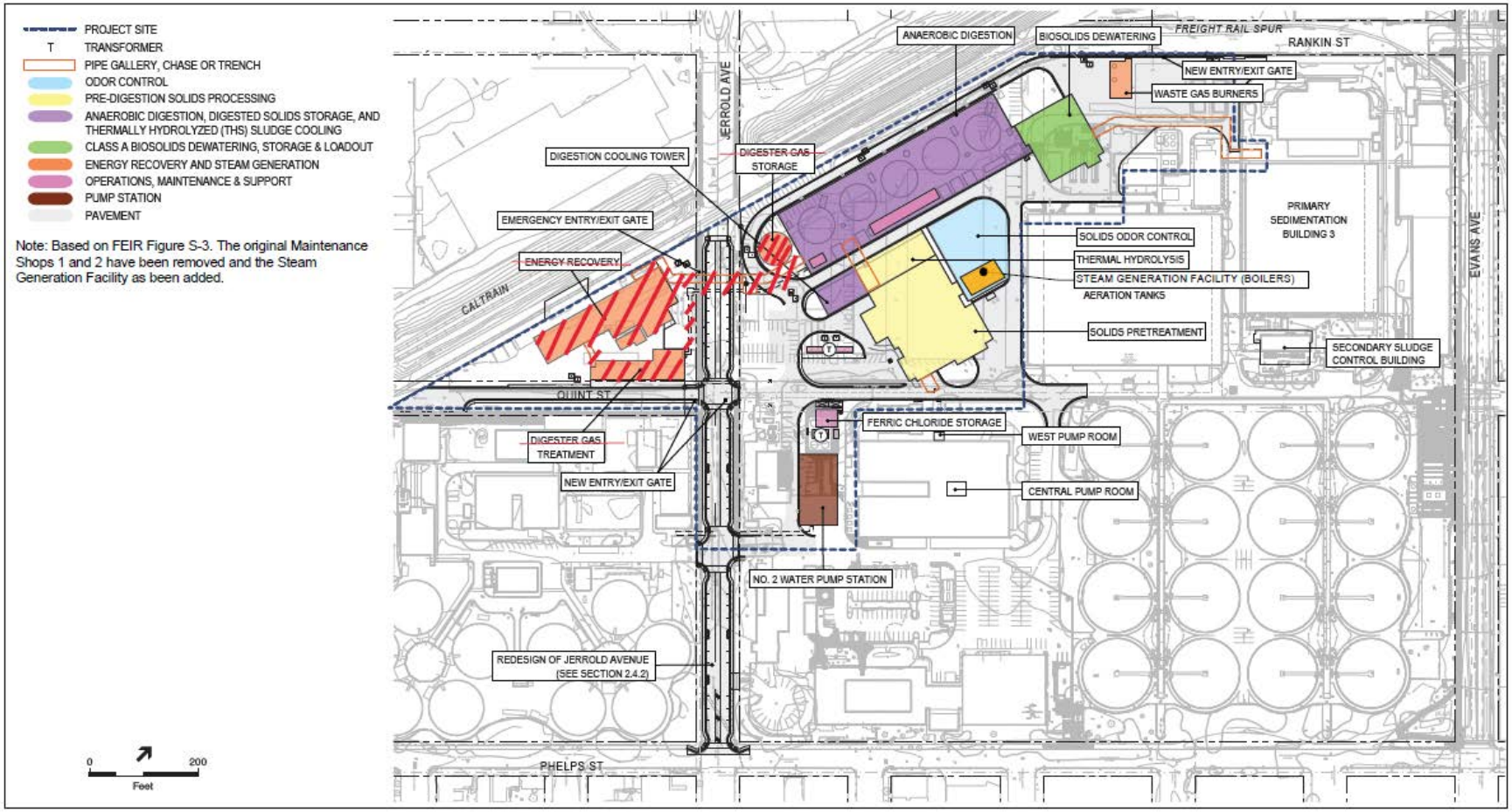
This addendum evaluates the environmental effects of the proposed modifications to the approved project: the construction and operation of a biogas utilization system instead of the approved energy recovery system and related changes to operational energy demand/supply.

3.1 Biogas Utilization System

The SFPUC would build and operate the proposed biogas utilization system, except for the Interconnection Station that PG&E would build and operate. The proposed biogas utilization system would convert the digester gas generated at the Southeast Plant into renewable natural gas that would become part of the greater energy market.[2] **Figure 3** shows the location of the proposed biogas utilization system components. The proposed biogas upgrade facility would be built at the location of the approved project's Maintenance Building No. 2 that was previously removed from the approved project

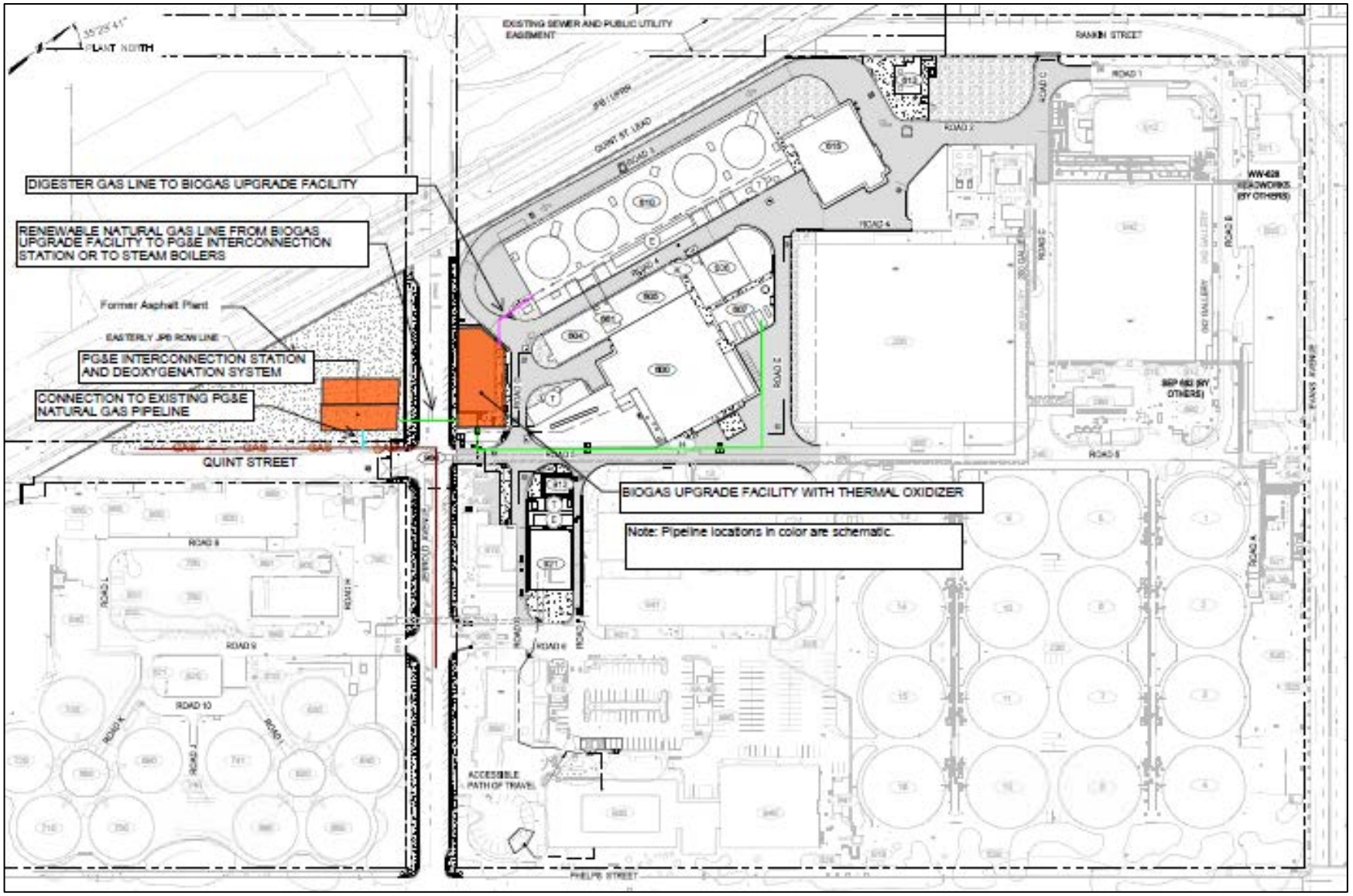
2 The proposed system promotes current California state goals for in-state production and distribution of renewable natural gas as documented in Assembly Bill 1900 and Senate Bill 840, and more recently in the Inflation Reduction Act.

Figure 2 Energy Recovery System Components Proposed To Be Removed from the Approved Project



Note: Cross hatching indicates energy recovery components to be removed

Figure 3 Modified Project Proposed Biogas Utilization System Components



Source: SFPUC

as documented in Minor Project Modification 10.[3] The PG&E interconnection station and deoxygenation system would be built at the location of the former digester gas treatment facility that was part of the approved project energy recovery system. The proposed biogas utilization system facilities would be within the approved project boundary, and no additional staging areas or access points would be needed. Each of the system's components are discussed below.

Table 1 provides a summary of the energy recovery system components to be removed from the approved project and the biogas utilization system components to be added. As shown, the 57-foot-tall energy recovery building, 60-foot tall by 60-foot-diameter digester gas storage tank, digester gas treatment facility, and maintenance shop building would not be constructed. Instead, the modified project would construct the Biogas Upgrade Facility with thermal oxidizer comprised of piping, tanks, and storage container-type structures approximately 15 to 45 feet tall and a PG&E Interconnection Station and Deoxygenation System with above-ground valves and piping. Because the proposed biogas utilization system would be a less complex system with less substantial components than the approved energy recovery system facilities, construction would disturb 0.3 acres less work area, excavate 5,538 cubic yards less soil, and drill 279 to 331 fewer piles.

3.1.1 Biogas Upgrade Facility

The first step of the biogas utilization system would be to convert the digester gas generated by the Southeast Plant to renewable natural gas at the proposed Biogas Upgrade Facility. The facility would be built on the north side of Jerrold Avenue within the footprint of the originally planned Maintenance Shops 2 Building. It would consist of outside equipment, including piping, valves, and tanks. The facility foundation would be either a shallow, approximately 2-foot-thick concrete pad supported by up to approximately 50, 60-foot-deep piles, or an approximately 8-foot-thick concrete pad without piles. The technology to convert the digester gas to renewable natural gas is still being evaluated and would determine the height of the equipment. The vessels (or tanks) would either be more spread out and shorter, up to about 20 feet tall, or more confined and taller, up to about 45 feet tall. Most of the digester gas would be converted to renewable natural gas, but some residual tail gas, comprised of methane and carbon dioxide, may remain. Therefore, the facility may include a thermal oxidizer unit, 15 to 45 feet tall, to abate the methane, with resulting emissions of carbon dioxide. For the purpose of this addendum analysis, the thermal oxidizer unit is assumed to be needed.

The digester gas would be piped directly from the anaerobic digesters to the proposed Biogas Upgrade Facility via a portion of the previously approved Digester Gas Line, instead of needing to be stored in a digester gas storage tank first. From the biogas upgrade facility, two approximately 4-inch-diameter pipes would be installed under Jerrold Avenue to convey the renewable natural gas to and from the proposed PG&E Interconnection Station discussed below.

3 SFPUC, Biosolids Digester Facilities Project Minor Project Modification 10 - Facilities Modifications, approved by San Francisco Planning Department on February 2, 2021.

Table 1 Proposed Modifications to Facilities

Facility	Location	Approximate Area and Excavation Depth	Height and Diameter	Piles
Remove from Approved Project				
Digester Gas Storage tank	North of Jerrold	2,827 sq. ft (0.06 acre) by 15 feet deep	60 foot tall by 60 foot diameter tank	38 piles: 3 foot diameter by 60 feet deep (none were in cultural site)[4]
Energy Recovery Building (turbines, boilers, 1.5MW emergency generator)	South of Jerrold	21,000 sq. ft. (0.48 acre) by 5 feet deep	57 foot tall building, 75 foot tall by 4 foot diameter vent stack for turbine	185 piles: 3 foot diameter by 60 feet deep (6 were in cultural site)
Digester Treatment Facility	South of Jerrold	8,568 sq. ft. (0.2 acre) by 5 feet deep	12 foot tall by 10 foot diameter outside tanks and vessels (11)	75 piles: 4 foot diameter by 60 feet deep (35 were in cultural site)
Digester Gas Line[5]	Under Jerrold, North and South of Jerrold	1440 sq. ft. (0.03 acre) [96 feet long by 15 inches wide] by 15 feet deep	N/A	9 piles: 4 foot diameter by 60 feet deep (none were in cultural site)
Pipe Chase under Jerrold from Digester Gas Storage Tank to Energy Recovery Building	Under Jerrold	1440 sq. ft. (0.03 acre) [247 feet long by 18 inches wide by 12 feet deep	N/A	24 piles: 4 foot diameter by 60 feet deep (none were in cultural site)

4 California Register- and National Register-eligible Native American archeological site CA-SFR-171. Refer to Section 5.3, Cultural Resources for discussion.

5 The portion of the originally approved digester gas line west of Jerrold would still be built to convey gas from the new digesters to the proposed biogas upgrade facility.

Facility	Location	Approximate Area and Excavation Depth	Height and Diameter	Piles
Add to Modified Project[6]				
Biogas Upgrade Facility with thermal oxidizer	North of Jerrold – replaces originally approved Maintenance Shops	9,984 sq. ft. (0.23 acre) by 2 to 8 feet[7]	15 feet to 45 feet tall outside piping and tanks, various diameters[8]	To be determined[9] Either none or up to 52 piles, 3 foot diameter by 60 feet deep (all would be in cultural site)
PG&E Interconnection Station and Deoxygenation System	South of Jerrold - replaces originally approved Digester Treatment Facility	15,000 sq. ft. (0.34 acre) by 2 feet	15 feet tall	None
Pipes from Biogas Upgrade Facility to PG&E Interconnection Station	Under Jerrold	940 sq. ft. (0.02 acre) [235 feet long by 4 feet wide] by 6 feet deep	N/A	None
Pipe from PG&E Interconnection Station to existing PG&E natural gas pipeline	Under Quint	35 sq. ft. (0.001 acre) [14 feet long by 2.5 feet wide] by 6 feet deep	N/A	None
NET		**Less 12,326 sq. ft. (0.3 acres)** **Less 5,538 cubic yards excavated**		**279 to 331 fewer piles** (11 more or 41 fewer in cultural site)

6 The exact dimensions of new facilities are to be determined upon completion of final design; the information in this table represents the range of facility dimensions.

7 A range in excavation depth is provided because the new tanks and piping could either be on a shallow concrete pad with piles or a deeper concrete pad with no piles.

8 A range in height is provided because the new tanks and piping could either be shorter and more spread out or taller and more confined.

9 Piles may or may not be needed depending on the final design of the concrete pad foundation.

Like the energy recovery system under the approved project that would have generated a small amount of solid waste associated with removing impurities in the digester gas, impurities would need to be removed from the tail gas generated at the biogas upgrade facility and also would need to be hauled to an approved landfill by several trucks every four to six months. The volume of material would be similar and involve approximately the same number of trucks as the approved project because the volume of digester gas would not change.

3.1.2 PG&E Interconnection Station and Deoxygenation System

PG&E would construct and operate a standard Interconnection Station at the former Asphalt Plant site, south of Jerrold where the originally-approved digester gas treatment facility would have been located. The Interconnection Station would test the quality of the renewable natural gas. Poor-quality renewable natural gas would be returned to the biogas upgrade facility for additional treatment. Quality renewable natural gas would be conveyed to PG&E's existing natural gas pipeline in Quint Street. The Interconnection Station would consist of skid-mounted piping and valves on a 2-foot-thick concrete pad (no piles) with equipment up to 10 feet tall. Access would occur from Jerrold Avenue and a solar panel may be installed for power. PG&E would construct and operate a short section of new pipeline from the station to its existing natural gas pipeline in Quint Street.

A Deoxygenation System may also be necessary in this area to remove oxygen to meet PG&E's renewable natural gas quality standards prior to injection. The Deoxygenation System would be adjacent to the Interconnection Station and would include tanks and storage containers up to 15 feet tall on a concrete slab.

3.2 Modified Project Construction

3.2.1 Schedule

The proposed biogas utilization system would take approximately two years to construct from about December 2024 through December 2026. The proposed biogas utilization system facilities would be constructed along with the remaining approved project facilities so that they would be operational concurrent with the other new Biosolids facilities to start immediately reusing the biogas. While the energy recovery facilities would have taken about three years to build, the biogas utilization system would take approximately two years. This decrease in construction duration is commensurate with the reduction in construction level of effort (i.e., less excavation, pile drilling, building construction, trucking, etc.). Overall, the approved project started later, and construction is projected to extend approximately one and a half years longer than estimated in the FEIR because it is taking longer to construct than initially envisioned. **Table 2** presents the revised construction schedule for the remaining facilities. The recently approved project modification to construct the Interim Sidestream Nutrient Removal Facility would also be constructed within this timeframe.

Table 2 Revised Schedule

Activity	FEIR Table 2-10 Estimated Schedule	Revised Estimated Schedule	Facilities in Construction
Biosolids Digester Facilities Construction	Feb. 2018 – Jan. 2023 (5 years)	Jan. 2020 - July 2026 (6.5 years)	• Approved project facilities (ongoing) • Approved Interim Sidestream Nutrient Removal facility (May 2024 to April 2025) • Proposed Biogas Utilization System (December 2024 to December 2026)[10] • Future anticipated proposed SEP-7 Operations, Engineering, and Maintenance Buildings[11] (February 2025 to September 2027)
Post-Construction Activities (performance testing/start-up, full facility commissioning)	Feb. 2023 - July 2025 (2.5 years)	August 2026 – Summer 2028 (2 years)	
Existing Digesters Decommissioning[12]	After 2025	After 2028	

3.2.2 Hours, Work Force, and Construction Coordination

The construction schedule days and work hours for the biogas utilization system and the remaining approved facilities during the extended construction period of the modified project would be the same as for the approved project. Construction of the biogas utilization system components would require up to approximately 20 workers at any one time, which would be within the work force estimated for the approved project. As currently, the Southeast Plant Construction Management Team would coordinate construction staging, parking, project interfaces, and traffic controls for the modified project with the other Southeast Plant maintenance and repair projects to maintain local traffic, transit, bicycle, and pedestrian access and safety.

3.2.3 Equipment, Staging, Truck and Delivery Access, Demolition, and Foundations

Construction of the proposed biogas utilization system would use the same types of equipment as the construction of the other approved project facilities. No new types of equipment would be required. Staging and worker parking for construction of the biogas utilization system would occur within the approved project boundary, inclusive of the warehouses at the corner of McKinnon and Rankin streets

10 The proposed biogas utilization system is evaluated in this addendum.

11 SFPUC has proposed new SEP-7 Operations, Engineering, and Maintenance Buildings, to replace the maintenance shops included in the originally approved project described in the FEIR. This proposed revision to the approved project is undergoing environmental analysis.

12 Per the FEIR, potential demolition of the existing digesters and the solids handling facilities would be evaluated as a separate project when future uses of the site are proposed.

previously added to the approved project for parking and staging areas under Minor Project Modification 16.[13] The same roads would be used for access and trucking as for the approved project, including Highway 101, Interstate 280, Cesar Chavez, Evans Street, Phelps Street, Rankin Street, Jerrold Avenue, and McKinnon Street.

Because the structures that were present at the proposed locations for the Biogas Upgrade Facility and the PG&E Interconnection Station and Deoxygenation System have already been demolished as part of the approved project, no demolition is required for the proposed modification. There are no trees at these locations. Construction of the proposed biogas utilization system facilities would involve removing asphalt, excavation and drilling piles to serve as building foundations by the same methods as the approved project. As shown in **Table 1**, the modified project would result in approximately 5,538 cubic yards less excavation and installation of 279 to 331 fewer piles.

3.2.4 SFPUC Standard Construction Measures

As with the approved project, SFPUC's Standard Construction Measures would be implemented during construction of the proposed biogas utilization system.

3.3 Modified Project Operations

3.3.1 Removal of the Energy Recovery System and Related Changes in Operation and Energy Demand/Supply

Without the energy recovery system, in which the digester gas would be burned in boilers and a turbine generator to provide heat, steam, and electricity to operate the new biosolids facilities, the steam boilers would need to operate full-time instead of on a stand-by basis to generate the steam needed for the solids treatment (i.e., pre-digestion solids processing using the thermal hydrolysis process). Additionally, whereas flaring would have been infrequent with the energy recovery system, the SFPUC expects that the biogas utilization system would operate 90 to 95 percent of the time with intermittent flaring, or burning off the digester gas in a smokestack, limited to 5 to 10 percent of the time.[14]

Removal of the energy recovery system would require natural gas and electricity to power the steam boilers and other approved project facilities. **Table 3** below presents the revised energy demand and supply sources with the proposed biogas utilization system in comparison to the approved project.

3.3.2 Work Force and Maintenance

Operation of the proposed biogas upgrade facility and deoxygenation system may require approximately one additional employee, resulting in two additional worker vehicle trips per day during operations. The PG&E interconnection station would operate autonomously with periodic site visits by an existing PG&E employee to inspect and maintain equipment. Therefore, with the modified project there may be one

13 SFPUC, Biosolids Digester Facilities Project Minor Project Modification 16, approved by San Francisco Planning Department May 17, 2023.

14 As discussed further in the air quality analysis below, this addendum evaluates a worst-case operating scenario of the biogas utilization system operating only 70 percent of the time and flaring 30 percent of the time.

Table 3 Estimated Energy Demand and Supplies with Project Revisions

Energy Type	Facility	FEIR Table 2-8 for Existing Facilities	FEIR Table 2-8 for Future Biosolids Facilities[15]	With Proposed Revisions
Electricity Power Demand	BDFP Solids Treatment Process	1 MW (estimated)	4.4 MW (2023) 4.9 MW (2045)	4.1 MW (2027)[16] 4.5 MW (2045)
	Interim Sidestream Nutrient Removal (MPM-17)	-	N/A – not in FEIR	0.5 MW
	Proposed Biogas Utilization System	-	N/A – not in FEIR	1.6 MW
Electricity Produced from Cogeneration (i.e., Energy Recovery System)	From Digester Gas	0.66 MW	4.2 MW (2023) 5.2 MW (2045)	0 MW
	Digester gas generation, cubic feet per day	*Approximately 1.3 million*	*Approximately 1.6 million (2023)* *Approximately 2 million (2045)*	*Approximately 1.6 million (2027)* *Approximately 2 million (2045)*
	From Natural Gas	0.02 MW	0 MW	0 MW
Electricity from Hetch Hetchy Hydropower		0.32 MW	0.2 MW (2023) 0 MW (2045)	5.2 MW (2027) 5.6 MW (2045)
Electricity from PG&E		N/A	N/A – not in FEIR	1.6 MW[17]
Diesel Use, gallons year		50 gallons/year	5,250 gallons/year	50 gallons/year
Natural Gas/Propane Gas		Minor volume to supplement steam boilers as-needed		Up to 50,000 standard cubic feet/hour (24/7)[18]

BDFP = Biosolids Digester Facilities Project; MW = megawatts; N/A = not applicable

15 Source: FEIR, see original table for information details on existing and approved project assumptions

16 Revised date due to construction delays and extended schedule

17 Because power for the biogas utilization system could be provided by the SFPUC or PG&E, it is conservatively shown as coming from PG&E in this table and as evaluated in this addendum.

18 Natural gas demand conservatively assumes steam boilers are operating full time and to process the maximum potential daily intake of sewerage and associated digester production, but the annual average digester gas production is less such that annual natural gas consumption would also be less.

new employee for operations compared to the approved project having no new employees. Maintenance frequency for the proposed biogas utilization system would be similar to the approved project, with minor repairs every few years and repairing major pieces of equipment every 20 to 30 years. Thus, there would be a negligible change in the number of truck trips or vehicle miles travelled during operation of the proposed biogas utilization system or the overall modified project.

3.3.3 Other Southeast Plant Operations

The proposed revisions would not affect the existing overall capacity of the Southeast Plant for wastewater treatment; the overall treatment methods and in turn chemical storage, use, handling and associated truck trips and routes; the amount of digester gas generated; or the amount of biosolids generated and the associated number of hauled trucks and routes. Lastly, the long-term streetscape and landscape improvements along Jerrold Avenue would still be implemented under the modified project.

3.4 Approvals

This addendum will be used to support the following public agency approvals:

- San Francisco Public Utilities Commission - Approval of the proposed biogas utilization system at a public hearing
- Bay Area Air Quality Management District – Authority to Construct and Permit to Operate

4.0 CEQA Approach

San Francisco Administrative Code section 31.19(c)(1) states that a modified project must be reevaluated, and that "If, on the basis of such reevaluation, the Environmental Review Officer determines, based on the requirements of the California Environmental Quality Act (CEQA), that no additional environmental review is necessary, this determination and the reasons therefore shall be noted in writing in the case record, and no further evaluation shall be required by this Chapter." CEQA Guidelines section 15164 provides for the use of an addendum to document the basis for a lead agency's decision not to require a subsequent FEIR for a project that is already adequately covered in a previously certified FEIR. An addendum to a certified FEIR may be prepared if some changes or additions are necessary, but none of the conditions described in section 15162 calling for the preparation of a supplemental or subsequent FEIR have occurred.

This addendum to the FEIR documents the environmental effects of the proposed modifications to the Biosolids Digester Facilities Project: the construction and operation of the biogas utilization system in lieu of the originally proposed energy recovery facilities and related changes to operational energy demand/supply. The Biosolids Digesters Facilities Project, inclusive of these proposed modifications (herein referred to as the "modified project"), is compared to the impacts of the "approved project" as disclosed in the FEIR and subsequently approved minor project modifications, and explains why the proposed modifications would not result in any new significant environmental impacts or a substantial increase in the severity of previously identified environmental impacts, and would not require the adoption of any new or considerably different mitigation measures.

Since certification of the FEIR, several changes have occurred in the approved project and the circumstances under which the approved project would be undertaken. These changes include the following: 1) minor modifications to the approved project described in the FEIR; 2) new information regarding cumulative projects proposed in the vicinity; and 3) changes in the existing conditions regarding health risks from air pollution sources due to an updated citywide health risk assessment. These changes are described further in the subsections below. As analyzed in this addendum, the modified project combined with these changed circumstances would not materially change any of the analyses or conclusions of the certified FEIR.

4.1 Approved Minor Project Modifications

As described in Section 2.2 above, since FEIR certification, the SFPUC has proposed a number of minor changes to the approved project including the following: additional dewatering wells; geotechnical potholes and test piles; a rerouted pipeline; additional work, staging, and parking areas (and the removal of other staging areas); substitution of alternative effective air quality mitigation; removal of Maintenance Shops 1 and 2; reducing the size of the Odor Control Building; adding a new Steam Generation Facility; and, adding an Interim Sidestream Nutrient Removal Facility to reduce nutrients (mainly nitrogen) from treated effluent to improve effluent water quality. The Planning Department determined that these changes were minor project modifications that would clearly not alter the FEIR conclusions and documented these determinations with memoranda to the case file. Two key previous changes related to this addendum were the removal of the Maintenance Shops Building No. 2 from the approved project (now the proposed location of the Biogas Upgrade Facility) and the addition of the Steam Generation Facility to support the solids treatment process.[19] **Table 4** summarizes the approved project inclusive of the minor project modifications to date and the proposed modifications analyzed in this addendum.

4.2 Cumulative Projects in the Site Vicinity

FEIR Section 4.1.3, Approach to Cumulative Impact Analysis and Cumulative Projects, describes potential projects in the site vicinity. FEIR Table 4.1-1 lists 40 nearby projects considered in the cumulative impact analysis, including the construction dates of those projects. Since certification of the FEIR, some of these projects have been completed and would no longer be part of the modified project cumulative scenario; others have been delayed and would now overlap with the modified project construction. In addition, new projects have been proposed both at the Southeast Plant and in the project vicinity. **Appendix A** updates the projects considered in the cumulative impact analysis for the modified project.

19 SFPUC Biosolids Digester Facilities Project Minor Project Modification 10 – Modified Facilities, Approved by San Francisco Planning Department February 2, 2021.

Table 4 Summary of Approved Project and Modified Project

Feature	Approved Project		Modified Project
	FEIR Certified Project	Previously Approved Project Changes[20]	
Southeast Plant Property Size	Approximately 47 acres	No change	No change
Southeast Plant Design Wastewater Flow Capacity	250 mgd (wet weather)	No change	No change
Digester Tanks	85 mgd (dry weather design average)	No change	No change
Solids Treatment Process	• Thickening • Screening • Pre-thermal hydrolysis • Thermal Hydrolysis Process • Anaerobic Digestion • Biosolids Dewatering	Same as certified project with addition of: • Steam Generation Facility with boilers operating full time[21] • Interim Sidestream Nutrient Removal[22]	No change
Biosolids	Classification: Class A Exceptional Quality Annual Production: 24,000 dry tons Haul Trips: 10-14 trips per day	No change	No change
Odor Control	Designed to limit odors from biosolids facilities to within revised SEP site boundaries	No change	No change
Digester Gas	Production: approximately 2 million cubic feet/day Flaring: Infrequent	No change	No change in production Flaring: Intermittent

20 Minor revisions to the original project in the FEIR as modified under Minor Project Modifications approved by Planning Department

21 SFPUC Biosolids Digester Facilities Project Minor Project Modification 10 – Modified Facilities, Approved by San Francisco Planning Department February 2, 2021

22 SFPUC Biosolids Digester Facilities Project Minor Project Modification 17 – Interim Sidestream Nutrient Removal, Approved by San Francisco Planning Department February 12, 2024

Feature	Approved Project		Modified Project
	FEIR Certified Project	Previously Approved Project Changes [20]	
Energy Recovery	Technology: • Gas Turbines • Heat Recovery Steam Generation System • Steam Boilers: Backup Only Electricity Generation (Annual Average): 4.2 to 5.2 megawatts	No change	Removed Technology: • Gas Turbines • Heat Recovery Steam Generation System • Steam Boilers: Backup Only (*see changes related to boilers in Solids Treatment Process above) Added Technology: • Biogas Upgrade Facility with Thermal Oxidizer • PG&E Interconnection Station with Deoxygenation System Electricity Generation (Annual Average): 0.0 megawatts • Power for Biogas Upgrade Facility may be from PG&E • Power for all other facilities from SFPUC Hetch Hetchy Water and Power
Southeast Plant Staffing Levels	280 staff (entire SEP including biosolids staff)	No change	One additional employee
New Operations, Maintenance, and Support Buildings/Structures	Maintenance Shops 1 (19,600 square feet) Maintenance Shops 2 (5,500 square feet) Digester Electrical Rooms Ferric Chloride Storage Transformers Maximum Height: 30 feet above grade	Same as certified project except no Maintenance Shops 1 and 2.[23]	No change

23 SFPUC Biosolids Digester Facilities Project Minor Project Modification 10 – Modified Facilities, Approved by San Francisco Planning Department February 2, 2021.

Feature	Approved Project		Modified Project
	FEIR Certified Project	Previously Approved Project Changes [20]	
Landscaping Improvements	Trees, landscaping, fencing and street improvements along Jerrold Avenue Proposed removal of 90 trees	No change	No change
BDFP Project Site	Approximately 12.9 acres	Approximately 14 acres	No change
Construction Schedule	Five years (2018-2023)	No change	Six and a half years (2020 – Summer 2026)
Construction Staging, Worker Parking	Within plant, on Quint Street, Closed portion of Jerrold Avenue, Piers 94 and 96, Southeast Greenhouses site, 1550 Evans	Same as certified project except: • No use of 1550 Evans, Piers 94/96 • Added 2000 McKinnon Avenue • Expanded staging on Jerrold Avenue to between Phelps and Rankin [24]	No change
Construction Truck and Delivery Access, Worker Access	Truck/Delivery Access to BDFP: Rankin Street, Evans Avenue, Jerrold Avenue, Cesar Chavez, Phelps Street Worker Access: Jerrold Avenue	Truck/Delivery Access to BDFP: added McKinnon Avenue Worker Access: added Quint Street, McKinnon Avenue [25]	No change
Muni Route 23 Relocation	Temporarily relocated from Jerrold Ave to Oakdale and Palou Avenues	No change	No change
Construction Equipment	Listed in FEIR	No change	No change

24 SFPUC Biosolids Digester Facilities Project Minor Project Modification 16 – McKinnon Parking Site, Approved by San Francisco Planning Department May 17, 2023

25 SFPUC Biosolids Digester Facilities Project Minor Project Modification 7 – Traffic on Jerrold, Approved by San Francisco Planning Department September 1, 2020

Feature	Approved Project		Modified Project
	FEIR Certified Project	Previously Approved Project Changes [20]	
Building Demolition	Central Shops Asphalt Plant Structures Buildings 855, 870, 925, SS5A/5B 1550 Evans Total: 136,000 square feet	Same as certified project except: • Building 870 not demolished [26]	No change
Excavation Volumes /Areas/Depths	Volume: 190,000 cubic yards Depth: 45 feet below ground surface	Same as certified project plus: Additional volume: 360 cubic yards [27]	Same as certified project except: • Volume: reduced by 5,538 cubic yards to total of 184,812 cubic yards • 279 to 331 fewer piles
Temporary Roadway Closures	Jerrold Avenue between Caltrain right-of-way and SEP entrance on Phelps Street	Jerrold Avenue between Rankin and Phelps Street [28]	No change
Maximum Construction Workers (daily)	550	No change	No change (possibly fewer)

BDFP = Biosolids Digester Facilities Project

26 SFPUC Biosolids Digester Facilities Project Minor Project Modification 10 – Modified Facilities, Approved by San Francisco Planning Department February 2, 2021.

27 Combined total from SFPUC Biosolids Digester Facilities Project Minor Project Modifications 3, 6, 14, 15, 17

28 SFPUC Biosolids Digester Facilities Project Minor Project Modification 6– Additional Work Area Changes, Approved by San Francisco Planning Department April 28, 2020

4.3 Existing Air Quality Conditions

In 2020, the City and County of San Francisco completed an update to the San Francisco Citywide Health Risk Assessment (HRA), which was previously prepared in 2014.[29] The 2020 San Francisco Citywide HRA evaluated the cancer risks and small particulate matter (PM2.5) concentrations from existing known sources of air pollution including updates to vehicle activity and emissions rates, updates to maritime emissions, emissions from Caltrain and updated stationary source emissions. The 2020 San Francisco Citywide HRA was used to update the air pollutant exposure zone that is referenced in Health Code article 38 and the Clean Construction Ordinance. The 2020 San Francisco Citywide HRA and air pollutant exposure zone updates the 2014 analysis referenced in the FEIR. This addendum air quality analysis uses the updated 2020 Citywide HRA for the existing plus project and cumulative health risk assessment. The updated background health risks show an increase in the existing background health risks since 2014 due to the changes in emissions and methodology.

4.4 Updates to CEQA Guidelines

Since FEIR certification, the CEQA Guidelines Appendix G Environmental Checklist Form has been updated to add the topics of Tribal Cultural Resources and Wildfire. Accordingly, these topics are discussed in the analysis of potential environmental effects below.

5.0 Analysis of Potential Environmental Effects

The FEIR and subsequent approved minor project modifications evaluated potential physical environmental impacts of the approved project and found that implementation of the approved project would result in project-specific significant environmental effects that could be mitigated to a less-than-significant level with implementation of mitigation measures, except for the demolition of historic buildings and NOx emissions in Years 1 and 3 of construction. A Mitigation Monitoring and Reporting Program was required for the approved project and adopted by the SFPUC on March 13, 2018,[30] and applicable mitigation measures from the approved project would be required for the modified project.

This addendum evaluates the modified project with respect to the resource topics discussed in the FEIR, with the addition of analyses for tribal cultural resources and wildfire in accordance with recent changes in the CEQA Guidelines Appendix G initial study checklist. Because the modified project is located within the approved project site and would be similar to the approved project evaluated in the FEIR, only those environmental topics with significant impacts or otherwise requiring additional analysis or new analysis are discussed in detail below. The environmental topics discussed in detail include:

- Air Quality
- Greenhouse Gas Emissions
- Noise
- Cultural Resources

29 San Francisco Department of Public Health (SF DPH), San Francisco Planning Department, and Ramboll. 2020. San Francisco Citywide Health Risk Assessment: Technical Support Documentation.

30 San Francisco Public Utilities Commission Resolution No. 18-0042, March 13, 2018.

- Tribal Cultural Resources
- Biological Resources
- Wildfire

The remaining environmental topics are addressed in less detail below or briefly in the "Other Environmental Topics" section.

5.1 Air Quality

5.1.1 Biosolids Digester Facilities Project FEIR Findings

The FEIR found that the approved project would have potentially significant impacts related to the following significance criteria regarding air quality:

- Conflict with or obstruct implementation of the applicable air quality plan
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)

The potentially significant impacts associated with the above criteria for the approved project and modified project are discussed in detail in the construction and operations sections below.

Briefly, the FEIR also evaluated several other significance criteria regarding air quality impacts and determined that the potential impacts related to these criteria would be less than significant. The FEIR found that operation of the approved project would result in the emissions of criteria air pollutants below the significance thresholds and thus would not result in any new violations of air quality standards, contribute to an existing or projected air quality violation, or result in a cumulatively considerable net increase in criteria air pollutants. The FEIR found that construction and operation of the approved project would generate toxic air contaminants, including diesel particulate matter, but would not expand the City's air pollutant exposure zone (APEZ) boundaries or create new APEZ areas or result in net excess cancer risk and PM2.5 emissions concentrations in exceedance of significance thresholds at sensitive receptors within 1 kilometer of the site. Lastly, the FEIR determined that odors from construction and operation would be less than significant because construction odors (e.g., diesel exhaust from equipment) would be temporary and variable and that odors from the operation of the approved solids treatment facilities would improve compared to existing conditions because the solids handling and digester gas handling facilities would be relocated further from sensitive receptors and facilities would include odor control features.

Construction

Construction of the project would generate emissions of fugitive dust from soil disturbance and hauling soil off-site and criteria air pollutants through construction equipment and truck emissions. The FEIR determined that because the SFPUC would be required to implement dust control measures like watering, covering truck beds hauling soil, and perimeter dust monitoring pursuant to with San Francisco

Health Code Article 22B (Dust Control Ordinance), fugitive dust emissions would have a less than significant impact on air quality.

Criteria air pollutants include nitrogen oxides (NOx), particulate matter (PM10 and PM2.5), and reactive organic gases (ROG). The FEIR estimated construction criteria air pollutant emissions and found that because the SFPUC would be required to use either newer construction equipment or equip older construction equipment with after-market emissions controls (e.g., soot filters) pursuant to San Francisco Environment Code Chapter 25 (Clean Construction Ordinance), the average daily emissions of NOx, ROG, PM10, and PM2.5 would be below applicable thresholds, except that NOx emissions would exceed thresholds in Years 1 and 3 of construction. To further reduce NO_x, emissions, the FEIR requires implementation of Mitigation Measure M-AQ-1a (Construction Emissions Minimization), which requires equipment greater than 140 horsepower to have a Tier 4 Final engine rating, 80% of trucks to be 2010 or newer, and the use of renewable diesel in all off-road equipment and haul trucks. However, the FEIR found that while this measure would further reduce NO_x emissions, NO_x emissions would still exceed the significance threshold in construction Years 1 and 3. The FEIR therefore further requires implementation of Mitigation Measure M-AQ-1b (Emission Offsets), requiring the SFPUC to offset any remaining NO_x emissions in Years 1 and 3 to below significance thresholds, such as by upgrading other equipment at the Southeast Plant or paying a mitigation offset fee to the Bay Area Air Quality Management District. Nevertheless, the FEIR determined that although these measures combined would mitigate construction-related NOx emissions to below the significance threshold levels, NOx emissions were significant and unavoidable with mitigation because implementation of the offset mitigation depends on the actions of a third party (the BAAQMD) and could not be guaranteed.

The FEIR evaluates if the project's construction-related air pollutant emissions would conflict with or obstruct implementation of the BAAQMD's 2010 Clean Air Plan. It also discusses the BAAQMD's Draft 2017 Clean Air Plan. The FEIR found that with implementation of Mitigation Measures M-AQ-1a (Construction Emissions Minimization) and M-AQ-1b 1b (Emission Offsets), the project would not hinder either plan in meeting its primary goals.

Operation

The only significant operational air quality impact was if the approved project would be consistent with the BAAQMD's 2010 Clean Air Plan. The FEIR determined that approved project would be consistent with the BAAQMD's 2010 Clean Air Plan and this impact would be less than significant with implementation of Mitigation Measures M-AQ-1a (Construction Emissions Minimization) and M-AQ-1b (Emission Offsets).

5.1.2 Modified Project

The following discussion summarizes the findings of the air quality technical analysis presented in **Appendix B.**[31]

Construction

Dust and Criteria Air Pollutants

Because the proposed biogas utilization system would have fewer and less substantive facilities than the originally-approved energy recovery facilities, the modified project would require less excavation,

[31] Ramboll, Air Quality Health Risk Assessment Update for Potential Modification to the Future End-Use of Digester Gas at the Southeast Plant Biosolids Digester Facility Project in San Francisco, California. April 10, 2024.

drilling, trucking, and overall construction activities. This would reduce potential dust emissions because there would be less ground disturbance, soil stockpiling, and soil off-hauling. Like the approved project, the SFPUC would comply with the Dust Control Ordinance to minimize dust emissions during construction.

Similarly, this reduction in construction effort would also decrease criteria air pollutant emissions because there would be fewer hours of equipment operation and less trucking. Further, the actual daily average criteria air pollutant emissions from construction of the approved project components for Years 1 through 3 were substantially less than estimated in the FEIR (See Appendix B, Table 1) because the hours of actual equipment use have been less than estimated in the FEIR, and this trend is expected to continue. For example, the FEIR estimated that with mitigation in year 3, average daily NOx emissions during construction would be approximately 55 pounds per day (lbs/day); actual average daily NOx emissions were 30 lbs/day. Therefore, it is reasonable to conclude that criteria air pollutant emissions from the modified project, with continued implementation of Mitigation Measure M-AQ-1a (Construction Emissions Minimization) requiring the use of clean equipment and newer trucks, would be less severe than estimated in the FEIR.[32] Additionally, Mitigation Measure M-AQ-1a requires the SFPUC to track actual equipment use. Therefore, as done for Years 1 through 3 to date, SFPUC would quantify actual construction emissions during future years, including construction of the proposed biogas utilization system, and if the NOx threshold is exceeded, the SFPUC would implement Mitigation Measure M-AQ-1b (Emissions Offsets) to mitigate this potentially significant impact. However, because implementation of Mitigation Measure M-AQ-1b relies on a third-party and cannot be guaranteed, like the approved project, to the extent that implementation of M-AQ-1b is required, the modified project's construction impacts on air quality would continue to be significant and unavoidable with mitigation.

The approved project will require an additional approximately 1.5 years to construct because it is taking longer to construct the approved project components than estimated at the time of the FEIR, not the addition of new components. The total hours of equipment usage has occurred as estimated, but for fewer hours per day resulting in a longer duration. As a result, potential dust emissions and criteria air pollutant emissions from construction equipment would occur over a longer time. Dust control measures would continue to be implemented pursuant to the Dust Control Ordinance to minimize dust emissions during this extension. Spreading construction of the same scope of work out over a longer time reduces the maximum average daily emissions because the same total emissions would be divided over more days.

Health Risks

As discussed above, the FEIR determined that the approved project would have a less-than-significant impact on health risks, inclusive of construction and operations. Because the modified project operations would substantially alter the end use of digester gas and related changes to operational energy demand/supply, the effects of the modified project on health risks compared to the approved project are discussed in detail here. As discussed in Appendix B, health risks correlate with construction equipment emissions, especially during the first few years of construction when heavy equipment use is most intensive, and receptors are assumed to be young children that have higher breathing rates and a greater

32 Mitigation Measure M-AQ-1a (Construction Emissions Minimization) was previously revised to require that 80% of trucks either be 2010 or new and run on renewable diesel or could be 2012 or newer and run on regular or renewable diesel, as approved under Minor Project Modification 10.

chance of contracting cancer over their lifetime due to their young exposure age. Because criteria air pollutant emissions of the modified project would decrease due to the reduction in excavation, pile driving, building construction, and trucking, the health impacts associated with modified project construction would reasonably be expected to decrease as well. Therefore, health risks related to construction emissions would remain less than significant.

As discussed above, construction of the approved project will require an additional 1.5 years because construction is taking longer than expected at the time of the FEIR, not the addition of new project components. Thus, the total air pollutant emissions analyzed in the FEIR would not increase. Therefore, the longer construction period would not increase health risks impacts.

Operation

Dust and Criteria Air Pollutants

Like the approved project facilities, the areas around the proposed biogas upgrade system, PG&E interconnection station, and deoxygenation facility would be paved upon the completion of construction and would thus not be sources of fugitive dust during operation.

Net operational criteria air pollutant emissions of the project with the proposed biogas utilization system instead of the energy recovery system were calculated by the SFPUC's Biosolids Design Consultant Team (Brown and Caldwell, CH2M Hill, Black & Veatch).[33] Because the final detailed design of the biogas upgrade facilities is still underway, the team quantified emissions based on a worst-case operating scenario, which assumes that 70 percent of the digester gas would be converted to renewable natural gas for export (injection into the PG&E pipeline), while the remaining 30 percent of digester gas would be combusted on-site by flaring. This is a conservative assumption that would yield higher, or worst case, emissions analysis because the SFPUC expects that digester gas would be converted to renewable natural gas 90 to 95 percent of the time, with flaring limited to 5 to 10 percent of the time. The analysis also includes that steam boilers at the plant would need to operate full time to produce steam for the thermal hydrolysis process instead of being generated by the energy recovery facilities. The steam boilers would use electricity and natural gas for operation.

Table 6 compares the operational emissions of the modified project and the approved project. The changes in criteria air pollutant emissions are due to changes in equipment (namely, the removal of the proposed turbines and an increase in boiler and flaring operations), as well as differing amounts and composition of the gas combusted. As shown in **Table 6**, the modified project would increase operational emissions of ROG, PM10 and PM2.5, but would decrease NOx emissions compared with the approved project. Overall, criteria air pollutant emissions would still be below significance thresholds.

Health Risks

Since some operational criteria air pollutant emissions would increase with the proposed biogas utilization system and the location of emissions sources on the project site would change, the health risk model was updated as discussed in more detail in Appendix B to quantify changes in health risks (excess lifetime cancer risks, PM2.5 concentrations, and chronic and acute noncancer health effects) from modified project operation. **Table 7** presents the health risk impacts from operation of the modified

[33] Brown and Caldwell with CH2M, Black & Veatch, and associated firms, Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application for the Biosolids Digester Facilities Project, March 2021.

project compared to the approved project at the maximally exposed individual sensitive receptor or MEISR.

Table 6 Net Operational Criteria Air Pollutant Emissions with the Modified Project

Approach	Annual Emissions (Tons/Year)			
	ROG	NOx	PM_{10}	$PM_{2.5}$
Existing (2014) Total	5.0	22	1.7	1.7
FEIR Approved Project - Full Operation (2045) (Net Change to Existing)[34]	- 4.3	2.6	2.9	2.9
Proposed Modified Project - Full Operation (2045) (Net Change to Existing)[35]	-2.9	-3.2	3.8	3.8
CEQA Significance Threshold (Tons/Year)	10	10	15	10
Modified Project Emissions Above Threshold?	No	No	No	No

Table 7 Health Risk Impacts from Modified Project Operations

Source	Excess Cancer Risk (in a million)	PM2.5 Concentration (ug/m^3)	Chronic Non-Cancer Hazard Index (unitless)	Acute Hazard Index (unitless)
FEIR Approved Project Maximum Impact (operations only)[36]	0.022	0.09	0.0067	0.08 3
Proposed Modified Project Maximum Impact (operations only)[37]	-0.009	0.17	0.015	0.22
CEQA Significance Threshold	7.0	0.2	1.0	1.0
Modified Project Risks Above Threshold?	No	No	No	No

34 Sourced from the FEIR.

35 Brown and Caldwell with CH2M, Black & Veatch, and associated firms, Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application for the Biosolids Digester Facilities Project, March 2021. Emissions are based on the worst-case operating scenario of biogas being converted to renewable natural gas 70% of the time with 8.3% methane in the tail gas and flaring 30% of the time (Operations Scenario 3 in the BAAQMD permit application). In reality, the SFPUC expects that digester gas would be converted to renewable natural gas 90 to 95% of the time with flaring limited to 5 to 10% of the time.

36 Ramboll, Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR, March 10, 2017. Refer to Table 22, Net Project Cancer Risk at MEISR (Scenario 2); Table 24, Chronic and acute Health Impacts from Project Operation at MEISR and MEI.

37 Ramboll, Air Quality Health Risk Assessment Update for Potential Modification to the Future End-Use of Digester Gas at the Southeast Plant Biosolids Digester Project in San Francisco, California. April 10, 2024. Refer to Updated Table 22, Net Project Cancer Risk at Off-site MEISR; Updated Table 24, Chronic and acute Health Impacts from Project Operation at MEISR and MEI.

As shown in **Table 7**, although some health risks would increase, all health risks associated with modified project operations would remain below the significance thresholds. While **Table 7** only presents the operational health risk impacts, the excess cancer risk threshold of 7.0 per million is inclusive of emissions from both construction and operation. In the FEIR, the Maximally Exposed Individual Sensitive Receptor (MEISR) worst-case value for excess cancer risk was less than 0.1 to 1.7 per million, well below the CEQA threshold. Given that the modified project would reduce construction-related emissions and the operational cancer risk would decrease to -0.009 per million, it is reasonable to conclude that the modified project's combined excess cancer risk from construction and operation would still be below the CEQA threshold without re-quantifying construction risk.

Cumulative

The FEIR states that the geographic scope of the cumulative impact analysis of criteria air pollutant emissions encompasses the San Francisco Bay Area Air Basin and the geographic scope of health risk encompasses existing and new emissions sources (including diesel-fueled standby emergency generators) within approximately 1 km of the project site.

Criteria Air Pollutants

For the cumulative analysis, the FEIR establishes that no single project by itself would be of such size as to result in regional non-attainment of ambient air quality standards. The project-level thresholds for criteria air pollutants are based on levels at which new sources are not anticipated to result in a cumulatively considerable net increase in non-attainment criteria air pollutants. Therefore, a separate cumulative criteria air pollutant analysis is not necessary.

Health Risks

As discussed above, construction of the modified project would be expected to reduce health risks compared to the approved project while operation would increase some health risks and decrease others. For this reason, the cumulative health risk analysis focuses only on the increased health risks from project operations and does not evaluate the health risks from construction as the impact would be lower than the approved project. The cumulative impact analysis done for this addendum (Appendix B) estimates excess lifetime cancer risks and PM2.5 concentrations at the project's MEISR that are attributable to other existing mobile and stationary sources and cumulative projects as disclosed in the FEIR within 1,000 feet of the sensitive receptor,[38] in addition to operational impacts only from the modified project. This 1,000-foot distance from the project's MEIRs is the typical radius in which cumulative health risks are analyzed, as discussed on FEIR page 4.8-71. As discussed above in the Approach to Analysis in Section 4.3, the background risks were derived from the health risks database from the 2020 Citywide Health Risk Assessment[39] rather than the previous analysis conducted in 2014 that was used for the FEIR analysis. The cumulative projects accounted for in the cumulative analysis below are only those projects where quantitative information from the FEIR was available.[40] As shown in Appendix A, there are a number of additional projects in the vicinity of the Biosolids project site that have proposed been since the FEIR

38 The analysis includes construction of newly proposed Operations, Engineering, and Maintenance buildings (SEP-7) instead of the Maintenance Shops 1 and 2 as originally proposed in the FEIR.

39 San Francisco Department of Public Health, San Francisco Planning Department, and Ramboll. San Francisco Citywide Health Risk Assessment: Technical Support Documentation, 2020

40 Ramboll, Air Quality Technical Report, Biosolids Digester Facilities Project Draft EIR, March 10, 2017. Refer to Table 17, Cumulative Projects and Schedules; Table 18, Cumulative Project Operational Emissions and Modeled Emission Rates.

certification. Lastly, quantitative health risk information that was not available for the San Francisco Gateway Project is now available and can be considered in the updated cumulative analysis. The estimated cumulative excess lifetime cancer risk from operational emissions of the modified project at the nearest resident location (maximally exposed individual sensitive receptor or MEISR) would be approximately 69 in a million, compared to 10 in a million for the approved project as analyzed in the Air Quality Technical Report prepared for the FEIR.[41] This increase is due to the difference in background risks and the receptor location and accounts for an additional cumulative project.[42] The cumulative PM2.5 concentration from modified project emissions at this location would decrease from 9.0 ug/m^3 to 8.8 ug/m^3. The chronic non-cancer hazard index at this location would increase from 0.0087 to 0.019 (unitless). **Table 8** shows the quantitative cumulative health risk impact at the Modified Project maximally exposed individual sensitive receptor. However, Table 8 does not account for additional health risks from other nearby cumulative projects listed in Appendix B for which quantitative information is not available. Nor does it account for additional health risks from the SEP-7 Operations, Engineering and Maintenance Buildings that would replace Maintenance Shops No. 1 and No. 2 that were part of the project analyzed in the FEIR. To the extent that these cumulative projects also result in PM2.5, diesel particulate matter or other toxic air contaminants within 1,000 feet of the modified project maximally exposed individual receptor, these projects would increase health risks beyond that disclosed in Table 8. It is possible that cumulative health risks could be exceeded when considering the health risk impact from these additional cumulative projects. However, the proposed project's contribution would remain the same and would be below the project-level significance thresholds. Therefore, the modified project's health risk impact, like the approved project, would be less than cumulatively considerable, a less-than-significant impact.

Conclusion

As discussed above, dust and criteria air pollutant emissions from modified project construction would decrease as compared to the approved project because the proposed revisions would entail smaller structures, less excavation and hauling. As a result, construction dust emissions from the modified project would remain less than significant with compliance with the Dust Control Ordinance. Construction criteria air pollutant emissions would be reduced with Mitigation Measure M-AQ-1a (Construction Emissions Minimization), except potentially NOx emissions. If NOx emissions are exceeded, Mitigation Measure M-AQ-1b (Emission Offsets) would also be required, but because implementing offsets depends on the actions of a third party (the Bay Area Air Quality Management District or BAAQMD), this impact would remain significant and unavoidable with mitigation like the approved project.

Modified project operation would not result in dust emissions, like the approved project. Modified project operation would reduce the annual emissions of some criteria air pollutants and increase others compared to the approved project; however, all pollutants would be below significance thresholds and thus impacts would remain less than significant. Similarly, modified project operation would reduce some health risks and increase others relative to the approved project; however, all health risks would be below significance thresholds and thus remain less than significant. The modified project would result in no

41 The Air Quality Technical Report prepared for the FEIR evaluates the maximum health risk impact of two scenarios: 1) scenario 1 evaluates the cancer risk impact from construction and operation of the approved BDFP project and 2) scenario 2 evaluates the cancer risk impact from operation of the approved BDFP project. Because scenario 1 would result in the greatest health risk impact, these results are reported in the FEIR. The results of scenario 2 are reported in the Air Quality Technical Report and compared to the modified project's operational health risks in this addendum because construction health risks would be lower than predicted in the FEIR.

42 For example, the background risk at the approved project's sensitive receptor location increased from 10 in a million to 19 in a million using the Citywide HRA.

changes regarding odors during construction and operation, which would thus remain less than significant.

Table 8 Cumulative Health Risk Impacts from Modified Project Operation

Source	Excess Cancer Risk (in a million)	PM2.5 Concentration (ug/m^3)	Chronic Non-Cancer Hazard Index (unitless)
FEIR Approved Project Operation Cumulative Health Risk Impact (existing, project, plus cumulative projects[43]	10	9.0	0.0087
Proposed Modified Project			
Proposed Modified Project Health Risks[44]	-0.009	0.17	0.015
Existing Background Health Risks (Citywide HRA Background)	57	8.5	--
Cumulative Project Health Risk Contribution[45, 46, 47]	0.12	0.083	0.0038
Modified Project Cumulative Health Risk Total	57	8.7	0.019
Cumulative Significance Thresholds for sensitive receptors in Health Vulnerable Locations within Air Pollutant Exposure Zone	90	9.0	10
Project Level Significance Thresholds	7.0	0.2	1.0
Modified Project Health Risks Exceed Significance Thresholds?	No	No	No

The modified project cumulative health risk from operations would increase, corresponding to changes in operations, background health risks, additional health risks from cumulative projects and sensitive receptor location; however, the project's contribution to cumulative health risks would remain less than significant. Further, as explained above, actual operational emissions are expected to be less than

43 As discussed in the FEIR and AQTR, Acute Non-Cancer Hazard is not assessed as a cumulative impact.

44 The Citywide HRA does not evaluate chronic hazard Index.

45 Ramboll, Air Quality Health Risk Assessment Update for Potential Modification to the Future End-Use of Digester Gas at the Southeast Plant Biosolids Digester Facility Project, April 10, 2024. Updated AQTR Table 26 – Cumulative Lifetime Excess Cancer Risk at MEISR with the Proposed Modification; Updated AQTR Table 27 – Cumulative PM2.5 Concentration at MEISR with the Proposed Modification; and Updated AQTR Table 28 – Cumulative Chronic Hazard Index at MEISR with the Proposed Modification

46 AECOM, San Francisco Gateway Project Air Quality and Health Risk Assessment Methodology Memorandum, August 2023.

47 The quantitative cumulative health risk analysis includes those projects evaluated in Ramboll's Air Quality Health Risk Assessment Update for Potential Modification to the Future End-Use of Digester Gas at the Southeast Plant Biosolids Digester Facility Project in San Francisco, California (cited above) in addition to the maximum health risk impact from the SF Gateway Project at 749 Toland Street and 2000 McKinnon Avenue, Planning Department Case no. 2015-012491ENV. The maximum exposed individual resident for the SF Gateway Project is located 440 feet south of the SF Gateway Project site on Oakdale Avenue, which is approximately two-thirds of a mile southwest of the Modified Project maximally exposed individual receptor impact. Thus, the actual health risk contribution from the SF Gateway Project at the Modified Project maximally exposed individual receptor would be much lower than presented here.

calculated, as the analysis is based upon the conservative assumption of the biogas utilization system operating 70 percent of the time, whereas it is expected to operate 90 to 95 percent of the time.

For the reasons described above, the modified project would not have any new or substantially more severe impacts related to air quality than the approved project.

5.2 Greenhouse Gases

5.2.1 Biosolids Digester Facilities Project FEIR Findings

The FEIR found that the approved project would have less-than-significant impacts related to the following significance criteria regarding greenhouse gas emissions:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The FEIR discusses that because no individual project could emit greenhouse gases at a level that could result in a significant impact on global climate, greenhouse gas emissions are a cumulative impact. The FEIR evaluated the proposed project's consistency with AB 32 goals by comparing the project's net changes in non-biogenic GHG emissions to the stationary source GHG significance threshold from BAAQMD, which is 10,000 metric tons of carbon dioxide equivalent ($MTCO_2E$). The FEIR identified that construction would directly emit greenhouse gases from equipment use and vehicles and indirectly emit greenhouse gases via electricity providers for electric power. The FEIR determined that the project's annualized construction-related GHG emissions would average 894 $MTCO_2E$, which would be below BAAQMD's annual threshold for stationary sources of 10,000 $MTCO_2E$. Further, the SFPUC would be required to use renewable diesel in all municipal fleets (Executive Directive 06-02) and comply with San Francisco Environment code Chapters 7 and 14 to recycle construction waste. Therefore, the project's contribution to global GHGs from construction would be less than significant.

Regarding operation, the FEIR discussed that, by 2045, the approved project would result in a 120 percent increase in biogenic greenhouse gas emissions and an 11 percent decrease in non-biogenic greenhouse gas emissions compared to existing conditions. Biogenic emissions would mainly increase due to an increase in the production and combustion of digester gas due to population growth and the increased capture and reuse of biogas for on-site energy recovery. Meanwhile, non-biogenic emissions would decrease due to elimination of future natural gas use for energy to run processes because the originally planned energy recovery facilities would generate this energy instead. Non-biogenic emissions at full operation, estimated to be 207 $MTCO_2E$, would be well below BAAQMD's annual threshold for stationary sources of 10,000 $MTCO_2E$. The FEIR does not consider biogenic greenhouse gas emissions from the Southeast Plant to be a project impact because they would occur regardless of the project and regardless of whether the organic material decomposes in solids processing facilities at the treatment plant or at a land application site elsewhere (i.e., landfills, composting operation, etc.). The FEIR also discussed that because the approved project energy recovery facilities would generate sufficient electricity to power all the new Biosolids facilities by 2045, making more renewable energy from Hetch Hetchy hydropower available to other users, it would also indirectly reduce GHG emissions.

The FEIR also notes that the approved project would be subject to the California Air Resources Control Board's Greenhouse Gas Mandatory Reporting Regulation, just as it is now for the existing facilities. The project would also be subject to applicable City regulations adopted to reduce operational greenhouse gas emissions as identified in the San Francisco Strategies to Address Greenhouse Gas Emissions, which include but are not limited to: compliance with the City's Commuter Benefits Program, Emergency Ride Home Program, Executive Directive 06-02 requiring use of renewable diesel, Clean Construction Ordinance, bicycle parking requirements, the City's Green Building and recycling and composting ordinance requirements that would reduce greenhouse gas emissions in the City from transportation, waste, and promote energy and water efficiency. Lastly, by planting new landscaping trees per (and above) the City's Street Tree planting requirements, the approved project would help offset the effects associated with the proposed removal of about 90 trees and would serve to increase carbon sequestration. Through implementation of these actions, the FEIR determined that the project would be consistent with San Francisco's Strategies to Address Greenhouse Gas Emissions, and thus would not conflict with the AB 32 goal to reduce greenhouse gas emissions to 1990 levels by 2020.

5.2.2 Modified Project

Construction

Construction of the modified project would require less intensive construction activities (less excavation, piles, materials) and fewer truck trips which, as discussed above, would reduce equipment and exhaust emissions and related greenhouse gas emissions. Although construction of the approved project will require an additional approximately 1.5 years, it is because the project it is taking longer to build, not because of the addition of new project components and thus total greenhouse gas emissions would not increase. As a result, there would not be an increase in GHG emissions from modified project construction.

Operation

Table 9 shows the modified project greenhouse gas emissions, and the net operational greenhouse gas emissions resulting from replacing the originally-approved energy recovery facilities with the biogas utilization system. Changes in greenhouse gas emissions are also due to the changes in equipment (namely, the removal of the proposed turbines and an increase in boiler and flaring operations), as well as differing amounts and composition of the gas combusted between the FEIR scenario and the modified project. Compared to the approved project's operations as analyzed in the FEIR, biogenic emissions have decreased, non-biogenic emissions have increased, and total project GHG emissions have decreased slightly, without accounting for any greenhouse gas emissions reductions from renewable natural gas production.[48] Renewable natural gas produced by the modified project would be injected into PG&E's natural gas pipeline. By making this renewable natural gas available to customers, the renewable natural gas injection would thus replace and avert potential emissions from burning fossil fuel-derived natural gas. This calculation assumes only 70% of the digester gas is converted to renewable natural gas and exported off site; in reality, more renewable natural gas is expected to be produced and injected into the pipeline. The modified project's total greenhouse gas emissions would be 30,615 $MTCO_2E$ per year, and

48 CO_2 emissions from biogas combustion in the flares and thermal oxidizer are considered biogenic emissions by the California Air Resources Board; however, the CH_4 and N_2O emissions from these sources are considered non-biogenic emissions. Additionally, biomethane and biogas emissions from wastewater treatment facilities are exempt from compliance requirements under of the State's Cap-and-Trade Regulation, per Section 95852.2(a)(8)(B).

19,805 $MTCO_2E$ per year when accounting for averted emissions, a reduction when compared to 31,241 $MTCO_2E$ per year analyzed in the AQTR. While the modified project's non-biogenic emissions would increase to 5,005 $MTCO_2E$ per year, non-biogenic emissions would still be below the GHG significance threshold outlined by the BAAQMD, which is 10,000 $MTCO_2E$ per year for stationary sources.

Table 9 Greenhouse Gas Emissions from Modified Project Operations

	GHG Emissions ($MTCO_2e$/year)[49]		
Emissions Type	Existing 2014	EIR Project Full Operation 2045	Modified Project Full Operation
Total Biogenic Emissions	13,931	31,035	14,566
Total Non-Biogenic Emissions	234	207	16,048
Total Operational Emissions	**14,165**	**31,241**	**30,615**
Averted Emissions from Biomethane Sent to PG&E Pipeline	--	--	-10,809
Net Operational Non-Biogenic Emissions (including Averted Emissions)	**--**	**-27**	**5,005**
Total Operational Emissions (including Averted Emissions)	**14,165**	**31,241**	**19,805**

Conclusion

The modified project would reduce the construction level of effort compared to the approved project, which would reduce greenhouse gas emissions from construction. Total greenhouse gas emissions from modified project operations would also decrease relative to the approved project. When accounting for averted emissions from the renewable natural gas sent to the PG&E pipeline, the total operational greenhouse gas emissions would be even further reduced. While non-biogenic emissions would increase, emission levels would be below BAAQMD significance thresholds for greenhouse gas emissions. Moreover, like the approved project, the modified project would continue to be consistent with the various San Francisco's Strategies to Address Greenhouse Gas Emissions to reduce emissions during construction and operation, and would not conflict with local or state climate goals. Therefore, modified project construction, operation, and cumulative impacts on greenhouse gases would remain less than significant.

For the reasons described above, the modified project would not have any new or substantially more severe impacts related to greenhouse gas emissions than the approved project.

[49] Ramboll, Air Quality Health Risk Assessment Update for Potential Modification to the Future End-Use of Digester Gas at the Southeast Plant Biosolids Digester Project in San Francisco, California. April 10, 2024.

5.3 Cultural Resources

5.3.1 Biosolids Digester Facilities Project FEIR Findings

The Biosolids Digester Facilities Project FEIR found that the approved project would have potentially significant impacts related to the following significance criteria regarding cultural resources:

- Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco Planning Code
- Cause a substantial adverse change in the significance of an archeological resource pursuant to CEQA Guidelines Section 15064.5
- Disturb any human remains, including those interred outside of formal cemeteries

The potentially significant impacts associated with the above criteria for the approved project and modified project are discussed in detail below.

Historical Resources

The FEIR evaluated all buildings and structures at the Southeast Plant for eligibility to the National Register and California Register and determined that a portion of the SEP, including 26 buildings and structures (or combinations of buildings and structures) that comprise most of the southernmost block of the SEP and a portion of the block adjacent to the north, was eligible for listing in the National and California registers and National Register as a historic district named the Southeast Treatment Plant Streamline Moderne Industrial Historic District (district). The district includes 22 contributing buildings and structures that were all constructed in 1952 in the Streamline Moderne style. Four non-contributing buildings and structures were not 45 years old when the assessment was made and did share the same architectural style as the district. The evaluation found that none of the buildings or structures within the district were individually eligible for listing in the National or California Register. Additionally, the FEIR found that Buildings A and B of the Central Shops complex eligible for listing in the National and California registers as a single resource having the distinctive characteristics of a type, period, and method of construction as an important example of Industrial Modern architecture in San Francisco.

The approved project included the demolition of historic Building 870 and all the historic Central Shops buildings to build the new Maintenance Shops No. 1 and the new digester tanks at those locations. The removal of Building 870 was determined to be a less-than-significant impact for multiple reasons; however, demolition of the Central Shops buildings was determined to be a substantial adverse change in the significance of the historical resource and requires implementation of Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display). The FEIR concluded that while Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display) would reduce the severity of the impact, it would not reduce the impact to a less-than-significant level, and that the demolition of the Central Shops was a significant and unavoidable impact with mitigation.

Archeological Resources

The FEIR identified the presence of previously recorded California Register- and National Register-eligible Native American archeological site CA-SFR-171 within the approved project site, as well as the potential presence of a deeply submerged/buried prehistoric deposit. It also identified the potential for historic archeological resources related to a potential buried historic refuse deposit. The FEIR determined that

these archeological resources could be impacted by excavation and pile drilling, but that impacts would be reduced to a less-than-significant level through implementation of Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) and Mitigation Measure M-CR-2b (Procedures for Accidental Discovery of Archeological Resources) that require the SFPUC as directed by Planning Department's archeologists to conduct additional archeological testing prior to construction and monitoring during construction, to halt work and implement proper procedures to ensure appropriate treatment of significant archeological resources discovered, and to implement data recovery and public interpretation if significant resources were found. Implementation of these measures also required consultation with Native American representatives and Native American monitoring during construction activities.

Human Remains

The FEIR discussed that although no known human burial locations had been identified within the approved project site during archeological investigations undertaken for the FEIR, the possibility that human remains could be encountered during earthmoving activities could not be discounted given construction would occur within a known Native American archeological site. The FEIR concluded that potentially significant impacts on human remains would be reduced to a less-than-significant level through implementation of Mitigation Measure CR-2a (Archeological Testing, Monitoring, and/or Data Recovery), which requires that any human remains or associated or unassociated funerary objects discovered during construction be treated in compliance with applicable local, state and federal laws, including immediate notification of the Planning Department's archeologist, the Coroner of the City and County of San Francisco (Office of the Chief Medical Examiner), and the California Native American Heritage Commission in the event of the Coroner determined that the human remains are Native American remains. The California State Native American Heritage Commission would appoint a Most Likely Descendant (Public Resources Code Section 5097.98). The Most Likely Descendant would provide recommendations to the SFPUC on the appropriate treatment of the remains.

5.3.2 Modified Project

As discussed above in the approved project status, all buildings and structures on the proposed biogas utilization system site have been demolished. The approved project no longer includes demolition of Building 870, a contributor to the historic district, as Maintenance Shop 1 was removed from the approved project in an earlier modification. The modified project would be within the footprint of the approved project.

Construction

Historical Resources

The proposed biogas utilization system, including all tanks, containers, and pipelines to convey renewable natural gas from the north to south side of Jerrold Avenue and into PG&E's existing pipeline in Quint Street would all be built outside of the Southeast Plant Historic District. Further, there are no buildings or structures in the areas where the proposed facilities would be built. Therefore, the proposed modifications would not directly impact historical resources. Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display) applicable to the Central Shops has been completed or is in process of being finalized with the Planning Department.

The FEIR discusses that vibration of 0.5 in/sec PPV or greater could indirectly damage nearby historic structures and that pile driving within 75 feet of a structure could exceed this limit. Since Building 870 would not be demolished, it could be indirectly impacted by the modified project. However, neither Building 870 nor any other historic buildings are within 75 feet; therefore, no historic building would be expected to be indirectly damaged by modified project construction. The nearest historic buildings are about 180 feet away. At this distance, vibration from the modified project would not damage these contributing historic buildings.

Archeological Resources

Construction of the modified project would reduce excavation by over 5,000 cubic yards compared to the approved project excavation and thus reduce potential impacts on archeological resources because eliminating the energy recovery building and digester gas treatment facility on the former Asphalt Plant site would reduce excavation in known Native American archeological site CA-SFR-171. The modified project would also require 279 to 331 fewer deep piles (depending upon the type of foundation needed for the biogas upgrade facility). Removal of the energy recovery facilities would eliminate 41 piles in CA-SFR-171, although the biogas upgrade facility may require up to 52 piles for a net increase in 9 piles, if piles are needed. The SFPUC has already completed testing and data recovery for CA-SFR-171 as required by Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) based on the impacts of the approved project[50] and is currently working with the Planning Department and Native American community on a public interpretation program. Based on the chosen foundation system for the biogas upgrade facility, additional archeological investigation identified in consultation with Native American tribal representatives will be undertaken as required by Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) to address potential impacts on CA-SFR-171 due to the modified project. The completed testing did not identify the presence of the potential historic-era refuse deposit or any other significant historical archeological resources within the project area. In any event, the biogas utilization system would not include work near the potential historic-era refuse deposit location. Like the approved project, monitoring would be required during open-cut excavations for construction of the proposed biogas utilization system facilities pursuant to M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) and Mitigation Measure M-CR-2b (Accidental Discovery of Archeological Resources) would be implemented in the event of discoveries to minimize impacts on archeological resources from the modified project.

Human Remains

For the same reasons discussed above for archeological resources, construction of the modified project would have similar or reduced potential to affect the known archeological site wherein human remains could be present. Like the approved project, during construction of the modified project, the SFPUC would be required to conduct monitoring during excavation pursuant to M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) and implement Mitigation Measure M-CR-2b (Accidental Discovery of Archeological Resources) in the event of discoveries to minimize impacts to human remains.

50 Far Western, December 2023. Archaeological Data Recovery Report for Site CA-SFR-171 for the Biosolids Digester Facilities Project, Southeast Water Pollution Control Plant, San Francisco, California Planning Department Case No. 2015-000644ENV Block 5262/Lot 009.

Operation

Like the approved project, the modified project operations would not impact historic or archeological resources, including human remains.

Cumulative

Historic Resources

The FEIR establishes that the geographic scope for cumulative effects on historical resources includes the Southeast Plant and the boundaries of the *Southeast Treatment Plant Streamline Moderne Industrial Historic District*. The FEIR found that the loss of Building 870 in combination with the proposed future demolition of all existing digesters (Buildings 630-730) and their control buildings (Buildings 620 and 680) as part of the Demolition of the Existing SEP Digesters and Southside Renovation Project, would result in a significant and unavoidable cumulative impact on historic architectural resources, even with implementation of Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display). Building 870 would no longer be demolished under the modified project thereby reducing cumulative impacts on the historical resource. The SFPUC has notified the Planning Department of another change to the approved project known as the SEP-7 Operations, Engineering and Maintenance buildings that is undergoing separate environmental review, which for the purpose of this addendum, is evaluated as a new cumulative project. The SEP-7 Operations, Engineering, and Maintenance Building Project would demolish Building 850, which is also a contributor to the *Southeast Treatment Plant Streamline Moderne Industrial Historic District*, but since Building 870 will not be removed, the net loss of the district's contributory buildings would remain at 13 of the original 22 contributors or 59 percent and would not result in additional cumulative impacts than those identified in the FEIR.

Of the other projects on the cumulative list at the Southeast Plant at the time of the of FEIR, only the Southeast Plant Headworks Replacement project (still under construction) remains on the updated cumulative list and the FEIR determined this project would not contribute to a cumulative impact on historic architectural resources. Several new SFPUC projects at the Southeast Plant have been added to the cumulative list, including the Primary Treatment Health and Safety Improvement project (SEP 040 and 041), HVAC and Mechanical Upgrades, and Electrical Controls Upgrade (SEP 545). The Primary Treatment Health and Safety Improvement project includes replacement of windows and vents and installation of conduit on Buildings 040, 041, and 043 all of which are contributors to the historic district. Previous environmental review for this project determined that after completion the buildings would continue to convey their historical significance such that this project in combination with the modified project would not cause an adverse cumulative impact.[51] The other two projects involve upgrades and repairs of existing equipment that would not impact historic resources.

Regardless, as found in the FEIR for the approved project, because the overall implementation of the modified project would replace the function of the existing digesters and associated control buildings, thereby allowing for demolition of the existing digesters and control buildings, the modified project's contribution to this cumulative impact would be cumulatively considerable, or significant, and the cumulative impact on the historic district would remain significant and unavoidable with mitigation.

51 San Francisco Planning Department, CEQA Categorical Exemption Form, SFPUC SEP 040/041/043 Health and Safety Improvements, Case No. 2022-011482ENV, July 12, 2023.

The only other project added to the updated cumulative list in the vicinity of the Southeast Plant with the potential to impact historic resources is the future Bayview Train Caltrain Station project. According to the San Francisco Property Information Map, there are buildings on this parcel that are old enough to be historic resources but have yet to be evaluated. This cumulative project and the modified project are near each other; however, changes at this cumulative project site would not combine with changes to historic buildings within the Southeast Plant given intervening fencing, walls, and plant facilities to result in a new significant cumulative impact.

Archeological Resources

The FEIR establishes that the geographic scope for cumulative effects on archeological resources and human remains includes the immediate vicinity of locations where the project would cause ground disturbance. The FEIR found that the approved project and cumulative projects in the project vicinity at the time of the FEIR could result in a significant cumulative impact on buried archaeological resources associated with Native American site CA-SFR-171. The only two cumulative projects remaining from the FEIR are the Southeast Plant Headworks Replacement Project and the SEP Power Feed and Primary Switchgear Upgrades. Excavation for these projects is largely completed and has not exposed significant buried archaeological resources to date. The new cumulative project, the SEP-7 Operations, Engineering and Maintenance Building Project, would also occur within the boundary of CA-SFR-171 and could likewise affect buried archeological resources in the project vicinity. As part of the implementation of Mitigation Measures M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) for the approved project, several geoarcheological cores were collected around Building 850 and were found to contain a dense layer of redeposited shell midden. Thus, this project combined with modified project could result in a significant cumulative impact on this site. The SEP-7 Operations, Engineering, and Maintenance Building Project would also be subject to Mitigation Measures M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) and Mitigation M-CR-2b (Accidental Discovery of Archeological Resources) and would reduce this impact to less than significant.

Overall, the modified project would reduce the extent of excavation that could affect archeological resources relative to the approved project. Additionally, removal of the energy recovery facilities would eliminate 41 piles in CA-SFR-171, but the biogas upgrade facility may require up to 52 piles for a net increase in 9 piles. Nevertheless, similar to the approved project, the modified project's contribution to cumulative impacts would not be considerable with implementation of Mitigation Measures M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) and Mitigation M-CR-2b (Accidental Discovery of Archeological Resources).

Conclusion

As discussed above, the modified project construction and operation would have similar or reduced impacts on historic resources and archeological resources and impacts would remain less than significant with mitigation, including implementation Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display), Mitigation Measures M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery), and Mitigation M-CR-2b (Accidental Discovery of Archeological Resources). As a result, the modified project's contribution to cumulative impacts would also not be considerable.

For the reasons described above, the modified project would not have any new or substantially more severe impacts on cultural resources than the approved project.

5.4 Tribal Cultural Resources

The Biosolids Digester Facilities Project FEIR did not analyze tribal cultural resources as this topic was not yet mandated for inclusion under CEQA. As defined in Public Resources Code section 21074, a Tribal Cultural Resource is either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k); or, b) a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Construction

As discussed above, archeological site CA-SFR-171 was found eligible for the National Register of Historic Places and the California Register of Historical Resources. Based on previous consultation with local California Native American tribal representatives undertaken by the San Francisco Planning Department, all Native American archeological resources have cultural value to tribal representatives and are considered to be Tribal Cultural Resources. As such CA-SFR-171 is considered to be a Tribal Cultural Resource. As required under Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) and discussed in the Cultural Resources section above, an archeological data recovery program has already been prepared, and Native American monitoring was undertaken as part of the effort. Native American monitoring and consultation will continue to be included as part of Mitigation Measure M-CR-2a. Cultural sensitivity training by a local Native American representative will also be included in tandem with archeological awareness and accidental discovery training for construction crews.

Additionally, as requested through prior consultation with local Native American tribal representatives, a public interpretation program is one means to memorialize the cultural value of the tribal cultural resource while also educating the public concerning Native American lifeways, both past and present. On September 1, 2021, the San Francisco Planning Department sent letters to local California Native American representatives providing information on CA-SFR-171 and asking if they would like to consult on a public interpretation program. Based on the responses received, the Planning Department and SFPUC are in the process of developing a public interpretation program with the Association of Ramaytush Ohlone, which will include both an onsite interpretative component as well as a nearby offsite component in a more publicly accessible location. Therefore, project impacts on tribal cultural resources would be less than significant with the implementation of consultation on the archeological investigations of CA-SFR-171 and public interpretation program that is currently under preparation in consultation with the Native American community as required under Mitigation Measures M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery).

Operation

Like the approved project, modified project operations would not impact archeological resources, including tribal cultural resources.

Cumulative

The cumulative impact on CA-SFR-171 as described above under cumulative archeological resources would be similar to the cumulative impact analysis on CA-SFR-171 as a tribal cultural resource. As stated, like the approved project, the modified project's contribution to cumulative impacts on tribal cultural resources would not be considerable with implementation of public interpretation program that is currently under preparation in consultation with the Native American community as required under Mitigation Measures M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery).

Conclusion

As discussed above, the modified project construction and operation would have similar or reduced impacts on archeological resources and tribal cultural resources as the approved project, and impacts would be less than significant with mitigation, including implementation of the public interpretation program that is currently under preparation in consultation with the Native American community as required under Mitigation Measures M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery). As a result, the modified project's contribution to cumulative impacts would also not be considerable.

5.5 Noise

5.5.1 Biosolids Digester Facilities Project FEIR Findings

The Biosolids Digester Facilities Project FEIR found that the approved project would have potentially significant impacts related to the following significance criteria regarding noise and vibration:

- Result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project

The potentially significant impacts associated with the above criteria for the approved project and modified project are discussed in detail below under Construction.

Additionally, the FEIR evaluated several other significance criteria regarding potential noise and vibrations impacts and determined that there would either be no impact or less-than-significant impacts as briefly discussed here. The approved project was found to have no impact related to being with within an airport land use plan area or in the vicinity of a private airstrip or being affected by existing noise level because there are no airports nearby and the project site is not a noise-sensitive land use. The FEIR determined that noise from construction traffic would be less than significant because a traffic control plan would establish truck routes that minimize truck traffic in residential areas and that traffic along Phelps Street where there are residences would primarily be worker vehicles accessing the Southeast Greenhouses staging area (not trucks). The FEIR determined that operational noise from the new facilities and additional truck trips would be less than significant because the estimated maximum combined noise level of 59 dBA at nearest residential receptor at 1700 Kirkwood Avenue would not exceed the minimum 60-dBA nighttime noise limit applicable under Section 2909(d) and there would only be a small change in trucking that would occur on Jerrold Avenue, Rankin Street, and Evans Street where there are no residential receptors or noise-sensitive uses. Lastly, the FEIR found that vibration from construction and operation would have a less-than-significant impact on buildings and people

because vibration would not exceed the 0.5 in/sec PPV threshold for structural damage at the nearest buildings or the 0.1 in/sec PPV threshold for human annoyance at the nearest sensitive receptor.

Construction

As discussed in the FEIR, Section 2907 of the Noise Ordinance allows construction activities between 7:00 a.m. and 8:00 p.m. but limits noise from any individual piece of construction equipment, except impact tools that are exempt, to 80 dBA at 100 feet (equivalent to 86 dBA at 50 feet). The FEIR evaluated the various types of non-impact construction equipment to be used and found that only concrete saws would exceed the 86-dBA (at 50 feet) noise limit of Section 2907, but concluded that this potentially significant impact on noise would be reduced to a less-than-significant level through implementation of the noise controls specified in Mitigation Measure M-NO-1a (Shielding of Concrete Saw Operations). The FEIR defined a substantial temporary or periodic increase in ambient noise levels as noise that would be greater than 10 dBA above ambient at sensitive receptors. The FEIR found that construction noise level would only exceed this threshold at the former Southeast Community Center daycare center[52] and the closest residential receptor at 1700 Kirkwood Avenue at the corner of Phelps Street from activities at the Southeast Greenhouses staging area. The FEIR concluded that implementation of the noise controls specified in Mitigation Measure M-NO-1b (Construction Noise Control Measures at Southeast Greenhouses Staging Area) would reduce this impact to a less-than-significant level. Noise from construction at other locations throughout the site was found to be lower than 10 dBA above ambient.

Operation

As discussed above, the FEIR found that all potential noise and vibration impacts from operation of the approved project would be less than significant.

5.5.2 Modified Project

Construction

Noise

Construction of the proposed biogas utilization system would not require the use of any new types of equipment beyond what was included in the FEIR for the approved project, and all of the equipment in the FEIR was found to comply with the noise limit of 86 decibels average (dBA) at 50 feet in San Francisco Police Code section 2907, except for the concrete saws. Like the approved project, Mitigation Measure M-NO-1a (Shielding of Concrete Saw Operations) would be required during construction of the modified project to minimize noise from concrete saws. Construction of the modified project would occur within the approved project boundary and would use the previously approved staging areas and truck routes, including the off-site vacant warehouses on McKinnon Street at the corner of Rankin for employee parking and McKinnon as a truck route. As a result, construction of the modified project would not affect additional sensitive noise receptors. The closest construction to the residential receptor at 1700 Kirkwood Avenue would be construction of the Biogas Upgrade Facility and the PG&E Interconnection Station and Deoxygenation Facility. These facilities would be built at the same locations as the originally approved Maintenance Shops No. 2 Building and the Digester Gas Treatment facility, respectively. The FEIR determined that construction of the Maintenance Shops No. 2 Building and the Digester Gas Treatment would not be greater than 10 dBA above ambient at this closest receptor. The proposed

52 The former Southeast Community Center daycare center has relocated to 1550 Evans and is thus no longer a sensitive receptor that could be affected by the proposed biogas utilization system construction. Therefore, it is not discussed further.

Biogas Upgrade Facility and the PG&E Interconnection Station and Deoxygenation Facility are smaller structures and would involve less intensive construction than the facilities analyzed in the FEIR, and thus would generate similar or less noise. As a result, it is reasonable to conclude that noise during construction of the biogas utilization system also would not increase noise at 1700 Kirkwood Avenue by greater than 10 dBA above ambient.

The Southeast Greenhouses staging area would continue to be used for offices and parking during construction of the modified project and these uses generate limited noise. With implementation of Mitigation Measure M-NO-1b (Construction Noise Control Measures at Southeast Greenhouses Staging Area), noise impacts on nearby residences during use of this staging area would remain less than significant with mitigation.

As discussed above, construction will extend an additional 1.5 years due to construction of the approved project taking longer than estimated, not the addition of new project components. As a result, while noise from construction would occur for a longer time, it would not involve new types of equipment or methods/activities that would result in different or louder noise. Therefore, with implementation of the mitigation measures described above, construction noise impacts would continue to be less than significant with mitigation throughout the extended project duration.

Vibration

Vibration from modified project construction and operation would continue to have a less-than-significant impact on buildings and people because vibration-inducing construction activities would be located at the same distances relative to nearby buildings and sensitive receptors, and less pile driving would occur.

Operation

The FEIR establishes operational noise limits of no more than 8 dBA above ambient at the nearest property line, 60 dBA at the exterior of the nearest residence at night, and 70 dBA at the exterior of the nearest residence during the day. Ambient noise at the closest residential receptor at 1700 Kirkwood Avenue is 67 dBA during the day and 58 dBA at night. The FEIR estimated that the combined noise from operating all of the new Biosolids facilities would be 59 dBA at the exterior of 1700 Kirkwood Avenue and determined that this would be less than significant because it would be below ambient noise. As shown in FEIR Table 4.7-11, under the approved project, the closest operational noise source to 1700 Kirkwood Avenue would have been the originally approved digester gas treatment facility at 47 dBA.

Estimated noise from the proposed Biogas Upgrade Facility on the north side of Jerrold would be similar to noise from the modified project's digester gas treatment facility (47 dBA) and waste burners (35 dBA), respectively, which would be 47.3 dBA when combined.[53,54] The Deoxygenation System would have similar noise levels as the Digester Gas Treatment facility or 47 dBA. Noise from the PG&E Interconnection Station would be negligible because it would consist of only piping and valves to test renewable natural gas quality and would not require pumping to return poor quality gas to the Biogas Upgrade Facility because the renewable natural gas is pressurized. Although noise from the proposed Biogas Upgrade Facility at 47.3 dBA would be slightly higher than noise from the originally approved Digester Gas

53 Noise levels provided by designer Adam Ross, P.E., Vice President, Central Valley-Tahoe Area Leader, Brown and Caldwell.

54 Noise calculations performed using online calculators at http://www.sengpielaudio.com/calculator-leveladding.htm and http://www.sengpielaudio.com/calculator-SoundAndDistance.htm

Treatment facility at 47 dBA, the Biogas Upgrade Facility would be over 65 feet further away from residential receptor at 1700 Kirkwood Avenue. To be conservative, even if noise from operation of the proposed biogas utilization system were combined with the total estimated noise level of 59 dBA from all the approved project facilities (including the Digester Gas Treatment Facility and other energy recovery facilities that would no longer be included in the modified project), the combined noise would be 59.28 dBA, which would not be a discernable increase and would not exceed the minimum 60-dBA nighttime exterior noise limit at 1700 Kirkwood Avenue. Therefore, noise from operation of the modified project would remain less than significant.

Only one additional person may be required to operate the proposed biogas utilization system, which would add a negligible amount of worker vehicle traffic. Like the approved project, several trucks would be required every four to six months to remove solid waste from the digester gas upgrade process. Truck trips to remove this solid waste would be the same as for the approved project and the FEIR determined that noise from these trucks would be less than significant. Given the minor change in operational traffic, traffic related noise during operation of the proposed biogas utilization system would also be expected to be less than significant.

Cumulative

In general, cumulative construction-related noise increases would occur if any nearby cumulative projects are constructed at the same time as the modified project and would affect the same sensitive receptors. As discussed above, the nearest sensitive receptor is the residence at 1700 Kirkwood Avenue. Among the projects identified in **Appendix A**, only the following could result in cumulative noise impacts due their location adjacent to the modified project site and construction schedule:

- Headworks Replacement Project
- Power Feed and Primary Switchgear Upgrades
- Wastewater Enterprise Repair and Replacement
- Quint-Jerrold Connector Road
- Primary Treatment Health and Safety Project
- Electrical Controls Upgrade (SEP 545)
- HVAC and Mechanical Upgrades
- Operations, Engineering and Maintenance Buildings (SEP 7)[55]

The Southeast Plant Headworks project site is located north of the modified project site and further from the sensitive receptors. As the loudest construction activities – excavation, pile driving, and building erection - have been completed, remaining construction noise from this project is expected to be lower. The Quint-Jerrold Connector Road Project would be separated physically from the modified project site by the existing railroad embankment which would buffer sensitive receptors to the east from roadway construction noise. Except for the Operations, Engineering and Maintenance Buildings, the other projects at the Southeast Plant are not expected to contribute substantially to cumulative construction-related noise impacts at the closest receptors because they would replace or upgrade existing equipment, avoid impact pile driving, and/or involve construction that would occur inside existing building enclosures.

55 The proposed Operations, Engineering and Maintenance Buildings is currently undergoing CEQA review.

The Operations, Engineering and Maintenance Buildings would replace Maintenance Shops No. 1 and No. 2 that were part of the project analyzed in the FEIR. These proposed buildings would be located to the east of the modified project site and closer to the residential receptor at 1700 Kirkwood Avenue, at a distance of approximately 250 feet. Construction of the Operations, Engineering and Maintenance buildings would overlap with the final 20 months of the modified project. The combined or cumulative impact from simultaneous construction could be potentially significant. The modified project's contribution to the cumulative impact, however, would not be considerable for several reasons: the modified project site is further from the 1700 Kirkwood Avenue receptor; the modified project will be in the final stages of construction with less noisy construction activities (more interior work and connections); and, the Operations, Engineering and Maintenance buildings construction activities of demolition, excavation, and pile driving would be expected to be noisier. Therefore, the modified project's contribution to a potential cumulative construction noise impact would be less than significant.

Conclusion

The modified project would continue to have no impact or less-than-significant impacts related to location near an airport, construction truck trips and operational noise. As discussed, modified project construction would have similar or reduced noise impacts than the approved project with implementation of Mitigation Measure M-NO-1a (Shielding of Concrete Saw Operations) and Mitigation Measure M-NO-1b (Construction Noise Control Measures at Southeast Greenhouses Staging Area). The modified project would have a less-than-cumulatively considerable contribution related to a potentially significant cumulative construction noise impact (less than significant).

For the reasons described above, the modified project would not have any new or substantially more severe noise impacts than the approved project.

5.6 Biological Resources

5.6.1 Biosolids Digester Facilities Project FEIR Findings

The Biosolids Digester Facilities Project FEIR found that the approved project would have potentially significant impacts related to the following significance criteria regarding biological resources:

- Have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service

The potentially significant impacts associated with the above criteria for the approved project and modified project are discussed in detail below under the Construction and Operation sections.

Briefly, the FEIR also evaluated several other significance criteria regarding biological resources and determined that there would either be no impact or impacts would be less than significant. The approved project had no impact on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service; migratory corridors or the use of native wildlife nursery sites; implementation of an adopted habitat conservation plan or Natural Community Conservation Plan; or operational effects on biological resources. The FEIR determined that with adherence to Article 4.2 of the San Francisco Public

Works Code (Section 146) and the State Water Resources Control Board's Construction General Stormwater Permit during grading and excavation near wetlands at the Piers 94 and 96 staging areas, the approved project would have a less-than-significant impact on wetlands. The FEIR identified that the approved project would not significantly conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, because the design includes planting trees and other landscaping along Jerrold Avenue to replace trees requiring removal and a site-specific Tree Protection Plan would be required to protect trees that would be retained pursuant to San Francisco Public Works Code Article 16.

Construction

The FEIR found that there is no sensitive habitat or species present that could be affected by construction or operation due to its location in an urban, paved environment. The FEIR found that underutilized buildings, trees, and other structures in and near the project site and construction staging areas could serve as migratory bird nesting habitat and bat roosting sites. The FEIR determined that impacts to nesting birds would be less than significant with implementation of SFPUC's Standard Construction Measure 7 (Biological Resources) that requires pre-construction surveys and establishing no disturbance buffers for active nests, while Mitigation Measure M-BI-1 (Protective Measures for Special Status Bats and Maternity Roosts) would reduce impacts on bats to a less-than-significant level. Mitigation Measure M-BI-1 (Protective Measures for Special Status Bats and Maternity Roosts) requires pre-construction surveys, establishing no disturbance buffers for active nests and roosts, removing bat roosts under certain weather conditions when bats are more active and only in consultation with the CDFW, and installing artificial habitat to compensate for removed roosts.

Operation

The FEIR determined that because all operations would be restricted to the modernized Southeast Plant and no activities would occur within the staging areas, operation of the approved project would have no impacts on biological resources.

5.6.2 Modified Project

Construction

Construction of the proposed biogas utilization system facilities would be within the Southeast Plant and the approved project boundary where there is no sensitive habitat or species present. Buildings, trees, and other structures where the Biogas Upgrade Facility, PG&E Interconnection Station, and Deoxygenation System would be built have already been removed. As a result, it is unlikely that construction of the modified project would affect nesting birds or bat roosts. Nevertheless, like the approved project, the SFPUC would implement Standard Construction Measure 7 (Biological Resources) and Mitigation Measure M-BI-1 (Protective Measures for Special Status Bats and Maternity Roosts) during construction to ensure that nesting birds and bats would not be adversely affected. The modified project impacts on biological resources would remain less than significant with mitigation.

Operation

Because the proposed biogas utilization system would be confined to the Southeast Plant and the approved project boundary, like the approved project, the modified project would not impact biological resources during operation.

Cumulative

The FEIR establishes that the geographic scope for potential cumulative impacts on biological resources encompasses the species occurrences, habitats, and sensitive natural communities in the vicinity of the project site and off-site staging areas. Cumulative projects that would affect biological resources similar to those of the project and that could combine to result in potential cumulative impacts on biological resources include projects that would demolish or remove buildings or structures that could be used as bat roosts or result in adverse effects on nesting birds by removing trees or generating substantial noise. As the use of Piers 94/96 for construction staging is no longer proposed, the modified project would have no contribution to potential cumulative impacts on wetlands.

The modified project would not involve the demolition of any additional buildings or trees and thus would not increase the project's contribution to potential cumulative impacts. The only two cumulative projects remaining from the FEIR that could contribute to cumulative biological resources impacts are the Headworks Replacement Project and the Power Feed and Primary Switchgear Upgrades, both of which involve demolition and/or tree removal and include measures to prevent impacts to nesting birds and bats. Several new projects at the Southeast Plant have been added to the cumulative list, including the Primary Treatment Health and Safety Improvement project (SEP 040 and 041), HVAC and Mechanical Upgrades, Electrical Controls Upgrade (SEP 545), and the Operations, Engineering, and Maintenance Building Project (SEP 7), but only the last project would include building demolition and tree removal. Lastly, there are buildings and trees at the site of the future Bayview Train Caltrain Station project that may need to be removed and measures to protect birds and bats would be expected in the environmental review document. The modified project in combination with these cumulative projects could have a potentially significant cumulative impact on birds and bats. However, like the approved project, with implementation of Mitigation Measure M-BI-1 (Protective Measures for Special-status Bats and Maternity Roosts) and SFPUC Standard Construction measure 7 (Biological Resources), the modified project's contribution to potentially significant cumulative impacts would be less than cumulatively considerable, or less than significant with mitigation.

Conclusion

The modified project does not require demolition or tree removal and it is therefore unlikely that construction would affect birds or bat roosts. Nevertheless, like the approved project, the SFPUC would implement Standard Construction Measure 7 (Biological Resources) and Mitigation Measure M-BI-1 (Protective Measures for Special Status Bats and Maternity Roosts) to ensure that potential impacts would remain less than significant. Like the approved project, the modified project would not impact biological resources during operation. Although other cumulative projects in the vicinity would also have demolition and tree removal, the modified project's contribution to cumulative impacts would not be considerable (less than significant).

For the reasons described above, the modified project would not have any new or substantially more severe impacts on biological resources than the approved project.

5.7 Geology, Soils, and Paleontological Resources

5.7.1 Biosolids Digester Facilities Project FEIR Findings

The Biosolids Digester Facilities Project FEIR found that the approved project would have potentially significant impacts related to the following significance criteria regarding geology, soils, and paleontological resources:

- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

The potentially significant impacts associated with the above criterion for the approved project and modified project are discussed in detail below under Construction.

Briefly, the FEIR also evaluated several other significance criteria regarding geology and soil impacts and determined that impacts would be less than significant. Impacts related to ground shaking or seismically induced ground failure, liquefaction, earthquake-induced settlement, lateral spreading, and ground settlement that could expose people or structures to the risk of loss, injury, or death would were found to be less than significant for a number of reasons: the approved project was designed in accordance with the San Francisco Building Code, ASCE/SEI 7-10, and the SFPUC's Seismic Design Requirements; incorporates engineering and design features to withstand a major earthquake; the geotechnical interpretive report concluded that there is a low potential for lateral spreading at the approved project site; and measures would be implemented to prevent ground settlement due to excavation, dewatering, and pile driving in accordance with Title 8 of the California Code of Regulations. Moreover, the FEIR discusses that the approved project would substantially improve the Southeast Plant's seismic safety because it would replace the digesters and other existing Southeast Plant solids treatment facilities that are over 60 years old and were not built to withstand a major earthquake. Lastly, the FEIR determined that the approved project would not result in substantial erosion because the SFPUC would be required to prepare and implement a site-specific erosion and sediment control plan pursuant to San Francisco Public Works Code Article 4.2.

Construction

The FEIR found that the Pleistocene-aged, upper-layered sediments underlying the approved project site have a high paleontological sensitivity, and that excavations extending into these sediments would have the potential to encounter and damage or destroy paleontological resources (fossils). The FEIR concluded that this potentially significant impact on paleontological resources would be less than significant with implementation of Mitigation Measure M-GE-4 (Paleontological Resources Monitoring and Mitigation Program), which requires that excavation activities within the upper layered sediments be monitored by a qualified paleontologist, that any substantial find be adequately curated, and establishes procedures in the event of discoveries.

Operation

The FEIR found no potentially significant impacts from operation of the approved project related to geology, soils, and paleontological resources.

5.7.2 Modified Project

Construction

Modified project impacts related to ground shaking or seismically induced ground failure, liquefaction, earthquake-induced settlement, lateral spreading, and ground settlement that could expose people or structures to the risk of loss, injury, or death would continue to be less than significant because the modified project is also designed in accordance with the San Francisco Building Code and ASCE/SEI 7-10 and the SFPUC's Seismic Design Requirements. Like the approved project, site-specific erosion and sediment control measures would continue to be implemented during construction of the modified project such that this impact would remain less than significant. Overall, construction of the modified project would reduce potential impacts on paleontological resources because it would result in less excavation and eliminate from 279 to 333 piles (depending upon foundation design) at depths where fossils could potentially be encountered. To date, no fossils have been exposed during the sampling and monitoring performed for construction of the approved project pursuant to Mitigation Measure M-GE-4 (Paleontological Resources Monitoring and Mitigation Program). This mitigation measure would also be applicable to the modified project and potential impacts on paleontological resources would remain less than significant with mitigation.

Operation

The FEIR found potential impacts related to geology, soils, and paleontological resources would be less than significant. Like the approved project, the modified project facilities would meet current engineering standards to limit damage from seismically-induced hazards like ground shaking, and settlement and liquefaction.

Cumulative

The FEIR establishes that the geographic scope of cumulative geology and soils impacts is restricted to the project site and adjacent areas because related impacts are relatively localized or even site-specific. All of the SFPUC-sponsored cumulative projects would be engineered and designed according to the most current building code requirements, the SFPUC Seismic Design Guidelines, and applicable engineering standards for seismic safety, which would minimize the potential for cumulatively considerable damage. The non-SFPUC cumulative projects would also be subject to local and state building codes. Additionally, all cumulative projects would be required to implement the requirements of Article 4.1 of the San Francisco Public Works Code that would ensure that cumulative impacts of erosion from the construction sites would be less than significant. The Operations, Engineering, and Maintenance Building Project (SEP 7) could also impact upper-layered sediments where paleontological resources could be present. It would also be subject to Mitigation Measure M-GE-4 (Paleontological Resources Monitoring and Mitigation Program). Moreover, like the approved project, the modified project's contribution to potentially significant cumulative impacts related to geology, soils, and paleontological resources would be less than cumulatively considerable with implementation of Mitigation Measure M-GE-4 (Paleontological Resources Monitoring and Mitigation Program) or less than significant.

Conclusion

The modified project would reduce impacts to paleontological resources because it would reduce the amount of excavation and number of piles required within the upper layer sediments where resources could occur. For the reasons described above, the modified project would not have any new or

substantially more severe geology, soils and paleontological resources impacts than the approved project.

5.8 Wildfire

The Biosolids Digester Facilities Project FEIR did not analyze wildfire as this topic was not yet mandated for inclusion under CEQA. CEQA Guidelines Appendix G Checklist criteria for wildfire impacts are listed below.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

- Substantially impair an adopted emergency response plan or emergency evacuation plans?
- Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?
- Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?
- Expose people or structure to significant risks including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

San Francisco and bordering areas within San Mateo County do not have any state responsibility areas for fire prevention or lands that have been classified as very high fire hazard severity zones.[56] Therefore, the wildfire topic is not applicable to the project.

5.9 Other Environmental Topics with Less-Than-Significant Impacts

The FEIR found that the following topics would have less than significant impacts. The modified project would have similar or reduced impacts as the approved project for the reasons discussed below.

- **Land Use.** The existing Southeast Plant is an area designated as Public Facilities and Light Industrial in the *San Francisco General Plan*. The FEIR discuses that construction would temporarily affect land uses in the project vicinity, particularly related to closing Jerrold Avenue to public through-traffic between Phelps Street and the Caltrain right-of way to maintain a safe work area but that this would be a less-than-significant impact because the closure would be temporary; there would be detour routes; and the area affected by the closure does not clearly constitute an established community given the distinct nature of land uses on either side of this closed road segment (e.g., industrial warehouses to the west and residences and commercial uses to the east), along with the large-scale intervening industrial land uses that comprise the

56 California Department of Forestry and Fire Protection, Fire and Resource Assessment Program, San Francisco County Draft Fire Hazard Severity Zones in Local Responsibility Areas Map, October 5, 2007; San Mateo County Fire Hazard Severity Zones in State Responsibility Areas Map, November 7, 2007; and San Mateo County Very High Fire Hazard Severity Zones in Local Responsibility Areas Map, November 24, 2008, *http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones_maps*.

existing Southeast Plant site. Regarding operation, the FEIR determined that although the approved project would expand the Southeast Plant wastewater facilities into the Central Shops and Asphalt Plant sites, the new facilities would not divide an established community because those areas were already being used for storage and for industrial uses similar to Southeast Plant, were already not accessible to the public, and would not block access between adjacent land uses. The FEIR concluded that, on the whole, the Biosolids project would not conflict with applicable land use plans and policies, since it would advance the General Plan objective and policy concerning the location of wastewater facilities and provision of effective and efficient wastewater treatment, the streetscape improvements would be consistent with *the Better Streets Plan and* impacts on policies related to the preservation of historic resources would be mitigated.

The modified project would be constructed and operated entirely within the Southeast Plant and the approved project boundary such that, like the approved project, construction and operation would not physically divide a community. Overall, the proposed revisions would eliminate several large buildings and tanks, which would minimize changes to the landscape and replace them with fewer and less substantive facilities. Moreover, the long-term streetscape and landscape improvements along Jerrold Avenue that would enhance the safety and connectivity of Jerrold Avenue for various transportation modes (e.g., bikes, pedestrians) in the plant's vicinity would still be constructed. As discussed above, the approved project will take any additional 1.5 years to construct, which will extend the closure of Jerrold Avenue between Rankin and Phelps for safety considerations. During this time, detour routes will continue to be provided.

For these reasons, the modified project would not have any new or substantially more severe land use impacts than the approved project.

- **Aesthetics.** As stated in the FEIR, there are no scenic views or vistas in the project vicinity. The FEIR discussed that construction could affect the visual character of the area due to views of construction activities and staging areas, as well as the creation of new sources of light or glare. The FEIR determined that these impacts would be less than significant because construction equipment would be similar to other equipment and buildings already present in the area; other existing buildings at the Southeast Plant and in the general area and the 15-foot-tall Caltrain berm would block views of the site from nearby residential, commercial, and industrial properties; views from adjacent or nearby streets for passing motorists, bicyclists, pedestrians, and Caltrain passengers would be brief and quickly replaced by succeeding streetscape views as the viewer moves past the project; views from the hills would be distant and include other industrial facilities; views of the trailers would replace those of the former greenhouses; and construction equipment and activities would not create a substantial new source of light or glare because the SFPUC would implement Standard Construction Measure 8 to shield lights if used at night. Regarding operation, the FEIR found that the new Biosolids facilities would be similar to the existing Southeast Plant facilities, views of the new facilities from outside the project site would be limited by intervening structures and trees or would be fleeting views from cars or the train, and that the overall visual character of the Southeast Plant as seen from surrounding areas would remain essentially the same as the existing character, that of a major industrial facility. The FEIR discussed that the design of the new facilities would be consistent with applicable standards (such as the Industrial Area Design Guidelines, the San Francisco Arts Commission Civic Design Review process, and the *Better Streets Plan)* and that landscaping and other street

improvements included in the project would enhance the overall long-term visual quality of the area. As are result, the FEIR determined that the new permanent facilities would have a less-than-significant aesthetic impact.

The modified project would be constructed within the approved project boundary and involve similar construction equipment and methods as the approved project, such that construction would not introduce work at new locations or new equipment and methods that could result in temporary impacts on visual character.

Regarding operation, the proposed biogas utilization system would require fewer and less substantive new facilities than the approved energy recovery facilities. North of Jerrold Avenue (within the plant) the large Digester Gas Storage tank would be eliminated, while the new Biogas Upgrade Facility would be built instead of the originally approved Maintenance Shops 2. The Maintenance Shops 2 would have been 15 feet tall. The Biogas Upgrade Facility would include various equipment on a concrete pad. The equipment could be either approximately 15 feet tall, or up to approximately 45 feet tall, depending on the final design, and thus would be similar in height or taller than the originally planned maintenance building. Even if the new biogas upgrade facility equipment were taller than Maintenance Shops 2 would have been, it would be equipment at various heights (not a building) and would be seen in the foreground of the 65-foot-tall digesters that, as with the approved project, would dominate views from Jerrold Avenue overall. South of Jerrold (within the former Asphalt Plant), the 57-foot-tall Energy Recovery Building and the 22-foot-tall Digester Gas Treatment Facility would be eliminated. The PG&E Interconnection Station would be built within the footprint of the former Digester Gas Treatment Facility and be approximately 10 feet tall. The Deoxygenation Facility would be up to approximately 15 feet tall. The FEIR discussed that the Energy Recovery Building at 57 feet tall would have increased massing in the foreground that may reduce views of the distant hillside from the surrounding area. The modified project would thus reduce this impact on hillside views because the proposed facilities in this area would only be approximately 15 feet tall or shorter.

Like the approved project, the modified project facilities would be behind the Southeast Plant perimeter wall and trees would be installed along both sides of Jerrold Avenue per the planned long-term streetscape and landscape improvements along Jerrold Avenue discussed in the FEIR. These improvements would improve the public edges along the plant and enhance the visual quality of the area compared to existing conditions. The FEIR determined that, overall, the approved project would not substantially degrade the visual character of the area because the new facilities would be visually compatible with existing plant facilities, views of the new biosolids facilities at the plant to the typical motorist or pedestrian continued southeast on Jerrold Avenue would be fleeting, and views from the surrounding areas would remain that of a major industrial facility. These conditions would remain the same because the modified project would have fewer, less substantive permanent facilities within the approved project boundary.

For these reasons, the modified project would not have any new or substantially more severe aesthetic impacts than the approved project.

- **Population and Housing.** As discussed in the FEIR, the approved project does not involve any housing construction and thus would not directly induce growth by constructing housing that would attract people to the area, nor would it extend roads or other infrastructure that could

indirectly induce growth because it is located at an existing industrial site in an area that is already well-served by roads and other infrastructure. The FEIR found that given the size of the regional construction work force compared to the number of workers needed to construct that project, even during peak construction periods, construction workers would likely be drawn primarily from the local and regional construction work force and that workers who do not live in the Bayview-Hunters Point neighborhood would likely commute from elsewhere in the city or Bay Area rather than relocate from more distant cities or towns such that the approved project would not induce population growth by attracting a substantial number of workers from outside the region to relocate to the area and thus would not create demand for additional housing. The FEIR found that operation of the approved project would also have a less than significant impact on population and housing because it would not include new homes; increase the number of workers employed at the Southeast Plant; extend roads or other infrastructure into areas lacking such services that could induce substantial population growth; and would not increase existing overall Southeast Plant wastewater treatment capacity and would only provide solids treatment capacity that is consistent with the Association of Bay Area Government's growth forecasts. Thus, the project would not indirectly induce population growth.

The modified project construction and operation would have similar impacts as the approved project because the biogas utilization system facilities would be smaller and less complex than the originally proposed energy recovery facilities, fewer construction workers would be needed. While the approved project would not result in additional employees, only one new permanent employee may be needed for the modified project and could reasonably be expected to be available from the local or regional workforce. Further, like the approved project, the modified project would not change the Southeast Plant's treatment capacities.

For these reasons, the modified project would not have any new or substantially more severe impacts on population and housing than the approved project.

- **Transportation and Circulation.** The FEIR discusses that construction-related traffic comprised of trucks and workers trips to and from the approved project site and staging areas and detours and road closures could interfere with pedestrian, bicycle, or vehicle circulation; increase potential traffic hazards; and cause inadequate emergency vehicle access. The FEIR found that even during the periods of peak truck trips (406 total trips) and peak worker vehicle trips (742 total trips) the overall contribution to total traffic volumes and to increased vehicle delay would be minimal, that detour trips to two nearby parallel east-west routes (Oakdale Avenue and Evans Avenue) could be accommodated without substantial delays or out-of-way travel, the reroute of the 23 Monterey would not substantially affect accessibility to transit or transit operations, and that emergency vehicles would not be substantially affected by the temporary closure of a two-block segment of Jerrold Avenue. Regarding traffic safety hazards, as discussed in the FEIR, the approved project includes establishing a site-specific Traffic Control Plan that conforms to the SFMTA's Blue Book, which requires the implementation of construction safety measures like proper advance warning and detour signage, identification of approved construction truck routes, and coordination with public service providers like the fire department. The approved project also establishes that the SFPUC would coordinate traffic control across the various projects at the Southeast Plant that would be constructed concurrently. With these measures, the FEIR determined that construction of the approved project would have a less-than-significant

impact on transportation and circulation. Operational impacts of the approved project were also less than significant, with approximately 60 truck trips (one way) annually for hauling digester treatment waste and no additional worker trips.

The modified project would use same access routes for construction vehicles, including from Evans, Rankin, Jerrold, and McKinnon as described in the FEIR and subsequently approved minor modifications. Construction of the modified project would require fewer truck trips to deliver materials (e.g., concrete and rebar) and to off-haul spoils because the proposed biogas utilization system would be comprised of fewer and less substantial facilities than the energy recovery facilities. Just reducing soil excavation by 5,538 cubic yards alone would eliminate approximately 615 one-way truck trips (assuming 18-cubic yard trucks). Similarly, modified project construction would require fewer delivery and haul trips and construction worker vehicles per day. Therefore, construction trips on any one day could reasonably be expected to be well within the maximum daily truck and vehicle trips analyzed in the FEIR, which were found to have a less-than-significant impact on transportation and circulation. Like the approved project, the SFPUC would implement traffic control measures during construction of the modified project per the Traffic Control Plan to minimize potential traffic hazards to public vehicles, pedestrians, and bicyclists from these construction trips. Additionally, pursuant to the FEIR, the Southeast Plant program construction management team would coordinate access and truck routes with traffic from the other ongoing approved project construction to minimize impacts on the public. The approved project will require approximately 1.5 additional years to construct, which would extend the temporary closure of Jerrold Avenue and elongate the time during which traffic safety hazards from construction-related traffic in the area could occur. During this time, the same traffic safety measures will be implemented.

Operation of the proposed biogas utilization system would not require the routine import of any materials. A similar amount of spent media (solid waste) associated with removing digester gas impurities would be generated at the biogas upgrade facility as was estimated in the FEIR to be generated from operation of the energy recovery system. As a result, off-haul of this material would not require additional truck trips. Operation of the biogas upgrade system facilities may require one additional full-time person. PG&E would have limited visits to maintain the PG&E Interconnection Station. As a result, there would be a negligible increase in employee vehicle miles traveled to operate the proposed biogas utilization system. The modified project would not change the improvements to be implemented at the end of construction along Jerrold Avenue to improve pedestrian and bicycle circulation.

For these reasons, the modified project would not have any new or substantially more severe impacts on transportation and circulation than the approved project.

- **Wind and Shadow.** The FEIR determined that construction would have no impact on wind or shadow because construction equipment would be smaller than or similar in size and height to other equipment and buildings in the area such that it would not substantially alter wind patterns in the project vicinity nor be tall enough to create substantial new shadows that could affect public open spaces. Regarding the approved project's new permanent facilities, the FEIR found that the approved new project facilities, including the 65-foot-tall digesters and 57-foot-tall energy recovery building, would not alter wind patterns in a manner that substantially affects public areas. The shadow analysis conducted for the FEIR to evaluate impacts of the new

permanent facilities on the nearest recreational facilities found the project would not create new shadows that would substantially affect outdoor recreational areas, streets and sidewalks. Wind and shadow impacts were less than significant.

Construction of the proposed biogas utilization system would use the same type of construction equipment within the same approved project work areas and thus would be expected to have similar effects on wind and shadows as the approved project. Regarding permanent effects on wind patterns, the modified project would eliminate the 57-foot-tall Energy Recovery Building, the 65-foot-tall Digester Storage Tank, and 22-foot-tall Digester Gas Treatment Facility and replace them with less substantial outdoor equipment ranging from 15 to 45 feet tall on concrete pads (not buildings) through which air could flow and thus there would likely be less effects on wind patterns. The Biogas Upgrade Facility, PG&E Interconnection Station, and Deoxygenation Facility would be built within the approved project boundary at the same distance to the closest recreational facilities and would not be taller than the other approved project buildings and structures such that they would also not cast shadows on outdoor recreational areas or substantially affect streets and sidewalks.

For these reasons, the modified project would not have any new or substantially more severe impacts on wind and shadow than the approved project.

- **Recreation.** The FEIR found that construction of the approved project would have no impact on recreational facilities, either directly or indirectly, because there are no such facilities within the approved project site or the off-site staging areas and because the existing parks and trails in the vicinity at over 1,000 feet and 300 feet (Bay Trail) respectively would remain open and are sufficiently far so as not to be physically deteriorated or degraded by the project. The FEIR found that operation of the project would also have no impact on recreational facilities because it does not permanently affect existing recreational resources, it does not include new residential or other uses that would generate increased demand for parks or other recreational facilities, it would not increase existing operations staff levels at the Southeast Plant that could increase demand at existing recreational facilities near the Southeast Plant, and that ongoing demand would continue to be met by existing parks and recreational facilities.

  Construction of the modified project, like the approved project, would not include the construction or expansion of recreational facilities, or increase the use of existing neighborhood and regional parks or other recreational facilities because construction workers and possibly one additional permanent staff member would continue to be drawn from the local and regional work force such that there would not be a significant increase in population that could accelerate the physical deterioration existing recreational facilities.

  For these reasons, the modified project would not have any new or substantially more severe impacts on recreation than the approved project.

- **Utilities and Service Systems.** The FEIR evaluated several construction-related utilities and services systems topics, including wastewater discharges in excess of the treatment capacity of the Southeast Plant and associated conveyance infrastructure, landfill capacity for construction waste, and compliance with local, state and federal regulations pertaining to the disposal of solid waste. The FEIR concluded that potential impacts would be less than significant because wastewater discharges from the sanitary needs of construction workers and groundwater

dewatering could be accommodated by the Southeast Plant's existing treatment capacity, the SFPUC would be required to recycle construction and demolition debris pursuant to Section 708 and Chapter 14 of the San Francisco Environment Code to divert solid waste from landfills and that the landfills the project would use have sufficient capacity for the maximum amount of potential waste, and because by complying with the local code, the approved project would also be consistent with the California Integrated Waste Management Act of 1989 (AB 939). Regarding potential impacts due to operation, the FEIR identified that the project would increase water demand due to changes in processes and facilities (i.e., for the energy recovery facilities and the Maintenances Shops 1 and 2) and generate 820 cubic yards of solid waste (iron sponge media waste and siloxane media waste) annually from the new digester gas treatment facilities. The FEIR concluded that these operations would result in a less-than-significant impact because the City's existing water supply could sufficiently meet the additional demand and that amount of solid waste constituted a small fraction of available, permitted landfill capacity.

Construction of the modified project would involve less excavation and pile drilling and thus would likely require less groundwater dewatering. As a result, the Southeast Plant's existing treatment capacity would still be able to accommodate discharges of both wastewater from the sanitary needs of construction workers and groundwater during construction, including during the approximately additional 1.5 years of approved project construction. Since the proposed biogas utilization system facilities would be built in the footprint of other originally approved project components, the FEIR already accounts for the solid waste generated by the demolition of existing structures in those locations. Construction of the proposed biogas utilization system would reduce the amount of soil to be excavated and disposed of by over 5,000 cubic yards. Thus, construction of the modified project would not generate additional solid waste that could cause the capacity of permitted landfills to be exceeded. Like the approved project, the SFPUC would be required to divert waste from landfills during construction in accordance with the City code to recycle construction demolition and debris.

Operation of the modified project would not use more water during operation than the approved project because the Biogas Upgrade Facility, PG&E Interconnection Station, and Deoxygenation Facility would not include bathrooms and, although full time operation of the steam boilers would use more water, less water would be used elsewhere with elimination of than the energy recovery system. Operation of the proposed biogas utilization system would result in a similar amount of solid waste associated with removing digester gas and/or tailgates impurities as the originally-planned energy recovery facilities and would not affect the amount of biosolids generated. Lastly, PG&E has capacity in the existing natural gas system to receive the additional renewable natural gas within its existing facilities.

For these reasons, the modified project would not have any new or substantially more severe impacts on utilities than the approved project.

- **Public Services.** The FEIR found that construction and operation of the approved project would have a less-than-significant impact on public services because it would not result in a substantial increase in the local population as construction workers would likely be drawn primarily from the local and regional construction work force, and the new facilities would be operated by existing Southeast Plant employees. The FEIR concludes that incidents during construction that require law enforcement, fire protection, or emergency medical services would constitute an incremental

increase in demand that would be temporary, could be accommodated by existing services, and would not require construction of new or physically altered facilities to maintain services.

Construction workers for the modified project would also reasonably be expected to be drawn from the local and regional construction work force and construction would be less extensive than the approved project (i.e., less excavation, less truck trips, less drilling, less substantial buildings erected, etc.) such that the potential for incidents that could require public services would not be expected to increase. Operation of the proposed biogas utilization system may require one new permanent employee who would also be expected to be drawn from the local and regional work force.

For these reasons, the modified project would not have any new or substantially more severe impacts on public services than the approved project.

- **Hydrology and Water Quality**. The FEIR evaluates several topics related to hydrology and water quality, including that soil disturbing activities (i.e., excavation) and using hazardous materials could result in excess sediment and other pollutants being entrained in stormwater runoff and discharged into the sewer or San Francisco Bay (at off-site Pier 94-96 staging areas) without proper controls; contaminated groundwater from dewatering could be discharged into the sewer and/or Bay; groundwater level could decline from dewatering activities or increased impervious surface limiting recharge and thereby interfere with nearby wells; and people or structures could be harmed at facilities in the 100-year flood or tsunami inundation zones. The FEIR concluded that all of these impacts were less than significant because the SFPUC would prevent sediment and other pollutants from entering the sewer or the Bay per San Francisco Public Works code Article 4.2 (Construction Site Runoff Controls) and the State Water Resources Control Board Construction General Stormwater Permit; must obtain and comply with a Batch Wastewater Discharge Permit for discharging groundwater into the sewer pursuant to Public Works code Article 4.2 that regulates the quality of the water; there are no groundwater wells within 1/2 mile of the site and impervious surface would not permanently increase; and no structures would be in the flood or tsunami inundation zones. During operation, the FEIR discusses that the project could increase water quality impacts on the San Francisco Bay because the approved new thermal hydrolysis process would increase total ammonia and nitrogen concentrations in the dewatering return that is ultimately discharged as secondary-treated effluent to the Bay via the Southeast Bay Outfall during dry weather; increase impervious surface that could overwhelm the site's stormwater infrastructure; and exacerbate future flood hazards. The FEIR concludes that these impacts would be less than significant because the water quality analysis showed that the increase in ammonia and nitrogen concentrations in the Southeast Plant effluent would not exceed the SFPUC's Bayside NPDES permit effluent limitations, future flooding would not be exacerbated since the site's topography would not change, and structures that could increase the extent of storm surge-related flooding compared to existing conditions would not be installed.

  Construction of the modified project would reduce impacts on groundwater during construction because it would reduce excavation and pile drilling at depths where groundwater is present. Like the approved project, groundwater that is encountered during construction would be appropriately treated prior to discharge. Similarly, the modified project would reduce potential impacts on stormwater quality given less site disturbance and soil off-hauling. Like the approved project, the SFPUC would still be required to install erosion and sediment controls during

construction of proposed biogas utilization system facilities to prevent sediment-laden water from entering storm drains in accordance with the Construction Site Runoff Control Permit requirements of Article 4.2 of the San Francisco Public Works Code.

Operation of the proposed biogas utilization system would not affect the thermal hydrolysis process that the FEIR discusses would increase nutrient concentrations discharged from the Southeast Plant into the San Francisco Bay. Moreover, the SFPUC will be installing a new Interim Sidestream Nutrient Removal Facility at the Southeast Plant as previously approved in minor project modification 17 that would reduce nutrients, primarily nitrogen, in the Southeast Plant's discharges from the approved project by about 50 percent. Thus, future operation would have reduced water quality impacts on San Francisco Bay that the approved project.

For these reasons, the modified project would not have any new or substantially more severe impacts on hydrology and water quality than the approved project.

- **Hazards and Hazardous Materials.** The FEIR evaluates several topics related to hazards and hazardous materials, including that the approved project site and staging areas are known to contain contaminated soil and groundwater; that the project would transport, store, and use routine hazardous materials (i.e., fuels, lubricants, and solvents for construction vehicles and equipment); that the project includes and demolition of old structures that could contain hazardous building materials (i.e., asbestos and lead based paint); and that it could interfere with emergency access and start fires. The FEIR discusses that without adequate management, these conditions could adversely affect public and environmental health, such as due to spills and pollutants in airborne dust. The FEIR concludes that because the SFPUC must comply with California Highway Patrol regulations related to transportation, implement site-specific best management practices like proper storage and secondary containment to prevent spills per San Francisco Public Works Article 4.2 (Construction Site Runoff Controls) and the State Water Resources Control Board Construction General Stormwater Permit, abate building hazards pursuant to well-established regulations prior to demolition, comply with Article 22A of the San Francisco Health Code (the Maher Ordinance), implement a Traffic Control Plan that would provide adequate emergency access, comply with the California Fire Code requirements for Fire Safety during Construction and Demolition, and comply with other applicable state and federal laws, that all of these potential impacts would be less than significant. During operation, the FEIR discusses that the approved project would increase the quantity of several chemicals used at the Southeast Plant, use diesel for a backup generator, and may require periodic disposal of hazardous wastes (e.g., fluorescent light tubes), but that because the SFPUC would be required to update the Hazardous Materials Business Plan for the Southeast Plant that is on file with the San Francisco Health Department pursuant to Article 21 of the San Francisco Health Code and comply with local, state, and federal regulations for hazardous material use, storage, and disposal, these impacts would be less than significant.

  Construction of the modified project would occur entirely within the approved project area such that it would not affect, or be affected, by new sources of existing soil and/or groundwater contamination that could expose the public and environmental to new or more severe impacts. The same types of hazardous materials would be used during construction, and the SFPUC would be required to continue transporting and managing them properly in accordance with the local, state, and federal laws discussed above. The only school located within one-quarter mile of the

approved project site was the Wu Yee Southeast Child Development Center that has now relocated and thus would not be exposed to hazardous materials related incidents. The SFPUC would be required to update the project's Traffic Control Plan to address traffic during construction of the modified project while maintaining emergency access and implementing fire prevention measures. Operation of the proposed biogas utilization system would not introduce new types of chemicals than those identified in the FEIR for operation of the approved project. Like the approved project, operation of the proposed biogas utilization system would use hazardous materials in accordance with applicable laws.

For these reasons, the modified project would not have any new or substantially more severe impacts related to hazards and hazardous materials than the approved project.

- **Mineral Resources, Energy Resources, and Water Use.** The FEIR found that the project site and construction areas do not contain substantial mineral resources or locally important mineral resource recovery sites. The FEIR discussed that energy, in the form of diesel, gasoline, and electricity would be consumed directly by construction equipment as well as indirectly through the energy needed to make the materials and components used in construction. The FEIR determined that construction energy use would be less than significant because construction would be temporary and would therefore not result in long-term depletion of local or regional energy resources, would not be wasteful because efficient equipment and alternative fuels would be used per Mitigation Measure AQ-1a, and would recycle construction waste per Chapter 14 and Section 708 of the San Francisco Environment Code which would reduce energy associated with extraction and manufacturing of new and raw materials. The FEIR discussed that potable water use during construction would not be wasteful, inefficient, or unnecessary because for San Francisco Public Works Code, Article 21 requires the use of recycled water for dust control during construction. Regarding operation, the FEIR discussed that the approved project would increase energy and water use. However, the FEIR determined that the approved project energy recovery facilities would, by 2045, generate enough steam and electricity to operate the Biosolids facilities to provide this additional energy, only importing 5,250 gallons of diesel a year for the 1.5-MW standby power generator, and that the design maximizes using recycled water and/or other non-potable water to the extent possible in the new processes along with complying with the San Francisco Building Code and San Francisco Water Efficient Irrigation Ordinance such that the project's operational impacts on fuel, water, and energy resources would be less than significant.

  Construction of the modified project would not affect mineral resources because the biogas upgrade facility, PG&E interconnection station, deoxygenation system and associated piping would be built within the approved project boundary where the FEIR determined that no resources are present. Construction of the modified project would reduce energy use (fuel) relative to the approved project because it would require less construction effort (less excavation, piles, materials) and fewer truck trips. Although construction would occur for an additional approximately 1.5 years, the time increase is due to the approved project components taking longer to complete, not additional project components. Therefore, the overall energy required for construction would not increase. Moreover, like the approved project, energy consumption during construction would not be wasteful because efficient equipment would be used pursuant to the City's Clean Construction Ordinance and Mitigation Measure M-AQ-1a

(Construction Emissions Minimization) and the consumption would temporary such that it would also not result in long-term depletion of local or regional energy resources.

Operation of the modified project would not increase overall water use as discussed above. Like the approved project, design of the biogas upgrade facility, PG&E interconnection station, deoxygenation system and associated piping and surrounding areas would incorporate recycled water and/or other non-potable water to the extent possible and comply with the San Francisco Water Efficient Irrigation Ordinance. **Table 3** above provides an update on the operational energy demand with the proposed biogas utilization system. As shown, operation of the modified project would increase natural gas use because instead of the energy recovery system generating the steam needed to operate the Biosolids facilities, the steam would be generated by the steam boilers that would now need to operate full time. Diesel use would decrease because a smaller backup generator would be required (20 kw instead of 1.5 MW). Also, as shown there would be a change in electrical power demand. Under the approved project, the energy recovery facility would have generated the power needed to operate the Biosolids facilities. With the modified project, power from the electrical grid would now be needed. The SFPUC has confirmed that it generates sufficient clean hydroelectricity to provide all the power for the modified project; however, it is possible that PG&E's power may be used for the biogas utilization system components. Meanwhile, the digester gas that would be upgraded to renewable natural gas with the proposed biogas utilization system would be made available to the energy market and would offset some portion of natural gas that would have had to be extracted by others, elsewhere.

For these reasons, the modified project would not have any new or substantially more severe impacts related to mineral resources, energy, and water use than the approved project.

6.0 Conclusion

Based on the foregoing, it is concluded that the analyses conducted and the conclusions reached in the final FEIR certified by the planning commission on March 8, 2018 and adopted by the San Francisco Public Utilities Commission on December 18, 2018 remain valid. The modified project would not cause new significant impacts not identified in the FEIR, would not substantially increase the severity of the previously identified environmental impacts, and would not require new mitigation measures. No changes have occurred with respect to circumstances surrounding the modified project that would cause significant environmental impacts to which the modified project would contribute considerably, and no new information has become available that shows that the modified project would cause significant environmental impacts or a substantial increase in the severity of previously identified significant impacts. Therefore, no supplemental environmental review is required beyond this addendum.

I do hereby certify that the above determination has been made pursuant to State and local requirements.

Lisa Gibson

Lisa Gibson
Environmental Review Officer

July 12, 2024

Date of Determination

cc: SFPUC

Distribution List

APPENDIX A
CUMULATIVE PROJECTS

Appendix A Projects Considered in Cumulative Impact Analysis

Project No. in FEIR	Project Name (Project Sponsor)	Project Description	Construction Dates
1	Southeast Plant (SEP) Headworks Replacement Project (SFPUC)	The project would construct a new 250 million gallon per day, all-weather headworks facility to provide better screening and grit removal at the SEP. The project would replace two existing headworks facilities, modify the Bruce Flynn Pump Station (BFS), and construct a new odor control facility. It would provide redundant infrastructure to provide reliability and ensure operational reliability. It would also improve the seismic reliability of the headworks facility and improve odor control. The project would modify and eventually demolish the influent control structure/Southeast Lift Station. The two existing headworks buildings (SEP 011 and SEP 012) would also be demolished. The project was modified to include upgrades to the Bruce Flynn Pump station to enhance reliability in wet weather events, modify influent sewer, remove a proposed new generator and the sewer construction in Evans Avenue, Rankin Street and Davidson Avenue. The modified project would also construct a new SEP 005 Southeast Lift Station and associated piping.	Spring 2018 to Spring 2026 (Revised from January 2017 to December 2021)
6	SEP Power Feed and Primary Switchgear Upgrades (SFPUC)	The objective of the project is to increase reliability, redundancy and capacity of the electrical system at Southeast Plant (SEP) to meet Sewer System Improvement Program (SSIP) level-of-service goals by upgrading the existing power feed by PG&E and obtaining a new feed by SFPUC Power Enterprise. The project will construct an elevated building to house the new Primary Power Switch Station and substructures to provide adequate power for the existing electrical loads and new SSIP facilities, upgrade/replace aging existing substations, install power monitoring and protection system for additional reliability and efficiency, as well as provide redundant services to the nearby pump stations.	January 2024 to May 2025 (Revised from November 2017 to January 2020)
11	SEP Repair and Replacement Treatment Plant Improvement Projects (SFPUC)	In order to maintain the operational reliability of existing facilities, ongoing repair and replacement activities are conducted including replacement of equipment that has reached the end of its useful life, is no longer operational due to continuous operation in a highly corrosive environment, or does not meet current operational requirements.	Ongoing
12	Demolition of the Existing SEP Digesters and Southside Renovation Project (SFPUC)	This Phase II Sewer System Improvement Program (SSIP) project (Phase II has not yet been approved) would include demolition of the existing SEP digesters and associated control buildings, and improvements within the south side of the SEP. This project has not yet begun	After 2028 (Revised from after 2025)

Project No. in FEIR	Project Name (Project Sponsor)	Project Description	Construction Dates
		the planning phase and the SFPUC has not yet determined the specific improvements to be constructed.	
24	Quint-Jerrold Connector Road (San Francisco County Transportation Authority)[1]	This project would construct a new 950-foot-long roadway to provide access between existing Quint Street and Jerrold Avenue. The roadway would consist of two 13-foot-wide lanes (within a 50-foot-wide corridor), one northbound and one southbound. In addition, the project would construct or install several other elements along or beneath the length of the new roadway. Along the western side of the new roadway, the project would construct a new 5.5-foot-wide to 20-foot-wide sidewalk, depending on location; construct a new 27-foot-wide curb cut located along the San Francisco Wholesale Produce Market property (Project 25, below); and install street trees and street lighting. Along the eastern side of the new roadway, the project would construct a new 6.5-foot-tall reinforced concrete retaining wall. A new stop sign would be installed at the intersection of the new roadway and Jerrold Avenue. New sewer and water pipelines would be installed beneath the new roadway to provide on-site drainage and overall system reliability. The new road would support a potential new Caltrain station at Oakdale Avenue. The intersection with Jerrold Avenue also would accommodate trucks, although some movements would require wide turns. The San Francisco County Transportation Authority (SFCTA), Caltrain, and SF Public Works have coordinated project schedules to minimize the duration of the street closure.	Currently in the right-of-way acquisition phase. If successful, design would begin and construction could start in 2025. (Revised from later 2018 to 2019 depending on land acquisition)
25	San Francisco Market (formerly San Francisco Wholesale Produce Market) Expansion (City and County of San Francisco Market Corporation)[2]	This project consists of phased development to expand the existing San Francisco Wholesale Produce Market. The project would demolish the existing San Francisco Market buildings at the four quadrants of the main site, and would construct new buildings at each of the four quadrants. The project would include warehousing, office, meeting hall, and restaurant/café land uses. The new buildings would be 16 to 45 feet tall and would have a larger footprint than the existing buildings. The project and its associated roadway infrastructure would be built in about nine phases, over a period of approximately 16 years. It would start with the demolition of existing facilities at the SE Quadrant and construction of the 1900 Kirkwood Avenue building in January 2024, and would conclude with the occupancy of the 2000 Kirkwood Avenue building in June 2041. Phases 1 through 4 of the project include: Closure of Jerrold Ave between Toland and Rankin by the San Francisco Market; Demolition of the existing 455 Toland St building (NW Quadrant), and	2024 through 2041: Phases 1 through 4 would occur between 2024 and 2028

Project No. in FEIR	Project Name (Project Sponsor)	Project Description	Construction Dates
		grading for new surface parking lot; Vacation of Jerrold Ave, and other minor right-of-way areas at the Main Site; and Demolition of existing SE Quadrant Building and dock, and construction of 1900 Kirkwood Ave Building. The project would vacate Jerrold Avenue on the main site and reroute through-traffic around the main site on Innes Avenue, which will become the primary route for non-market destined traffic traveling through the area.	
27	Candlestick Point-Hunters Point Shipyard Phase I and II Development Project (Lennar Urban)[3]	This project would redevelop the 702-acre Candlestick Point-Hunters Point Shipyard area along the waterfront between south of India Basin and Candlestick Point. The project includes a mixed-use community with a wide range of residential, retail, office, research and development, civic, and community uses, and parks and recreational open space. In addition, a 300-slip marina would be constructed as would shoreline improvements to stabilize the shoreline. Phase I is already underway, including demolition of Candlestick Park Stadium. Phase II includes 6,225 units of housing (including rebuilding the Alice Griffith Public Housing), a regional retail center, a 220-room hotel, a performance venue, and 160 acres of new and revitalized open space.	Phased construction 2015 - 2035 (expect delays)
29	Pier 70 Waterfront Site (Forest City Development CA)[4]	This project consists of redevelopment of approximately 28 acres (identified as the "Waterfront Site") of the former industrial shipyard at Pier 70 and an additional 7 acres of land owned by the Port and PG&E. The site would be developed into a new mixed-use community with new commercial office development, new residential development, and a retail and arts component. New above-grade and below-grade parking and approximately 8 acres of new and expanded parks and shoreline access would be constructed. The project also includes the rehabilitation and adaptive reuse of Buildings 2, 12, and 21, which contribute to the eligible Pier 70 National Register Historic District. Overall, the project would construct a maximum of 4.2 million gross square feet in four phases over about 11 years. Two land use scenarios are under consideration, each with different amounts of commercial and residential land uses. The project would include up to 3,025 new residential units and up to 2.3 million square feet of commercial, restaurant, retail, and arts/light industrial land uses.	Phased construction 2018 - 2029 (expect delays)
30	Blue Greenway Project (Port of San Francisco)[5]	The Blue Greenway is the City's project to improve the City's southerly portion of the 500-mile, nine-county, region-wide Bay Trail, as well as the newly established Bay Area Water Trail and associated waterfront open space system. The alignment of the Blue Greenway generally follows the	Aqua Vista Park to be completed by 2025-2026

Project No. in FEIR	Project Name (Project Sponsor)	Project Description	Construction Dates
		alignment of the Bay Trail and Bay Area Water Trail from Mission Creek on the north to the County line on the south. Remaining parks: Warm Water Cove Park (in future after 2030), Pier 70 Parks (2028-2029) and Aqua Vista Park (would be completed by 2025-2026). The Port expects to complete all Blue Greenway projects within its jurisdiction by 2035.	
39	India Basin Mixed-Use Development (Build, Inc. and San Francisco Recreation and Parks Department)[6]	This project would encompass publicly and privately owned parcels, including existing streets, totaling approximately 38.8 acres at 700 Innes Avenue, 900 Innes Avenue, India Basin Shoreline Park, and India Basin Open Space locations. The project at 700 Innes Avenue would develop 17.12 acres of privately owned land plus 5.94 acres of developed and undeveloped public rights-of-way in phases; proposed uses include residential, retail, commercial, office, research and development/laboratory and clinical care space, institutional, flex space, recreational and art uses, parking, and a shoreline network of publicly accessible open space. The project at 900 Innes Avenue, India Basin Shoreline Park, and India Basin Open Space would include improvement of 14.2 acres of publicly owned parcels along the shoreline plus 1.58 acres of unimproved "paper" streets to create a publicly accessible network of new and/or improved parkland and open space. This new shoreline network would extend the Blue Greenway/Bay Trail and would provide pedestrian and bicycle connections to and along the shoreline, fronting San Francisco Bay.	On hold (Revised from 2018 – 2024)
40	San Francisco Gateway Project (Prologis, Inc.)[7]	The San Francisco Gateway Project would demolish the four existing single-story buildings at 749 Toland Street and 2000 McKinnon Avenue and construct two new multi-story buildings that would provide new production, distribution, and repair (PDR) space in the city. Each building would be approximately 97 feet tall and would have a maximum height of 115 feet, including rooftop appurtenances. The two new buildings would include PDR space, a logistics yard, vehicular circulation systems, and ground-floor retail spaces; they would total 2,160,000 gross square feet. The proposed project would convert Kirkwood Avenue (along the northern side of the project site, between Toland and Rankin streets) to a single-lane, eastbound one-way street; and convert a portion of McKinnon Avenue (along the southern side of the project site, between Toland and Selby streets) to a single-lane, westbound one-way street. Construction is anticipated to take approximately 31 months. Approximately 140,600 cubic yards of soil would	Summer 2026 through Winter 2028 (Revised from TBD)

Project No. in FEIR	Project Name (Project Sponsor)	Project Description	Construction Dates
		be excavated for the proposed project. The EIR also analyzes an expanded streetscape variant, which would improve the public right-of-way surrounding the project site.	
	Channel Force Main Intertie (SFPUC)	The existing 66-inch Channel Force Main transports wastewater from the northeastern part of San Francisco to the Southeast Treatment Plant. The Channel Force Main Intertie Project will increase reliability, provide operational flexibility, and allow for future inspections and maintenance. This project will construct a new pipeline connection and control systems along the existing force main. The project will also install control panels in the sidewalk along Cesar Chavez Street, between Indiana and Pennsylvania Streets, and replace existing air valves at two locations on Indiana Street, near the 20th and 25th street intersections.	January 2024 - December 2025
	City Distribution Division Headquarters Project (SFPUC)[8]	This project would establish a new City Distribution Division (CDD) headquarters at 2000 Marin Street that would replace the existing CDD yards located at 639 Bryant and 1990 Newcomb. The proposed CDD headquarters would consist of an administrative building, car shop, machine shop, meter shop, warehouse, fabrication shop, paint and autobody shop, auto shop, landscape shop, a parking garage, outdoor vehicle and equipment parking, outdoor storage and laydown area, outdoor space, and a fuel station.	January 2025 - December 2027
	3433 3rd Street (Equity Community Builders)[9]	The proposed project would construct an approximately 16,194 gross square-foot (sf), two-story, office and assembly building with surface parking with an approximate 9,441 sf ground floor footprint. The proposed project would include a 7,364 sf of union assembly/meeting hall, 8,830 sf of office space which includes 2,646 sf of elevators and corridors, 4,215 sf of landscaped area, and 9,372 sf of parking area. The project site is approximately 25,968 sf in area.	Under review with SF Planning
	Bay Corridor Transmission and Distribution (Phase 3 and 4) (SFPUC)	The San Francisco Public Utilities Commission Power Enterprise is building a high voltage transmission and distribution system in the Southeast portion of the city. It is intended to serve existing and future customers with large power needs. There are four phases of the project; phases 1 and 2 were completed in 2022. Phase 3 - 1535 Davidson Avenue - Power Distribution System - builds a new electrical substation at 1535 Davidson Avenue. Phase 4 - The Project proposes the following improvements in the City's Bayview District: Installation of	Phase 3 construction on-going with completion by Winter 2024. Phase 4 construction August 2024-May 2026

Project No. in FEIR	Project Name (Project Sponsor)	Project Description	Construction Dates
		a new duct bank from the intersection of Evans Avenue and Rankin Street to 2000 Marin Street. Replacement of existing 12-inch and 8-inch cast iron potable water mains with new 12-inch ductile iron pipe mains along three segments (Evans Avenue from Napoleon Street north to the existing Evans Avenue bridge near Cesar Chavez Street, Marin Street from Evans Avenue to the Marin Street terminus, and Cesar Chavez Street from Evans Avenue to Mississippi Street). This project component involves: the replacement of water main appurtenances including valves, fire hydrants, and water service; and extension and modernization of the existing emergency water system from the intersection of Evans Avenue and Marin Street to the Marin Street terminus; installation of high-pressure fire hydrants and high pressure valves. Ancillary work including ADA curb ramp upgrades, traffic signal related improvements, and restoration of traffic markings and striping.	
	Primary Treatment (SEP 040 and 041) Health and Safety Improvement project (SFPUC)	Southeast Plant (SEP) 040 and 041 are primary treatment facilities that were built in the 1950s and served as SEP's only primary treatment facility until a newer primary treatment facility (SEP 042) was constructed in the 1980s. The primary sedimentation tanks in SEP 040 and 041 provide additional operational flexibility, currently providing added capacity to SEP 042 tanks to handle wet weather flows as well as to serve as a backup during dry weather conditions when some or all tanks at SEP 042 need to be taken offline. The project proposes to sawcut the super structures of SEP 040 and 041 to expose the tanks to open air, and to cover those tanks with covers, and install a new odor control system. The project would also include the following: 1. replace and relocate utility lines; 2. Demolish, relocate, or provide an enclosure for exposed equipment (backup air compressor system, hydraulic power unit); 3. Replace electrical conduits and consolidate control centers; and, 4. Relocate outdoor storage areas.	September 2024 - September 2026 or 2027 weather dependent
	SEP HVAC and Mechanical Upgrades (SFPUC)	The SFPUC proposes to repair and replace various HVAC equipment and mechanical systems at the Southeast Plant.	December 2022 - Winter 2025
	SEP 545 Electrical Controls Upgrade (SFPUC)	The project would conduct electrical service upgrades and repairs to existing facility valve controls adjacent to the Southeast Plant, Bruce Flynn Pump Station, and Booster Pump Station (adjacent to Islais Creek) to maintain permit compliance and support operational reliability and resilience. Key project scope includes selective demolition of the existing and installation of new power feeders and	Spring 2023 - Fall 2024

Project No. in FEIR	Project Name (Project Sponsor)	Project Description	Construction Dates
		fiber optic cable between Bruce Flynn Pump Station through the new and existing duct bank to the valve vault and existing pull box; new control panel; new automatic transfer switch, input/output unit; pump station ventilation; bollards; associated conduit and wiring, miscellaneous site and vault upgrades as required.	
	1399 Marin Transit Service Operations and Maintenance Plan (SFMTA)[10]	The existing diesel hybrid fleet of approximately 88 buses will be moved from the Kirkland Transit Facility near Fisherman's Wharf to operate from the Islais Creek Transit Facility located at 1301 Cesar Chavez Street, with bus storage and repair-level maintenance occurring at the 1399 Marin facility, located across Indiana Avenue from Islais Creek facility site. Minimal improvements to the site (replacement or upgraded fencing, improved yard lighting, which likely will include some minor trenching and spot repavement of the surface yard area) are planned. No improvements are planned for the interior of the building on site.	Spring - Winter 2025
	Operations, Engineering and Maintenance Buildings (SFPUC)	SFPUC proposes to modify the approved Biosolids Digester Facilities Project to construct the Operations, Engineering and Maintenance Buildings (SEP-7) instead of Maintenance Buildings 1 and 2. The project would include demolition of SEP 850 and trailers at SEP 850. Demolition of SEP 850 includes boiler that serves SEP 930, requiring installation of local hot water solution for SEP 930. The project would replace SEP 850 and the adjacent parking lot at Jerrold and Phelps, an area just under one acre, with two new buildings, SEP 603 and SEP 914. Building SEP 603 would be a single story, 9,800 square foot, Mechanical Maintenance building for crews 402, 402, and 404 shops. Building SEP 914 would be a two-story, 28,250 square foot building, consisting of shops for Painters, Carpenters and Plumber on the ground floor and shower and locker facilities on the second floor.	February 2025 - September 2027
	Additional Newcomb Yard Improvements (SFPUC)	This program will fund interim improvements at CDD Headquarters at 1990 Newcomb Avenue that are required to address health and safety concerns and to renovate existing facilities to accommodate the division's staffing needs while a new SFWD Headquarters at 2000 Marin is designed and constructed. Interim improvements include: re-roofing the Administration, Shops and Warehouse Building; Emergency Communication Facilities at Newcomb Yard and Lake Merced Pump Station; developing approximately 4,000 square feet of new office space; renovating the Shops Building mechanical systems;	2025 - 2027

Project No. in FEIR	Project Name (Project Sponsor)	Project Description	Construction Dates
		developing Incident Command Structure facilities; developing access control systems; and street and sidewalk improvements.	
	Islais Creek Bridge Project (San Francisco Public Works)[11]	The City and County of San Francisco is proposing to replace the existing Islais Creek Bridge along Third Street in San Francisco's Bayview neighborhood. Construction of the proposed project would result in the replacement of the existing drawbridge with a fixed bridge and large ships would no longer be able access the Islais Creek channel west of the new bridge. Throughout the construction duration, there would be no access for vehicles, the T-Third Street light rail service, or pedestrians to the bridge or Third Street between Marin Street to the north and Cargo Way to the south. Vehicles would be detoured around the site to other routes. T-Third Street passengers would use bus shuttles in lieu of light rail service south of Islais Creek Bridge and the 15 Bayview Hunters Point Express and 91 Third Street/19th Avenue OWL buses would be detoured around the project site.	Spring 2026 -Spring 2028
	Bayview Train Caltrain Station (SFCTA)[12]	The San Francisco County Transportation Authority is proposing a new Caltrain Station in the Bayview community at either Oakdale (Quint Street between Oakdale and Jerrold avenues) or Evans Avenue (between Selby and Rankin streets).	Unknown

NOTES

Projects with numbers were included in the FEIR Cumulative Projects List, with locations shown on FEIR 4.1-1. Projects completed since the FEIR have been removed from the cumulative list. Projects with no numbers are new projects.

SOURCES

Project descriptions without noted sources were prepared by the SFPUC.

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3 City and County of San Francisco, Office of Community Investment and Infrastructure, Hunters Point Shipyard Phase 1 and 2/Candlestick Point. Available online at Hunters Point Shipyard Phase 1 and 2/Candlestick Point | Office of Community Investment and Infrastructure (sfocii.org). Accessed July 8, 2024.

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9 San Francisco Planning Department, San Francisco Planning Department Public Portal. Available: https://aca-prod.accela.com/ccsf/Cap/CapDetail.aspx?Module=Planning&TabName=Planning&capID1=23CAP&capID2=00000&capID3=009CS&agencyCode=CCSF. Accessed December 1, 2023.
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12 SFCTA, Bayview Caltrain Station Location Study. Available at: https://www.sfcta.org/bayview-caltrain. Accessed July 8, 2024.

APPENDIX B
AIR QUALITY HEALTH RISK ASSESSMENT UPDATE

AIR QUALITY MEMO

Date: **April 10, 2024**

To: **Kimberly Stern, SFPUC**
Karen Lancelle, ESA
Josh Pollak, San Francisco Environmental Planning

From: **Rei Zhang**
Michael Keinath, PE

Subject: **AIR QUALITY HEALTH RISK ASSESSMENT UPDATE FOR POTENTIAL MODIFICATION TO THE FUTURE END-USE OF DIGESTER GAS AT THE SOUTHEAST PLANT BIOSOLIDS DIGESTER FACILTY PROJECT IN SAN FRANCISCO, CALIFORNIA**

As part of the environmental review effort in 2017, Ramboll conducted California Environmental Quality Act (CEQA) analyses of greenhouse gases (GHGs), criteria air pollutants (CAPs) and precursors, as well as a health risk assessment (HRA) based on exposure to toxic air contaminants (TACs), associated with the construction and operation of the San Francisco Public Utilities Commission's (SFPUC) Southeast Plant (SEP) Biosolids Digester Facility Project (BDFP or "the Project"). Analysis methodology and results were documented in an Air Quality Technical Report (AQTR), which was incorporated into the Final Environmental Impact Report (FEIR).[1,2]

In the FEIR design previously analyzed by Ramboll, the Project included the construction of energy recovery facilities, in which boilers, gas turbines, and microturbines would convert the SEP's generated digester gas to heat, steam, and electricity to operate SEP facilities. Since the certification of the FEIR, SFPUC is considering a modification to the end-use of the digester gas instead of energy recovery, which is to convert the gas to pipeline-quality renewable natural gas (RNG, also referred to as biomethane) for injection into PG&E's existing natural gas pipeline at Quint Street. Instead of constructing and operating the energy recovery components described in FEIR section 2.4.1.5, the SFPUC would construct a biogas upgrade facility where the digester gas would be converted to RNG, a deoxygenation facility, a PG&E Interconnection Facility where the RNG quality would be tested, and various pipelines connecting these facilities and them to the existing PG&E natural gas pipeline. These facilities are referred to collectively as the biogas utilization system.

The San Francisco Planning Department and SFPUC have requested an air quality analysis of this proposed modification analyzing changes to criteria air pollutant, toxic air contaminant and greenhouse gas emissions and resulting health risks. This technical memorandum presents a summary of the methodology and results, noting any details not included in the AQTR and FEIR. Tables and Figures were updated from the AQTR for the proposed modification; however, table numbering was

[1] Ramboll. 2017. Air Quality Technical Report. March. Available upon request.
[2] City and County of San Francisco. 2017. Biosolids Digester Facilities Project. May. Available at: https://ceqanet.opr.ca.gov/2015062073/2

preserved for ease of direct comparison to the AQTR.[3] Ramboll is providing this analysis of the proposed modification to support the San Francisco Planning Department's CEQA review of the modified project.

OVERVIEW OF PROPOSED CHANGES

There are several differences between the Project analyzed in the FEIR and the proposed modification. Compared to the FEIR, this proposed modification would result in less construction activity, both temporally and materially, because fewer and less substantive structures would be built in less time (see **Attachment 1**). In the FEIR, a majority of the digester gas was analyzed as being combusted on-site by the digesters, the energy recovery system turbines and boilers, flares, and other associated facilities. In the proposed modification, a majority of the digester gas would be exported off-site as RNG and the balance would be combusted on-site by the digesters, boilers, flares, and other associated facilities. Lastly, compared to the FEIR, the proposed modification's operational emission sources would be located further from residences.

IMPACTS FROM CHANGES IN CONSTRUCTION EMISSIONS

As discussed in the FEIR, construction off-road equipment, on-road vehicles, and paving and off-gassing result in the emissions of criteria air pollutants and greenhouse gases that impact air quality.

We calculated actual CAP emissions for the first two years of construction of the Project based on off-road equipment data provided by the construction contractors, which was collected and reported to demonstrate compliance with the FEIR mitigation measures, for two previously approved modifications.[4] For this analysis, we calculated actual CAP emissions for the third year of construction. Emissions of CAPs based on actual construction activity are shown in **Table A1a-c** of this report for Year 1-3, respectively. Compared to the FEIR, the emissions of all CAPs have decreased from the estimates for construction Years 1-3; this decrease is due to actual equipment use (i.e., hours of operation) being less than estimated at the time of the FEIR. Accordingly, GHG emissions from construction would reasonably be expected to decrease as well.

Construction impacts are directly correlated with ROG (reactive organic gases) that affects Acute Hazard Index, PM_{10} (particulate matter less than 10 microns) as diesel particulate matter affects Cancer Risk and Chronic non-Cancer Hazard Index, and $PM_{2.5}$. Since the construction emissions of all of the CAPs, including ROG, have decreased from those estimated in the FEIR for Years 1 through 3, and the proposed modification would result in less construction activity than if the energy recovery facilities were built and thus fewer emissions, the health impacts associated with construction of the proposed modification would reasonably be expected to decrease as well. Additionally, the initial years of construction tend to have the highest health impacts due to the exposure parameters relative to the age of sensitive receptors evaluated; therefore, reductions in these early years of construction would be expected to also disproportionally reduce risk. Therefore, Ramboll did not re-quantify the health risk impacts of construction of the modified Project as part of this analysis.

[3] Although the same existing facilities would be decommissioned with the proposed modification, the magnitude of their reduction on health impacts appears different because the project's MEISR changes with the proposed modification such that the values in the original and updated AQTR tables vary (not because of difference in activity, only because that activity is being reported at a different location).
[4] MPM-09 and MPM-13.

IMPACTS TO HEALTH RISK FROM CHANGES IN OPERATIONAL EMISSIONS

Methodology and Emissions

Operational CAP emissions with the proposed modification were estimated by the Biosolids Digester Facilities Project Consultant Team.[5] That team analyzed several operating scenarios for the new biogas utilization system. The most conservative operating scenario analyzed for emissions assumes that 70% of the digester gas would be converted to RNG for export (injection into the PG&E pipeline) while the remaining 30% of digester gas would be combusted on-site by flaring.[6] In reality, the SFPUC expects that 90% or more of the digester gas would be converted to RNG and that less than 10% would be flared; however, as 70:30 is the worst-case typical operating scenario, it is the basis for updating the operational CAP emissions and this update to health risk impacts during operations.

Ramboll re-modeled the Project operational sources at their modified locations and the existing sources at the facility. The modified locations of the Project stationary sources were provided by the SFPUC.[7] Updated **Figure 3** shows the modeled locations of the operational emissions sources, which include the flares, boilers, biogas upgrade facility, and solids odor control stack. Each stationary source was modeled as a point source, with various stack heights, temperatures, velocities, and diameters. Updated modeling parameters are shown in Updated **Table E-3**. The Project operational source parameters were provided by the BDFP consultant design team.

Ramboll evaluated excess lifetime cancer risks, $PM_{2.5}$ concentrations, and chronic and acute non-cancer health effects for Project stationary operational sources of emissions with the proposed modification. In the AQTR, operation-only risks are characterized by Scenario 2, and this is the scenario updated in this analysis for this proposed modification. Exposure assumptions for this update were consistent with AQTR Scenario 2, for risk to a resident with a 30-year exposure commencing at the time of Project operations. Cancer and non-cancer risks were calculated using the California Air Resources Board's Hot Spots Analysis & Reporting Program Air Dispersion Modeling and Risk Tool (HARP), following Bay Area Air Quality Management District (BAAQMD) 2023 CEQA guidelines and 2015 OEHHA Hot Spots Guidance.

For all TACs, Ramboll used toxicity values consistent with OEHHA-approved values found in the HARP Air Dispersion Modeling and Risk Tool (CARB 2023), shown in updated **Table 20c** for the updated TAC emissions from the modified operational sources provided by the BDFP Consultant Team.

Results

Operational Emissions

Updated **Table 12c** shows the updated Project CAP emissions for the worst-case operating scenario with the proposed modification. Compared to the Project as analyzed in the FEIR at full operation in 2045, the proposed modification would slightly increase operational emissions of ROG, PM_{10}, and $PM_{2.5}$ and decrease NOx emissions. These changes in operational CAP emissions are due to changes in

[5] Brown and Caldwell, CH2M, Black & Veatch (Biosolids Digester Facilities Project Consultant Team). 2021. Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application for the Biosolids Digester Facilities Project. May.

[6] The worst-case operating scenario analyzed by the Biosolids Digester Facilities Project Consultant Team is identified as Operating Scenario 3 in the Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application.

[7] The location of the biogas upgrade facility in the BAAQMD to Construct/Permit to Operate Application is out of date. The SFPUC provided the location of this proposed facility on a site plan. It would be located at the former location of Maintenance Shops 2 Building that was previously removed from the project in MPM-10. This is where we modeled this facility in the update.

equipment (namely, the removal of the proposed turbines and increase in boiler and flaring operations), as well as differing amounts and composition of the gas combusted between the FEIR scenario and the proposed modification. The FEIR compares the net Project operational CAP emissions to the CEQA significance thresholds, which are calculated as the Project's operational CAP emissions from new Project facilities minus existing emissions from existing facilities that would be decommissioned. Net operational CAP emissions from the Project with the proposed modification are shown in updated **Table 14.**

Updated **Table 13c** shows the updated Project GHG emissions, and updated **Table 15** shows the net operational GHG emissions. Changes in GHG emissions are also due to the changes in equipment (namely, the removal of the proposed turbines and increase in boiler and flaring operations), as well as differing amounts and composition of the gas combusted between the FEIR scenario and the proposed modification. Compared to the Project's full operations as analyzed in the FEIR, biogenic emissions have decreased, non-biogenic emissions have increased, and total project GHG emissions have decreased slightly, without accounting for any GHG reductions from RNG production.[8] RNG produced by the BDFP will be injected into the PG&E's natural gas pipeline. By making this renewable natural gas available to customers, the RNG injection will thus replace and avert potential emissions from burning fossil-fuel-derived natural gas. This calculation assumes only 70% of the digester gas is converted to RNG and exported off site (worst-case); in reality, more RNG is expected to be produced and injected into the pipeline. The modified project's total GHG emissions would be further reduced to 19,805 MT/year when accounting for averted emissions. The total net increase from the baseline 2014 existing conditions in non-biogenic emissions from the modified project, including averted emissions, would be approximately 5,005 MT CO_2e (metric tons of carbon dioxide equivalent)/year.

The differing amounts and composition of the gas combusted would result in different speciation and quantities of TACs between the FEIR scenario and the proposed modification. TAC emissions for the worst-case operating scenario are shown in updated **Table 16b.** Ramboll compared the existing operational TAC emissions to the proposed modification TAC emissions. While the overall TAC emissions would increase post-Project with the proposed modification, the emissions of the highest contributors to cancer risk would remain comparable or decrease compared to the existing operations.

Health Risks

Modified Project Operational Impacts

Long-term health impacts (cancer risk, chronic HI, and $PM_{2.5}$ concentrations) are evaluated at sensitive receptors (residences, schools, daycares, etc.), and the maximum impact for each is called the maximally exposed individual sensitive receptor (MEISR). The MEISR can vary for the different health endpoints (e.g., cancer risk, chronic HI). Short-term health impacts (acute HI) are evaluated for all receptors (not just sensitive receptors) since it is based on a one-hour exposure; the location of maximum impact is referred to as the MEI. Ramboll updated the health risk assessment to identify the MEISR and MEI locations for the proposed modification.

The updated Project MEISR due to changes in project operation (i.e., updated AQTR Scenario 2) was identified as the sensitive receptor location of the maximum net risk, which is calculated as the modified Project's cancer risks minus the adjusted existing SEP operational risk of sources planned for

[8] CO_2 emissions from biogas combustion in the flares and thermal oxidizer are considered biogenic emissions by the California Air Resources Board; however, the CH_4 and N_2O emissions from these sources are considered non-biogenic emissions. Additionally, biomethane (RNG) and biogas emissions from wastewater treatment facilities are exempt from compliance requirements under of the State's Cap-and-Trade Regulation, per Section 95852.2(a)(8)(B).

removal. As shown in updated **Figure 6**, with the proposed modification, this sensitive receptor would be located far from the project boundary, which is emblematic of a net reduction in excess cancer risk (i.e., there is a greater impact from removal of existing SEP operational sources than introduction of new sources as part of the proposed Project). Accounting for the removal of the existing equipment, the sensitive receptors with the largest reductions in net cancer risk would be those located the closest to the project. A breakdown of excess lifetime cancer risk at the updated MEISR from each stationary source for operations at their modified locations is shown in updated **Table 22**. The AQTR net Project cancer risk at the MEISR with the energy recovery system was 0.022 in a million, whereas it would be -0.009 for the modified Project.[9] The proposed modification operations would thus represent a reduction in operational cancer risk.

The AQTR total and net $PM_{2.5}$ concentration at the MEISR with the energy recovery system was 0.39 $\mu g/m^3$ and 0.090 $\mu g/m^3$, respectively. The Project and net total Project $PM_{2.5}$ concentration at the off-site MEISR location for modified Project operations was calculated as 0.37 $\mu g/m^3$ and 0.17 $\mu g/m^3$, respectively, as shown in updated **Table 24**. The net total $PM_{2.5}$ concentration was calculated by subtracting the $PM_{2.5}$ concentration from the Project's stationary sources that would be replaced by the new Project facilities. The net total $PM_{2.5}$ concentration for the proposed modification would thus increase.

The chronic HI at the off-site MEISR associated with modified Project operations would be 0.015, compared to the value of 0.0067 in the AQTR. The acute HI associated with the proposed modification at the MEI would be 0.22, compared to a value of 0.083 presented in the AQTR. The updated information is shown in updated **Table 24**. Overall TAC emissions have increased for the proposed modified operations; however, distances from sources to residences have also increased, leading to only a slight increase in chronic HI. Acute hazards have experienced the largest relative increases, as acute HI accounts for maximum one-hour exposure and is assessed at any receptor location.

Cumulative Impacts with Modified Project

The cumulative analysis estimates excess lifetime cancer risks and $PM_{2.5}$ concentrations that are attributable to other mobile and stationary sources within the Project vicinity, in addition to impacts from the Project. The cumulative sources analyzed remained consistent with the AQTR, and consist of additional projects in the surrounding area that will be under construction during the construction and

[9] The MEISR analyzed in the AQTR and the MEISR for the proposed modification analyzed here are not at the same location due to changes in source locations; however, it is conservative to compare maximally exposed individuals.

operation of the BDFP,[10] as well as an update of the background risks from the health risks database from the 2020 San Francisco Citywide HRA.[11,12]

The lifetime excess cancer risk from each cumulative source, as well as from modified Project operations, was summarized and summed together to get cumulative risk in the updated **Table 26**. The estimated excess lifetime cancer risk from operational emissions for a resident at the off-site MEISR location with the proposed modification using the Citywide HRA would be 57 in a million, compared to 10 in a million in the AQTR using the CRRP-HRA. This increase is due to the change in MEISR locations due to the change in the location of emissions sources, as well as the difference in background risk from the Citywide HRA (used for this analysis) and the CRRP-HRA (used in the FEIR and AQTR). For comparison purposes, the background risk at the new MEISR would have been 16 in a million if the CRRP-HRA that was used for the AQTR was used for this analysis, instead of 57 million using the updated Citywide HRA. The background risk at the MEISR for the AQTR would have been 19 in a million using the updated 2020 Citywide HRA instead of 10 in a million using the 2014 CRRP-HRA (and presented in the AQTR). In other words, the increase in cumulative impacts with the proposed modifications is attributable to the increase in background risk in San Francisco since the FEIR and AQTR, not just the project modifications alone.

The cumulative $PM_{2.5}$ concentrations are presented in updated **Table 27**; the $PM_{2.5}$ concentration at the off-site MEISR with the proposed modification with the updated Citywide HRA would be 8.7 $\mu g/m^3$ during the operational period, a slight decrease from 9.0 $\mu g/m^3$ assessed in the AQTR.

The cumulative chronic HI and acute HI are shown in updated **Table 28** and **Table 29**, respectively. The cumulative chronic HI would be 0.019 for the modified Project operations. As shown in updated **Table 29**, there are no acute health impacts included in the CRRP-HRA and the original analysis and this update do not estimate acute health impacts from other on- and off-site cumulative projects. Therefore, the cumulative acute HI is equal to the Project acute HI or 0.22. Both cumulative chronic and acute HI would slightly increase from the 0.0087 chronic HI and 0.083 acute HI in the AQTR.

Locations of all MEISRs and MEIRs discussed above are shown in updated **Figure 6**.[13] The MEISR for excess cancer risk due to the project modification is the sensitive receptor with the highest risk over a 30-year exposure time. The MEISR for Chronic HI and $PM_{2.5}$ concentrations is the sensitive receptor with the maximum annual average hazard index or concentration, respectively. The MEI for acute HI is the location where the maximum one-hour exposure occurs. Because of the different exposure

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[10] As originally proposed in the FEIR, two new buildings (Maintenance Shops 1 and 2) were included to support operations and maintenance. Instead of Maintenance Shops 1 and 2, the SFPUC proposes to modify the approved BDFP to construct the SEP trades and maintenance buildings (designated as "SEP-7"), which would be located southeast of the approved Maintenance Shops 1 and 2 location and adjacent to but outside of the BDFP project site evaluated in the FEIR. SEP-7, separate to the biogas upgrading system addressed in this memo, is currently under development and also subject to review by the SF Planning Department.

[11] The San Francisco Planning Department evaluated citywide the cumulative cancer risks and $PM_{2.5}$ concentrations from existing known sources of air pollution in 2014 as part of the development of a Community Risk Reduction Plan (CRRP) and corresponding HRA database (CRRP-HRA) and this was used in the AQTR. Since the certification of the FEIR with the AQTR in 2018, the cumulative health risks were re-evaluated and the Citywide HRA was updated in 2020, supplanting the former CRRP-HRA. As requested by the SF Planning Department, this analysis uses the updated Citywide HRA for the cumulative risk assessment.

[12] San Francisco Department of Public Health (SFDPH), San Francisco Planning Department, and Ramboll. 2020. San Francisco Citywide Health Risk Assessment: Technical Support Documentation.

[13] The updated Project Cancer Risk MEISR due to operational emissions (AQTR Scenario 2 update) is located further away from the Project than the other identified MEISRs as the Project cancer risk is net negative. As the MEISR is determined based on the maximum net risk (Project minus existing), the sensitive receptors closer to the site have higher relative existing risk and therefore lower net risk. As the Project cancer risk is net negative, it is not shown in Figure 6.

periods and the various locations of different sources of emissions that go into each of these impacts, the location of the MEISR and MEI are not always coincident.

SUMMARY

Table 1 below summarizes actual Years 1 through 3 construction CAP emissions. Construction CAP emissions and, in turn construction GHG emissions, have decreased compared to the FEIR. As the proposed modification would require less construction activity because fewer and less substantive structures would be built than for the energy recovery system, it would result in fewer emissions. Construction impacts are directly correlated with ROG that affects Acute Hazard Index, PM_{10} as diesel particulate matter affects Cancer Risk and Chronic Non-Cancer Hazard Index, and $PM_{2.5}$. Since construction emissions would decrease from those studied in the AQTR, the health impacts from construction of the proposed modification would reasonably be expected to decrease.

Table 1: Actual Construction Criteria Air Pollutant Emissions Years 1 - 3

Criteria Air Pollutant Average Daily Emissions (lbs/day)	Year 1 (2020)		Year 2 (2021)		Year 3 (2022)		FEIR CEQA Threshold (lb/day)
	AQTR Controlled[1]	Actual Controlled[2]	AQTR Controlled[1]	Actual Controlled[2]	AQTR Controlled[1]	Actual Controlled[2]	
ROG	8.7	3.5	10	4.2	10	3.1	54
NOx	**72**	**54.2**	45	37	**55**	30	54
PM_{10}	0.7	0.3	0.7	0.3	0.63	0.14	82
$PM_{2.5}$	0.7	0.3	0.6	0.3	0.63	0.13	54

[1] Source: AQTR Table 4c.
[2] Source: See tables A1a – A1c of this report.
Bold indicates CEQA threshold exceedance. Emissions rounded to nearest whole number for comparison to FEIR CEQA threshold.

Table 2a-2b summarize the worst-case operating scenario of the biogas upgrade facility. Compared to the FEIR, operational CAP emissions of ROG, PM_{10}, and $PM_{2.5}$ would increase while NOx emissions would decrease with the proposed modification. However, all net operational CAP emissions would remain below the CEQA thresholds in the FEIR. As the modified project's net operational criteria pollutant emissions would not exceed CEQA thresholds, the modified project also would not result in a cumulatively considerable contribution to regional air quality impact.

Table 2a: Net Operational Criteria Air Pollutant Emissions with the Proposed Modification

Approach	Annual Emissions (Tons/Year)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Existing (2014) Total[1]	5.0	22	1.7	1.7
FEIR/AQTR Scenario 2 - Full Operation (2045) Impacts (Net Change from Existing)[1]	-4.3	2.6	2.9	2.9
Modified Project Operating Scenario, Full Operation (2045) Impacts (Net Change from Existing)[2]	-2.9	-3.2	3.8	3.8
Modified Project Emissions Above Threshold?	No	No	No	No

[1] Sourced from the FEIR.
[2] Source is Brown and Caldwell. The operating scenario analyzed is 70% of the biogas being converted to RNG with 8.3% methane in the tail gas and 30% of the biogas flared on site (Operations Scenario 3 in the BAAQMD permit application). In reality, the SFPUC expects that 90% or more of the digester gas would be converted to RNG and only 10% would be flared.

Compared to the FEIR, the total net increase from the baseline 2014 existing conditions in non-biogenic emissions from the modified project, including averted emissions, would be approximately 5,005 MT CO_2e/year. However, net operational non-biogenic GHG emissions for the modified project would remain below the CEQA thresholds in the FEIR.[14]

Table 2b: Net Operational Greenhouse Gas Emissions with the Proposed Modification

Approach	Annual Non-Biogenic GHG Emissions (MT CO_2e/Year)
Existing (2014) Total[1]	234
FEIR/AQTR Scenario 2 - Full Operation (2045) Impacts (Net Change from Existing)[1]	-27
Modified Project Operating Scenario, Full Operation (2045) Impacts (Net Change from Existing)[2]	5,005
Modified Project Emissions Above Threshold?	No

[1] Sourced from the FEIR.
[2] Biomethane produced by the BDFP will be injected into the PG&E's natural gas pipeline. By making this renewable natural gas available to customers, the biomethane injection will thus avert potential emissions from burning fossil-fuel-derived natural gas.

[14] The FEIR evaluated the project's net changes in non-biogenic GHG emissions in comparison to the BAAQMD's GHG significance thresholds, which is 10,000 MTCO_2e per year for a stationary source.

Table 3 summarizes the health risk impacts of the operation of the Modified Project, and **Table 4** summarizes the cumulative health impacts of the proposed modification. Some risks would increase slightly while others would decrease. However, all risks would remain below the FEIR CEQA thresholds.

Table 3. Operational Health Risk Impacts with the Proposed Modification

Source	Excess Cancer Risk (in a million) from Operations	$PM_{2.5}$ Concentration from Operations (ug/m^3)	Chronic Non-Cancer Hazard Index from Operations (unitless)	Acute Hazard Index from Operations (unitless)
FEIR/AQTR Maximum Impact Value (Scenario 2 – operations only)	0.022	0.09	0.0067	0.083
Modified Project Operation Maximum Impact	-0.009	0.17	0.015	0.22
CEQA Threshold	7.0	0.2	1.0	1.0
Modified Project Risks Above Threshold?	N[1]	N	N	N

[1]In the AQTR, the MEISR worst-case value for excess cancer risk was <0.1 to 1.7 per million, well below the CEQA threshold. The excess cancer risk threshold of 7.0 per million is inclusive of emissions from construction and operation. Given the proposed modification would have decreased construction related and operational cancer risk, it is reasonable to conclude that the Project's combined excess cancer risk would still be below the CEQA thresholds even though construction risk was not re-quantified.

Table 4. Cumulative Operational Health Risk Impacts with the Proposed Modification, Cumulative Projects and 2020 Updated Citywide Health Risk Assessment[1]

Source	Excess Cancer Risk (in a million) from Operations	$PM_{2.5}$ Concentration from Operations (ug/m^3)	Chronic Non-Cancer Hazard Index from Operations (unitless)
AQTR Maximum Impact Value with Background using the CRRP-HRA[2] (Scenario 2 – operations only)	10	9.0	0.0087
Modified Project Operation Maximum Impact with Background using the updated Citywide HRA	57	8.7	0.019
Cumulative CEQA Threshold	90	9.0	10.0
Modified Project Risks Above Threshold?	N	N	N

[1] As discussed in the FEIR and AQTR, Acute Non-Cancer Hazard is not assessed as a cumulative impact. Cumulative impacts include risks from nearby stationary sources, major roadways, and SFPUC-sponsored projects, consistent with the AQTR and FEIR. Since the publication of the FEIR, the Gateway Draft EIR has been published; as discussed with SF Planning, operational chronic HI and $PM_{2.5}$ concentration from the Gateway project were included in the cumulative analysis.[15] Operational cancer risks were not included due to the distance between the Gateway MEIR and the modified project MEIR.

[2] "CRRP-HRA" refers to the Community Risk Reduction Plan (CRRP) and corresponding background HRA database (CRRP-HRA). "Citywide HRA" refers to the background risks updated in 2020. Refer to footnote 11 above regarding these two sources.

CLOSING

The analysis presented above provides updated construction CAP emissions analysis, operational CAP emissions, operational GHG emissions, and health risks that would occur from the Project with the proposed modification. The proposed modification would not result in any change in significance determinations of the FEIR. As discussed, this update conservatively analyses the worst-case operating scenario of the proposed biogas upgrade facility, such that in reality, emissions would be expected to be lower. It also includes the use of the Citywide HRA updated in 2020 for the cumulative health risk assessment. Citywide background health risk has increased since the FEIR (and AQTR), contributing to the increase in cumulative effects.

[15] San Francisco Gateway Project - 749 Toland Street and 2000 McKinnon Avenue. 2023. Draft Environmental Impact Report – Appendices. Available at: https://citypln-m-extnl.sfgov.org/SharedLinks.aspx?accesskey=8c6552f4f46e26a95ed91a0ccaa0995ad1bdd5d8d87236347774cfa7f57007c7&VaultGUID=A4A7DACD-B0DC-4322-BD29-F6F07103C6E0

Tables

Table A1a:	Actual Construction Emissions Summary for Year 1
Table A1b:	Actual Construction Emissions Summary for Year 2
Table A1c:	Actual Construction Emissions Summary for Year 3
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Updated Table 13c:	Project Operational GHG Emissions
Updated Table 14:	Summary of Net Project Operational CAP Emissions
Updated Table 15:	Summary of Net Project Operational GHG Emissions
Updated Table 16b:	Project Operational TAC Emissions for Worst Case Operational Scenario
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Updated Table 24:	Chronic and Acute Health Impacts from Project Operation at Off-site MEISR and Off-site MEI
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Updated Table 28:	Cumulative Chronic Hazard Index at Off-site MEISR
Updated Table 29:	Cumulative Acute Hazard Index at Off-site MEI
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Figures

Updated Figure 3:	Operational Model Sources
Updated Figure 6:	Location of Maximally Exposed Individual Sensitive Receptor and Maximally Exposed Individual

Attachments:

Attachment 1: Facility Description

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ATTACHMENT 1
FACILITY DETAILS

Attachment 1 - Modified Project Revisions to Facilities

Facility	Location	Approximate Area and Excavation Depth	Height and Diameter	Piles
Remove				
Digester Gas Storage tank	North of Jerrold	2,827 sq. ft (0.06 acre) by 15 feet deep	60 foot tall by 60 foot diameter tank	38 piles: 3 foot diameter by 60 feet deep
Energy Recovery Building (turbines, boilers, 1.5MW emergency generator)	South of Jerrold	21,000 sq. ft. (0.48 acre) by 5 feet deep	57 foot tall building, 75 foot tall by 4 foot diameter vent stack for turbine	185 piles: 3 foot diameter by 60 feet deep
Digester Treatment Facility	South of Jerrold	8,568 sq. ft. (0.2 acre) by 5 feet deep	12’ tall by 10’ dia. outside tanks and vessels (11)	75 piles: 4 foot diameter by 60 feet deep
Digester Gas Line[1]	Under Jerrold, North and South of Jerrold	1440 sq. ft. (0.03 acre) [96 feet long by 15 inches wide] by 15 feet deep	N/A	9 piles: 4 foot diameter by 60 feet deep
Pipe Chase under Jerrold from Digester Gas Storage Tank to Energy Recovery Building	Under Jerrold	1440 sq. ft. (0.03 acre) [247 feet long by 18 inches wide by 12 feet deep	N/A	24 piles: 4 foot diameter by 60 feet deep

1 The portion of the originally approved digester gas line west of Jerrold would still be built to convey gas from the new digesters to the added biogas upgrade facility.

Facility	Location	Approximate Area and Excavation Depth	Height and Diameter	Piles
Add[2]				
Biogas Upgrade Facility with thermal oxidizer	North of Jerrold – replaces originally approved Maintenance Shops	9,984 sq. ft. (0.23 acre) by 2 to 8 feet[3]	15 feet to 45 feet tall outside piping and tanks, various diameters[4]	To be determined[5] Either none or up to 52 piles, 3 foot diameter by 60 feet deep
PG&E Interconnection Station and Deoxygenation System	South of Jerrold - replaces originally approved Digester Treatment Facility	15,000 sq. ft. (0.34 acre) by 2 feet	15 feet tall	None
Pipes from Biogas Upgrade Facility to PG&E Interconnection Station	Under Jerrold	940 sq. ft. (0.02 acre) [235 feet long by 4 feet wide] by 6 feet deep	N/A	None
Pipe from PG&E Interconnection Station to existing PG&E natural gas pipeline	Under Quint	35 sq. ft. (0.001 acre) [14' long by 2.5 feet wide] by 6 feet deep	N/A	None
NET		**Less 12,326 sq. ft. (0.3 acres)** **Less 5,538 cubic yards excavated**		**279 to 331 fewer piles**

[2] The exact dimensions of new facilities are to be determined upon completion of final design; the information in this table represents the range of facility dimensions.

[3] A range in excavation depth is provided because the new tanks and piping could either be on a shallow concrete pad with piles or a deeper concrete pad with no piles.

4 A range in height is provided because the new tanks and piping could either be shorter and more spread out or taller and more confined.

5 Piles may or may not be needed depending on the final design of the concrete pad foundation.

TABLES

Table A1a
Actual Emissions Summary for Year 1[1]
SFPUC Biosolids Digester Facilities Project
San Francisco, California

	EIR Year 1 (Table 4.8-9)				Updated Year 1				Change (Updated Year 1 - EIR Year 1)			
	ROG	**NOx**	**PM_{10}**	**$PM_{2.5}$**	**ROG**	**NOx**	**PM_{10}**	**$PM_{2.5}$**	**ROG**	**NOx**	**PM_{10}**	**$PM_{2.5}$**
Off-Road Equipment Emissions[1] (lbs)	1,714	8,270	148	148	374	4,034	42	42	-1,339	-4,237	-106	-106
On-Road Vehicle Emissions[2] (lbs)	551	10,355	28	27	536	10,066	30	29	-15	-289	2	2
Paving and Off-Gassing[3] (lbs)	9.6	--	--	--	9.6	--	--	--	No change from EIR assumptions; therefore, no change in emissions.			
Total Emissions (lbs)	**2,274**	**18,625**	**176**	**174**	**920**	**14,099**	**72**	**71**	**-1,354**	**-4,526**	**-104**	**-104**
Average Daily Emissions[4] (lbs/day)	8.7	72	0.7	0.7	3.5	54.2	0.3	0.3	-5.2	-17	-0.4	-0.4
BAAQMD Significance Threshold (lbs/day)	54	54	82	54	54	54	82	54	--	--	--	--
Exceeds Threshold (Y/N)	N	Y	N	N	N	Y	N	N	--	--	--	--
Excess Emissions (lbs/day)	--	18	--	--	--	0.2	--	--	--	-17	--	--
Excess Emissions Requiring Offsets[5] (tons/year)	--	2.3	--	--	--	0.0	--	--	--	-2.3	--	--

Notes:

1. Actual Year 1 emissions for off-road based on data provided by the Project's construction contractors for 2020. These emissions reflect the use of renewable diesel in off-road equipment based on the Environmental Impact Report (EIR) assumptions. These emissions were previously provided to San Francisco Envrionmental Planning in MPM-9.

2. Actual Year 1 emissions for on-road reflect the control measure that 80% of haul trucks are engine model year 2012 or newer with no renewable diesel. This varies from the control measure in the EIR that equipment be 2010 or newer with renewable diesel. This alternative control measure was approved by San Francisco Environmental Planning (Johnston, 9-30-20).

3. Paving and off-gassing emissions taken from EIR "Mitigated Scenario" without modification.

4. Average Daily Emissions calculated using the same method as the FEIR as:
([Year 1 Offroad Equipment Emissions] + [EIR Year 1 Onroad Emissions]) / 260 days/year

5. Excess emissions calculated as:
([Average Daily Emissions] - [BAAQMD Significance Threshold]) * 260 days/year * 1 ton/2000 lbs

Table A1b
Actual Emissions Summary for Year 2[1]
SFPUC Biosolids Digester Facilities Project
San Francisco, California

	EIR Year 2 (Table 4.8-9)				Actual Year 2				Change (Updated Year 2 - EIR Year 2)			
	ROG	**NOx**	**PM_{10}**	**$PM_{2.5}$**	**ROG**	**NOx**	**PM_{10}**	**$PM_{2.5}$**	**ROG**	**NOx**	**PM_{10}**	**$PM_{2.5}$**
Off-Road Equipment Emissions[1] (lbs)	1,958	8,355	154	154	570	6456	65	65	-1,388	-1,899	-89	-89
On-Road Vehicle Emissions[2] (lbs)	529	3,377	14	13	526	3,134	14	13	-3	-243	0	0
Paving and Off-Gassing[2] (lbs)	--	--	--	--	--	--	--	--	No change from EIR assumptions; therefore, no change in emissions.			
Total Emissions (lbs)	**2,487**	**11,732**	**168**	**167**	**1,096**	**9,590**	**79**	**78**	**-1,391**	**-2,142**	**-89**	**-89**
Average Daily Emissions[3] (lbs/day)	10	45	0.7	0.6	4.2	37	0.3	0.3	-5.3	-8	-0.3	-0.3
BAAQMD Significance Threshold (lbs/day)	54	54	82	54	54	54	82	54	No Change			
Exceeds Threshold (Y/N)	N	N	N	N	N	N	N	N	No Change			
Excess Emissions (lbs/day)	--	--	--	--	--	--	--	--	--	--	--	--
Excess Emissions Requiring Offsets[4] (tons/year)	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

1. Actual Year 2 emissions for off-road based on data provided by the Project's construction contractors for 2021. These emissions reflect the use of renewable diesel in off-road equipment based on the Environmental Impact Report (EIR) assumptions. These emissions were previously provided to San Francisco Envrionmental Planning in MPM-13.

2. Actual Year 2 emissions for on-road reflect the control measure that 80% of haul trucks are engine model year 2012 or newer with no renewable diesel. This varies from the control measure in the EIR that equipment be 2010 or newer with renewable diesel. This alternative control measure was approved by San Francisco Environmental Planning (Johnston, 9-30-20).

3. Paving and off-gassing emissions taken from EIR "Mitigated Scenario" without modification.

4. Average Daily Emissions calculated using the same method as the FEIR as:
([Year 2 Offroad Equipment Emissions] + [EIR Year 2 Onroad Emissions]) / 260 days/year

5. Excess emissions calculated as:
([Average Daily Emissions] - [BAAQMD Significance Threshold]) * 260 days/year * 1 ton/2000 lbs

Table A1c
Actual Emissions Summary for Year 3
SFPUC Biosolids Digester Facilities Project
San Francisco, California

	EIR Year 3 (Table 4.8-9)				Updated Year 3				Year 3 (Difference)			
	ROG	**NOx**	**PM_{10}**	**$PM_{2.5}$**	**ROG**	**NOx**	**PM_{10}**	**$PM_{2.5}$**	**ROG**	**NOx**	**PM_{10}**	**$PM_{2.5}$**
Off-Road Equipment Emissions (lbs)	1,795	7,437	140	140	72	805	10	10	-1723	-6,632	-129	-129
On-Road Vehicle Emissions (lbs)	729	6,986	25	23	729	6,986	25	23	0	0	0	0
Total Emissions (lbs)	**2,525**	**14,423**	**165**	**163**	**801**	**7,791**	**35**	**34**	**-1,723**	**-6,632**	**-129**	**-129**
Average Daily Emissions (lbs/day)	10	55	0.63	0.63	3.1	30	0.14	0.13	-6.6	-26	-0.50	-0.50
BAAQMD Significance Threshold (lbs/day)	54	54	82	54	54	54	82	54	--	--	--	--
Exceeds Threshold (Y/N)	N	Y	N	N	N	N	N	N	--	--	--	--
Excess Emissions (lbs/day)	--	1.5	--	--	--	--	--	--	--	--	--	--
Excess Emissions Requiring Offsets (tons/year)	--	0.2	--	--	--	--	--	--	--	--	--	--

Notes:

1. Actual Year 3 emissions for off-road based on data provided by the Project's construction contractors for 2022. These emissions reflect the use of renewable diesel in off-road equipment based on the Environmental Impact Report (EIR) assumptions.

2. Actual Year 3 emissions for on-road reflect the control measure that 80% of haul trucks are engine model year 2012 or newer with no renewable diesel. This varies from the control measure in the EIR that equipment be 2010 or newer with renewable diesel. This alternative control measure was approved by San Francisco Environmental Planning (Johnston, 9-30-20).

3. Paving and off-gassing emissions taken from EIR "Mitigated Scenario" without modification.

4. Average Daily Emissions calculated using the same method as the FEIR as:
([Year 3 Offroad Equipment Emissions] + [EIR Year 3 Onroad Emissions]) / 260 days/year

5. Excess emissions calculated as:
([Average Daily Emissions] - [BAAQMD Significance Threshold]) * 260 days/year * 1 ton/2000 lbs

6. Prepared by Ramboll on January 26, 2024.

Updated AQTR Table 12c
Project Operational CAP Emissions for Worst Case Operational Scenario With the Proposed Modification
SFPUC Biosolids Digester Facilities Project
San Francisco, CA

	Hours of Operation per Piece of Equipment[2] (hrs/yr)	Project Emissions[1,2]			
		ROG	NO_X	PM_{10}	$PM_{2.5}$
		(tons/year)			
Steam Boiler 1	8760	0.60	2.3	0.82	0.82
Steam Boiler 2	8760	0.60	2.3	0.82	0.82
Emergency Generator[3]	100	5.5E-04	0.016	6.6E-04	6.6E-04
Standby Enclosed Flare 1	2700	0.30	9.8	2.0	2.0
Worst Case Biogas Upgrading System Abated by a Thermal Oxidizer	6060	0.59	4.4	1.8	1.8
Sludge Handling/Solids Odor Control	8760	0.054	--	--	--
Utility Provided Electricity[4]	8760	--	4.9	--	--
Total Emissions (tons/yr)	-	**2.1**	**24**	**5.5**	**5.5**
Total Emissions (lbs/day)	**-**	**12**	**130**	**30**	**30**

Notes:

1. Operational emissions for the Project with the proposed modification were calculated by the BDFP Consultant Design Team for the Project, with the exception of electricity usage. Emissions from electricity usage was calculated using California's 2022 State Electricity Profile from the Energy Information Administration (EIA).

2. Operational Scenario 3 represents the worst case operational scenario. The worst-case operating scenario analyzed by the Biosolids Digester Facilities Project Consultant Team is identified as Operating Scenario 3 in the Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application. It assumes 70% of the digester gas is converted to renewable natural gas (RNG) and exported off site, 30% of the digester gas is combusted (flared) on-site, and that there is 8.3% methane in the tail gas.
3. Emergency generator emissions were calculated for a 20kW Tier 4 Interim engine, per information from the Project Sponsor. ROG emissions were calculated using NMHC conversion factors from the USEPA Conversion Factors for Hydrocarbon Emission Components document. ROG and VOC can be used interchangeably for CEQA analysis. As per BAAQMD policy, when NMHC+NOx emissions were reported together for the diesel emergency engine, the emissions were calculated as 5% NMHC and 95% NOx.
4. The BDFP is expected to use up to 1.6 MW of PG&E electricity annually.

Abbreviations:

CAP - criteria air pollutants
hrs - hours
lb - pounds
BDFP - Biosolids Digester Facilities Project
EIA - Energy Information Administration
NO_X - nitrogen oxide compounds (NO + NO_2)
PM_{10} - particulate matter less than 10 micrometers
$PM_{2.5}$ - particulate matter less than 2.5 micrometers
ROG - Reactive Organic Gas
SFPUC - San Francisco Public Utilities Commission

References:

Brown and Caldwell and CH2M and Black & Veatch (BDFP Consultant Design Team). 2021. Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application for the Biosolids Digester Facilities Project. March.

EIA. 2023. California 2022 State Electricity Profile. Available at: https://www.eia.gov/electricity/state/california/.

USEPA. 2010. Conversion Factors for Hydrocarbon Emission Components NR-002d. Available online at: https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P10081RP.TXT.

USEPA. 2016. Nonroad Compression-Ignition Engines: Exhaust Emission Standards. Available online at: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100OA05.pdf

Updated AQTR Table 13c
Project Operational GHG Emissions
SFPUC Biosolids Digester Facilities Project
San Francisco, CA

Source or Abatement Device	Hours of Operation per Piece of Equipment[2] (hrs/yr)	Project GHG Emissions[1,2,3,4]
		MT CO_2e/yr
Biogenic GHG Emissions		
Standby Enclosed Flare 1	2,700	7,804
Worst Case Biogas Upgrading System Abated by a Thermal Oxidizer	6,060	6,762
Total Biogenic Emissions for Stationary Sources (MT CO_2e/yr)		**14,566**
Non-Biogenic GHG Emissions		
Steam Boiler 1	8,760	7,332
Steam Boiler 2	8,760	7,332
Standby Enclosed Flare 1	2,700	39
Worst Case Biogas Upgrading System Abated by a Thermal Oxidizer	6,060	34
One Emergency Diesel Engine	50	1.7
Utility Provided Electricity[5]	-	1,309
Total Non-Biogenic Emissions for Stationary Sources (MT CO_2e/yr)		**16,048**
Averted Emissions from Biomethane Sent to PG&E Pipeline[6]	**6060**	**-10,809**

Notes:

1. Operational Scenario 3 represents the worst case operational scenario. The worst-case operating scenario analyzed by the Biosolids Digester Facilities Project Consultant Team is identified as Operating Scenario 3 in the Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application. It assumes 70% of the digester gas is converted to renewable natural gas (RNG) and exported off site to the PG&E pipeline, 30% of the digester gas is combusted (flared) on-site, and that there is 8.3% methane in the tail gas.
2. Hours of operation were estimated by the BDFP Consultant Design Team for the Project. Operational emissions were calculated using the same methodology and emission factors as the FEIR, as shown in the FEIR Appendix D.
3. Global warming potential values of 1 for CO_2, 21 for CH_4, and 310 for N_2O are from 40 CFR Part 98 Table A-1 (2011 version) as referenced in the California Mandatory Reporting Regulation (MRR) were used to convert emissions to metric tones of carbon dioxide equivalents (CO_2e) in accordance with 40 CFR Part 98.2.
4. CO2 emissions from biogas combustion in the flares and thermal oxidizer are considered biogenic emissions by the California Air Resources Board (ARB); however, the CH4 and N2O emissions from these sources are considered non-biogenic emissions. Additionally, biomethane and biogas emissions from wastewater treatment facilities are exempt from compliance requirements under of the Cap-and-Trade Regulation, per Section 95852.2(a)(8)(B).
5. The BDFP is expected to use up to 1.6 MW of PG&E electricity annually.
6. Biomethane produced by the BDFP will be injected into the PG&E's natural gas pipeline. By making this renewable natural gas available to customers, the biomethane injection will thus avert potential emissions from burning fossil-fuel-derived natural gas. This calculation assumes only 70% of the digester gas is converted to RNG and exported off site (worst-case); in reality, more biomethane is expected to be produced and injected into the pipeline.

Updated AQTR Table 13c
Project Operational GHG Emissions
SFPUC Biosolids Digester Facilities Project
San Francisco, CA

Abbreviations:

ARB - California Air Resources Board
BAAQMD - Bay Area Air Quality Management District
BDFP - Biosolids Digester Facilities Project
CFR - Code of Federal Regulation
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
GHG - greenhouse gas
kW - kilowatt
MMBTU - one million British thermal unit
MRR - California Mandatory Reporting Regulation
MT - metric ton
MW - molecular weight
N_2O - nitrogen dioxide
RNG - Renewable Natural Gas
PG&E - Pacific Gas & Electric
scf - standard cubic feet
SFPUC - San Francisco Public Utilities Commission
yr - year

References:

Brown and Caldwell and CH2M and Black & Veatch (BDFP Consultant Design Team). 2021. Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application for the Biosolids Digester Facilities Project. March.

Cal. Code Regs. Tit. 17, § 95852.2. Available at: https://www.law.cornell.edu/regulations/california/17-CCR-95852.2.

Code of Federal Regulations (CFR). 2011. 40 CFR 98. Available at: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-98.

Updated AQTR Table 14
Summary of Net Project Operational CAP Emissions With the Proposed Modification
SFPUC Biosolids Digester Facilities Project
San Francisco, CA

Emissions Scenario		Project Emissions (lbs/day)[1,2]			
		ROG	NO_X	PM_{10}	$PM_{2.5}$[3]
Existing - 2014[4]	**Total**	28	118	9.3	9.3
Modified Project Operation - Worst Case Biogas Upgrading System Abated by a Thermal Oxidizer	**Total**	12	130	30	30
	Net[4]	**-16**	**12**	**21**	**21**

Emissions Scenario		Project Emissions (tons/year)[1,2]			
		ROG	NO_X	PM_{10}	$PM_{2.5}$[3]
Existing - 2014[4]	**Total**	5.0	22	1.7	1.7
Modified Project Operation - Worst Case Biogas Upgrading System Abated by a Thermal Oxidizer	**Total**	2.1	24	5.5	5.5
	Net[4]	**-2.9**	**2.1**	**3.8**	**3.8**

Notes:

1. The existing operational scenario is based on the emissions during the 2014 year of operation of the existing facility. The modified Project Operation represents worst case annual emissions, where 70% of the digester gas is upgraded to renewable natural gas (RNG) and 30% goes to a standby enclosed flare.
2. Hours of operation and operational emissions for the proposed modification were estimated by the BDFP Consultant Team for the Project.
3. Existing emissions are from AQTR Table 9.
4. The net operational emissions shown here are the existing 2014 emissions subtracted from the Project Emissions for each annual scenario.
5. Modified Project Operational emissions are from Updated AQTR Table 12c.

Abbreviations:

CAP - criteria air pollutants
PM_{10} - particulate matter less than 10 micrometers
$PM_{2.5}$ - particulate matter less than 2.5 micrometers
ROG - reactive organic gas
SFPUC - San Francisco Public Utilities Commission
USEPA - United States Environmental Protection Agency

References:

Brown and Caldwell and CH2M and Black & Veatch (BDFP Consultant Design Team). 2021. Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application for the Biosolids Digester Facilities Project. March.

Updated AQTR Table 15
Summary of Net Project Operational GHG Emissions[1]
SFPUC Biosolids Digester Facilities Project
San Francisco, CA

Emissions Type	GHG Emissions ($MT CO_2e/yr$)		
	Existing 2014	**EIR Project Full Operation 2045**	**Modified Project Full Operation**
Total Biogenic Emissions	13,931	31,035	14,566
Total Non-Biogenic Emissions	234	207	16,048
Total Operational Emissions[2]	**14,165**	**31,241**	**30,615**
Averted Emissions from Biomethane Sent to PG&E Pipeline[3]	--	--	-10,809
Net Operational Non-Biogenic Emissions (including Averted Emissions)[4]	**--**	**-27**	**5,005**
Total Operational Emissions (including Averted Emissions)	**14,165**	**31,241**	**19,805**

Notes:

1. The existing operational scenario is based on the emissions during the 2014 year of operation of the existing facility.

2. Hours of operation were estimated by the BDFP Consultant Design Team for the Project. Operational GHG emissions were calculated using the same methodology and emission factors as the FEIR, as shown in the FEIR Appendix D.

3. Global warming potential values of 1 for CO2, 25 for CH4, and 298 for N2O from 40 CFR Part 98 Table A-1 as referenced in the California Mandatory Reporting Regulation (MRR) were used to convert emissions to MT CO2e in accordance with 40 CFR Part 98.2.

2. The total operational emissions are calculated by summing biogenic and non-biogenic emissions.

3. Biomethane produced by the BDFP will be injected into the PG&E's natural gas pipeline. By making this renewable natural gas available to customers, the biomethane injection will thus avert potential emissions from burning fossil-fuel-derived natural gas.

4. The net operational non-biogenic emissions are the existing 2014 non-biogenic emissions subtracted from the Project emissions, and includes averted emissions from biomethane injected into the PG&E pipeline if applicable. For the project evaluated in the EIR, this would be Project emissions minus existing 2014 emissions; for the modified Project, this calculation would be Project emissions minus existing 2014 emissions and accounts for averted emissions.

Abbreviations:

BAAQMD - Bay Area Air Quality Management District
BDFP - Biosolids Digester Facilities Project
CAPCOA - California Air Pollution Control Officers Association
CFR - Code of Federal Regulations
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
GHG - Greenhouse gas
MRR - California Mandatory Reporting Regulation
MT - metric tons (1000 kilograms)
N_2O - nitrogen dioxide
SFPUC - San Francisco Public Utilities Commission
yr - year

References:

Brown and Caldwell and CH2M and Black & Veatch (BDFP Consultant Design Team). 2021. Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application for the Biosolids Digester Facilities Project. March.

Cal. Code Regs. Tit. 17, § 95852.2. Available at: https://www.law.cornell.edu/regulations/california/17-CCR-95852.2.

Code of Federal Regulations (CFR). 2011. 40 CFR 98. Available at: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-98.

Updated AQTR Table 16b
Project Operational TAC Emissions for Worst Case Operational Scenario With the Proposed Modification
SFPUC Biosolids Digester Facilities Project
San Francisco, California

Source	Chemical	Operating Scenario 3[1]	
		Hours of Operation (hours/year)[2]	Emissions (lbs/year)[2]
Solids Odor Control	Chloroform	8,760	33
	Toluene		32
	Hydrogen Sulfide		1,209
Standby Enclosed Flare 1	Benzene	2700	37
	Formaldehyde		271
	PAHs (excluding Naphthalene)		0.70
	Naphthalene		2.6
	Acetaldehyde		10.0
	Acrolein		2.3
	Toluene		13
	Xylenes		6.7
	Ethylbenzene		335
	Hexane		6.7
Steam Boiler 1	2-Methylnaphthalene	8760	0.0052
	3-Methylcholanthrene		2.0E-04
	Acenaphthene		2.0E-04
	Acenaphthylene		2.0E-04
	Anthracene		2.6E-04
	Benz(a)anthracene		2.0E-04
	Benzene		0.45
	Benzo(a)pyrene		1.3E-04
	Benzo(b)fluoranthene		2.0E-04
	Benzo(g,h,i)perylene		1.3E-04
	Benzo(k)fluoranthene		2.0E-04
	Chrysene		2.0E-04
	Dibenzo(a,h)anthracene		1.3E-04
	1,4-Dichlorobenzene		0.26
	Fluoranthene		6.5E-04
	Fluorene		6.1E-04
	Formaldehyde		16
	Hexane		390
	Indeno(1,2,3-cd)pyrene		2.0E-04
	Naphthalene		0.13
	Phenanthrene		0.0037
	Pyrene		0.0011
	Toluene		0.74
	Polycyclic Aromatic Hydrocarbons (as B(a)P equivalent)		0.11

Updated AQTR Table 16b
Project Operational TAC Emissions for Worst Case Operational Scenario With the Proposed Modification
SFPUC Biosolids Digester Facilities Project
San Francisco, California

Steam Boiler 2	2-Methylnaphthalene	8760	0.0052
	3-Methylcholanthrene		2.0E-04
	Acenaphthene		2.0E-04
	Acenaphthylene		2.0E-04
	Anthracene		2.6E-04
	Benz(a)anthracene		2.0E-04
	Benzene		0.45
	Benzo(a)pyrene		1.3E-04
	Benzo(b)fluoranthene		2.0E-04
	Benzo(g,h,i)perylene		1.3E-04
	Benzo(k)fluoranthene		2.0E-04
	Chrysene		2.0E-04
	Dibenzo(a,h)anthracene		1.3E-04
	1,4-Dichlorobenzene		0.26
	Fluoranthene		6.5E-04
	Fluorene		6.1E-04
	Formaldehyde		16
	Hexane		390
	Indeno(1,2,3-cd)pyrene		2.0E-04
	Naphthalene		0.13
	Phenanthrene		0.0037
	Pyrene		0.0011
	Toluene		0.74
	Polycyclic Aromatic Hydrocarbons (as B(a)P equivalent)		0.11
Worst Case Biogas Upgrading System Abated by a Thermal Oxidizer	2-Methylnaphthalene	8760	4.2E-04
	Acenaphthene		1.6E-05
	Acenaphthylene		1.6E-05
	Acetaldehyde		1.3
	Acrolein		0.78
	Anthracene		2.1E-05
	Benz(a)anthracene		1.6E-05
	Benzene		2.4
	Benzo(a)pyrene		1.0E-05
	Benzo(b)fluoranthene		1.6E-05
	Benzo(g,h,i)perylene		1.0E-05
	Benzo(k)fluoranthene		1.6E-05
	Chrysene		1.6E-05
	Dibenzo(a,h)anthracene		1.0E-05
	Dichlorobenzene		0.021
	Ethylbenzene		2.8
	Fluoranthene		5.2E-05
	Fluorene		4.9E-05
	Formaldehyde		6.2
	Hexane		33
	Indeno(1,2,3-cd)pyrene		1.6E-05
	Naphthalene		0.10
	Phenanthrene		3.0E-04
	Pyrene		8.7E-05
	Toluene		11
	Xylenes		7.9
	Polycyclic Aromatic Hydrocarbons (as B(a)P equivalent)		0.038
Emergency Generator	Diesel PM	100	1.3

Updated AQTR Table 16b
Project Operational TAC Emissions for Worst Case Operational Scenario With the Proposed Modification
SFPUC Biosolids Digester Facilities Project
San Francisco, California

Notes:

1. Emissions from the Worst Case Biogas Upgrading System Abated by a Thermal Oxidizer represents the worst case operational scenario.
2. Hours of operation and operational emissions were estimated by the BDFP Consultant Team for the Project.

Abbreviations:

BAAQMD: Bay Area Air Quality Management District
BDFP - Biosolids Digester Facilities Project
lbs: pounds
PAHs: polycyclic aromatic hydrocarbons
PM - particulate matter
SFPUC - San Francisco Public Utilities Commission
TOG - total organic gas

References:

Brown and Caldwell and CH2M and Black & Veatch (BDFP Consultant Design Team). 2021. Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application for the Biosolids Digester Facilities Project. March.

Updated AQTR Table 20c

Toxicity Values[1] - Project Operational Sources With the Proposed Modification

SFPUC Biosolids Digester Facilities Project

San Francisco, California

Source	Chemical	CAS Number	Cancer Potency Factor (CPF)[2]	Chronic Reference Exposure Level (REL)[2]	Acute Reference Exposure Level (REL)[2]
			[mg/kg-day]$^{-1}$	(µg/m^3)	(µg/m^3)
Solids Odor Control	Chloroethane	--	--	--	--
	Chloroform	67663	1.9E-02	300	150
	Chloromethane	--	--	--	--
	Methylene chloride	--	--	--	--
	Toluene	108883	0	420	5,000
	Hydrogen Sulfide	7783064	0	10	42
Standby Flares	Benzene	71432	0.10	3.0	27
	Formaldehyde	50000	0.021	9.0	55
	PAHs (excluding Naphthalene)	1151	3.90	0.0	0
	Naphthalene	91203	0.12	9.0	0
	Acetaldehyde	75070	0.010	140	470
	Acrolein	107028	0	0.35	2.5
	Toluene	108883	0	420	5,000
	Xylenes	1330207	0	700	22,000
	Ethylbenzene	100414	0.0087	2,000	0
	Hexane	110543	0	7,000	0
Two Backup Steam Boilers (2 standby)	2-Methylnaphthalene	91-57-6	0	0	0
	3-Methylcholanthrene	56495	22	0	0
	7,12-Dimethylbenz(a)anthracene	--	--	--	--
	Acenaphthene	83-32-9	0	0	0
	Acenaphthylene	208-96-8	0	0	0
	Anthracene	120-12-7	0	0	0
	Benz(a)anthracene	56553	0.39	0	0
	Benzene	71432	0.10	3.0	27
	Benzo(a)pyrene	192972	0	0	0
	Benzo(b)fluoranthene	205992	0.39	0	0
	Benzo(g,h,i)perylene	191-24-2	0	0	0
	Benzo(k)fluoranthene	207089	0.39	0	0
	Butane	--	--	--	--
	Chrysene	218019	0.039	0	0
	Dibenzo(a,h)anthracene	53703	4.1	0	0
	1,4-Dichlorobenzene	106467	0.040	800	0
	Ethane	--	--	--	--
	Fluoranthene	206-44-0	0	0	0
	Fluorene	86-73-7	0	0	0
	Formaldehyde	50000	0.021	9.0	55
	Hexane	110543	0	7,000	0
	Indeno(1,2,3-cd)pyrene	193395	0.39	0	0
	Naphthalene	91203	0.12	9.0	0
	Pentane	--	--	--	--
	Phenanthrene	85018	0	0	0
	Propane	--	--	--	--
	Pyrene	129-00-0	0	0	0
	Toluene	108883	0	420	5,000

Worst Case Biogas Upgrading System Abated by a Thermal Oxidizer	2-Methylnaphthalene	91576	0	0	0
	3-Methylchloranthrene	--	--	--	--
	7,12-Dimethylbenz(a)anthracene	--	--	--	--
	Acenaphthene	83329	0	0	0
	Acenaphthylene	208968	0	0	0
	Acetaldehyde	75070	0.010	140	470
	Acrolein	107028	0	0.35	2.5
	Anthracene	120127	0	0	0
	Benz(a)anthracene	56553	0.39	0	0
	Benzene	71432	0.10	3.0	27
	Benzo(a)pyrene	192972	0	0	0
	Benzo(b)fluoranthene	205992	0.39	0	0
	Benzo(g,h,i)perylene	191242	0	0	0
	Benzo(k)fluoranthene	207089	0.39	0	0
	Butane	--	--	--	--
	Chrysene	218019	0.039	0	0
	Dibenzo(a,h)anthracene	53703	4.1	0	0
	Dichlorobenzene	106467	0.04	800	0
	Ethane	--	--	--	--
	Ethylbenzene	100414	0.0087	2000	0
	Fluoranthene	206440	0	0	0
	Fluorene	86737	0	0	0
	Formaldehyde	50000	0.021	9.0	55
	Hexane	110543	0	7,000	0
	Indeno(1,2,3-cd)pyrene	193395	0.39	0	0
	Naphthalene	91203	0.12	9.0	0
	Pentane	--	--	--	--
	Phenanthrene	85018	0	0	0
	Propane	--	--	--	--
	Pyrene	129000	0	0	0
	Toluene	108883	0	420	5,000
	Xylenes	1330207	0	700	22,000
	Polycyclic Aromatic Hydrocarbons (as B(a)P equivalent)	1151	3.9	0	0
Emergency Generator	Diesel PM	9901	1.1	5	0

Notes:

1. Values presented in this table reflect values used in this analysis for the proposed modification. If a chemical does not have a cancer potency factor, acute reference level, or chronic reference level, it was not included in the analysis.
2. The cancer potency factors, chronic reference levels, and acute reference levels were obtained from Cal/EPA 2023.
3. The acute effect for DPM is evaluated based on individual constitutes included in the speciation profile for diesel TOG, which is shown in Appendix E.
4. The chemical shown has a cancer potency factor and/or chronic reference level; however, it is not shown here because cancer risk and chronic hazard index are calculated using the cancer potency factor and chronic reference level from DPM instead of the individual chemicals in the speciation profile for diesel on-road and off-road TOG.
5. The value for Benzo(a)pyrene was selected to represent PAHs for this analysis as a conservative approach, since it has the highest cancer potency factor.

Abbreviations:

BAAQMD - Bay Area Air Quality Management District
Cal/EPA - California Environmental Protection Agency
CAS - chemical abstract services
CPF - cancer potency factor
kg - kilogram
m^3 - cubic meter
mg - milligram
PAH - polycyclic aromatic hydrocarbon
PM - particulate matter
REL - reference exposure level
SFPUC - San Francisco Public Utilities Commission
µg - microgram

Reference:

BAAQMD. 2021. Regulation 2: Permits, Rule 5: New Source Review of Toxic Air Contaminants, Table 2-5-1: Toxic Air Contaminant Trigger Levels. December 15. Available online at https://www.baaqmd.gov/~/media/dotgov/files/rules/reg-2-permits/2021-amendments/documents/20211215_rg0205-pdf.pdf?rev=ddf72e12b699400e953b9b8dc24d2c34

Cal/EPA. 2023. OEHHA/ARB Consolidated Table of Approved Risk Assessment Health Values. October. Available at: https://ww2.arb.ca.gov/sites/default/files/classic/toxics/healthval/contable10062023.pdf

Updated AQTR Table 22
Net Project Cancer Risk at MEISR With the Proposed Modification[1]
SFPUC Biosolids Digester Facilities Project
San Francisco, CA

Phase	Source	Lifetime Excess Cancer Risk[2]
		Scenario 2 (Operational Emissions Only)
		in a million
Project Construction	Off-road Construction Equipment	--
	On-road Construction Vehicles	--
	Total	**--**
Modified Project Operation	Two Boilers (One Standby)	0.0020
	Emergency Diesel Engine	0.0051
	Standby Flares	0.0041
	Worst-case Biogas Upgrading System	4.2E-04
	Solids Odor Control System	0.0018
	Total	**0.013**
Existing Operation	Waste Gas Burners (A7003 and A7004)[3]	(0.017)
	Cogeneration Engine (S10)[4]	(0.003)
	Industrial Boilers (S8201, S8202, and S8203)[5]	(0.001)
	Total	**(0.022)**
Net Project Lifetime Excess Cancer Risk[6]		**(0.009)**

Notes:

1. The proposed modified Project off-site MEISR for lifetime excess cancer risk for Scenario 2 is located at coordinates 553,200m and 4,178,680m.
2. This table presents the lifetime excess cancer risk from Project operation at the off-site MEISR locations. Scenario 2 considered exposure to operational emissions for 30 years.
3. The existing waste gas burners were not modeled for the CRRP-HRA. The toxic air contaminant (TAC) emissions for the existing waste gas burners were calculated using the emission factors used by the BDFP Consultant Team to calculate the TAC emissions for the Project waste gas burners. The $PM_{2.5}$ emissions from the existing flares were calculated using the PM_{10} emission factor from AP-42, Table 2.4-5, and total 2014 digester gas throughput to the flares, as provided by SFPUC. These emissions were used to calculate the cancer risk from the existing waste gas burners.
4. The cogeneration engine was not modeled for the CRRP-HRA. The organics emissions from the cogeneration engine are from the 2015 BAAQMD Source Emissions for the Plant (No. 568). The organics emissions were speciated based on the ARB 2015 organics speciation profile for reciprocating internal combustion engines that run on natural gas (Organic Profile 719). These emissions were used to calculate the cancer risk from the existing cogeneration engine.
5. The industrial boilers (S8201, S8202, and S8203) were modeled for the CRRP-HRA; however, the modeling was refined to account for a more realistic existing emissions baseline. The organics emissions from the boilers are from the 2015 CER, and PAHs were combined using BAAQMD Toxic Air Contaminant Trigger Levels Table 2-5-1. These emissions were used to calculate the adjusted existing cancer risk from the existing boilers. Existing risks differ from the AQTR due to the difference in MEISR location.
6. Net Project operation is the difference between the excess cancer risk from the Project and the excess cancer risk from the existing operation sources that will be replaced with the Project.

Abbreviations:

ARB - California Air Resources Board

BAAQMD - Bay Area Air Quality Management District

BDFP - Biosolids Digester Facilities Project

CER - Conceptual Engineering Report

CRRP - Community Risk Reduction Plan

HRA - health risk assessment

References:

BAAQMD Source Emissions Plant #568. June 3, 2015.

Brown and Caldwell and CH2M and Black & Veatch (BDFP Consultant Design Team). 2021. Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application for the Biosolids Digester Facilities Project. March.

California Air Resources Board (ARB). 2015. Organic Chemical Profiles for Source Categories. February 11. Available at: http://arb.ca.gov/ei/speciate/speciate.htm. Accessed September 2015.

Updated AQTR Table 24
Chronic and Acute Health Impacts from Project Operation at MEISR and MEI With the Proposed Modification[1]
SFPUC Biosolids Digester Facilities Project
San Francisco, CA

Phase	Source	$PM_{2.5}$ Concentration[2]	Chronic HI[3]	Acute HI[4]
		µg/m^3	--	--
Modified Project Operation	Two Boilers (one standby)	0.17	1.8E-04	6.5E-04
	Emergency Diesel Engine	0.0064	1.5E-05	--
	Standby Flares	0.012	3.5E-05	0.0012
	Biomethane Upgrading System	0.18	1.0E-04	1.8E-04
	Solids Odor Control System	--	0.015	0.21
	Total	**0.37**	**0.015**	**0.22**
Existing Operation	Waste Gas Burners (A7003 and A7004)[5]	(0.12)	NC	NC
	Cogeneration Engine (S10)[6]	(0.068)	NC	NC
	Industrial Boilers (S8201, S8202, and S8203)[7]	(0.014)	NC	NC
	Total	**(0.20)**	**NC**	**NC**
Total Health Impacts from Project Operation		**0.17**	**0.015**	**0.22**

Notes:

1. This table presents the chronic and acute health impacts from the proposed Project operational sources with the proposed modification at the off-site MEISR and MEI. PM2.5 and chronic HI are for the year with the maximum impact and the acute HI is for the maximum one-hour impact. Therefore, sources of operation only show a contribution to the health impact if they are operating during the maximum year or maximum one-hour impact.
2. The Project off-site MEISR for the Project operational PM2.5 concentration with the proposed modification is located at UTM coordinates 553,880m and 4,177,240m.
3. The Project off-site MEISR for operational chronic HI with the proposed modification is located at coordinates 553,880m and 4,177,240m.
4. The Project off-site MEISR for operational acute HI with the proposed modification is located at coordinates 553,380m and 4,177,440m.
5. The existing waste gas burners were not modeled for the CRRP-HRA. The toxic air contaminant (TAC) emissions for the existing waste gas burners were calculated using the emission factors used by the BDFP Consultant Team to calculate the TAC emissions for the Project waste gas burners. The PM2.5 emissions from the existing waste gas burners were calculated using the PM10 emission factor from AP-42, Table 2.4-5, and total 2014 digester gas throughput to the waste gas burners, as provided by SFPUC.
6. The cogeneration engine was not modeled for the CRRP-HRA. The organics emissions from the cogeneration engine are from the 2015 BAAQMD Source Emissions for the Plant (No. 568). The organics emissions were speciated based on the ARB 2015 organics speciation profile for reciprocating internal combustion engines that run on natural gas (Organic Profile 719). These emissions were used to calculate the cancer risk from the existing cogeneration engine.
7. The industrial boilers (S8201, S8202, and S8203) were modeled for the CRRP-HRA; however, the modeling was refined to account for a more realistic existing emissions baseline. The organics emissions from the boilers are from the 2015 CER, and PAHs were combined using BAAQMD Toxic Air Contaminant Trigger Levels Table 2-5-1. These emissions were used to calculate the adjusted existing cancer risk from the existing boilers.

Abbreviations:

ARB - California Air Resources Board
BAAQMD - Bay Area Air Quality Management District
BDFP - Biosolids Digester Facilities Project
CER - Conceptual Engineering Report
CRRP - Community Risk Reduction Program
HI - hazard index
HRA - health risk assessment
m - meter
m^3 - cubic meter
MEI - maximally exposed individual
MEISR - maximally exposed individual sensitive receptor
NC - not calculated
PAH - polycyclic aromatic hydrocarbon
PM - particulate matter
SFPUC - San Francisco Public Utilities Commission
UTM - Universal Transverse Mercator
TAC - toxic air contaminant
µg - microgram

References:

BAAQMD Source Emissions Plant #568. June 3, 2015.

Brown and Caldwell and CH2M and Black & Veatch (BDFP Consultant Design Team). 2021. Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application for the Biosolids Digester Facilities Project. March.

California Air Resources Board (ARB). 2015. Organic Chemical Profiles for Source Categories. February 11. Available at: http://arb.ca.gov/ei/speciate/speciate.htm. Accessed September 2015.

Updated AQTR Table 26
Cumulative Lifetime Excess Cancer Risk at MEISR With the Proposed Modification[1]
SFPUC Biosolids Digester Facilities Project
San Francisco, CA

Source	Lifetime Excess Cancer Risk[2,3]
	Scenario 2 (Operational Emissions Only)
	in a million
Net Project Risk[4] (Operation - Existing)	-0.009
Cumulative Projects[5]	0.12
Citywide HRA Background[6,7]	57
Total	**57**

Notes:

1. The Project MEISR for Scenario 2 with the proposed modification is located at coordinates 553,200m and 4,178,680m.

2. Excess lifetime cancer risks are estimated as the upper-bound incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens. The estimated risk is expressed as a unitless probability. The cancer risk attributed to the emissions associated with the Project was calculated based on the modeled annual average pollutant concentrations, the intake factor for resident child, the Cancer Potency Factors (CPF) for all toxic pollutants emitted, and the Age Sensitivity Factors (ASF).

3. This table presents the long-term health impacts from Project operation at the off-site MEISR locations. Scenario 2 considered exposure to operational emissions for 30 years.

   Calculation: $Risk_{inh} = \Sigma Risk_{inh,i} = \Sigma C_i \times CF \times IF_{inh} \times CPF_i \times ASF$

   Where:

   $Risk_{inh}$: Cancer Risk; the incremental probability of an individual developing cancer as a result of inhalation exposure to a potential carcinogen

   $Risk_{inh,i}$: Cancer Risk for Chemical i

   C_i: Modeled Annual Average Concentration in air for Chemical i ($\mu g/m^3$)

   CF: Conversion Factor (mg/µg)

   CPF_i: Cancer Potency Factor for Chemical i (mg chemical/kg body weight-day)

   ASF: Age Sensitivity Factor

4. The adjusted cancer risk from the existing operational sources that will be replaced with the Project was subtracted from the risk from Scenario 2 to calculate net Project cancer risks for both scenarios.

5. The excess lifetime cancer risk from additional projects at the Southeast Plant (SEP) and in the surrounding area (within 1,000 meters) that will be under construction during the construction and operation of the BDFP were estimated. Since the publication of the FEIR, the Gateway Draft EIR has been published; as discussed with SF Planning, Gateway operational cancer risks were not included due to the distance between the Gateway MEIR and the modified project MEIR.

6. The background cancer risk from existing nearby stationary sources was obtained from the 2020 Citywide HRA.

Abbreviations:

ASF - Age Sensitivity Factor
BDFP - Biosolids Digester Facilities Project
CPF - cancer potency factor
CRRP - Community Risk Reduction Plan
DPF - diesel particulate filter
HRA - health risk assessment
MEISR - maximally exposed individual sensitive receptor
OEHHA - Office of Environmental Health Hazard Assessment
SEP - Southeast Plant
SFPUC - San Francisco Public Utilities Commission
m - meter

References:

OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February.

Updated AQTR Table 27
Cumulative $PM_{2.5}$ Concentration at MEISR With the Proposed Modification[1]
SFPUC Biosolids Digester Facilities Project
San Francisco, CA

Source	Maximum Annual $PM_{2.5}$ Concentration ($\mu g/m^3$)
	Operation
Net Project[2]	0.17
Cumulative Projects[3]	8.3E-02
Citywide HRA Background[4]	8.5
Total	**8.7**

Notes:

1. The Project off-site MEISR for the Project operational PM2.5 concentration with the proposed modification is located at UTM coordinates 553,880m and 4,177,240m.

2. The PM2.5 concentration from the existing operational sources was adjusted from the value calculated in the San Francisco Community Risk Reduction Plan (Citywide HRA) by modeling the existing operational sources in their actual locations and adding buliding downwash. These sources will be replaced with the Project; therefore, this adjusted value was subtracted from the Project concentration to calculate a net Project concentration.

3. The chronic health impacts of additional projects at the Southeast Plant (SEP) and in the surrounding area that will be under construction during the construction and operation of the BDFP were estimated. The construction of the modeled cumulative projects was assumed to occur during the both construction and operation of the Project, so the health impacts were added to both Project construction and operational impacts. Since the publication of the FEIR, the Gateway Draft EIR has been published; as discussed with SF Planning, the operational PM2.5 concentration from the Gateway project was included in the cumulative analysis.

4. The background PM2.5 concentration from existing nearby stationary sources was obtained from the Citywide HRA.

Abbreviations:

BDFP - Biosolids Digester Facilities Project

CRRP - Community Risk Reduction Plan
DPF - diesel particulate filter

HRA - health risk assessment

m - meter

m^3 - cubic meter

MEISR - maximally exposed individual sensitive receptor

PM - particulate matter

SEP - Southeast Plant

SFPUC - San Francisco Public Utilities Commission

UTM - Universal Transverse Mercator

µg - microgram

Updated AQTR Table 28
Cumulative Chronic Hazard Index at MEISR With the Proposed Modification[1]
SFPUC Biosolids Digester Facilities Project
San Francisco, CA

Source	Chronic Hazard Index[2]
	Operation
Project	0.015
Cumulative Projects[3]	0.0038
Citywide HRA Background[4]	--
Total	**0.019**

Notes:

1. The Project off-site MEISR for operational chronic HI with the proposed modification is located at coordinates 553,880m and 4,177,240m. Sources of operation only show a contribution to the health impact if they are operating during the maximum year of chronic HI impact.

2. The potential for exposure to result in adverse chronic non-cancer effects is evaluated by comparing the estimated annual average air concentration (which is equivalent to the average daily air concentration) to the non-cancer chronic Reference Exposure Level (REL) for each chemical. When calculated for a single chemical, the comparison yields a ratio termed a hazard quotient. To evaluate the potential for adverse chronic non-cancer health effects from simultaneous exposure to multiple chemicals, the hazard quotients for all chemicals are summed, yielding a hazard index (HI).

   Calculation: Chronic HI = ΣChronic HQ_i = Σ [C_i / $cREL_i$]

   Where:

   HI: Hazard Index

   HQ_i: Hazard Quotient for Chemical i

   C_i: Average Daily Air Concentration for Chemical i ($\mu g/m^3$)

   $cREL_i$: Non-cancer Chronic Reference Exposure Level for Chemical i ($\mu g/m^3$)

3. The chronic health impacts of additional SFPUC projects at the Southeast Plant (SEP) and in the surrounding area that will be under construction during the construction and operation of the BDFP were estimated. The construction of the modeled surrounding projects will occur during the construction and operation of the Project, so the health impacts were added to both Project construction and operational impacts. Since the publication of the FEIR, the Gateway Draft EIR has been published; as discussed with SF Planning, operational chronic HI from the Gateway project was included in the cumulative analysis.

4. The San Francisco Citywide HRA does not estimate cumulative chronic HI; therefore, this was not included in the cumulative chronic HI evaluation.

Abbreviations:

BDFP - Biosolids Digester Facilities Project

CRRP - Community Risk Reduction Plan

DPF - diesel particulate filter

HI - hazard index

HRA - health risk assessment

m - meter

MEISR - maximally exposed individual sensitive receptor

REL - reference exposure level

SEP - Southeast Plant

SFPUC - San Francisco Public Utilities Commission

Updated AQTR Table 29
Cumulative Acute Hazard Index at MEI With the Proposed Modification[1]
SFPUC Biosolids Digester Facilities Project
San Francisco, CA

Source	Acute Hazard Index[2]
	Operation
Project	0.22
Cumulative Projects[3]	--
Citywide HRA Background[3]	--
Total	**0.22**

Notes:

1. The Project off-site MEISR for operational acute HI with the proposed modification is located at coordinates 553,380m and 4,177,440m. The acute HI is based on a one-hour maximum air concentration so it is evaluated for all receptors as opposed to only sensitive receptors.

2. The potential for exposure to result in adverse acute effects is evaluated by comparing the estimated one-hour maximum air concentration of a chemical to the acute REL for each chemical. When calculated for a single chemical, the comparison yields an hazard quotient. To evaluate the potential for adverse acute health effects from simultaneous exposure to multiple chemicals, the hazard quotients for all chemicals are summed, yielding a hazard index.

   Calculation: Acute HI = ΣAcute HQ_i = Σ [C_i / $aREL_i$]

   Where:

   HI: Hazard Index

   HQ_i: Hazard Quotient for Chemical i

   C_i: Estimated One-Hour Maximum Air Concentration for Chemical i ($\mu g/m^3$)

   $aREL_i$: Noncancer Acute Reference Exposure Level for Chemical i ($\mu g/m^3$)

3. Since the acute HI is based on a one-hour maximum air concentration, it is not typically evaluated on a cumulative basis for CEQA analyses. The BAAQMD CEQA Guidelines do not have a cumulative threshold for acute HI; therefore, the acute HI for cumulative projects was not analyzed. Additionally, the San Francisco Community Risk Reduction Plan (Citywide HRA) does not estimate a background acute HI.

Abbreviations:

BAAQMD - Bay Area Air Quality Management District
CEQA - California Environmental Quality Act
CRRP - Community Risk Reduction Plan
DPF - diesel particulate filter
HI - hazard index
HRA - health risk assessment
m - meter
MEI - maximally exposed individual
REL - reference exposure level
SFPUC - San Francisco Public Utilities Commission
UTM - Universal Transverse Mercator

Updated AQTR Table E-3
Modeling Parameters for Project Operational Sources
SFPUC Biosolids Digester Facilities Project
San Francisco, CA

Source[1]	Source Type	Number of Sources	Stack Height Above Grade	Stack Temperature	Stack Velocity	Stack Diameter (nominal)
			m	K	m/s	m
Steam Boiler 1	Horizontal Point	1	9.91	522.0	18.33	0.61
Steam Boiler 2	Horizontal Point	1	9.91	522.0	18.33	0.61
Standby Enclosed Flare 1	Point	1	12.19	1,144.3	10.50	2.74
Worst Case Biogas Upgrading System Abated by a Thermal Oxidizer	Point	1	12.19	1,144.3	3.77	1.52
Sludge Handling/Solids Odor Control	Point	3	12.80	283.2	15.67	0.81

Notes:

1. The BDFP Consultant Design Team provided the source list, number of sources, source locations, stack height, stack temperature, stack velocity, and stack diameter to be used for air dispersion modeling in AERMOD.

Abbreviations:

AERMOD - United States Environmental Protection Agency Regulatory Air dispersion Model

BDFP - Biosolids Digester Facilities Project

K - Kelvin

m - meter

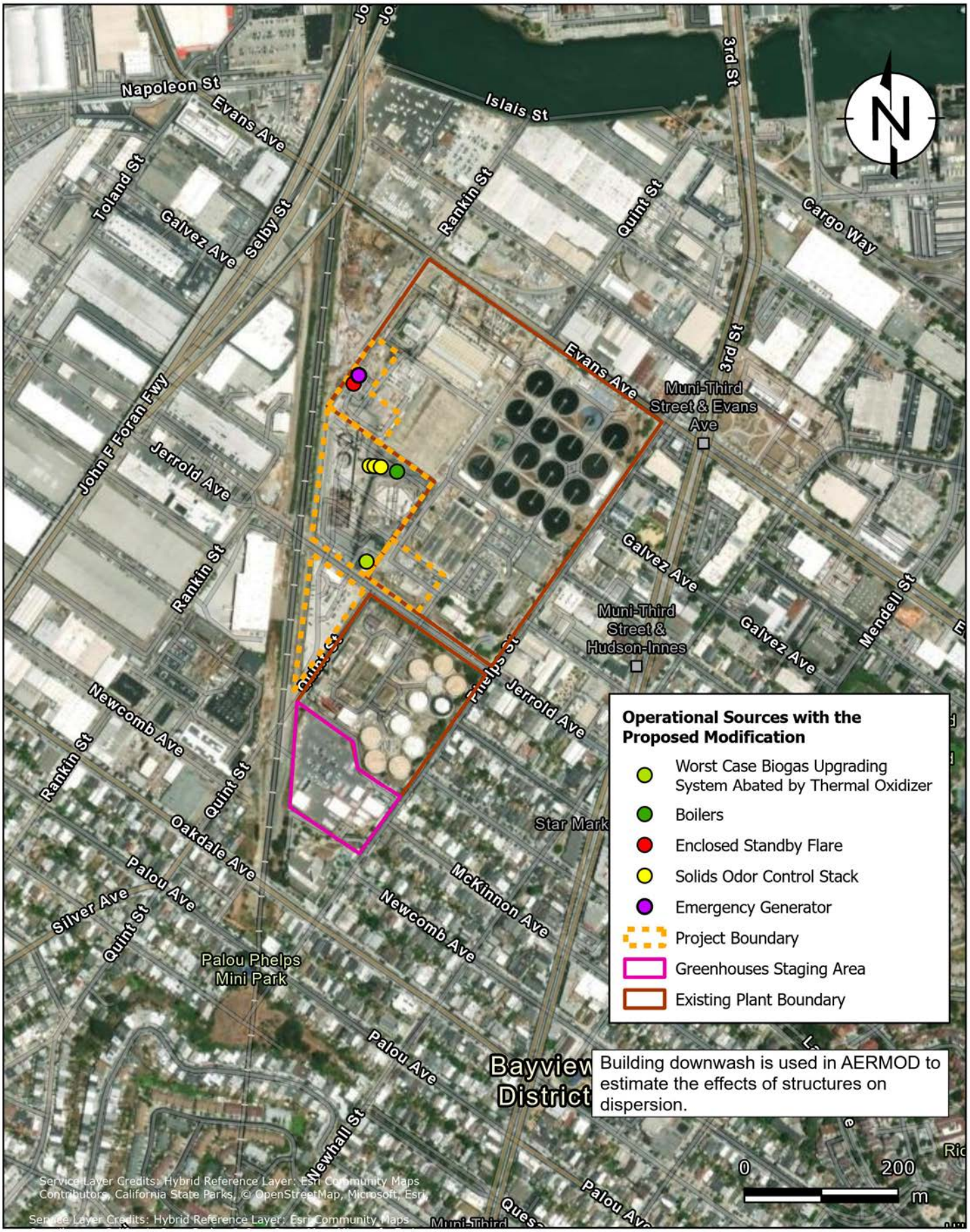
m/s - meters per second

SFPUC - San Francisco Public Utilities Commission

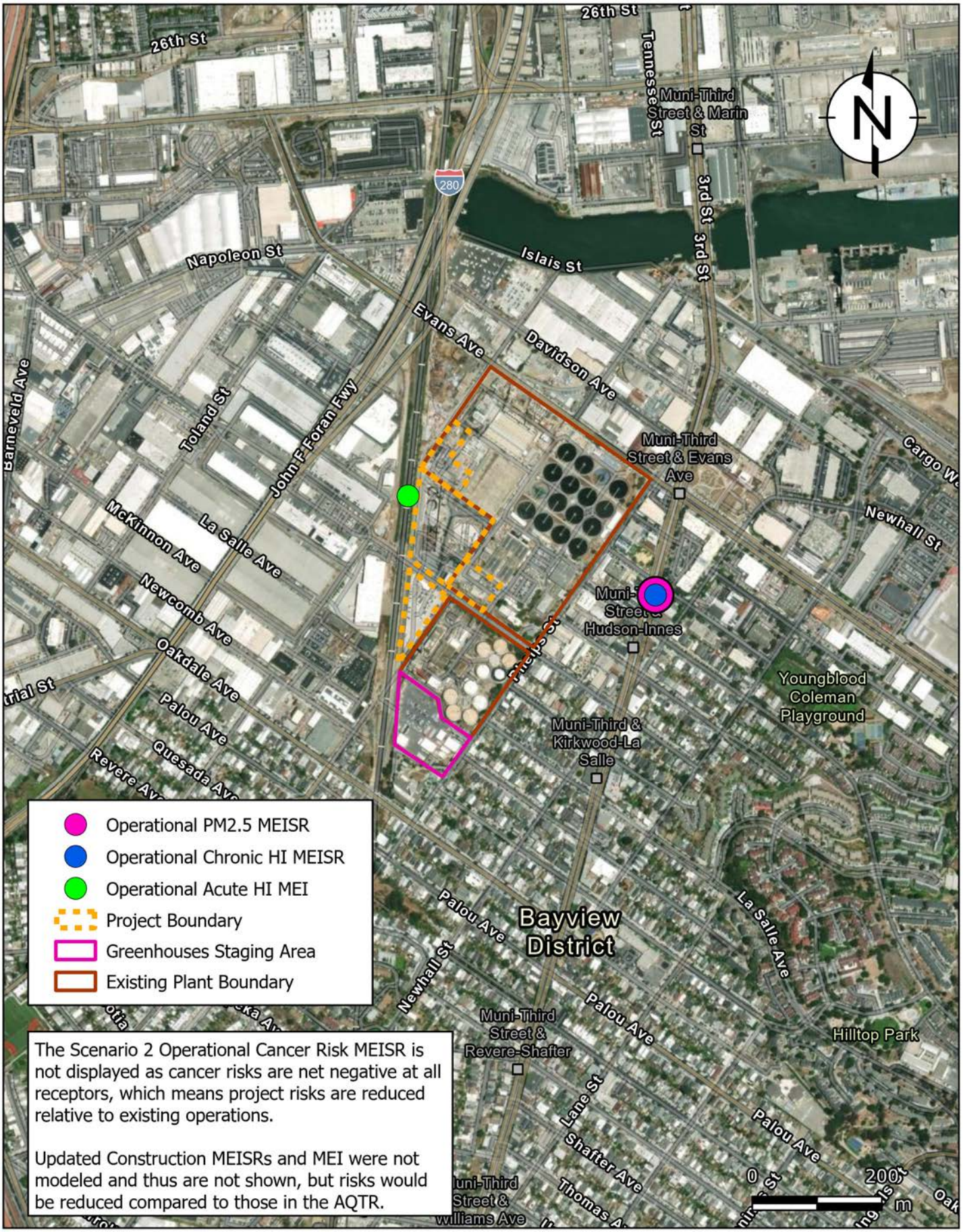
References:

Brown and Caldwell and CH2M and Black & Veatch (BDFP Consultant Design Team). 2021. Bay Area Air Quality Management District Authority to Construct/Permit to Operate Application for the Biosolids Digester Facilities Project. March.

FIGURES



RAMBOLL	**Operational Source Model Setup** SFPUC Biosolids Digester Facilities Project with the Proposed Modification San Francisco, CA	FIGURE **3**
Date: 12/6/2023		03-36893A



RAMBOLL

Locations of MEIs and MEISRs from Operational Emissions

SFPUC Biosolids Digester Facilities Project with the Proposed Modification

FIGURE **6**

Date: 12/6/2023

03-36893A

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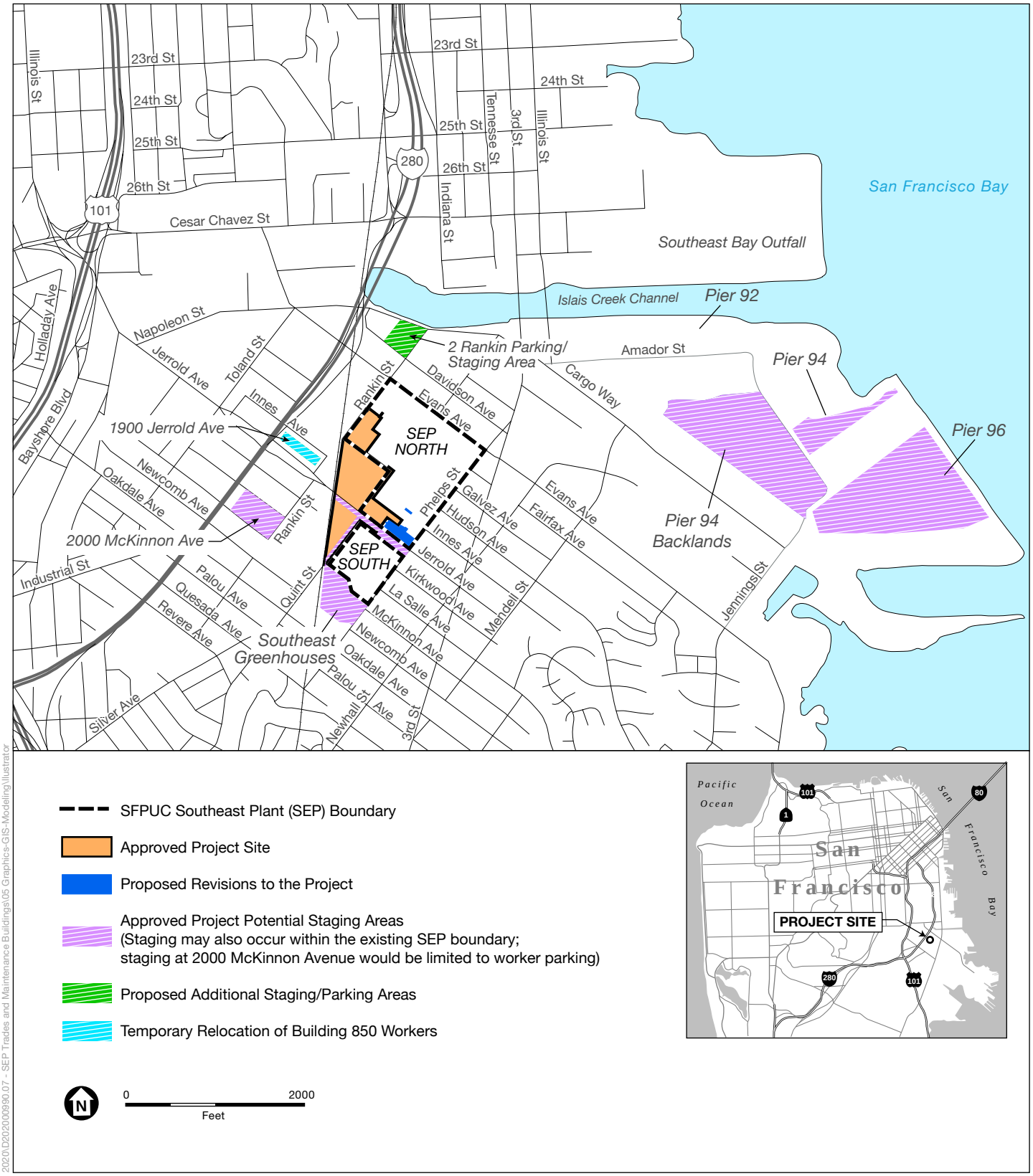
ADDENDUM 2 TO ENVIRONMENTAL IMPACT REPORT

Date of Publication of Addendum:	December 20, 2024
Date of certification of Final EIR:	March 8, 2018
EIR Case No.:	2015-000644ENV
Project Title:	Biosolids Digester Facilities Project
Project Modification:	Operations, Engineering and Maintenance Buildings
Modified Project Case No.:	2015-000644ENV-02
Project Sponsor:	San Francisco Public Utilities Commission, Kelly Yong, 415.551.4532, kyong@sfwater.org
Lead Agency:	San Francisco Planning Department
Staff Contact:	Timothy Johnston, 628.652.7536, timothy.johnston@sfgov.org

1.0 Background

On March 8, 2018, the San Francisco Planning Commission certified the Final Environmental Impact Report (FEIR) for the Biosolids Digester Facilities Project (Biosolids project or approved project) at the Southeast Water Pollution Control Plant (Southeast Plant), located in the southeast part of San Francisco (**Figure 1**).[1] Originally built in 1952 with major upgrades in 1982 and 1996, the Southeast Plant is the City and County of San Francisco's (City's) largest wastewater treatment facility, treating approximately 80 percent of San Francisco's sewage and stormwater flows. The approved project includes the construction and operation of a new solids treatment process, odor control, energy recovery, and associated facilities to replace outdated existing facilities with more reliable, efficient, and modern technologies. Biosolids are the recyclable solid materials removed from the wastewater during the wastewater treatment process and digesters are the major facility used in the solids treatment process.

[1] San Francisco Planning Department, *Biosolids Digester Facilities Project Final Environmental Impact Report*, Planning Department Case No. 2015-000644ENV, State Clearinghouse No. 2015062073 certified March 8, 2018. Available online at: http://tinyurl.com/BDFPFEIR.



2020\D202000990.07 - SEP Trades and Maintenance Buildings\05 Graphics-GIS-Modeling\Illustrator

SOURCE: San Francisco Public Works 2005 GIS data; ESA+Orion, data developed in 2016 for BDFP

Operations, Engineering, and Maintenance Buildings

Figure 1
Project Location

2.0 Approved Project Summary and Status

This section provides a brief overview of the project evaluated in the FEIR, the status of facilities construction, and minor modifications made to the approved project since the FEIR was certified.

2.1 Components

The key components of the approved project include the following:

- Replacement and relocation of the solids processing treatment processes with new facilities,
- Energy recovery facilities to reuse the digester gas generated by the proposed solids processing facilities,
- Odor control facilities to collect and treat odors from solids handling and energy recovery facilities,
- Water systems and pump stations,
- Support facilities such as buildings for operations and maintenance staff,
- Various utility piping and electrical facilities, and
- Landscaping and architectural improvements.

2.2 Status

Construction of the approved project began in early January 2020 and is entering the sixth year of construction. All the buildings at the former Asphalt Plant and the Central Shops have been demolished; the majority of soil excavation and off hauling has been completed; foundations for most new facilities (including piles) have been installed; and the new biosolids digester facilities are partially constructed. The largest facilities, including the new solids pretreatment facility (Facility 600) and five new anaerobic digester tanks (Facility 610), along with the iron chloride storage tanks (Facility 913), and W2 pump station (Facility 921) have been erected with mostly internal work to be completed such as, but not limited to, installing stairs and elevators, mechanical equipment, heating, ventilation, and air conditioning (HVAC) equipment, plumbing, equipment installation, and architectural finishes. The remaining buildings to be erected above ground level (the foundations, including excavation and piles are complete) are the smaller digestion cooling towers (Facility 604), thermal hydrolysis (Facility 605), solids odor control (Facility 606), steam generation (Facility 607) and biosolids dewatering (Facility 615) with forming/rebar, concrete pours, and other building activities, and that will then be followed by internal work. Also continuing are excavation and installation of utility piping throughout the approved project area. As new facilities are completed there will be process testing, commissioning, and startup and integration with existing facilities.

Since FEIR certification, the San Francisco Public Utilities Commission (SFPUC) has approved multiple minor changes to the approved project such as: additional dewatering wells; geotechnical potholes and test piles; a rerouted pipeline; additional work, staging, and parking areas (and the removal of other staging areas); alternative effective air quality mitigation; removal of Maintenance Shops 1 and 2; reducing the size of the Odor Control Building and adding new Steam Generation Facility; and adding an Interim Sidestream Nutrient Removal Facility to reduce nutrients (mainly nitrogen) from treated effluent to improve effluent water quality. The San Francisco Planning Department determined that these minor project modifications were not substantial and that they would clearly not alter the FEIR conclusions, and then documented these determinations in memoranda added to the case file. These previously reviewed minor project

modifications, summarized in Section 4.1 below, were each approved by the SFPUC after California Environmental Quality Act (CEQA) review by the San Francisco Planning Department. As such, they are now considered to be part of the approved project and are discussed in this addendum where relevant.

The approved project also includes construction and operation of the biogas utilization system instead of the originally proposed energy recovery facilities and related changes to operational energy demand and supply, that were evaluated in addendum 1 to the FEIR.[2] The San Francisco Planning Department determined that these changes would not alter the FEIR conclusions.

The approved project also includes an additional 1.5 years of construction, for a total of 6.5 years, from January 2020 through July 2026, followed by two years of performance testing, start-up, and commissioning, as described in addendum 1.

3.0 Proposed Modifications to Project

The SFPUC proposes to revise the approved project to construct an Operations, Engineering, and Maintenance building; a Mechanical Maintenance building; and a new utility enclosure at the Southeast Plant (the operations, engineering, and maintenance buildings or the "proposed modifications"). The proposed modifications would be located southeast of the originally approved location for the Maintenance Shops 1 and 2 and adjacent to, but outside of, the approved project site. The proposed modifications would support operations and maintenance activities and replace the current function of building SEP 850, and of the temporary pre-fabricated trailers (referred to as buildings "SEP 850A" and "SEP 850B"). As noted in addendum 1, the SFPUC will not demolish building SEP 870 as was planned in the original project and later modified,[3] and instead would demolish building SEP 850, the SEP 850A and SEP 850B trailers, and the adjacent surface parking lot. Activities currently performed in the existing building SEP 850 and trailers would be temporarily relocated during construction. Temporary construction staging would occur along Jerrold Avenue northwest of Phelps Street, where the road is already currently closed for construction, and within the Southeast Plant. The approved project, inclusive of these proposed modifications, is referred to as the "modified project."

3.1 Project Setting

The Southeast Plant is located at 750 Phelps Street and currently occupies approximately 50 acres bounded by Evans Avenue to the northeast, Rankin Street to the northwest, Phelps Street to the southeast, and the Caltrain railroad tracks and a freight rail spur to the west (see **Figure 2**). Jerrold Avenue bisects the Southeast Plant, dividing it into "Southeast Plant North" (i.e., facilities north of Jerrold Avenue) and "Southeast Plant South" (facilities south of Jerrold Avenue). Facilities in Southeast Plant North are currently associated with processing the liquids portion of the wastewater. Facilities in Southeast Plant South are currently associated with processing the solids portion of the wastewater and include the existing digesters, solids loadout, and energy recovery facilities; however, once construction of the approved project is

[2] San Francisco Planning Department, Addendum 1 to Environmental Impact Report, Biosolids Digester Facilities Project, Biogas Utilization System, July 12, 2024. Available at: https://sfplanning.org/environmental-review-documents.

[3] SFPUC Biosolids Digester Facilities Minor Project Modification 10 – Modified Facilities, reviewed by San Francisco Planning Department February 2, 2021.

SOURCE: Google Maps 2023; ESA, 2023

Operations, Engineering, and Maintenance Buildings

Figure 2
Southeast Plant Overview and Project Site

complete, solids processing and biogas utilization system facilities would also be located in Southeast Plant North near the Caltrain railroad tracks and the intersection of Jerrold Avenue and Quint Street.

Located within San Francisco's Bayview-Hunters Point community, the Southeast Plant is surrounded by a mix of residential, commercial, and light- and heavy-industrial uses. Residential and commercial uses are located across Phelps Street from the Southeast Plant, with the nearest residence located approximately 500 feet from the approved project site boundary, on Phelps Street and Kirkwood Avenue.

The approximately 1.2-acre site of the proposed operations, engineering and maintenance buildings includes areas located within Southeast Plant North but outside of the 14-acre approved project site. The proposed modifications would expand the project site to the southeast and increase the total size of the project site from 14 to 15.2 acres. With this expansion, the modified project site boundary would be located approximately 250 feet from the nearest residences along Phelps Street and Kirkwood Avenue.

Since approval of the project, the 23 Monterey bus line was permanently rerouted to the proposed alignment shown in FEIR Figure 4.6-3. The 23 Monterey bus no longer passes through the project vicinity on Jerrold Avenue.

3.2 Existing Facilities

The operations, engineering and maintenance buildings site currently contains existing building SEP 850, which is a one- to two-story building that is 30 feet tall at its tallest point (15 feet tall on the single-story portion), two temporary pre-fabricated trailers (SEP 850A and SEP 850B), and an adjacent surface parking lot. The proposed modifications would also require temporary use of existing building SEP 870, a one-story 20-foot-tall building, and the associated parking area for temporary shower trailers. The site also contains stormwater collection facilities that route stormwater runoff to plant influent or primary clarifiers for treatment. Approximately 35 landscape trees, including four trees that have been mapped as "significant tree"[4] consistent with article 16 of the San Francisco Public Works Code, are present within the site.[5] An existing circular parking lot at the corner of Jerrold Avenue and Phelps Street contains 16 vehicle spaces, with access from Jerrold Avenue. Access to Southeast Plant North is provided via Jerrold Avenue, past the temporary construction site security check-in, approximately 370 feet northwest of the intersection of Jerrold Avenue and Phelps Street.

3.3 Description of the Proposed Modifications

The proposed modifications to the approved project evaluated in this addendum include: demolition of the existing building SEP 850; removal of the temporary pre-fabricated trailers SEP 850A and SEP 850B and the adjacent surface parking lot; demolition of the existing emergency backup generator, an existing transformer, and related electrical equipment (SEP 990); construction of the Mechanical Maintenance building (SEP 603), the Operations, Engineering, and Maintenance building (SEP 914), and a utility enclosure for a new chiller; and installation of two new boilers located inside building SEP 930 to service both buildings SEP 930 and SEP 940. Two new emergency generators and an associated upgraded transformer

[4] A significant tree is defined in San Francisco Public Works Code Chapter 16, Section 810A as any tree that is on property under the jurisdiction of the Department of Public Works or is on privately-owned property and within ten feet of the public right-of way, which meets at least one of the following size criteria: height greater than 20 feet; canopy width greater than 15 feet; and trunk diameter at breast height (dbh) greater than 12 inches.

[5] San Francisco Planning Department, Biosolids Digester Facilities Project Final Environmental Impact Report Appendix BIO, Planning Department Case No. 2015-000644ENV, State Clearinghouse No. 2015062073 certified March 8, 2018.

and electrical panel (SEP 990) as shown on **Figures 3 and 4** would be constructed and installed for use by proposed buildings SEP 603 and SEP 914.

The proposed Mechanical Maintenance building (SEP 603) would house maintenance bays, tool storage, office space and associated maintenance equipment. The approximately 8,400-square-foot, 33-foot-tall two-story building (including mezzanine) would be located at the corner of Jerrold Avenue and Phelps Street and would be accessed from Jerrold Avenue. To be consistent with San Francisco's Green Building Code, the SFPUC would install approximately 2,500 square feet of solar panels on the roof of SEP 603.

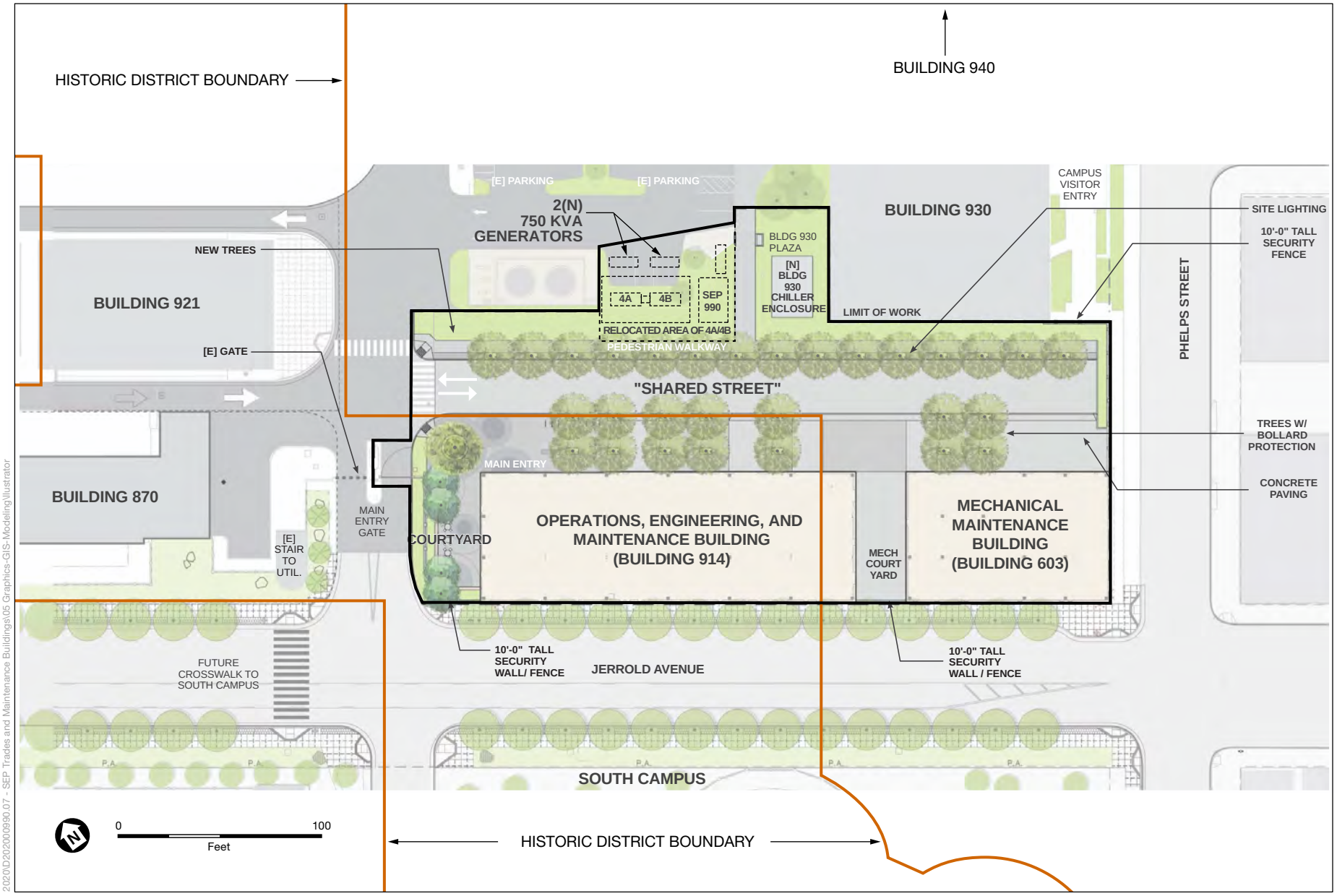
The proposed Operations, Engineering, and Maintenance building (SEP 914) would house carpenter, plumbing, and paint shops; offices, conference rooms, and break room; tool and paint storage; showers, lockers, and a wellness room; and records storage. The approximately 35,600-square-foot, 48.5-foot-tall, three-story building would be located along Jerrold Avenue between the proposed Mechanical Maintenance building and existing access to the Southeast Plant along Jerrold Avenue, southeast of existing building SEP 870. Consistent with San Francisco's Green Building Code, approximately 4,300 square feet of solar panels would be installed on the roof of SEP 914.

The demolition of building SEP 850, shown in **Figure 5**, would require the relocation and replacement of existing utilities. The existing gas boilers and chiller serving existing buildings SEP 850, SEP 930 and SEP 940 would be relocated and replaced. SEP 914 and SEP 603 would be served by an upgraded electrical transformer, three new electric boilers and an electric chiller. SEP 930 and 940 would be served by two smaller, more efficient gas boilers. A new utility enclosure to house the new chiller, measuring approximately 600 square feet and 6 feet tall, would be installed northeast of the proposed operations, engineering and maintenance buildings and west of the existing building SEP 930. The two new boilers would be located inside building SEP 930. Additionally, an existing 500 kVA[6] emergency backup generator and existing electrical equipment (SS 4A/4B and SEP 990) would be replaced with two new 750 kVA generators and electrical equipment (SS 4A/4B and SEP 990) next to the new chiller enclosure. The two new generators would have Tier 3 control technology.

Prior to demolition, the SFPUC would temporarily relocate the building occupants and uses within buildings SEP 850, SEP 850A, and SEP 850B to 1900 Jerrold Avenue. Temporary parking would be arranged near 1900 Jerrold Avenue, or previously approved staging areas such as 2000 McKinnon Avenue and 1811 Jerrold Avenue. Temporary showers would be placed adjacent to building SEP 870 with temporary lockers staged within the interior of building SEP 870. Trenching would be required to connect the temporary trailers (in particular, shower trailers) to potable water utilities, as shown in **Figures 5 and 6**. Construction management staff for the project would be located at the existing Headworks trailers, located north of the project site within the Southeast Plant's boundary.

Other improvements proposed at the operations, engineering and maintenance buildings site include an interior road for internal employee circulation and fire truck access, fencing, interior sidewalks, outdoor seating, and site lighting. The project proposes an approximately 23-foot-wide, 333-foot-long, dead-end

[6] Kilo volt amperes, which is the apparent power or actual power drawn from a power source.



2020\D2020090.07 - SEP Trades and Maintenance Buildings\05 Graphics-GIS-Modeling\Illustrator

SOURCE: Sage Consultion Engineers, Inc., 2024

Operations, Engineering, and Maintenance Buildings

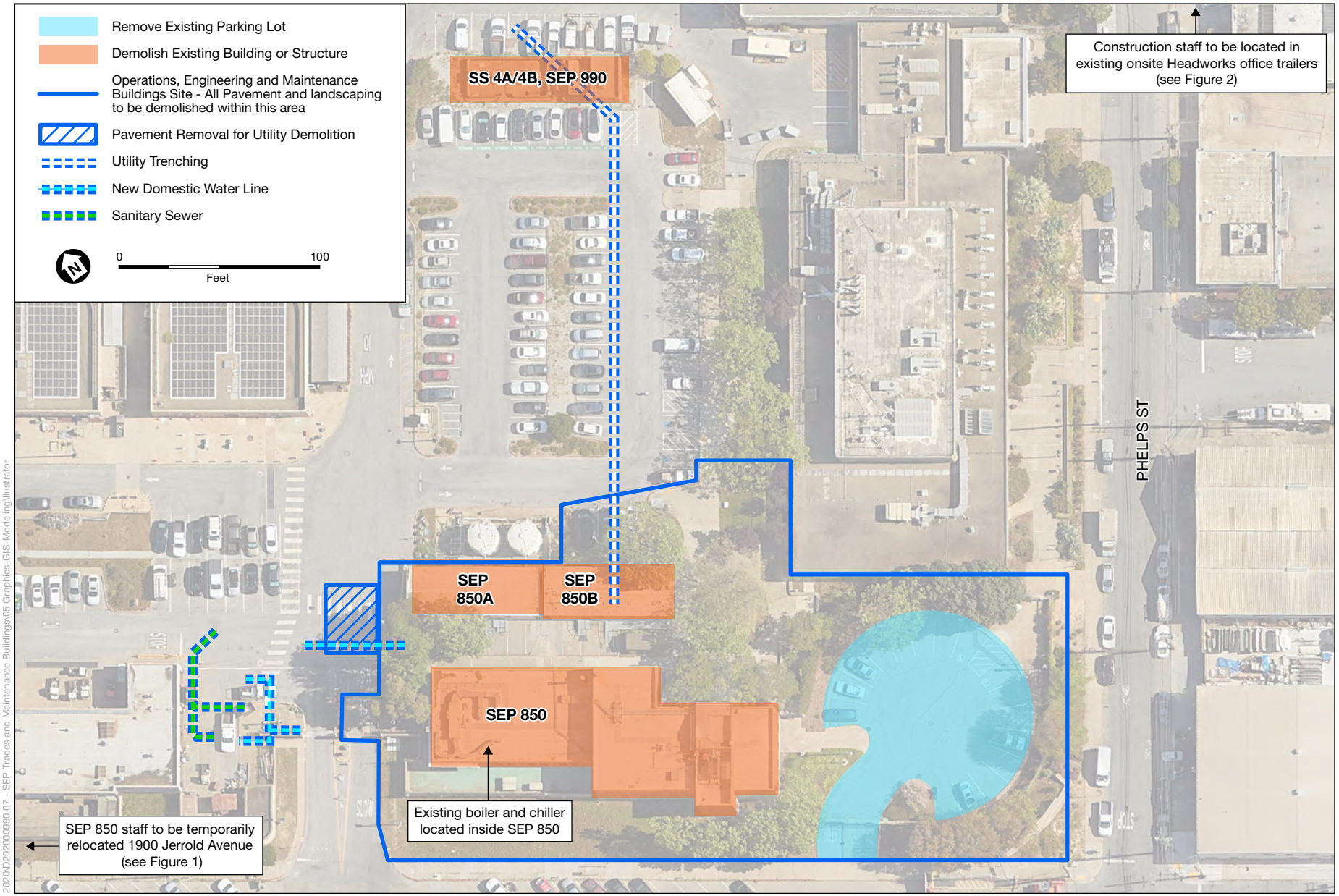
Figure 3
Landscape Concept Plan

2020\D2020090990.07 - SEP Trades and Maintenance Buildings\05 Graphics-GIS-Modeling\Illustrator

SOURCE: San Francisco Public Works, 2024

Operations, Engineering, and Maintenance Buildings

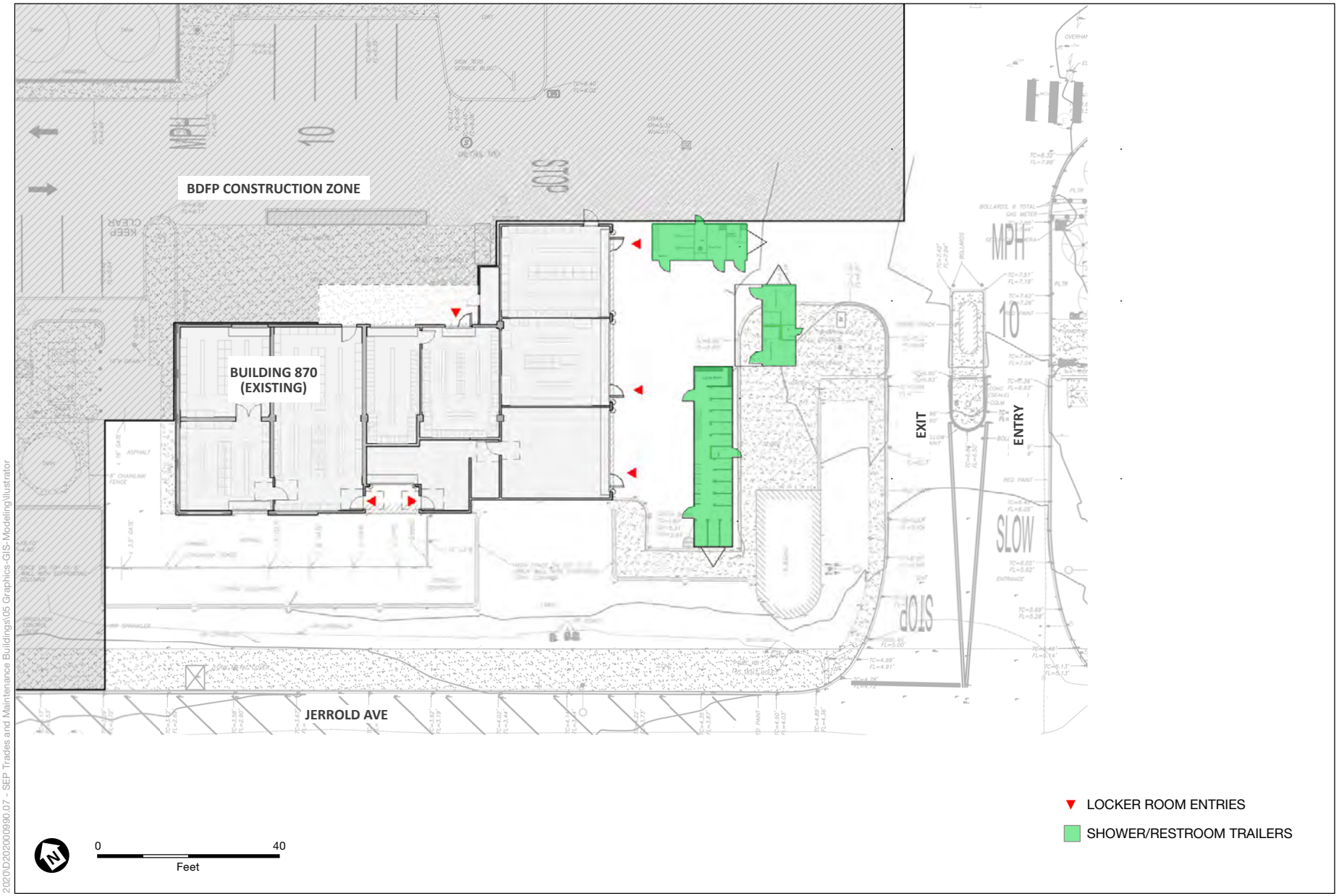
Figure 4
Southeast Plant Operations, Engineering and Maintenance Buildings Conceptual Design (Facing North)



SOURCE: ESA, 2023; Google Maps, 2023

Operations, Engineering, and Maintenance Buildings

Figure 5
Conceptual Demolition Plan



2020\D2020000990.07 - SEP Trades and Maintenance Buildings\05 Graphics-GIS-Modeling\Illustrator

SOURCE: San Francisco Public Works, 2023

SEP Trades and Maintenance Buildings

Figure 6
Interim Use of Building 870 and Temporary Trailers

ESA

road for internal employee circulation and access and required fire apparatus access to proposed buildings SEP 914 and SEP 603. A 10-foot-tall security fence or wall would be constructed along the Jerrold Avenue and Phelps Street boundaries in front of the modified project site. Permanent lighting would be installed primarily inside of the buildings, with exterior lighting at entrances and low-level landscaping lighting for paths of travel. New landscaping including approximately 35 new trees would be planted.

The SFPUC would connect the new operations, engineering and maintenance buildings to existing and proposed utilities, including natural gas, electricity, water, and sanitary sewer lines. This would include installing electrical conduit in the existing parking lot west of building SEP 930 and replacing an existing transformer within Southeast Plant North. Future runoff from the paved areas and new structures would be routed to the existing stormwater collection facilities at the site, or to new landscaped areas designed for stormwater infiltration that may be required for the modified project to comply with applicable regulations. The existing Southeast Plant potable water distribution system would be extended to serve the facilities.

The proposed buildings have been designed to meet the code requirements for Leadership in Energy and Environmental Design (LEED) Gold through various features, including water saving fixtures, solar panels, occupancy sensors, and energy saving materials.

3.4 Modified Project Construction

Construction of the approved project is estimated to last approximately 6.5 years. Approved project construction began in 2020. Construction of the proposed modifications would extend construction by an additional year through 2027 as shown in **Table 1**.

Table 1 Construction Schedule Overview

Activity	FEIR Table 2-10 Estimated Schedule	Estimated Schedule	Facilities in Construction
Biosolids Digester Facilities Construction	February 2018 – January 2023 (5 years)	January 2020 - September 2027 (approximately 7.5 years)	• Approved project facilities (ongoing) • Approved Interim Sidestream Nutrient Removal Facility (February 2025 to December 2025) • Approved Biogas Utilization System (April 2025 to January 2027) • Proposed Operations, Engineering, and Maintenance Buildings (February 2025 to September 2027)
Post-Construction Activities (performance testing/start-up, full facility commissioning)	February 2023 - July 2025 (2.5 years)	August 2026 – Summer 2028 (2 years)	None
Existing Digesters Decommissioning[7]	After 2025	After 2028	None

[7] Per the FEIR, potential demolition of the existing digesters and the solids handling facilities would be evaluated as a separate project when future uses of the site are proposed.

For most of the construction period, construction activities at the project site would occur Monday through Friday from 7 a.m. to 4:30 p.m., and at times until 8 p.m. as needed. Construction could also occur on Saturdays and Sundays when needed. Work would occur on holidays and 24 hours per day only if needed for critical facility connections, similar to the approved project.

Construction Staging, Worker Parking, Truck and Delivery Access, and Temporary Relocation of Muni Route. The approved project would require up to 12 acres of total construction staging area in addition to the project site itself. The approved project identified potential construction staging areas shown on Figure 1, along with staging within the Southeast Plant boundary and the closed portion of Jerrold Avenue to Phelps Street. The modified project would add temporary parking, in an area large enough for approximately 90 construction worker vehicles, at 2 Rankin Street (area shown in green on Figure 1).

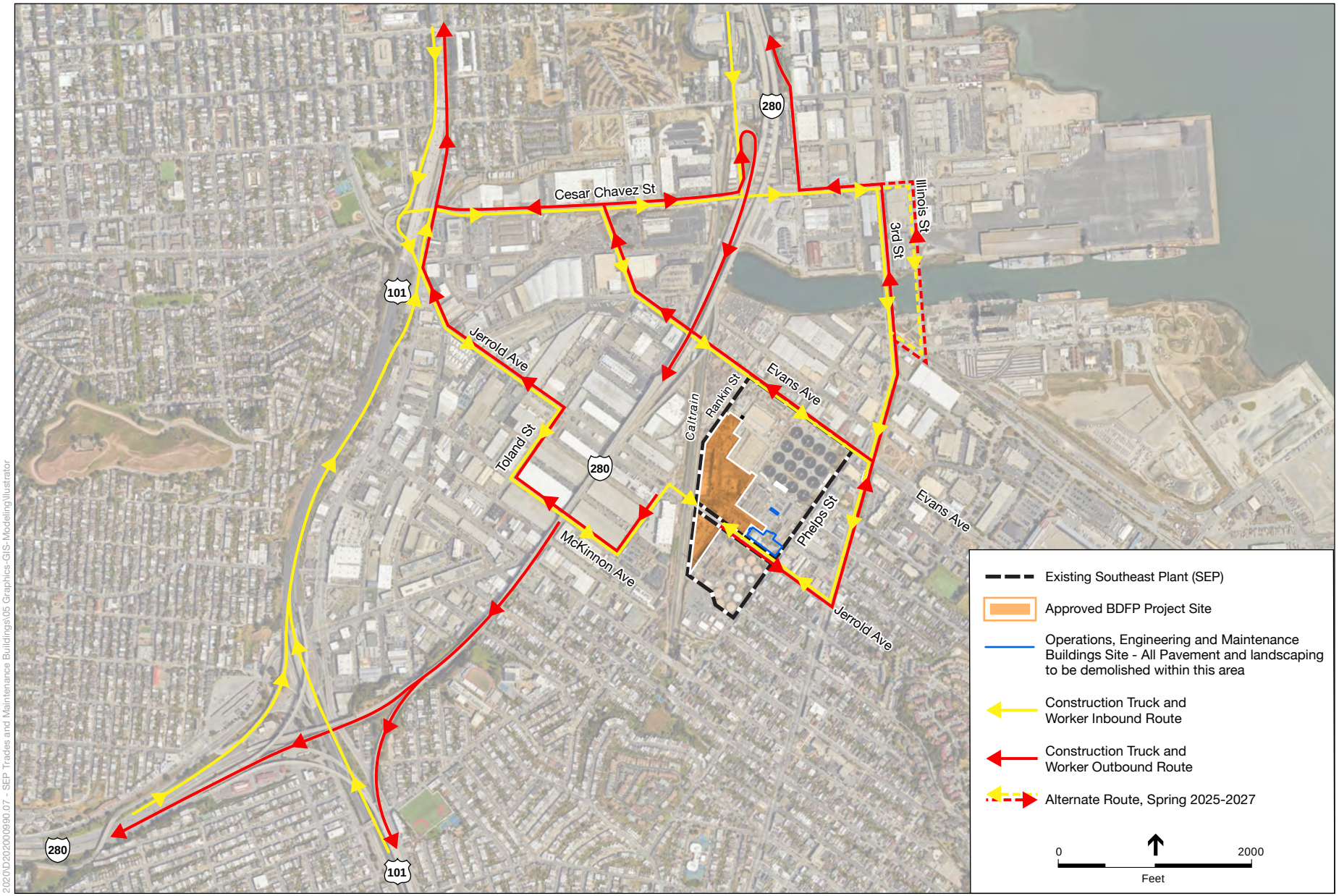
Construction trucks and workers would use the inbound and outbound routes shown on **Figure 7** to access the modified project site, instead of the routes shown in FEIR Figure 2-15. Interim truck delivery and off-haul routes for ongoing operations at the Southeast Plant would be the same as shown in FEIR Figure 2-16. Construction staging for the proposed modifications would be located within the Southeast Plant and along Jerrold Avenue as shown on **Figure 8**.

Construction Equipment. Equipment similar to that listed in the FEIR would be used during construction of the proposed modifications, as shown in **Appendix D**.

Demolition of Existing Structures. The approved project intended to demolish about 132,200 square feet of existing buildings and structures within the project site. With the proposed modifications, the SFPUC would demolish and dispose of the existing building SEP 850, two temporary pre-fabricated trailers (SEP 850A and SEP 850B), the adjacent surface parking lot, and the existing emergency generator and associated electrical equipment (SS 4A/4B, SEP 990), as shown on Figure 5. This would result in an additional 15,270 square feet of demolition, for a total of approximately 147,470 square feet of demolition for the modified project. Approximately 35 additional trees would be removed. As part of the proposed modifications, some of the existing underground utility lines from building SEP 850 to building SEP 930 would be intercepted and tied into the new buildings. Portions of existing utility lines not needed for the proposed modifications would also be capped, cut, and abandoned in place.

Site Preparation. The approved project proposed to excavate to depths of approximately 41 feet below ground surface at the digesters location within the approved project site, and several other facilities required excavation to depths of 25 to 30 feet below ground surface. Permanent secant pile wall piles were proposed to be installed to depths of 75 feet below ground surface within the approved project site, and temporary sheet piles were also proposed within the approved project site. Some utility relocation and groundwater dewatering were also proposed during construction of the approved project. With the proposed modifications, the modified project would excavate to depths of approximately 10 feet below ground surface in areas outside of the approved project site. Foundations for the new buildings would be drilled or auger cast 40- to 60-foot-deep piles below a 4-foot-deep concrete slab.

The approved project was expected to result in a total of 184,812 cubic yards of soil to be hauled offsite. The proposed modifications would excavate up to 21,455 cubic yards of soil, including potentially contaminated soil that could be removed from the site, for a total of 206,267 cubic yards of excavation for the modified project. The approved maximum excavation depths would not change. Excavated soil would be reused as backfill for the modified project as needed if it meets design specifications based on testing results;



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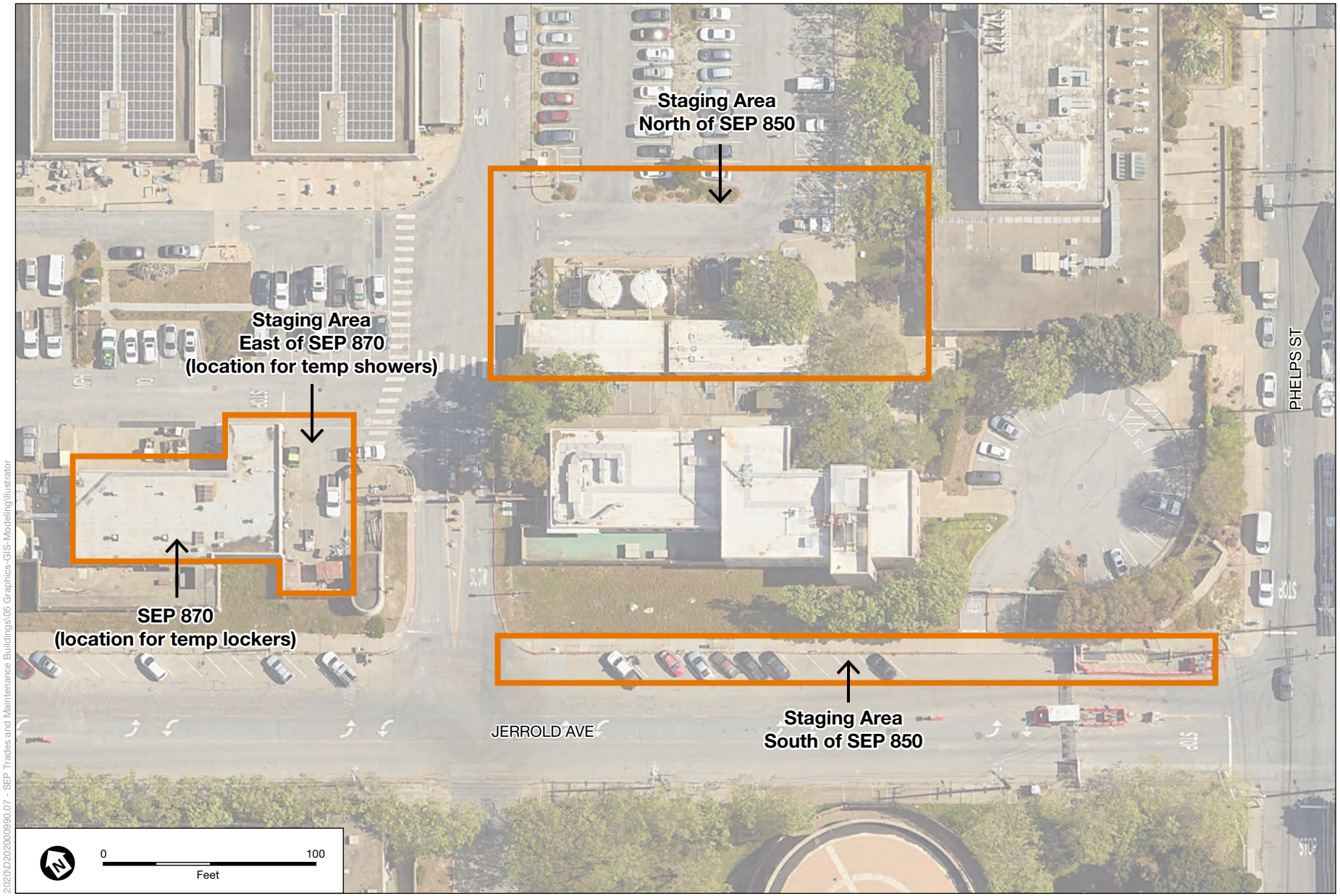
SOURCE: Google Maps 2023; ESA, 2023

Operations, Engineering, and Maintenance Buildings

Figure 7
New Truck Haul Routes



SOURCE: ESA, 2023; Google Maps, 2023

Operations, Engineering, and Maintenance Buildings

Figure 8
Staging Areas for the Operations, Trade and Maintenance Buildings

otherwise, the soil would be properly disposed of offsite in accordance with all applicable local, state, and federal regulations governing solid waste disposal. Contaminated and uncontaminated soil and demolition debris would be hauled and transferred to the same sites identified for the approved project (Recology Hay Road Landfill, Altamont Landfill, Republic Ox Mountain Landfill, or East Carbon Development Corporation Landfill in Utah).

Facility Construction. The proposed modifications would be constructed using the same standard techniques identified for most of the approved project facilities. After demolition and site grading, the SFPUC would construct the Mechanical Maintenance building (building SEP 603) and the Operations, Engineering, and Maintenance building (building SEP 914), and utility enclosure, and install the new boilers, generators and associated electrical equipment for use by proposed buildings SEP 603 and SEP 914. Once building and security fence construction is complete, the internal road and sidewalks would be placed. Landscaping would be planted as shown in the conceptual plan on Figure 3.

3.5 Modified Project Operations

The proposed operations, engineering, and maintenance buildings would support operations and maintenance activities at the Southeast Plant, including the maintenance of treatment equipment, same as described for Maintenance Shops 1 and 2 under the approved project. The buildings would provide equipment repair areas, parts storage, and staff facilities.

Operational Energy Needs. The FEIR estimated that the annual energy demand for the solids treatment process at the Southeast Plant would be approximately 4.9 megawatts in 2045, which included energy demand for associated operations, maintenance and support facilities. The annual energy demand of the approved project would be approximately 6.6 megawatts in 2045. Overall, the SFPUC would provide most of the electricity to the Southeast Plant, except for PG&E power that may be used for the biogas utilization system, as discussed in addendum 1 to the FEIR.[8] The proposed operations, engineering and maintenance buildings would be designed to comply with LEED Gold standards, would include solar panels, and would use approximately 0.60 megawatt annually (0.48 megawatt with the inclusion of the proposed rooftop solar generation). With the proposed modifications, the annual operational energy needs of the Southeast Plant would be up to 7.2 megawatts. The additional energy for the new operations, engineering, and maintenance buildings would be provided by hydroelectric power from SFPUC sources.

Other Southeast Plant Operations. As with the approved project, the modified project would not result in changes to the overall treatment capacity of the Southeast Plant. The SFPUC does not propose to increase the existing operations staff levels (about 280 people for the entire Southeast Plant) as part of the modified project. Once the modified project is operational, on-site parking for employees at the Southeast Plant would be the same as for the approved project. Operational truck routes, and chemical storage, use, and handling would be the same as described in the FEIR for the approved project. The proposed modifications would not affect the existing overall capacity of the Southeast Plant for wastewater treatment; the overall treatment methods and in turn chemical storage, use, handling and associated truck trips and routes; the amount of digester gas generated; or the amount of biosolids generated and the associated number of hauled trucks and routes. Lastly, the long-term streetscape and landscape improvements along Jerrold Avenue from the approved project would still be implemented under the modified project.

[8] San Francisco Environmental Planning, Biosolids Digester Facilities Project Addendum 1 to Environmental Impact Report, July 12, 2024.

3.6 Approvals

This addendum evaluates the potential environmental effects of the modified project described above and will be used to support the following public agency approvals:

- San Francisco Public Utilities Commission: consideration of approval of the proposed modifications at a public hearing.
- Bay Area Air Quality Management District: Authority to Construct and Permit to Operate

4.0 CEQA Approach

San Francisco Administrative Code section 31.19(C)(1) states that a modified project must be reevaluated, and that "If, on the basis of such reevaluation, the Environmental Review Officer determines, based on the requirements of CEQA, that no additional environmental review is necessary, this determination and the reasons therefore shall be noted in writing in the case record, and no further evaluation shall be required by this Chapter." CEQA Guidelines section 15164 provides for the use of an addendum to document the basis for a lead agency's decision not to require a subsequent EIR for a project that is already adequately covered in a previously certified EIR. An addendum to a certified FEIR may be prepared if some changes or additions are necessary but none of the conditions described in CEQA Guidelines section 15162 calling for the preparation of a subsequent FEIR have occurred.

This addendum to the FEIR evaluates the potential environmental effects of the proposed modifications to the Biosolids Digester Facilities Project (i.e., the construction of the operations, engineering and maintenance buildings and associated development). As defined previously, the Biosolids Digesters Facilities Project, inclusive of the proposed modifications (the "modified project"), is compared to the impacts of the "approved project" as disclosed in the FEIR (and in the subsequently approved minor project modifications and addendum 1), and explains why the modified project would not result in any new significant environmental impacts or a substantial increase in the severity of previously identified environmental impacts, and would therefore not require the adoption of any new or considerably different mitigation measures.

Since certification of the FEIR and issuance of addendum 1, the approved project and the circumstances under which the approved project would be completed have changed. These changes include the following: 1) modifications to the project described in the certified FEIR; 2) new information regarding cumulative projects proposed in the vicinity; and 3) changes in the existing conditions regarding health risks from air pollution sources due to an updated citywide health risk assessment. These changes are described further in the subsections below. As analyzed in this addendum, the modified project combined with these changed circumstances would not materially change any of the analyses or conclusions of the certified FEIR.

4.1 Approved Project Modifications

As described in Section 2.2 above, since FEIR certification, the SFPUC has approved multiple changes to the approved project, such as the following: additional dewatering wells; geotechnical potholes and test piles; a rerouted pipeline; additional work, staging, and parking areas (and the removal of other staging areas); alternative effective air quality mitigation; removal of Maintenance Shops 1 and 2; reducing the size of the Odor Control Building and adding new Steam Generation Facility; adding an Interim Sidestream Nutrient

Removal Facility to reduce nutrients (mainly nitrogen) from treated effluent to improve effluent water quality; and revising the approved energy recovery/cogeneration facility to a biogas utilization system to convert the digester gas into renewable natural gas. The San Francisco Planning Department determined that these project modifications were not substantial, given that they would clearly not alter the FEIR conclusions (as documented in memoranda to the case file and in addendum 1 to the FEIR). **Table 2** summarizes the approved project inclusive of the project modifications to date and the proposed modifications analyzed in this addendum.

Table 2 Summary of Approved Project and Modified Project

Feature	Approved Project		Modified Project
	FEIR Project[9]	Previously Approved Project Changes[10]	
Property Size of the Southeast Plant	Approximately 47 acres	No change	No change
Design Wastewater Flow Capacity of the Southeast Plant	250 mgd[11] (wet weather)	No change	No change
Digester Tanks	85 mgd (dry weather design average)	No change	No change
Solids Treatment Process	• Thickening • Screening • Pre-Thermal Hydrolysis Process Dewatering • Thermal Hydrolysis Process • Anaerobic Digestion • Biosolids Dewatering	Same as FEIR project with addition of: • Steam generation facility with boilers operating full time[12] • Interim Sidestream Nutrient Removal[13]	No change
Biosolids	Classification: Class A Exceptional Quality Annual Production: 24,000 dry tons Haul Trips: 10-14 trips per day	No change	No change

[9] The project described in the original certified Biosolids Digester Facilities Project EIR.

[10] Previously approved project changes consisting of minor modifications to the original project in the FEIR, as reviewed by the San Francisco Planning Department and approved by the SFPUC, and the biogas utilization system (San Francisco Planning Department, Addendum 1 to Environmental Impact Report, Biosolids Digester Facilities Project, Biogas Utilization System, July 12, 2024).

[11] Million gallons per day (mgd)

[12] SFPUC Biosolids Digester Facilities Project Minor Project Modification 10 – Modified Facilities, reviewed by San Francisco Planning Department February 2, 2021

[13] SFPUC Biosolids Digester Facilities Project Minor Project Modification 17 – Interim Sidestream Nutrient Removal, reviewed by San Francisco Planning Department February 12, 2024

Table 2 Summary of Approved Project and Modified Project

Feature	Approved Project		Modified Project
	FEIR Project[9]	Previously Approved Project Changes[10]	
Odor Control	Designed to limit odors from biosolids facilities to within revised Southeast Plan site boundaries	No change	No change
Digester Gas	Production: approximately 2 million cubic feet per day Flaring: Infrequent	No change in production Flaring: Intermittent	No change
Energy Recovery	Technology: • Gas Turbines • Heat Recovery Steam Generation System • Steam Boilers: Backup Only • Electricity Generation (Annual Average): 4.2 to 5.2 megawatts	Removed Technology:[14] • Gas Turbines • Heat Recovery Steam Generation System • Steam Boilers: Backup Only (*see changes related to boilers in Solids Treatment Process above) Added Technology • Biogas Upgrade Facility with Thermal Oxidizer • PG&E Interconnection Station and Deoxygenation System Electricity Generation (Annual Average): 0.0 megawatts • Power for Biogas Upgrade Facility may be from PG&E • Power for all other facilities from SFPUC Hetch Hetchy Water and Power	No change
Southeast Plant Staffing Levels	280 staff (entire Southeast Plant including biosolids staff)	Same as FEIR project with addition of 1 employee (for the Biogas Utilization System)	No change

[14] San Francisco Environmental Planning, Biosolids Digester Facilities Project Addendum 1 to Environmental Impact Report, July 12, 2024.

Table 2 Summary of Approved Project and Modified Project

Feature	Approved Project		Modified Project
	FEIR Project[9]	Previously Approved Project Changes[10]	
New Operations, Maintenance, and Support Buildings/Structures	• Maintenance Shops 1 (19,600 square feet) • Maintenance Shops 2 (5,500 square feet) • Digester Electrical Rooms • Ferric Chloride Storage • Transformers • Maximum Height: 30 feet above grade	Same as FEIR project except:[15] • No Maintenance Shops 1 and 2	Same as approved project except includes: • Mechanical Maintenance Building (approximately 8,400 square feet) • Operations, Engineering, and Maintenance Building (approximately 35,600 square feet) and • Fenced enclosure for utilities (600 square feet) • Maximum Height: approximately 50 feet above grade
Landscaping Improvements	Trees, landscaping, fencing and street improvements along Jerrold Avenue Proposed removal of 90 trees	No change	Same as approved project plus tree removal (approximately 35 trees) and replacement within proposed operations, engineering, and maintenance buildings site
Biosolids Digester Facilities Project Site	Approximately 12.9 acres	Approximately 14 acres	Approximately 15.2 acres (additional 1.2-acre area within the Southeast Plant for the new operations, engineering and maintenance buildings site located near corner of Jerrold Avenue and Phelps Street)
Construction Schedule	Five years (2018-2023)	Six and a half years (2020-Summer 2026)	Approximately seven and a half years (2020-Fall 2027)

[15] SFPUC Biosolids Digester Facilities Project Minor Project Modification 10 – Modified Facilities, reviewed by San Francisco Planning Department February 2, 2021.

Table 2 Summary of Approved Project and Modified Project

Feature	Approved Project		Modified Project
	FEIR Project[9]	Previously Approved Project Changes[10]	
Construction Staging, Worker Parking	Within Southeast Plant, on Quint Street, closed portion of Jerrold Avenue, Piers 94 and 96, Southeast Greenhouses site, 1550 Evans Avenue	Same as FEIR project except: • No use of 1550 Evans Avenue, Piers 94/96 • Added 2000 McKinnon Avenue [16] • Expanded staging on Jerrold Avenue between Rankin Street and Phelps Street[17]	Same as approved project except: • Additional construction worker parking at 2 Rankin Street • Relocation of existing workers from building SEP 850 to 1900 Jerrold Avenue during construction
Construction Truck and Delivery Access, Worker Access	Truck/Delivery Access to Biosolids: Rankin Street, Evans Avenue, Jerrold Avenue, Cesar Chavez, Phelps Street Worker Access: Jerrold Avenue	Truck/Delivery Access to Biosolids: Same as FEIR project plus McKinnon Avenue Worker Access: Same as FEIR project plus Quint Street, McKinnon Avenue[16, 18]	Same as approved project except: • Addition of potential construction haul route on Illinois Street Bridge
Muni Route 23 Relocation	Temporarily relocated from Jerrold Avenue to Oakdale and Palou Avenues	No change	No change
Construction Equipment	Listed in FEIR	No change	No change
Temporary Roadway Closures	Jerrold Avenue between Caltrain right-of-way and Southeast Plant entrance on Phelps Street	Jerrold Avenue between Rankin and Phelps streets[19]	Truck/Delivery Access to Biosolids: Same as approved project.

[16] SFPUC Biosolids Digester Facilities Project Minor Project Modification 16 – McKinnon Parking Site, reviewed by San Francisco Planning Department May 17, 2023

[17] SFPUC Biosolids Digester Facilities Project Minor Project Modification – Additional Work Area Changes, Approved by San Francisco Planning Department April 28, 2020

[18] SFPUC Biosolids Digester Facilities Project Minor Project Modification 7 – Traffic on Jerrold, reviewed by San Francisco Planning Department September 1, 2020

[19] SFPUC Biosolids Digester Facilities Project Minor Project Modification 6– Additional Work Area Changes, Approved by San Francisco Planning Department April 28, 2020

Table 2 Summary of Approved Project and Modified Project

Feature	Approved Project		Modified Project
	FEIR Project[9]	Previously Approved Project Changes[10]	
Building Demolition	Central Shops Asphalt Plant Structures Buildings SEP 855, 870, 925, SS 5A/5B 1550 Evans Avenue Total: 136,000 square feet	Same as FEIR project except: • Building SEP 870 not demolished (3,800 square feet)[20] Total: 132,200 square feet	Same as approved project except: • Building SEP 850, existing backup generator and associated equipment (SEP 990, SS 4A/4B), and temporary pre-fabricated trailers 850A and 850B would be demolished (approximately 15,270 square feet) Total: 147,470 square feet
Excavation Volumes / Areas/Depths	Total Volume: 190,000 cubic yards Maximum Depth: 45 feet below ground surface	Reduced Total Volume: 184,812 cubic yards (reduced by net 5,188 cubic yards) Between 279 and 331 fewer piles	Same as approved project plus: • Additional volume: 21,455 cubic yards • Depth of excavation: 10 feet below ground surface outside of approved project site • 70 to 80 additional piles for building foundations (40 to 60 feet deep), resulting in between 199 and 261 fewer total piles for modified project *Total volume: 206,267 cubic yards* *Maximum Depth: Same as approved project*
Maximum Construction Workers (daily)	550	No change	No change

SOURCES: San Francisco Planning Department, Biosolids Digester Facilities Project Final Environmental Impact Report, March; SFPUC; San Francisco Planning Department, Biosolids Digester Facilities Project Addendum 1 to Environmental Impact Report, July 12, 2024.

[20] SFPUC Biosolids Digester Facilities Project Minor Project Modification 10 – Modified Facilities, reviewed by San Francisco Planning Department February 2, 2021; San Francisco Planning Department, Addendum 1 to Environmental Impact Report, Biosolids Digester Facilities Project, Biogas Utilization System, July 12, 2024

4.2 Cumulative Projects in the Site Vicinity

FEIR Section 4.1.3, Approach to Cumulative Impact Analysis and Cumulative Projects, describes potential projects in the site vicinity. FEIR Table 4.1-1 lists 40 nearby projects considered in the FEIR cumulative impact analysis, including the construction dates of those projects. Since certification of the FEIR, some of the nearby projects have been completed and would no longer be part of the modified project cumulative scenario; others have been delayed and would now overlap with the modified project construction. In addition, new projects have been proposed both at the Southeast Plant and in the project vicinity. **Appendix A** updates the projects considered in the cumulative impact analysis for the modified project.

4.3 Existing Air Quality Conditions

In 2020, the City and County of San Francisco completed an update to the San Francisco Citywide Health Risk Assessment, which was previously prepared in 2014.[21] The 2020 assessment evaluated the cancer risks and the concentrations of particulate matter measuring 2.5 microns or less in diameter ($PM_{2.5}$) from existing known sources of air pollution including updates to vehicle activity and emissions rates, updates to maritime emissions, emissions from Caltrain and updated stationary source emissions. The 2020 assessment was used to update the air pollutant exposure zone that is referenced in San Francisco Health Code article 38 and in the Clean Construction Ordinance. The 2020 assessment and air pollutant exposure zone analysis updated the 2014 analysis that was referenced in the FEIR. This addendum analysis uses the updated 2020 Citywide Heath Risk Assessment for the existing-plus-project and cumulative health risk assessment analyses. The updated background health risks show an increase in the existing background health risks due to the changes in emissions and methodology since 2014.

4.4 Updates to CEQA Guidelines

Since FEIR certification, the CEQA Guidelines Appendix G Environmental Checklist Form has been updated to add the topics of Tribal Cultural Resources and Wildfire. Accordingly, these topics are discussed in the analysis of potential environmental effects below.

5.0 Analysis of Potential Environmental Effects

5.1 Cultural Resources

Biosolids Digester Facilities Project FEIR Findings

The Biosolids Digester Facilities Project FEIR found that the approved project would have potentially significant impacts related to the following significance criteria:

- Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco Planning Code

[21] San Francisco Department of Public Health (SF DPH), San Francisco Planning Department, and Ramboll. 2020. San Francisco Citywide Health Risk Assessment: Technical Support Documentation.

- Cause a substantial adverse change in the significance of an archeological resource pursuant to CEQA Guidelines Section 15064.5
- Disturb any human remains, including those interred outside of formal cemeteries

Historic Architectural Resources

The FEIR evaluated all buildings and structures at the Southeast Plant for eligibility for listing on the National Register of Historic Places (National Register) and the California Register of Historical Resources (California Register). The FEIR determined that a portion of the Southeast Plant, consisting of 22 buildings and structures, meets the criteria to be considered an eligible historic district and named it the Southeast Treatment Plant Streamline Moderne Industrial Historic District (as shown on FEIR Figure 4.5-2, Historic District). However, the evaluation found that none of the buildings or structures within the eligible historic district are individually significant. Additionally, the FEIR found that Buildings A and B of the Central Shops complex (outside the boundaries of, and separate from, the historic district) were individually eligible for listing on the California Register and National Register because each was an important example of Industrial Modern architecture in San Francisco.

The approved project included the demolition of all the Central Shops buildings (including Buildings A and B) to build the new digester tanks at those locations. The demolition of the Central Shops buildings was determined to be a substantial adverse change in the significance of the historical resources and required implementation of Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display). The FEIR concluded that while Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display) would reduce the severity of the impact, it would not reduce the impact to a less-than-significant level, and the demolition of the Central Shops was a significant and unavoidable impact with mitigation.

Archeological Resources

The FEIR identified the presence of previously recorded California Register- and National Register-eligible Native American archeological site CA-SFR-171 within the approved project site, including the potential presence of a deeply submerged/buried midden deposit. It also identified the potential for historic archeological resources related to a potential buried historic refuse deposit. The FEIR determined that these archeological resources could be impacted by excavation and pile drilling, but that impacts would be reduced to a less-than-significant level through implementation of Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) and Mitigation Measure M-CR-2b (Procedures for Accidental Discovery of Archeological Resources) that require the SFPUC as directed by Planning Department's archeologists to conduct additional archeological testing prior to construction, monitoring during construction, data recovery and public interpretation if significant resources were found, and halt work and implement proper procedures to ensure appropriate treatment of significant archeological resources discovered during project implementation. Implementation of these measures also required consultation with Native American representatives and Native American monitoring during construction activities.

Human Remains

The FEIR discussed that although no known human burial locations had been identified within the approved project site during archeological investigations undertaken for the FEIR, the possibility that human remains could be encountered during earthmoving activities could not be discounted given construction would

occur within a known Native American archeological site. The FEIR concluded that potentially significant impacts on human remains would be reduced to a less-than-significant level through implementation of Mitigation Measure CR-2a (Archeological Testing, Monitoring, and/or Data Recovery), which requires that any human remains or associated or unassociated funerary objects discovered during construction be treated in compliance with applicable local, state and federal laws, including immediate notification of the Planning Department's archeologist, the Coroner of the City and County of San Francisco (Office of the Chief Medical Examiner), and the California Native American Heritage Commission in the event the Coroner determined that the human remains are Native American remains. The California State Native American Heritage Commission would appoint a Most Likely Descendant (Public Resources Code Section 5097.98). The Most Likely Descendant would provide recommendations to the SFPUC on the appropriate treatment of the remains.

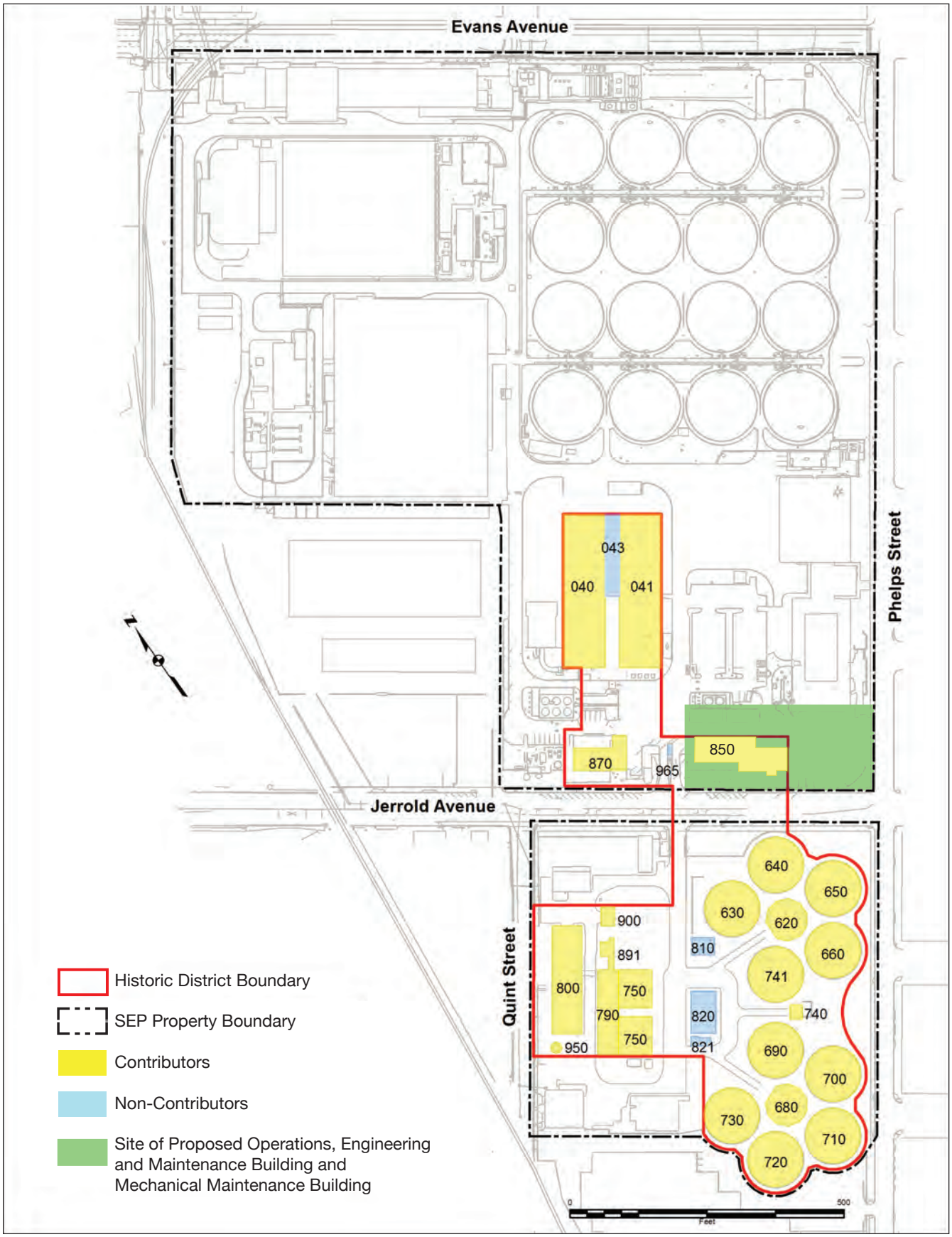
Modified Project Impacts

Historic Architectural Resources

As discussed in addendum 1, building SEP 870 would not be demolished. Construction of the modified project would demolish the Operator's Building (SEP 850); two temporary, prefabricated trailers (SEP 850A and 850B); a small, paved parking lot at the north corner of Jerrold Avenue and Phelps Street, and the existing emergency generators and associated electrical equipment (SS 4A/4B, SEP 990). Of these, only building SEP 850 is a contributor to the eligible historic district, and the trailers, parking lot, generators and associated electrical equipment are located outside of the eligible historic district. Additionally, two new buildings would be constructed in the area of demolition: the two-story with mezzanine Mechanical Maintenance Building (SEP 603) and the three-story Operations, Engineering, and Maintenance Building (SEP 914). Building SEP 914 would be sited within the boundary of the eligible historic district, and building SEP 603 would be adjacent to it. **Figure 9** shows the location of the operations, engineering and maintenance buildings site relative to the historic district.

Building SEP 850 is a contributor to the eligible historic district, but it is not an individually-eligible historical resource. After demolition of building SEP 850, the remaining 21 buildings and structures that contribute to the eligible historic district would be unaffected by the modified project and would, as a whole, retain their ability to convey their significant associations with implementation of the 1935 Sewer System Master Plan and continue to be representative of the Streamline Moderne architectural style that characterized the SFPUC's original wastewater facilities.

In place of building SEP 850, the modified project would construct one new non-contributing building within the boundaries of the eligible historic district, i.e., the three-story Operations, Engineering, and Maintenance Building (SEP 914). Construction of building SEP 914 would have a less-than-significant impact on the eligible historic district, as the vast majority of the eligible historic district would remain intact. Although the number of non-contributors within the eligible historic district would increase from four to five after completion of the modified project, the district would retain a relatively high ratio of 21 contributors to five non-contributors. In addition, introduction of the proposed modifications to the eligible historic district would be a less-than-significant impact because, after 1952, the original master plan was abandoned, and buildings of different architectural types were already introduced over time and were sited based on individual project objectives, rather than on the original master plan. Further, the new building SEP 914 would be of similar scale to the existing buildings, would be inside the wall on the north side of Jerrold Avenue away from and minimally visible from the main SEP South complex where most of the contributory



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SOURCE: Brewster, B., Department of Parks and Recreation (DPR) form, Southeast Treatment Plant Streamline Moderne Industrial Historic District, Prepared for San Francisco Public Utilities Commission, April 2016

Operations, Engineering, and Maintenance Buildings

Figure 9
Southeast Treatment Plant Streamline Moderne Industrial Historic District

buildings are located, and would be constructed on the edge of the district boundary as opposed to its center. Therefore, the modified project would not significantly impact the historic integrity of the eligible historic district.

Other new construction associated with the modified project would occur outside of the eligible historic district. All new construction would occur at least 50 feet from the other district contributors. This distance would provide a sufficient physical and visual buffer between the new buildings and the historical resource (i.e., the eligible historic district) to ensure that no other significant, indirect impacts would occur as a result of construction. For additional information, see the analysis in Section 5.4, Noise and Vibration.

Furthermore, in December 2024, planning department preservation staff determined that the modified project would not result in any new or substantially more severe impacts on the eligible historic district that were not previously disclosed in the environmental review for the approved project (**Appendix C**). As such, the removal of building SEP 850 would have a less-than-significant impact on the overall significance and historic integrity of the eligible historic district.

Archeological Resources

The FEIR identified the presence of previously recorded California Register- and National Register-eligible Native American archeological site CA-SFR-171 within the approved project site, and the proposed modifications overlap with a small area of the eastern portion of the site. Far Western Anthropological Research Group, Inc. (Far Western) conducted a geoarcheological investigation in 2021 that revealed a stratum of artificial fill that extended to depths of 14 feet to as much as 21 feet below surface in the modified project footprint. Redeposited shell midden was encountered at depths that ranged between 14 and 18 feet below surface. The midden stratum was underlain by bay and peat deposits and then by an intact layer of buried surface soil, ("A horizon"[22]) the surface of which was encountered at depths ranging between 18 and 23 feet below surface.

Grading and trenching for the modified project would be confined to the artificial fill stratum, while the proposed piles would penetrate both the redeposited midden and the buried A Horizon. The planning department's archeologists have determined that the redeposited midden did not contribute to the significance of nearby site CA-SFR-171. On this basis, construction of the modified project would not result in significant impacts on CA-SFR-171.[23] Based on the deposit's distribution as revealed through testing and data recovery, the modified project's potential for significant incremental effects to CA-SFR-171 is low.

Given the very small size and relatively limited number of samples provided by the geoarcheological cores in the modified project site, there remains the potential that pockets of intact midden or lenses of buried/submerged midden, undetected in relatively widely spaced coring in the vicinity, could be present. It is unlikely that such materials would be exposed in the proposed shallow grading and excavation. However, artifacts that could be significant diagnostically and/or human remains potentially could be brought to the surface in spoils from pile construction. Such impacts on archaeological resources would be potentially significant. However, with implementation of **Mitigation Measure M-CR-2b (Procedures for Accidental Discovery of Archeological Resources)** as presented below in full, which halts work and implements proper

[22] In developed soils, the A horizon is the shallow soil that contains organic matter (humus), indicative of the influence of air, plants and other soil organisms.

[23] Vanderslice, Allison, Email to Kelly Yong, SF Water. From Allison Vanderslice, CEQA Cultural Resources Team Manager, Environmental Planning Division. August 8, 2024.

procedures for appropriate treatment of significant archeological resources discovered, impacts would be reduced to a less-than-significant level.

Mitigation Measure M-CR-2b: Accidental Discovery of Archeological Resources

The following mitigation measure is required to avoid any potential adverse effect from the project on accidentally discovered buried or submerged historical resources as defined in CEQA Guidelines Section 15064.5(a) and (c). The project sponsor shall distribute the Planning Department archeological resource "ALERT" sheet to the project prime contractor; to any project subcontractor (including demolition, excavation, grading, foundation, pile installation, etc. firms); or utilities firm involved in soils disturbing activities within the project site. Prior to any soils disturbing activities being undertaken each contractor is responsible for ensuring that the "ALERT" sheet is circulated to all field personnel including machine operators, field crew, pile drivers, supervisory personnel, etc.

A preconstruction training shall be provided to all construction personnel by a qualified archeologist prior to their starting work on the project. The training may be provided in person or using a video and include a handout prepared by the qualified archeologist. The video and materials shall be reviewed and approved by the ERO and the SFPUC. The purpose of the training is to enable personnel to identify archeological resources that may be encountered and to instruct them on what to do if a potential discovery occurs. Images or video of expected archeological resource types and archeological testing and data recovery methods should be included in the training. As possible, video or images should utilize archeological investigations that have occurred at the project site. The training should also include general information about the known archeological resources identified within the project site.

The project sponsor shall provide the Environmental Review Officer (ERO) with a signed affidavit from the responsible parties (prime contractor, subcontractor[s], and utilities firm) to the ERO confirming that all field personnel have received copies of the Alert Sheet and have taken the preconstruction training.

Should any indication of an archeological resource be encountered during any soils disturbing activity of the project, the project Head Foreman and/or project sponsor shall immediately notify the ERO and the SFPUC and shall immediately suspend any soils disturbing activities in the vicinity of the discovery until the ERO, in coordination with the SFPUC, has determined what additional measures should be undertaken.

If the ERO determines that the find may represent an archeological resource, the project sponsor shall retain the services of an archeological consultant. The archeological consultant shall advise the ERO and the SFPUC as to whether the discovery is an archeological resource, retains sufficient integrity, and is of potential scientific/historical/cultural significance. If an archeological resource is present, the archeological consultant shall identify and evaluate the archeological resource. The archeological consultant shall make a recommendation as to what action, if any, is warranted. Based on this information, the ERO may require, if warranted, specific additional measures to be implemented by the project sponsor.

Measures might include: preservation in situ of the archeological resource; an archeological monitoring program; or an archeological testing program. If an archeological monitoring program or

archeological testing program is required, it shall be consistent with the Environmental Planning (EP) division guidelines for such programs. The ERO may also require that the project sponsor immediately implement a site security program if the archeological resource is at risk from vandalism, looting, or other damaging actions.

The project archeological consultant shall submit a Final Archeological Resources Report (FARR) to the ERO and the SFPUC that evaluates the historical significance of any discovered archeological resource and describing the archeological and historical research methods employed in the archeological monitoring/data recovery program(s) undertaken. Information that may put at risk any archeological resource shall be provided in a separate removable insert within the final report.

Copies of the Draft FARR shall be sent to the ERO for review and approval and concurrently to the SFPUC for review and comment. Once approved by the ERO, copies of the FARR shall be distributed as follows: California Archaeological Site Survey Northwest Information Center (NWIC) shall receive one (1) copy and the ERO shall receive a copy of the transmittal of the FARR to the NWIC. The Environmental Planning division of the Planning Department shall receive one bound copy, one unbound copy and one unlocked, searchable PDF copy on CD, three copies of the FARR along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of high public interest or interpretive value, the ERO may require a different final report content, format, and distribution than that presented above.

Human Remains

No human burial locations have been identified during construction of the approved project to date, and none have been identified within the modified project site during archeological investigations undertaken for the approved project. However, the possibility that human remains could be encountered during earthmoving activities cannot be discounted, which would be a potentially significant impact. With implementation of Mitigation Measure M-CR-2b (Procedures for Accidental Discovery of Archeological Resources) as discussed above, which requires that any human remains or associated or unassociated funerary objects discovered during construction be treated in compliance with applicable local, state and federal laws, impacts would be reduced to a less-than-significant level.

Like the approved project, the modified project operations would not affect historic architectural or archeological resources, including human remains.

Conclusion

In summary, with implementation of Mitigation Measure M-CR-2b (Procedures for Accidental Discovery of Archeological Resources), the modified project would not result in significant impacts on cultural resources greater than those identified in the FEIR. Moreover, the modified project would not result in new significant impacts on cultural resources that were not previously identified in the FEIR; would not result in more severe impacts than those identified; and would not require new mitigation measures.

Cumulative Impacts

Historic Architectural Resources

The FEIR identified the geographic scope of cumulative effects on historic architectural resources to be the Southeast Plant and the boundaries of the eligible historic district. The FEIR determined that demolition of building SEP 870 in combination with cumulative projects including the Demolition of the Existing SEP Digesters and Southside Renovation Project would result in a significant and unavoidable cumulative impact on the eligible historic district, even with implementation of Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display), because the majority of contributory buildings would be demolished and mitigation would not abate this impact. The project's contribution was determined to be cumulatively considerable.

As discussed in Section 4.2, Cumulative Projects in the Site Vicinity, and presented in Appendix A, several new projects have been proposed at the Southeast Plant since the certification of the FEIR. The following projects could result in cumulative impacts on historic architectural resources due to their location within the eligible historic district and/or the Southeast Plant:

- *HVAC and Mechanical Upgrades* – This project would repair and replace various HVAC equipment and mechanical systems at the Southeast Plant. No changes would be made to historical resources.
- *Maintenance Building (SEP 940) Interim Improvement* – This project would modify Building 940 (located outside the eligible historic district) to include interim shop areas, HVAC improvements, and health and safety improvements.

The projects at the Southeast Plant are not expected to result in significant impacts on historic architectural resources.

As with the approved project, the modified project would contribute to a significant cumulative impact on historic architectural resources because the modified project continues to allow for the eventual demolition of the existing digesters and control building, and in combination with cumulative projects (in particular the Southside Renovation Project) would demolish 13 of the 22 contributors to the eligible historic district.[24] Because cumulative impacts on historic architectural resources would be the same as those identified in the FEIR, implementation of **Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display)** would be required but would not reduce the severity of the cumulative impact to a less-than-significant level. Adopted Mitigation Measure M-CR-1 has been modified as shown below to reflect the planning department's current professional best practice and to clarify the measure's applicability to the remaining historic resources on the site.[25] The proposed modifications do not reflect an increased impact on the historic district because overall the modified project would substitute demolition of one contributor (Building 870) with demolition of another contributor (Building 850).[26] Deletions are shown in strikethrough and additions in double underline. The cumulative impact on the eligible historic district would be significant and unavoidable with mitigation.

[24] Refer to FEIR page 4.5-56.

[25] Documentation of the Central Shops is complete.

[26] The FEIR Project included demolition of Building 870, which the approved project would no longer demolish (SFPUC Biosolids Digester Facilities Minor Project Modification 10 – Modified Facilities, reviewed by San Francisco Planning Department February 2, 2021).

Mitigation Measure M-CR-1: Documentation of Historic Resources and Interpretive Display. Prior to demolition of any individual historic resource or contributor to a historic district, the SFPUC shall submit to the planning department for review photographic and narrative documentation of the individual historic resource or district contributor. ~~retain~~ The documentation shall be funded by the SFPUC and undertaken by a qualified professional who meets the standards for history, architectural history, or architecture (as deemed appropriate by the department's preservation staff), as set forth by the Secretary of the Interior's Professional Qualifications~~ Standards for Architectural History to prepare written and photographic documentation of the Central Shops~~ (36 Code of Federal Regulations, part 61). The documentation scope ~~effort~~ shall be reviewed and approved by the department prior to any work on the documentation. A documentation package shall consist of the required forms of documentation and shall include a summary of the historic resource and an overview of the documentation provided. Documentation of the building should include the following:

- *HABS/HALS-Like Measured Drawings* – A set of Historic American Buildings/Historic American Landscapes Survey-like (HABS/HALS-like) measured drawings that depict the existing size, scale, and dimension of the subject property. The department's preservation staff will accept the original architectural drawings or an as-built set of architectural drawings (plan, section, elevation, etc.). Copies of building plans gathered from the prior evaluations of the Biosolids Digester Facilities Project can be reused and reformatted for this effort. The department's preservation staff will assist the consultant in determining the appropriate level of measured drawings. A cover sheet may be required that describes the historic significance of the property. ~~based on the National Park Service (NPS) Historic American Building Survey (HABS)/Historic American Engineering Record (HAER) Historical Report Level II Guidelines, and NPS's policy for photographic documentation as outline in the National Register of Historic Places and National Historic Landmarks Survey Photo Policy Expansion.~~
- The written historical data for this documentation shall follow HABS/~~HAER~~HALS standards. Efforts shall be made to locate original construction drawings or plans ~~of the Central Shops~~. If located, these drawings shall be reproduced and included in the dataset. Historical information, as well as copies of building plans gathered from the prior evaluations of the SEP ~~and Central Shops~~, can be reused and reformatted for this effort.
- *HABS/HALS-Like Photographs* – Digital photographs of the interior and the exterior of the individual historic resource or district contributor. Large-format negatives are not required. The scope of the digital photographs shall be reviewed by the department's preservation staff for concurrence, and all digital photography shall be conducted according to current National Park Service standards. The photography shall be undertaken by a qualified professional with demonstrated experience in HABS photography. ~~Digital photography shall be used. The ink and paper combinations for printing photographs shall be in compliance with National Register-National Historic Landmark (NR-NHL) Photo Policy Expansion[22] and have a permanency rating of approximately 115 years. Digital photographs shall be taken as uncompressed, Tagged Image File Format (TIFF) files. Each image shall be 1,600 by 1,200 pixels at 330 pixels per inch (ppi) or larger in size, color format, and printed in black and white. The file name for each electronic image shall correspond with the index of photographs and photograph label.~~ Photograph views for the dataset shall include (a) contextual views; (b) views of each side of each building and interior views, where possible; (c) oblique views of buildings; and (d) detail views of character-

defining features. All views shall be referenced on a photographic key. This photographic key shall be on a map of the property and shall show the photograph number with an arrow to indicate the direction of the view. Historic photographs shall also be collected, reproduced, and included in the dataset.

The SFPUC shall reach out to the following repositories to determine if they would like copies of the documentation and to assess the documentation format (digital or hard copy) preferred: ~~transmit the datasets as hardcopies on archival paper and in electronic PDF format to the~~ History Room of the San Francisco Public Library, ~~the San Francisco Planning Department,~~ the archives of the San Francisco Public Utilities Commission, and to the Northwest Information Center of the California Historical Information Resource System. ~~The SFPUC shall scope the documentation measures with San Francisco Planning Department Preservation staff.~~ Preservation staff shall also review and approve the submitted documentation for adequacy.

In addition, the SFPUC shall provide a permanent display of interpretive materials (which may include, but are not limited to, a display of photographs, a brochure, educational website, or an exhibitive display) concerning the history and architectural features of the individual historic resource or district contributor~~Central Shops~~. Development of the interpretive materials shall be supervised by an architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards. The interpretative materials shall be placed in a prominent, public setting. A proposal describing the general parameters of the interpretive materials shall be approved by Planning Department Preservation staff prior to construction completion. The substance, media, and other elements of such interpretive display shall be approved by Planning Department Preservation staff prior to completion of the project.

Archaeological Resources and Human Remains

The FEIR identified the geographic scope of cumulative effects on archeological resources and human remains to be the immediate vicinity of locations where the approved project would cause ground disturbance. It also determined that the approved project in combination with cumulative projects could result in a significant cumulative impact on buried archeological resources due to the extent of excavation required, but that with implementation of Mitigation Measures M-CR-2a and M-CR-2b the approved project's contribution to cumulative impacts would not be considerable.

As discussed in Section 4.2, Cumulative Projects in the Site Vicinity, and presented in Appendix A, the list of potential cumulative projects at the Southeast Plant has been revised since the certification of the FEIR. The following projects could result in cumulative impacts to archaeological resources and human remains due to their location within the Southeast Plant and potential for ground disturbance:

- Southeast Plant Headworks Replacement Project
- SEP Power Feed and Primary Switchgear Upgrades

The cumulative ground disturbance of the modified project and cumulative projects in the vicinity could cause potentially significant cumulative impacts on archeological resources. As with the approved project, the modified project's contribution to impacts on archeological resources and human remains could be cumulatively considerable because, as discussed above, the modified project would expand the area of ground disturbance and there remains the potential that pockets of intact midden or lenses of

buried/submerged midden, undetected in relatively widely spaced coring in the vicinity, could be present in the expanded area. However, implementation of Mitigation Measure M-CR-2b (Procedures for Accidental Discovery of Archeological Resources) as discussed previously would require implementation of legally required appropriate treatment of human remains as well as actions to follow in the event of an inadvertent discovery of archeological materials. Therefore, with implementation of Mitigation Measure M-CR-2b, the modified project's contribution to cumulative impacts would not be considerable, and the impact would be less than significant with mitigation.

Conclusion

In summary, with implementation of Mitigation Measures M-CR-1 and M-CR-2b, the modified project would not result in significant impacts on cultural resources greater than those identified in the FEIR. Moreover, the modified project would not result in new significant impacts on cultural resources that were not identified in the FEIR; would not result in more severe impacts than those identified; and would not require new mitigation measures.

5.2 Tribal Cultural Resources

The Biosolids Digester Facilities Project FEIR did not analyze tribal cultural resources as this topic was not yet mandated for inclusion under CEQA. As defined in Public Resources Code section 21074, a Tribal Cultural Resource is either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Construction

As discussed in Section 5.1, Cultural Resources, under Archaeological Resources, archeological site CA-SFR-171 was found eligible for the National Register and California Register. Based on previous consultation with local California Native American tribal representatives undertaken by the San Francisco Planning Department, all Native American archeological resources have cultural value to tribal representatives and are considered to be Tribal Cultural Resources. As such CA-SFR-171 is considered to be a Tribal Cultural Resource. As required under Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery) and discussed in the Cultural Resources section above, an archeological data recovery program has been implemented, and Native American monitoring was undertaken as part of the effort. Native American monitoring and consultation will continue throughout construction as required by Mitigation Measure M-CR-2a. Cultural sensitivity training by a local Native American representative will also be included in tandem with archeological awareness and accidental discovery training for construction crews.

Additionally, as requested through prior consultation with local Native American tribal representatives, a public interpretation program is one means to memorialize the cultural value of the tribal cultural resource

while also educating the public concerning Native American lifeways, both past and present. On September 1, 2021, the San Francisco Planning Department sent letters to local California Native American representatives providing information on CA-SFR-171 and asking if they would like to consult on a public interpretation program. Based on the responses received, the Planning Department and SFPUC are in the process of developing a public interpretation program with the Association of Ramaytush Ohlone, which will include both an onsite interpretative component as well as a nearby offsite component in a more publicly accessible location. Therefore, project impacts on tribal cultural resources would be less than significant with the implementation of tribal consultation on the archeological investigations of CA-SFR-171, and of a public interpretation program that is currently under preparation in consultation with the Native American community, as required under **Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery)**. Implementation of Mitigation Measure M-CR-2a, as presented below in full, would reduce impacts to less-than-significant levels.

> **Mitigation Measure M-CR-2a. Archeological Testing, Monitoring, and/or Data Recovery**
>
> Based on the results of the project Archeological Research Design and Treatment Plan[27] (ARDTP), legally-significant prehistoric archeological resources are present within the archeological C-APE. The following measures shall be undertaken to avoid any potentially significant adverse effects from the project on an historical resource under CEQA. The SFPUC shall retain the services of a qualified archeological consultant(s), based on standards developed by the City and County of San Francisco Environmental Review Officer (ERO). The archeological consultant(s) shall have demonstrated experience in geoarcheology and historical archeology. The archeological consultant shall implement archeological testing and other treatment as specified in the project ARDTP, as detailed below, which shall include archeological monitoring and data recovery as required pursuant to findings of ongoing testing and this measure. The archeological consultant's work shall be conducted in accordance with this measure and with the requirements of the project ARDTP at the direction of ERO or its designated representative and in coordination with the SFPUC. In instances of inconsistency between the requirement of the project ARDTP and of this archeological mitigation measure, the requirements of this archeological mitigation measure shall prevail. Project design changes after finalizing the ARDTP eliminated the portion of the C-APE that was identified in the ARDTP as sensitive for historical archeological resources. Testing as discussed below for historical archeological resources shall only be required if future design changes call for excavation in that location. If future project design changes further revise other parts of the C-APE, then testing shall only be required in archeologically sensitive areas that potentially would be adversely affected by project implementation. All plans and reports prepared by the consultant as specified herein shall be submitted directly to the ERO for review and comment and concurrently to the SFPUC for review and comment, and shall be considered draft reports, subject to revision until final approval by the ERO. Archeological monitoring and/or data recovery programs required by this measure could suspend construction of the affected area of the project for up to a maximum of four weeks. At the direction of the ERO, the suspension of construction can be extended beyond four weeks only if such a suspension is the only feasible means to reduce to a less-than-significant level potential effects on a significant archeological resource as defined in CEQA Guidelines Section 15064.5 (a) and (c).

[27] Byrd, Brian F., Philip Kaijankoski, Rebecca Allen, and Matthew Russell, Archaeological Research Design and Treatment Plan for the Biosolids Digester Facility Project, Southeast Water Pollution Control Plant, San Francisco, California. Prepared for San Francisco Public Utilities Commission, October, 2016.

Consultation with Descendant Communities. On discovery of an archeological site[28] associated with descendant Native Americans, the Overseas Chinese, or other potentially interested descendant group, an appropriate representative[29] of the descendant group, the ERO, and the SFPUC shall be contacted. The representative of the descendant group shall be given the opportunity to monitor archeological field investigations of the site and to offer recommendations to the ERO and SFPUC regarding appropriate archeological treatment of the site, of recovered data from the site, and, if applicable, any interpretative treatment of the associated archeological site. A copy of the Final Archeological Resources Report shall be provided to the representative of the descendant group.

Archeological Testing Program–Prehistoric Archeology. Depending on the results of on-going prehistoric archeological testing outlined in the project ARDTP, additional testing may be required to define site boundaries of CA-SFR-171 or other prehistoric deposits at the SEP, and to assess whether redeposited and/or reworked prehistoric archeological material identified in the project ARDTP within the C-APE has sufficient integrity to contribute to the significance of known resources at SEP. At the direction of the ERO and in coordination with SFPUC, additional testing may be rolled into a subsequent data recovery program (see below).

Archeological Testing Program–Historical Archeology. If future design changes would affect the area identified as sensitive for historical archeological resources, the archeological consultant shall implement the historical archeological testing plan outlined in the project ARDTP for potential historical archeological resources that could be adversely affected by the project. The archeological testing program shall be conducted in accordance with the approved ARDTP. The project ARDTP identifies the property types of the expected archeological resource(s) that could be adversely affected by the project, the testing method to be used, and the locations recommended for testing. The purpose of the archeological testing program will be to determine to the extent possible the presence or absence of historical archeological resources and to identify and to evaluate whether any archeological resource encountered on the site constitutes an historical resource under CEQA.

If future project design changes further alter the C-APE from what is identified in the ARDTP, then the archeological consultant shall prepare and submit to the ERO for review and approval an archeological testing plan (ATP) for both prehistoric and historical archeological resources to address any area added to the C-APE to accommodate the project design changes. The archeological testing program shall be conducted in accordance with the approved ATP. The ATP shall identify the property types of the expected archeological resource(s) that potentially could be adversely affected by the project, the testing method to be used, and the locations recommended for testing. The purpose of the archeological testing program will be to determine to the extent possible the presence or absence of archeological resources and to identify and to evaluate whether any archeological resource encountered on the site constitutes an historical resource under CEQA.

At the completion of the archeological testing program, as required, the archeological consultant shall submit a written report of the findings to the ERO and the SFPUC. If based on the archeological testing program the archeological consultant finds that significant archeological resources may be

[28] The term "archeological site" is intended here to minimally include any archeological deposit, feature, burial, or evidence of burial.

[29] An "appropriate representative" of the descendant group is here defined to mean, in the case of Native Americans, any individual listed in the current Native American Contact List for the City and County of San Francisco maintained by the California Native American Heritage Commission and in the case of the Overseas Chinese, the Chinese Historical Society of America. An appropriate representative of other descendant groups should be determined in consultation with the Department archeologist.

present, the ERO in consultation with the archeological consultant and coordination with the SFPUC shall determine if additional measures are warranted. Additional measures that may be undertaken include additional archeological testing, archeological monitoring, and/or an archeological data recovery program. No archeological data recovery shall be undertaken without the prior approval of the ERO or the Planning Department archeologist. If the ERO determines that a significant archeological resource is present and that the resource could be adversely affected by the project, at the discretion of the SFPUC either:

A) The project shall be re-designed so as to avoid any adverse effect on the significant archeological resource; or

B) An archeological data recovery program shall be implemented, unless the ERO determines that the archeological resource is of greater interpretive than research significance and that interpretive use of the resource is feasible.

Archeological Monitoring Program. Preparation of an archeological monitoring program (AMP) may be required prior to project construction depending on the results of the prehistoric and historical archeological testing programs outlined above. If the ERO in consultation with the archeological consultant determines that an archeological monitoring program shall be implemented, the archeological monitoring program shall minimally include the following provisions:

- The archeological consultant, SFPUC, and ERO shall meet and consult on the scope of the AMP reasonably prior to commencement of any project-related soils disturbing activities. The ERO in consultation with the archeological consultant shall determine what project activities shall be archeologically monitored based on the results of pre-construction archeological testing currently approved and underway or planned, and archeological sensitivity assessment based on the results of that testing;
- The archeological consultant shall advise all project contractors to be on the alert for evidence of the presence of the expected resource(s), of how to identify the evidence of the expected resource(s), and of the appropriate protocol in the event of discovery of a potential archeological resource;
- The archeological monitor(s) shall be present on the project site according to a schedule agreed upon by the archeological consultant and the ERO or until the ERO has, in consultation with project archeological consultant, otherwise determined that project construction activities could have no effects on significant archeological deposits and monitoring can conclude;
- The archeological monitor shall record and be authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis;
- If an intact archeological deposit is encountered, all soils-disturbing activities in the vicinity of the deposit shall cease. The archeological monitor shall be empowered to temporarily redirect demolition/excavation/construction activities and equipment until the deposit is evaluated. The archeological consultant shall immediately notify the ERO and the SFPUC of the encountered archeological deposit. The archeological consultant shall make a reasonable effort to assess the identity, integrity, and significance of the encountered archeological deposit, and present the findings of this assessment to the ERO and the SFPUC.

Whether or not significant archeological resources are encountered, the archeological consultant shall submit a written report of the findings of the monitoring program to the ERO and the SFPUC.

Archeological Data Recovery Program. An archeological data recovery program shall be implemented in accord with an archeological data recovery plan (ADRP). The ADRP shall incorporate (1) programmatic-level procedures for deeply buried prehistoric archeological deposits; (2) site-specific procedures for identified prehistoric archeological deposits; (2) and site-specific procedures for historical archeological deposits (as warranted).

The archeological consultant, SFPUC, and ERO shall meet and consult on the scope of the ADRP prior to preparation of a draft ADRP. The archeological consultant shall submit a draft ADRP to the ERO and SFPUC. The ADRP shall identify how the proposed data recovery program will preserve the significant information the archeological resource is expected to contain. That is, the ADRP shall identify what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, should be limited to the portions of the historical resource that could be adversely affected by the project. Destructive data recovery methods shall not be applied to portions of the archeological resources if non-destructive methods are practical.

The scope of the ADRP shall include the following elements:

- *Field Methods and Procedures*. Descriptions of proposed field strategies, procedures, and operations for the following elements:

    1) Programmatic-level procedures for deeply buried prehistoric archeological deposits potentially uncovered during excavation for deep foundations (e.g., driven, drilled, or augured piles).

    2) Site-specific procedures for known/identified prehistoric archeological deposits potentially affected by project excavation activities (e.g. CA-SFR-171).

    3) Site-specific procedures for historical archeological deposits (as warranted) potentially affected by project excavation activities.

- *Cataloguing and Laboratory Analysis*. Description of selected cataloguing system and artifact analysis procedures.
- *Discard and Deaccession Policy*. Description of and rationale for field and post-field discard and deaccession policies.
- *Interpretive Program*. Consideration of an on-site/off-site public interpretive program during the course of the archeological data recovery program.
- *Security Measures*. Recommended security measures to protect the archeological resource from vandalism, looting, and non-intentionally damaging activities.
- *Final Report*. Description of proposed report format and distribution of results.
- *Curation*. Description of the procedures and recommendations for the curation of any recovered data having potential research value, identification of appropriate curation facilities, and a summary of the accession policies of the curation facilities.

Human Remains and Associated or Unassociated Funerary Objects. The treatment of human remains and of associated or unassociated funerary objects discovered during any soils disturbing activity, in the context of an archeological deposit or in isolation, shall comply with applicable state and federal laws. This shall include immediate notification of the Coroner of the City and County of San Francisco and in the event of the Coroner's determination that the human remains are Native American remains, notification of the California State Native American Heritage Commission (NAHC) who shall appoint a Most Likely Descendant (MLD) (PRC Section 5097.98). PRC 5097.98 indicates that " The descendants shall complete their inspection and make their recommendation within 48 hours of their notification by the Native American Heritage Commission." The archeological consultant, SFPUC, ERO, and MLD shall have up to but not beyond six days of discovery to make all reasonable efforts to develop an agreement for the treatment of human remains and associated or unassociated funerary objects with appropriate dignity (CEQA Guidelines Section 15064.5[d]). The agreement should take into consideration the appropriate excavation, removal, recordation, analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects. Nothing in existing State regulations or in this mitigation measure compels the SFPUC and the ERO to accept recommendations of an MLD. The archeological consultant shall retain possession of any Native American human remains and associated or unassociated burial objects until completion of any scientific analyses of the human remains or objects as specified in the treatment agreement if such as agreement has been made or, otherwise, as determined by the archeological consultant and the ERO.

Final Archeological Resources Report. The archeological consultant shall submit a Draft Final Archeological Resources Report (FARR) to the ERO and SFPUC that evaluates the historical significance of any discovered archeological resource and describes the archeological and historical research methods employed in the archeological testing/monitoring/data recovery program(s) undertaken. The FARR shall include new updated DPR forms, as applicable. Information that may put at risk any archeological resource shall be provided in a separate removable insert within the final report.

Once approved by the ERO, copies of the FARR shall be distributed as follows: Northwest Information Center (NWIC) of the California Historical Resources Information System shall receive one (1) copy and the ERO shall receive a copy of the transmittal of the FARR to the NWIC. The Environmental Planning division of the Planning Department shall receive one bound, one unbound and one unlocked, searchable PDF copy on CD of the FARR along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of high public interest in or the high interpretive value of the resource, the ERO may require a different final report content, format, and distribution than that presented above.

Operation

Like the approved project, modified project operations would have no impact on tribal cultural resources.

Conclusion

In summary, with implementation of Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery), construction and operation of the modified project would not result in significant impacts on tribal cultural resources and would not require new mitigation measures.

Cumulative Impacts

The same geographic scope for cumulative impacts addressed in Section 5.1, Cultural Resources, applies to tribal cultural resources, which is the immediate vicinity of locations where the approved project would cause ground disturbance. As discussed in Section 4.2, Cumulative Projects in the Site Vicinity, and presented in Appendix A, the list of potential cumulative projects at the Southeast Plant has been revised since the certification of the FEIR. The following projects could result in cumulative impacts on tribal cultural resources due to their location within the Southeast Plant and potential for ground disturbance:

- Southeast Plant Headworks Replacement Project
- SEP Power Feed and Primary Switchgear Upgrades

Excavation for these projects is largely completed and has not exposed significant buried archaeological or tribal cultural resources to date. The cumulative ground disturbance of the modified project and cumulative projects in the vicinity could cause significant cumulative impacts on tribal cultural resources because the modified project would expand the area of ground disturbance and there remains the potential that pockets of intact midden or lenses of buried/submerged midden, undetected in relatively widely spaced coring in the vicinity, could be present in the expanded area. The modified project's contribution to cumulative impacts on tribal cultural resources would not be considerable with implementation of the public interpretation program that is currently under preparation in consultation with the Native American community as required under Mitigation Measure M-CR-2a (Archeological Testing, Monitoring, and/or Data Recovery).

5.3 Transportation and Circulation

Biosolids Digester Facilities Project FEIR Findings

The FEIR found that the approved project would have less than significant impacts related to the following significance criteria regarding transportation and circulation:

- Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit, non-motorized travel, and relevant components of the circulation system (including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit);
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Result in inadequate emergency access; or
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

The FEIR determined that, due to location, the approved project would have no impact to change air traffic patterns. The FEIR also determined that the approved project would not permanently affect any roadways or highways included in the San Francisco Congestion Management Program, and therefore would have no impact related to conflict with an applicable congestion management program. These criteria were not addressed further in the FEIR.

Construction

The FEIR evaluated whether construction-related traffic comprised of truck and worker trips to and from the approved project site and staging areas, as well as detours and road closures could interfere with pedestrian, bicycle, or vehicle circulation; increase potential traffic hazards; or cause inadequate emergency vehicle access. The FEIR found that even during the periods of maximum truck demand (71 daily trucks and 212 daily construction workers) or maximum construction worker demand (28 daily trucks and 550 daily construction workers), the project would not result in significant impacts related to traffic circulation, interfere with pedestrian or bicycle circulation, or their accessibility to adjoining areas, that the reroute of the 23 Monterey would not substantially affect accessibility to public transit or transit operations, and that emergency vehicles would not be substantially affected by the temporary closure of a two-block segment of Jerrold Avenue. The FEIR also determined that construction related activities would not affect nearby freight rail operation or parking conditions.

Regarding traffic safety hazards, as discussed in the FEIR, the approved project includes establishing a site-specific Traffic Control Plan that conforms to the SFMTA's Blue Book, which requires the implementation of construction safety measures like proper advance warning and detour signage, identification of approved construction truck routes, and coordination with public service providers like the fire department. The approved project also establishes that the SFPUC would coordinate traffic control across the various projects at the Southeast Plant that would be constructed concurrently. With these measures in place, the FEIR determined that construction of the approved project would have a less-than-significant impact on transportation and circulation.

The FEIR did not identify any significant construction related project impacts on traffic circulation, transit, pedestrians, bicyclists, parking, and freight rail service (Impact TR-1). The FEIR also determined that emergency vehicle access in the project vicinity would not be substantially affected by project construction-related activities (Impact TR-2). As a result, the FEIR did not require any transportation mitigation measures for the construction of the approved project.

Operation

The FEIR established that the operational impacts of the approved project, with approximately less than 36 daily trucks and about 280 daily operation and maintenance workers, both similar to existing conditions, would not cause substantial additional vehicle miles traveled (VMT), substantially induce automobile travel, or cause or worsen traffic safety hazards (Impact TR-3).

The FEIR established that the operational characteristics of the approved project would be similar to existing conditions, with enhanced pedestrian and vehicle circulation conditions in the area, improved access to the site, without substantially affecting area-wide parking conditions or creating hazardous transportation conditions or significant delays affecting traffic, transit, bicycles, pedestrians, or emergency vehicles. The FEIR also determined that operation of the approved project would not cause substantial

additional VMT, substantially induce automobile travel, or affect freight rail service on the Quint Street spur tracks. Thus, the FEIR did not require any transportation mitigation measures for the approved project.

Modified Project Impacts

As described above, the SFPUC proposes to modify the approved project to construct an Operations, Engineering, and Maintenance building; a Mechanical Maintenance building; and a new utility enclosure at the Southeast Plant (i.e. the proposed modifications). As defined previously, the Biosolids Digesters Facilities Project (i.e. the approved project) together with the proposed modifications represents the modified project. In this section of the addendum, potential transportation and circulation related impacts of the modified project are compared to similar impacts of the approved project as disclosed in the FEIR (and in the subsequently approved minor project modifications plus addendum 1). Given that the period of maximum truck demand (site demolition and excavation) for the approved project occurred early in the construction schedule, the transportation and circulation analysis in this addendum considers the modified project in the context of the approved project's maximum construction worker demand (construction of superstructures), which represents a higher level of construction activity.

Freight rail car demand for hauling away unsuitable excavated soils during construction of the modified project would be the same as for the approved project. Furthermore, as with the approved project, operations and maintenance of the Southeast Plant under the modified project would not affect rail service on the Quint Street spur tracks, as disposal and deliveries of various materials to and from the site would continue to occur by truck, similar to existing conditions. Therefore, potential impacts to freight rail services are not further analyzed for the modified project.

The transportation and circulation analysis in this addendum follows the *Transportation Impact Analysis Guidelines* published by the San Francisco Planning Department in October 2019 (2019 SF Guidelines), as appropriate.

Construction

Construction of the proposed modifications (the operations, engineering, and maintenance buildings) would extend from February 2025 through July 2027 (substantial completion would occur from July through September 2027), which represents a 30-month construction period. The first two years of construction would overlap with other approved project construction activities, while the remainder represents a six-month extension of the current project construction schedule.[30] Work on the proposed modifications would not begin until February 2025, after the peak of construction workers associated with the approved project has already occurred. The period of peak construction activity on the proposed modifications would occur during a three-month overlap of construction phase 4 (Erection) and phase 5 (Architectural Finishes), starting in fall 2026. Remaining construction on the approved project during fall 2026 will be limited to work on the biogas utilization system. Fall 2026 represents a lower level of construction activity for the approved

[30] The FEIR identified a five-year construction schedule. In addendum 1 to the FEIR (biogas utilization system), the construction schedule for the project was extended one year, to December 2026, which has since been extended through January 2027; the modified project would extend that construction schedule to July 2027.

project compared to the maximum construction activity peak [31] identified in the FEIR. Prior to the start of construction of the proposed modifications, SFPUC would temporarily relocate the occupants and uses of SEP 850 and the temporary pre-fabricated trailers (SEP850A and SEP850B) to 1900 Jerrold Avenue. Temporary parking would be arranged for these workers primarily near 1900 Jerrold Avenue, or other sites already approved for use in the approved project, which would not substantially alter employee parking conditions. The workers would return to the Southeast Plant at the end of the construction period.

As with the approved project, most of the construction activities at the site would occur Monday through Friday from 7:00 a.m. to 4:30 p.m., the same days and time period as the approved project. Prior changes to the approved project extended the end date for construction staging as well as the length of the street closure along Jerrold Avenue to Phelps Street. The proposed modifications would further extend the construction schedule, including the closure of Jerrold Avenue, and add temporary construction worker vehicle parking, in an area large enough for approximately 90 construction worker vehicle parking spaces, at 2 Rankin Street (see Figure 1).

The proposed modifications would generate 13 daily trucks and 120 daily construction workers during the phase of maximum combined person and vehicle demand, which would occur at the end of the erection phase in combination with the beginning of the architectural finishes phase (a three-month period between September and November 2026). Construction trucks and worker vehicles would use the routes shown on Figure 7 of this addendum to access the site, instead of the routes shown in FEIR Figure 2-15, as approved by in a prior minor project modification.[32] The proposed routes differ from the routes in FEIR Figure 2-15 in the following ways:

- One block of Jerrold Avenue west of the Caltrain tracks would be closed to through traffic and vehicles instead take Rankin Street, McKinnon Avenue, and Toland Avenue to connect to the west
- Phelps Street would no longer be used for vehicle access

Interim truck delivery and off-haul rates for ongoing operations at the Southeast Plant would continue to be those shown in FEIR Figure 2-16.

An analysis was conducted to evaluate the travel demand during construction of the proposed modifications. **Table 3** compares the peak construction travel demand activity for the approved project to the peak construction activities of the modified project. [33] **Table 4** compares the two construction vehicle trip assignments during the a.m. and p.m. peak hours. No trip generation credit has been assumed for the proposed modifications; the travel demand analysis of the modified project prepared in support of this addendum is included as **Appendix E**.

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[31] The period of maximum construction activity (maximum construction workers) for the approved project consisted of 28 daily trucks and 550 daily construction workers and has already occurred. The expected level of construction activity for the approved project during Fall 2026 would be two daily trucks and 20 daily construction workers.[32] SFPUC Biosolids Digester Facilities Project Minor Project Modification 7 – Traffic on Jerrold, reviewed by San Francisco Planning Department September 1, 2020

[32] SFPUC Biosolids Digester Facilities Project Minor Project Modification 7 – Traffic on Jerrold, reviewed by San Francisco Planning Department September 1, 2020

[33] The maximum level of construction activity for the modified project (September through November 2026) includes those activities related to the proposed modifications (13 daily trucks and 120 daily construction workers), together with overlapping construction activities of the approved project (i.e. construction of the biogas utilization system; two daily trucks and 20 daily construction workers); see modified project travel demand memorandum in Appendix E.

Table 3 Approved Project and Modified Project Net-New Trip Generation – Daily and Peak Hour Person and Vehicle Trips

Project Version	Daily		AM/PM Peak Hour	
	Person trips	Vehicle trips	Person trips	Vehicle trips
Approved Project (Maximum Construction Workers)[34]	1,100	742	550	351
Modified Project[35]	280	206	140	93
Modified Project compared to Approved Project	25%	28%	25%	27%

SOURCE: FEIR; Adavant Consulting – December 2024

Table 4 Approved Project and Modified Project AM and PM Peak Hours Vehicle Trip Assignments [36]

Street Name	Location	AM Peak Hour			PM Peak Hour		
		Approved Project[37]	Modified Project[38]	Ratio of Modified Project over Approved Project	Approved Project	Modified Project	Ratio of Modified Project over Approved Project
Evans Av.	East of Phelps St	57	14	25%	0	27	-----
	West of Phelps St	67	33	49%	11	33	300%
	West of Rankin St	64	43	67%	8	43	538%
Jerrold Av	East of Phelps St	7	4	57%	7	4	57%
	West of Phelps St	25	4	16%	25	4	16%
Oakdale Av	East of Phelps St	111	6	5%	111	6	5%
	West of Phelps St	119	12	10%	119	12	10%
Phelps St	South of Evans Av	9	6	67%	9	6	67%
	North of Oakdale Av	9	6	67%	9	6	67%

SOURCE: FEIR; Adavant Consulting – December 2024 (Appendix E)

Construction Duration and Intensity

Construction of the proposed modifications would occur in six phases between February 2025 and July 2027, representing an approximately 12-month extension of the construction schedule for the approved

[34] See Table 4.6-10 and Table 4.6-12 of the FEIR.

[35] See Table 14 of the modified project travel demand memorandum in Appendix E.

[36] See Table 15 of the modified project travel demand memorandum in Appendix E.

[37] Technical Memorandum to the SFPUC, *Traffic Estimates Results at Selected Study Locations*, Adavant Consulting, December 16, 2018 (Table 5, Maximum construction workers, Scenario 5).

[38] See travel demand memorandum for the proposed modifications in Appendix E.

project.[39] The 60 daily construction workers would park at the proposed temporary surface lot located at 2 Rankin Street, north of Evans Avenue, which would have a capacity of approximately 90 parking spaces.

For the reasons that follow, the construction activities for the modified project would not be considered intense, as they relate to the transportation network. Construction trucks and worker vehicles would use the same routes as those currently approved and followed by construction trucks and construction worker vehicles, with the addition of an optional truck route using the Illinois Street Bridge, if necessary (see Figure 7). As shown in Table 3, with the proposed modifications, the modified project would result in an additional peak of construction activity occurring about two years after the construction workers peak of the approved project, but the new peak would generally result in a lower number of truck and construction worker trips than the approved project (less than 25 to 28 percent of the daily and peak hour values estimated for the approved project). The interaction between construction activities and the adjacent transportation network would primarily occur as trucks and construction workers access the site at the intersections of Phelps Street/Jerrold Avenue and Rankin Street/Evans Avenue. Table 4 presents the number of a.m. and p.m. peak hour vehicle trips generated by the modified project during the peak construction travel demand period along Phelps Street, Jerrold Avenue and Oakdale Avenue (September through November 2026). The number of vehicle trips generated by the modified project generally would be less than those generated by the approved project. During the p.m. peak hour the number of vehicle trips generated by the modified project on Evans Avenue would be about three to five times more than those generated by the approved project, due to the presence of the proposed construction worker parking lot at 2 Rankin Street; however, the modified project increase of approximately 30 to 40 vehicles per hour would not be substantial given the existing traffic volumes on Evans Avenue (about 800 to 900 vehicles per hour).

Potentially Hazardous Conditions and Accessibility During Construction

Construction staging for the proposed modifications would occur on-site, including on the already closed portion of Jerrold Avenue to Phelps Street. The modified project would not require changes to the approved detour routes, construction truck routes, changes to emergency vehicle access, or additional sidewalk or lane closures, beyond those already established under the approved project, but would add an optional truck route using the Illinois Street Bridge as shown on Figure 7. During the new peak of construction of the modified project, vehicular and truck access to the Southeast Plant would be similar to those evaluated in the FEIR for the approved project while traffic volumes on Jerrold Avenue, Phelps Street, Evans Avenue, and other nearby roadways would be lower. As in the approved project, increased traffic due to construction activities would result in temporary higher potential for vehicle-bicycle and vehicle-pedestrian conflicts at some locations, while construction detours may be an inconvenience to some bicyclist or pedestrians.

As in the approved project, the construction contractor for the proposed modifications would be required to prepare and implement a modified Traffic Control Plan that conforms to the approved Traffic Control Plan, as well as the City of San Francisco's Regulations for Working in San Francisco Streets (the "Blue Book"). The modified Plan would include changes, if necessary, to advance warning signage, as well as scheduling and monitoring of construction vehicle movements. Prior to implementation of any changes, the modified Traffic Control Plan would be reviewed by the SFMTA and the multi-agency Interdepartmental Staff Committee on Traffic and Transportation. In addition to the regulations in the Blue Book, the contractor would be responsible for complying with all city, state, and federal codes, rules and regulations.

[39] In addendum 1 to the FEIR (biogas utilization system), the construction schedule for the project was extended 1.5 years, to June 2026; the modified project would extend that construction schedule approximately one year longer.

Construction of the proposed modifications would be conducted in compliance with a Traffic Control Plan, as well as the Blue Book regulations which require the implementation of construction safety measures with respect to bicyclists and pedestrians, such as providing alternative access routes, vehicle, bicycle and pedestrian detours with adequate signage, and transit stop relocation, if necessary. As in the approved project, implementation of the multi-agency-approved traffic control plans and compliance with construction safety regulations would ensure that construction activities are conducted safely and with the least possible interference with vehicles, pedestrians, bicyclists, and public transit, as well as reduce emergency vehicle access disruptions and safety hazards.

For these reasons, construction-related activities of the modified project would not create potentially hazardous conditions or substantially interfere with accessibility; and any such impacts would remain less than significant.

Potential Public Transit Delays During Construction

Muni's 23 Monterey bus route previously traveled through the project site along Jerrold Avenue and was permanently rerouted to Palou and Oakdale Avenues in February 2020 by SFMTA, with the objective of reducing bus travel time, improving service reliability, and increasing ridership.[40] The reroute of the 23 Monterey took place ahead of the start of the temporary multi-year closure of Jerrold Avenue, between Phelps Street and the Caltrain tracks, that was implemented as part of the construction of the approved project in January 2021. In addition to the 23 Monterey, Muni's 24 Divisadero and 44 O'Shaughnessy routes also operate on Palou Avenue, while the 19 Polk buses travel along Evans Avenue; Muni Metro T Third line operates in the median of Third Street.

All of these transit routes have been operating in the project vicinity since the start of construction of the approved project, and their alignment has not changed. No construction would occur on any of these streets as part of the modified project. Furthermore, as described above, the modified project represents a lower level of peak construction intensity compared to the approved project and, although the number of construction vehicle trips generated by the modified project on Evans Avenue where the 19 Polk route operates would be higher than those generated by the approved project, they would only represent about 5 percent of the existing total traffic volume on Evans Avenue.[41] Therefore, there would not be any transit rerouting, stop relocation, additional congestion, or transit delay as a result of the construction of the modified project.

For the above reasons, and as with the approved project, construction activities associated with the modified project would not substantially delay transit (less than significant impact).

Conclusion Regarding Construction Impacts

For the reasons described above, construction of the modified project would not result in significant impacts related to transportation and circulation greater than those identified in the FEIR. Moreover, the modified project would not result in new significant construction-related transportation and circulation

[40] SFMTA had found that providing service along Jerrold Avenue added five minutes of bus travel time (25 percent of total) through the Bayview area, while serving only 10 percent of the Bayview transit customers. See https://www.sfpublicworks.org/sites/default/files/Palou%20Avenue%20factsheet.pdf ; last accessed July 5, 2024.

[41] Traffic volume increases or decreases of about 5 percent are generally considered typical, due to daily or seasonal traffic pattern changes.

impacts that were not previously identified in the FEIR (Impacts TR-1 and TR-2), would not result in more severe impacts than those identified in the FEIR, and would therefore not require new mitigation measures.

Operations

Similar to the approved project, the modified project does not involve any changes to the transportation network that would create potentially hazardous conditions or interfere with accessibility. The modified project would not change the features of the approved project that would alter the transportation network, such as the redesign and reconstruction of the segment of Jerrold Avenue between Phelps Street and the Caltrain tracks, and implementation of a new second gate to the Southeast Plant via Rankin Street, to facilitate the movement of truck traffic to and from the Southeast Plant. After construction of the modified project is complete, Southeast Plant workers temporarily relocated to 1900 Jerrold Avenue would return to the Southeast Plant, and vehicular, transit, pedestrian and bicycle circulation in the project vicinity would be the same as under the approved project. In addition, modified project operations would not result in an increase in vehicle, pedestrian or bicycle trips compared to the approved project, as the number of operations staff (about 280 people for the entire plant) and haul and delivery trucks are expected to be the same. Consistent with the approved project, the modified project would not result in changes to the overall treatment capacity of the Southeast Plant.

Potentially Hazardous Conditions and Accessibility

Modified project operations would not result in a substantial increase in pedestrian and bicycle trips, overcrowding or an increased demand for pedestrian and bicycle facilities compared to the approved project because the number of operations staff at the Southeast Plant would not increase.

Compared to the approved project, the modified project would not change conditions for people walking, bicycling or driving, or public transit operations and emergency access routes because the modified project would not introduce new design features or change the street network compared to the approved project, therefore; driving, walking, bicycling, public transit operations and emergency vehicle access in the area would remain the same as those of the approved project.

Potential Public Transit Delay

As with the approved project, with implementation of the modified project, the existing operations staff of about 280 people for the entire Southeast Plant would not change, and therefore the modified project would not result in a need for additional transit routes or substantially increase ridership on nearby Muni bus routes (e.g., 23 Monterey, 19 Polk, 24 Divisadero) or the T Third light rail line in the project vicinity. Similar to the approved project, modified project operation would not substantially affect operations of the nearby Muni routes.

Cause Substantial Additional VMT or Substantially Induce Automobile Travel

The modified project has the same transportation network features as the approved project. In addition, the modified project operations would not increase operations staff at the Southeast Plant and would require the same number of daily haul and delivery trucks as the approved project, and therefore would not substantially increase the total VMT associated with operations-related vehicle trips (less than significant impact).

Conclusion Regarding Operations Impacts

Operation of the modified project would be similar to the approved project conditions, with no increase in the total number of employees or haul and delivery trucks at the Southeast Plant. Therefore, for the reasons described above, the modified project would not result in significant impacts related to additional vehicle miles traveled (VMT), induced automobile travel, traffic safety hazards, or public transit delays greater than those identified in the FEIR. Moreover, operation of the modified project would not result in new significant transportation and circulation impacts that were not previously identified in the FEIR (Impact TR-3), would not result in more severe impacts than those identified in the FEIR, and would not require new mitigation measures.

Cumulative Impacts

Existing and probable future projects listed in Appendix A could contribute to cumulative impacts of the modified project related to transportation and circulation. Similar lists are presented in Table 4.1-1 (Section 4.1, Overview) of the FEIR and Appendix A in addendum 1 for the approved project. The geographic scope for the analysis of cumulative transportation impacts generally includes the sidewalks, roadways and transit network adjacent to the work areas.

Approved Project Analysis

According to the FEIR, approved project construction was expected to begin in February 2018 and end in January 2023, a five-year construction duration. Actual construction started in January 2020, and the recently approved project modification that was the subject of addendum 1 to the FEIR (biogas utilization system) extended the construction schedule for the approved project by about 1.5 years, to June 2026. The FEIR established that construction-related impacts of the approved project in combination with past, present and other cumulative projects, would be less than significant, and that no mitigation measures would be required. Similarly, it also established that the cumulative impacts resulting from the approved project operation, in combination with past, present, and probable future projects, would also be less than significant, and therefore no mitigation measures would be required.

Comparison of the Modified Project to the Approved Project

Eleven of the 21 projects that could contribute to cumulative impacts of the modified project, presented in Appendix A, were also included in the 40 cumulative project list presented in Table 4.1-1 of the FEIR, including major developments such as the San Francisco Market (previously known as the SF Wholesale Produce Market) and the San Francisco Gateway projects. Those projects that are not included in the current cumulative project list have already been built, or their construction has either been cancelled or extended beyond the expected construction period of the modified project.

Construction

Within the project site vicinity, construction of the cumulative projects identified above may overlap with each other and with the modified project (through September 2027)[42]. Like the approved project, sponsors and construction managers of projects considered in the cumulative analysis would be required to coordinate with various City departments, such as the SFMTA and Public Works, comply with the SFMTA

[42] Construction of the proposed modifications would extend from February 2025 through July 2027; substantial completion (i.e. on-site testing work) would occur from July through September 2027.

"Blue Book" regulations, and construction activities affecting City streets are required to coordinate any temporary sidewalk and travel-lane closures to develop plans that would address construction-related vehicle routing, traffic control, and pedestrian and bicycle movements adjacent to the construction area.

Construction of the San Francisco Gateway project, which is located to the southwest of the project site, may overlap with construction of the modified project for a period of about 23 months, while construction of the San Francisco Market, located immediately to the west of the project site, may overlap with construction of the modified project for a period of about 30 months. Construction activities for the Quint-Jerrold Connector Road could also overlap with the construction of the modified project for about 30 months. All of these construction activities would occur on streets to the west of the Caltrain tracks, without vehicular or pedestrian access to the project site, because Jerrold Avenue would remain closed during construction of the modified project. Furthermore, all three projects were included as part of the cumulative transportation impact analysis for the approved project.

Construction of several projects sponsored by the SFPUC would take place at the Southeast Plant, or in its immediate vicinity. These include the HVAC and Mechanical Upgrades and Maintenance Building (SEP 940) Interim Improvement. Consistent with SFPUC procedures, all these projects would include development of a construction management plan including for traffic, consistent with SFMTA requirements, taking into consideration other concurrent construction projects in the area, including the proposed modifications, if approved.

Non-SFPUC cumulative projects, such as the Potrero Power Station, 1399 Marin Transit Service Operations and Maintenance Plan, and 3433 3rd Street commercial building, are all located approximately 0.5 miles or further from the project site, and therefore, their construction activities would not overlap spatially in proximity with those of the modified project.

Although the Islais Creek Bridge Project to be undertaken by Public Works is located approximately 0.6 miles from the project site, the replacement of the bridge would involve the closure of Third Street to all vehicles and people walking or bicycling for approximately 24 months (spring 2026 to spring 2028). Thus, the effects associated with the Third Street closure would temporarily affect the construction trucks and worker vehicle routes shown in Figure 7. As part of this project, Public Works would work with the SFMTA to develop a vehicle, transit, bicycle, and pedestrian detour plan where most of the vehicle traffic would be diverted to nearby streets, including Evans Avenue and Illinois Street, and the remainder would use freeways, including U.S. 101 and I-280. The Islais Creek Bridge Project environmental analysis[43] found that construction of the Islais Creek Bridge Project, which would include a SFMTA approved construction management plan, in combination with cumulative projects,[44] would not contribute to any potentially significant transportation related impacts.

Conclusion Regarding Cumulative Transportation Impacts During Construction

For the reasons described above, construction of the modified project, in combination with cumulative projects, would not create potentially hazardous conditions for people walking, bicycling, or driving, or public transit operations; or interfere with emergency access or accessibility for people walking or bicycling,

[43] Draft Environmental Impact Report Islais Creek Bridge Project, November 29, 2023; San Francisco Planning Case No. 2022-000112ENV, Draft EIR public comment period: November 30, 2023 –January 22, 2024.

[44] The nearby project list used in the cumulative analysis of the Islais Creek Project includes the approved BDFP. As described above, the number of construction vehicle trips for the modified project would be less than those of the approved project.

and cumulative transportation impacts during construction would be less than significant. Therefore, the modified project would not result in any new significant construction-related impacts in addition to those identified in the FEIR (Impact C-TR-1), would not substantially increase the severity of a significant impact identified in the FEIR, and would not require new mitigation measures.

Operation

Potentially Hazardous Conditions and Accessibility

Cumulative projects and projected citywide growth would increase the number of people walking, bicycling, driving, or riding transit on streets nearby the project site. Under cumulative conditions, there would be a projected increase in vehicles on the streets in the proximity of the project site, primarily due to the San Francisco Market and the San Francisco Gateway projects; there would be no increase in the approved project operation staff of about 280 people resulting from the modified project, and the number of haul and delivery trucks would be the same as with the approved project. The identified cumulative projects would be required to conform to the requirements of the Better Streets Plan, Transit-First Policy, and Vision Zero, and thus would adhere to planning principles that emphasize providing convenient connections and safe routes for people walking and bicycling.

The non-SFPUC cumulative projects would enhance accessibility for people walking and bicycling in the vicinity of the project site. The San Francisco Market and the San Francisco Gateway projects would construct new sidewalks adjacent to their sites and would include intersection improvements such as crosswalks and traffic controls (e.g., stop signs). In addition, the San Francisco Market project would include a new east-west vehicle, pedestrian, and bicycle connection (Innes Avenue Extension) to replace the permanent closure of Jerrold Avenue between Toland and Rankin Streets. The Quint-Jerrold Connector Road project would reestablish a connection between Oakdale and Jerrold Avenues along the west side of the Caltrain tracks. The roadway would include one travel lane each way and a new sidewalk on the west side of the roadway, enhancing circulation for vehicular, bicycle and pedestrian travel in the surrounding area.

None of the cumulative projects would include features that would substantially affect vehicle circulation in the project vicinity or impede emergency access compared to existing conditions, and the new Islais Creek bridge would result in no changes to Third Street from existing conditions, regarding the number of travel lanes, travel routes, or access for emergency vehicles. As noted above, the Quint-Jerrold Connector Road would reestablish vehicle travel between Oakdale and Jerrold Avenues. Prior to finalizing the design and dimensions of any planned transportation network changes under city jurisdiction, the fire and police departments' staff would review and approve streetscape modifications, as required through the Interdepartmental Staff Committee on Traffic and Transportation review process, so that emergency vehicle access is not impeded.

Based on the results of the transportation analyses conducted for the largest cumulative projects in the vicinity of the Southeast Plant (San Francisco Market Project[45] and San Francisco Gateway Project[46]), the planned transportation network improvements that would be constructed as part of the cumulative projects would accommodate the expected cumulative increases in vehicles, and travel or access for people walking

[45] San Francisco Market, Addendum 2 to Mitigated Negative Declaration, Final Report, July 21, 2022; San Francisco Planning Case No. 2009.1153ENV-03

[46] San Francisco Gateway Project 749 Toland Street and 2000 McKinnon Avenue, Draft EIR, August 2, 2023; San Francisco Planning Case No. 2015-012491ENV

or bicycling, and emergency vehicles would not be impeded. Therefore, the modified project, in combination with cumulative projects, would not create potentially hazardous conditions for people bicycling, walking or driving, or for transit operations, or impede access for people walking or bicycling or for emergency vehicles, and cumulative transportation impacts related to potentially hazardous conditions and accessibility would be less than significant.

Potential Public Transit Delay

As described above, there are no bus routes currently operating adjacent to the project site. The nearest Muni service includes the 19 Polk operating on Evans Avenue, approximately 0.25 miles to the north, and the 23 Monterey operating on Palou Avenue (east of Industrial Street) and Oakdale Avenue (west of Industrial Street),[47] approximately 0.25 miles to the south, and under cumulative conditions transit operations in the modified project vicinity would remain the same as under existing conditions. In addition, none of the cumulative projects include transportation features that could delay transit once they become operational (e.g., roadway lane reductions on streets with transit routes).

The San Francisco Market and the San Francisco Gateway projects would generate new vehicle trips, however, vehicles would primarily travel on streets that do not contain transit (e.g., Jerrold Avenue, Toland Street, Rankin Street, Selby Street), on streets that have limited segments with transit (e.g., Oakdale Avenue, Industrial Street), or on streets with exclusive transit right-of-way (e.g., Third Street). There would be no transit service on the Quint-Jerrold Connector Road, and the Islais Creek Bridge Project would not result in changes to the existing transportation network or transit service at the completion of construction. Operation of the modified project would result in the same number of vehicle or transit trips as the approved project, so the modified project would not result in new or more severe cumulative transit delay impacts in combination with the growth from the San Francisco Market and the San Francisco Gateway projects. There is no transit service on Jerrold Avenue adjacent to the Southeast Plant, and the increase in vehicular traffic due to the operation of the various SFPUC cumulative projects at the Southeast Plant would not be discernible from previously analyzed cumulative background traffic, because the modified project would have the same total number of employees or trucks as the approved project.[48] Therefore, none of these cumulative projects would result in transit delay. Thus, for the reasons stated above, a significant cumulative impact related to substantial transit delay would not result from implementation of the identified cumulative projects and the modified project.

Cause Substantial Additional VMT or Substantially Induce Automobile Travel

Operation of the modified project would result in the same number of vehicle trips as the approved project (i.e., the modified project would not generate additional vehicle trips) because it would not increase operations staff, and therefore the modified project would not cause additional VMT or induce automobile travel. The San Francisco Market and the San Francisco Gateway projects would cause an increase in VMT; however, both projects were included in the cumulative analysis of the approved project, and the FEIR established that that the cumulative impacts related to VMT and induced automobile travel would be less than significant. In addition, the FEIR found that cumulative impacts related to VMT and induced automobile travel due to the opening of the Quint-Jerrold Connector Road and the operation of various SFPUC projects at or in the vicinity of the Southeast Plant would also be less than significant. The Islais Creek Bridge Project

[47] Muni's 23 Monterey bus route previously traveled through the project site along Jerrold Avenue and was permanently rerouted to Palou and Oakdale Avenues in February 2020 by SFMTA, with the objective of reducing bus travel time, improving service reliability, and increasing ridership.

[48] The two projects at the Southeast Plant not included in the cumulative transportation analysis presented in the FEIR are a) SEP HVAC and Mechanical Upgrades and b) SEP 545 Electrical Controls Upgrade, which do not include changes to operational staff or vehicle demand.

is an infrastructure project that would result in no changes from existing conditions regarding the number of travel lanes, travel routes, or access to local land uses, and therefore would not cause substantial additional VMT or induce automobile travel. Thus, for the reasons stated above, a significant cumulative impact related to VMT would not result from implementation of the identified cumulative projects and the modified project.

Conclusion Regarding Cumulative Transportation Impacts During Operation

In conclusion, the modified project in combination with other cumulative projects would not result in significant cumulative impacts related to substantial additional VMT, substantially induce automobile travel, or cause or worsen traffic safety hazards, or result in public transit delays. Therefore, impacts from operation of the modified project in combination with other cumulative projects would be less than significant, and no mitigation measures would be required. Thus, operation of the modified project would not result in any new significant cumulative impacts in addition to those identified in the FEIR (Impact C-TR-2), would not substantially increase the severity of a significant cumulative impact identified in the FEIR, and would not require new mitigation measures.

5.4 Noise and Vibration

Biosolids Digester Facilities Project FEIR Findings

The FEIR found that the approved project would have potentially significant impacts related to the following significance criteria regarding noise and vibration:

- Result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project

The FEIR found that the approved project would have less than significant impacts related to: exposure of persons or structures to or generation of excessive groundborne vibration or groundborne noise levels or substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project. The FEIR determined the approved project would have no impact related to being within an airport land use plan area or in the vicinity of a private airstrip or being affected by existing noise level because the project site is not within an airport land use plan area or in the vicinity of a private airstrip.

Construction Noise

As discussed in the FEIR, Section 2908 of the Noise Ordinance allows construction activities between 7:00 a.m. and 8:00 p.m. and Section 2907 limits noise from any individual piece of construction equipment, except impact tools that are exempt, to 80 dBA at 100 feet (equivalent to 86 dBA at 50 feet). The FEIR evaluated the various types of non-impact construction equipment to be used and found that only concrete saws would exceed the 80 dBA noise limit of Section 2907, but concluded that this potentially significant impact on noise would be reduced to a less-than-significant level through implementation of the noise controls specified in Mitigation Measure M-NO-1a (Shielding of Concrete Saw Operations).

The FEIR defined a substantial temporary or periodic increase in ambient noise levels as noise that would be greater than 10 dBA above ambient at sensitive receptors. The FEIR found that construction noise level

would only exceed this threshold at the former Southeast Community Center daycare center[49] and the closest residential receptor at 1700 Kirkwood Avenue (at the corner of Phelps Street) from activities at the Southeast Greenhouses staging area. The FEIR concluded that implementation of the noise controls specified in Mitigation Measure M-NO-1b (Construction Noise Control Measures at Southeast Greenhouses Staging Area) would reduce this impact to a less-than-significant level. Noise from construction at other locations throughout the site was found to be lower than the applied 10 dBA above ambient threshold.

Construction Vibration

The FEIR found that vibration from construction and operation would have a less-than-significant impact on buildings and people because vibration would not exceed the 0.5 inches per second peak particle velocity (in/sec PPV) threshold for structural damage at the nearest buildings or the 0.1 in/sec PPV threshold for human annoyance at the nearest sensitive receptor.

Construction Roadway Noise

The FEIR determined that noise from construction traffic would be less than significant because a traffic control plan would establish truck routes that minimize truck traffic in residential areas and that traffic along Phelps Street where there are residences would primarily be worker vehicles accessing the Southeast Greenhouses staging area (not trucks).

Operation Noise, including Roadway Noise

The FEIR determined that operational noise from the new facilities and additional truck trips would be less than significant because the estimated maximum combined noise level of 59 dBA[50] at the nearest residential receptor at 1700 Kirkwood Avenue would not exceed the minimum noise limit applicable under Section 2909(d) and there would only be a small change in trucking that would occur on Jerrold Avenue, Rankin Street, and Evans Avenue where there are no residential receptors or noise-sensitive uses.

Modified Project

Construction Noise

Construction activities at the project site would occur Monday through Friday from 7 a.m. to 4:30 p.m., and at times until 8 p.m. as needed, consistent with the City's noise ordinance (San Francisco Police Code). Construction could also occur on Saturdays and Sundays when needed. Work would occur on holidays and 24 hours per day only if needed for critical facility connections, similar to the approved project. The proposed modifications would include demolition of building SEP 850, removal of the temporary, pre-fabricated trailers SEP 850A and SEP 850B, removal of the adjacent surface parking lot, and demolition of an existing generator (500 kilovolt-amperes), a transformer and associated electrical equipment (SS 4A/4B and SEP 990). Demolition would be followed by construction of the Mechanical Maintenance building (SEP 603) and the Operations, Engineering, and Maintenance building (SEP 914), a utility enclosure for a new chiller, and two new boilers located inside building SEP 930 to service buildings SEP 930 and SEP 940. Two new generators (750 kilovolt-amperes) would be installed for use by the new operations and maintenance buildings. In addition, an upgraded transformer and associated electrical equipment (SS 4A/4B and SEP 990)

[49] The former Southeast Community Center daycare center has relocated to 1550 Evans and is thus no longer a sensitive receptor that could be impacted by the construction of the proposed modifications. Therefore, it is not discussed further.

[50] A-weighted decibel, reported an L_{eq} in the FEIR. This represents the acoustical energy over an operational hour.

would be installed for the new operations and maintenance buildings, as well as for buildings SEP 930 and SEP 940.

Equipment similar to that listed in the FEIR would be used during construction of the proposed modifications. Like the approved project, the occasional use of a concrete saw under the modified project would generate noise in excess of the 80 dBA L_{max} threshold at 100 feet established under Section 2907 of the Police Code, which would be a significant impact. However, implementation of **Mitigation Measure M-NO-1a (Shielding of Concrete Saw Operations)**, as presented below in full, would reduce construction noise of the modified project to a less-than-significant level by requiring shielding when concrete saw operations are conducted within 100 feet of a sensitive receptor.

> **Mitigation Measure M-NO-1a: Shielding of Concrete Saw Operations**
>
> Project contractors shall erect temporary shielding when concrete saw operations are conducted within 100 feet of a sensitive receptor. Shielding shall be sufficient to reduce noise levels to 80 dBA at a distance of 100 feet (an approximate 5 dBA reduction), consistent with the noise limit specified in Section 2907 of the Noise Ordinance.

The two noisiest pieces of demolition equipment associated with the new elements of the modified project (concrete saw and tractor) would generate a combined noise level of 85 dBA, L_{eq} at 50 feet. The nearest receptor to the proposed modifications construction area would be the residence at 1700 Kirkwood Avenue, approximately 250 feet from the parking lot to be demolished, where the measured ambient daytime noise level is 61 dBA. At this distance, noise from demolition activities would be attenuated to 71 dBA. This noise level would be below the 90-dBA criterion set by the Federal Transit Administration and would also not exceed the 10-dBA-above-ambient-noise-level criterion at this receptor.[51] Therefore, noise from demolition activities associated with the modified project would be less than significant.

The noisiest construction equipment that involves drilling for pile foundations would be a tractor and a drill rig. The nearest receptor to the modified project construction area would be the residence at 1700 Kirkwood Avenue, approximately 250 feet from the modified project site. At this distance, noise from foundation construction activities would be attenuated to 68 dBA. This noise level would be below the 90- dBA criterion set by the Federal Transit Administration and would also be less than 10-dBA-above-ambient-noise-level criterion at this receptor. Therefore, noise from construction activities associated with the modified project would be less than significant. The noisiest equipment for all other phases of construction would be quieter than the equipment used for drilling pile foundations and therefore all other phases of construction would result in less than significant noise impacts.

Construction Vibration

Equipment similar to that listed in the FEIR would be used during construction of the modified project. No pile driving is proposed as part of the modified project and all piles would be installed using drilling methods. The construction equipment with the greatest potential for generating vibration would be a vibratory roller that could be used for compaction. At a distance of 250 feet (at the nearest vibration-sensitive receptor), vibration from a vibratory roller would be approximately 0.007 in/sec PPV, which would be below the human annoyance threshold of 0.1 in/sec PPV, as applied in the FEIR. Therefore, construction

[51] Ambient noise measurement at 1663 Kirkwood Avenue. Refer to FEIR Table 4.7-2, Summary of Noise Monitoring in Project Vicinity.

activities under the modified project would have a less than significant impact with respect to human annoyance from construction-related vibration.

With respect to the potential for building damage, the nearest off-site structure to the construction areas of the modified project would be across Phelps Street, approximately 50 feet from construction work areas. At this distance, vibration from a vibratory roller would be approximately 0.07 in/sec PPV, which would be below both the historic building damage threshold of 0.25 in/sec PPV and the building damage threshold of 0.5 in/sec PPV, as applied in the FEIR. The nearest onsite structure is Building 930, located approximately 20 feet northeast of the proposed internal roadway. Construction of the internal roadway could require use of a vibratory roller. At this distance, vibration from a vibratory roller would be approximately 0.29 in/sec PPV, which is below the building damage threshold of 0.5 in/sec PPV.

The nearest on-site historic structure would be Building 870 which is approximately 90 to 100 feet west of the proposed work areas. Building 870 is characterized as a contributor to the historic district. However, as stated in the FEIR, the 0.25 in/sec PPV threshold was not applied to SEP buildings because, despite their historic status, all SEP buildings have been engineered for industrial use and lack fragile construction elements, such as plastered or masonry walls that could be subject to cosmetic damage. Instead, a threshold level of 0.5 in/sec PPV is applied to SEP buildings. At a distance of 90 feet, vibration levels from operation of a vibratory roller would be 0.03 in/sec PPV. Therefore, construction activities under the modified project would have a less-than-significant impact with respect to building damage from construction-related vibration.

Construction Roadway Noise

Like the approved project, the modified project would also require construction worker trips as well as vendor trips to bring project materials to the construction site. During construction, vehicle trips would use Jerrold Avenue (west of the site), Phelps Street (north of Jerrold Avenue), Evans Avenue, Third Street, and Cesar Chavez Street for access to the Highway 101 and I-280 freeways. There are no residential uses located along these routes. Since construction-related traffic noise increases on these streets would not adversely affect any residential sensitive receptors, construction-related traffic noise increases of the modified project would be less than significant.

Operational Noise including Roadway Noise

Under the modified project, a new chiller would be located within a utility enclosure outside of and adjacent to building SEP 930. The two proposed new boilers to be located inside SEP 930 would not generate substantial noise (because they would be enclosed indoors), but the chiller could generate a sound power level of approximately 68 dB. The chiller enclosure would be approximately 320 feet away from the nearest noise-sensitive receptor (1700 Kirkwood Avenue). At this distance, the noise level from the chiller would be approximately 27 dBA, which would be well below the nighttime standard of 60 dBA (45 dBA interior) at the nearest receptor. When the chiller is considered conservatively in combination with all other operational noise sources from the modified project, the noise level would be 59 dBA (refer to FEIR Tables 4.7-10 and 4.7-11 for the project's other operational noise sources), which would still be below the nighttime standard at the nearest residence. Therefore, operational noise from stationary sources associated with the modified project would be less than significant.

Under the modified project, there would be no additional employees and no increase in vehicle trip generation. Therefore, the modified project would have no impact with respect to roadway noise during operation.

The proposed two new emergency generators would be tested for maintenance purposes during daytime hours approximately one hour per week and would replace a single emergency generator currently in use. The noise ordinance does not regulate the testing of emergency backup generators. Further, the San Francisco Planning Department considers maintenance operations of less than three generators to be a less than significant noise impact. Consequently, upgrade and replacement of the existing emergency generator with two new emergency generators would not result in a significant operational noise impact.

Conclusion

In summary, with implementation of Mitigation Measure M-NO-1a (Shielding of Concrete Saw Operations), construction of the modified project would not result in significant noise and vibration impacts greater than those identified in the FEIR. Moreover, construction and operation of the modified project would not result in new significant noise and vibration impacts that were not previously identified in the FEIR; would not result in more severe impacts than those identified; and would not require new mitigation measures.

Cumulative Impacts

The FEIR determined that cumulative construction noise from the approved project, in combination with construction noise from cumulative projects, would result in a significant cumulative impact on the nearest residential receptors (east of Phelps Street and south of Jerrold Avenue) during use of the Southeast Greenhouses Staging Area, but that implementation of Mitigation Measure M-NO-1b would reduce the approved project's contribution to less-than-cumulatively considerable (less-than-significant) levels. The FEIR did not identify other potentially significant cumulative noise and vibration impacts.

With regard to the modified project, significant cumulative construction-related noise increases could occur if any nearby cumulative projects were to be constructed at the same time as the modified project and would affect the same sensitive receptors. As discussed above, the nearest sensitive receptor is the residence at 1700 Kirkwood Avenue. Among the cumulative projects identified in Appendix A, the following could result in cumulative noise impacts due their location adjacent to the modified project site and construction schedule:

- Headworks Replacement Project
- Power Feed and Primary Switchgear Upgrades
- Repair and Replacement Treatment Plant Improvement Projects
- Quint-Jerrold Connector Road
- Electrical Controls Upgrade (SEP 545)
- HVAC and Mechanical Upgrades

The Southeast Plant Headworks project site is located north of the modified project site and farther from sensitive receptors. Because the loudest construction activities – excavation, pile driving, and building erection - have been completed, remaining construction noise from the Headworks project would be lower.

Conservatively assuming that remaining activities for the Headworks project could be as loud as the initial construction phases, which in the FEIR was estimated at up to 58 dBA (L_{eq}) at the 1700 Kirkwood Avenue sensitive receptor, the combined noise levels with the modified project would be 71 dBA (i.e., when added to the project-specific construction noise, there would be no incremental noise increase). As discussed above, this noise level (71 dBA) would be below the 90-dBA criterion set by the Federal Transit Administration and would also not exceed the 10-dBA-above-ambient-noise-level criterion at the nearest sensitive receptor. The Quint-Jerrold Connector Road Project would be physically separated from the modified project site by the existing railroad embankment which would buffer sensitive receptors to the south and east from roadway construction noise. Given this barrier separating the projects, no cumulative noise increases from these two overlapping construction projects would occur at sensitive receptors located south and east of the modified project site. The other projects at the Southeast Plant are not expected to contribute substantially to cumulative construction-related noise impacts at the closest receptors because they would replace or upgrade existing equipment, avoid impact pile driving, or involve construction that would occur inside existing building enclosures. Therefore, the modified project in combination with cumulative projects would not result in a significant cumulative construction noise impact.

With respect to cumulative operational noise, as discussed above, the noise level from the chiller associated with the modified project would be approximately 27 dB at the 1700 Kirkwood Avenue receptor by itself and 59 dBA when considered in combination with all other operational noise sources from the modified project. This contribution to the existing noise level would be nominal and would not further elevate either the existing noise level at the receptor or the noise level predicted from all elements of the other projects at the Southeast Plant (59 dBA), which would be below the applicable nighttime noise standard. Therefore, there would be no significant cumulative operational noise impact with the addition of the sources under the modified project.

In summary, the modified project would not result in new significant cumulative noise and vibration impacts that were not previously identified in the FEIR; would not result in more severe cumulative noise and vibration impacts than those identified; and would not require new noise and vibration mitigation measures.

5.5 Air Quality

Biosolids Digester Facilities Project FEIR Findings

The FEIR found that the project would have potentially significant impacts related to the following significance criteria regarding air quality:

- Conflict with or obstruct implementation of the applicable air quality plan,
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation,
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).

The FEIR found that the project would have less than significant impacts related to exposing sensitive receptors to substantial pollutant concentrations or creating objectionable odors that affect a substantial number of people.

As discussed in Sections 2.2 and 4, construction of the approved project began in early January 2020. Since FEIR certification, the SFPUC has approved multiple minor changes to the approved project. The approved project also includes construction and operation of the biogas utilization system instead of the originally proposed energy recovery facilities and related changes to operational energy demand and supply, which was evaluated in addendum 1 to the FEIR.[52] The Planning Department determined that these changes would not alter the FEIR conclusions. The following discussion summarizes the air quality impacts of the approved project based on information from the FEIR and addendum 1 to the FEIR.

Criteria Air Pollutant Emissions

Construction

Construction of the project was found to generate emissions of fugitive dust and criteria air pollutants. The SFPUC, through its contractors, would be required to implement dust control measures in compliance with the requirements of the Construction Dust Control Ordinance, and therefore, the FEIR determined that construction-related air quality impacts due to fugitive dust would be less than significant. The SFPUC, through its contractors, is also required to implement emissions control measures in compliance with the requirements of the Clean Construction Ordinance. With these control measures, estimated average daily construction emissions of reactive organic gases (ROG) and of particulate matter measuring 10 and 2.5 microns in diameter or less (PM_{10}, and $PM_{2.5}$) were found to be below the applicable thresholds during all construction years. Emissions of nitrogen oxides (NOx), however, were found to exceed the applicable significance thresholds for two construction years (years 1 and 3). Subsequent to the certification of the FEIR and approval of the project, an updated analysis was conducted for the first three years of construction to estimate the emissions of the approved project based on the actual construction activities that occurred during those years. As documented in addendum 1 to the FEIR, the updated construction emission estimates for the first three years of construction are less than the emission estimates presented in the FEIR due to considerably fewer construction equipment hours actually used. **Table 5** presents the average daily construction criteria air pollutant emissions for the approved project. For the purposes of this analysis (addendum 2), the construction emissions presented in Table 5 for years 1 through 3 of the approved project are the updated construction emissions from addendum 1.[53] The original FEIR estimated emissions are shown in parentheses for comparison. The FEIR estimated emissions are shown in Table 5 for years 4 and 5 because the actual emissions have not been quantified for years 4 and 5.

[52] San Francisco Planning Department, Addendum 1 to Environmental Impact Report, Biosolids Digester Facilities Project, Biogas Utilization System, July 12, 2024. Available at: https://sfplanning.org/environmental-review-documents.

[53] Other minor project modifications were evaluated using worst-case conceptual analyses, which found there would not be any new or substantial changes in construction emissions or health risk effects beyond those analyzed in the FEIR.

Table 5 Average Daily Construction Criteria Air Pollutant Emissions for the Approved Project

Year	Average Daily Emissions (Pounds/Day)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Year 1 of actual construction emissions *FEIR estimates shown in parentheses*	3.5 (8.7)	54 (**72**)	0.3 (0.7)	0.3 (0.7)
Year 2 of actual construction emissions *FEIR estimates shown in parentheses*	4.2 (10)	37 (45)	0.3 (0.7)	0.3 (0.6)
Year 3 of actual construction emissions *FEIR estimates shown in parentheses*	3.1 (10)	30 (**55**)	0.14 (0.6)	0.13 (0.6)
Year 4 (FEIR estimates)	13	40	0.5	0.5
Year 5 (FEIR estimates)	10	33	0.4	0.4
BAAQMD Thresholds	54	54	82	54
Project Emissions Above Threshold?	No	No	No	No

SOURCE: San Francisco Environmental Planning, Biosolids Digester Facilities Project Addendum 1 to Environmental Impact Report, July 12, 2024, Appendix B, Tables A 1a-A1c; Biosolids Digester Facilities Project Final EIR, Table 4.8-9

Operation

The FEIR found that full operation emissions in 2045 associated with the project would not exceed any of the significance thresholds for criteria air pollutants. The FEIR disclosed that net emissions of ROG would be reduced by approximately 4 tons, and that net emissions of NOx, PM10, and PM2.5 would each increase by approximately 3 tons per year (see **Table 6**), which would be less than the 10 or 15 tons per year significance thresholds for those pollutants. Subsequent to FEIR certification, an updated analysis was conducted for operation of the biogas utilization system instead of the originally proposed energy recovery facilities and related changes to operational energy demand and supply in addendum 1. Table 6 shows the approved project's operational criteria air pollutant emissions for the worst-case operating scenario.[54] The emissions presented in Table 6 for the approved project also reflect emissions updates that occurred after issuance of addendum 1 to reflect revised emission factors for emissions from the specific boilers and thermal oxidizer to be procured for the project.[55] The original FEIR estimated emissions are shown in parentheses for comparison. As shown in Table 6, the approved project's impacts with respect to causing new violations of air quality standards, contributing to an existing or projected air quality violation, or causing a cumulatively considerable net increase in criteria air pollutants during operations were found to be less than significant.

[54] Compared to the project as analyzed in the FEIR at full operation in 2045, the approved project has decreased emissions of ROG, NOx, PM10, and PM2.5. These changes in operation criteria air pollutant emissions are due to changes in equipment for the biogas utilization system (namely, the removal of the proposed turbines and increase in boiler and flaring operations), as well as differing amounts and composition of the gas combusted between the FEIR project scenario and the recently approved biogas utilization system.

[55] San Francisco Planning, Memorandum to File RE: Addendum 1 – Biogas Utilization System Updated Equipment and Emissions Factors Biosolids Digester Facilities Project, December 18, 2024; Ramboll, 2024. Memorandum: Air Quality Health Risk Assessment Update for Potential Modification to the Future End-use of Digester Gas at the Southeast Plant Biosolids Digester Facility, Table 2a, October 7, 2024.

Table 6 Approved Project Net Annual Operational Criteria Air Pollutant Emissions

Scenario	Average Daily Emissions (Pounds/Day)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Existing (2014)	5.0	22	1.7	1.7
FEIR Project Full Operation (2045) – Net Change from Existing (2014)	-4.3	2.6	2.9	2.9
Approved Project Full Operation (2045) Impacts - Net Change from Existing (2014) *FEIR estimates shown in parentheses*	-3.4 (-4.3)	-0.2 (2.6)	2.3 (2.9)	2.3 (2.9)
BAAQMD Thresholds	10	10	15	10
Approved Project Emissions Above Threshold?	No	No	No	No

SOURCE: Ramboll, 2024. Memorandum: Air Quality Health Risk Assessment Update for Potential Modification to the Future End-use of Digester Gas at the Southeast Plant Biosolids Digester Facility, Table 2a, October 7, 2024; Biosolids Digester Facilities Project Final EIR, Table 4.8-10.

Toxic Air Contaminants

Both construction and operation of the approved project were found to generate emissions of $PM_{2.5}$ and toxic air contaminants, including diesel particulate matter. The FEIR determined that project-related construction and operational emissions increases would not expand air pollutant exposure zone boundaries or create new air pollutant exposure zones. The project-specific health risk assessment found that the project's net construction-related and operational cancer risk as well as $PM_{2.5}$ concentrations would not exceed significance thresholds at sensitive receptors within 1 kilometer of the project site. Because the biogas utilization system would require fewer facilities and less excavation than estimated for construction of the energy recovery facilities in the FEIR, addendum 1 to the FEIR found that it was reasonable to conclude that construction-related health risk would also decrease as a result of the modifications, and therefore, the construction health risk impacts were not re-quantified as part of the analysis in addendum 1 to the FEIR. Operations-related excess cancer risk and $PM_{2.5}$ concentrations of the approved project as analyzed in addendum 1 were reduced compared to the project evaluated in the FEIR.[56] The excess cancer risk threshold of 7.0 per million is inclusive of emissions from construction and operation. Given the approved project would have decreased construction related and operational cancer risk, it is reasonable to conclude that the approved project's combined excess cancer risk would be below the values presented in the FEIR, and below CEQA thresholds, even though construction risk was not re-quantified. The analysis in addendum 1 to the FEIR determined that the approved project's impact would remain less than significant.

Consistency with Clean Air Plan

The project was found to be consistent with the adopted *2010 Clean Air Plan* and Draft *2017 Clean Air Plan* because it would not hinder either plan in meeting its primary goals. Additionally, with implementation of Mitigation Measures M-AQ-1a and M-AQ-1b, the project was found to be consistent with the *2010 Clean Air Plan*'s control measures, including mobile/stationary source measures, land use/local impact measures, and energy/climate measures, as well as the Draft *2017 Clean Air Plan's* transportation, stationary source, and

[56] Ramboll, 2024. Memorandum: Air Quality Health Risk Assessment Update for Potential Modification to the Future End-use of Digester Gas at the Southeast Plant Biosolids Digester Facility, October 7, 2024.

water control measures. Therefore, the FEIR concluded that the project would not conflict with or obstruct implementation of the *2010 Clean Air Plan,* and the impact would be less than significant with mitigation.

Odors

The FEIR determined that construction activities for the project were not expected to create objectionable odors affecting a substantial number of people. The FEIR determined that during operation, odors from the solids treatment facilities both inside and outside the boundary of the Southeast Plant were expected to improve compared to existing conditions. Based on the relocation of solids and digester gas handling facilities farther from sensitive receptors, design of proposed facilities, implementation of the proposed odor control features, and results of odor modeling, operation of the project was not expected to create objectionable odors that would affect a substantial number of people, and the impact was found to be less than significant. Addendum 1 to the FEIR found that the approved project would not affect odors.

Cumulative Impacts

The FEIR determined that the project, in combination with cumulative projects, would result in a significant cumulative impact related to criteria air pollutant emissions because the project's construction-related criteria pollutant emissions would exceed thresholds for NOx during years 1 and 3 of construction. However, as discussed above, while the FEIR concluded that the project would result in a significant and unavoidable cumulative impact with mitigation for NOx, as shown in Table 5 the approved project emissions for NOx no longer exceed the threshold for years 1 through 3.

The FEIR determined that cumulative increases in excess cancer risk from the project in combination with background risks and other development would exceed the cumulative threshold of 90 per million and 100 per million, indicating a significant cumulative impact, but that the project's contribution would not be cumulatively considerable (less than significant) because the project's combined construction-related and operational excess cancer risk would not exceed the project-level thresholds of 7.0 per million and 10 per million. Similarly, the FEIR determined that cumulative $PM_{2.5}$ increase during construction would exceed the cumulative $PM_{2.5}$ threshold of 9.0 $\mu g/m^3$, indicating a significant cumulative impact. However, the FEIR determined the project's construction-related contributions to cumulative $PM_{2.5}$ levels within the air pollution exposure zone would not exceed the project-level thresholds of 0.2 and 0.3 $\mu g/m^3$, and therefore the project's construction-related contribution to the cumulative $PM_{2.5}$ levels would not be cumulatively considerable. The FEIR did not identify other potentially significant cumulative air quality impacts. Because the biogas utilization system would require fewer facilities and less excavation than estimated for construction of the energy recovery facilities in the FEIR, addendum 1 to the FEIR found that it was reasonable to conclude that construction-related health risks (including excess cancer risk and $PM_{2.5}$ concentration) would also decrease as a result of the modifications, and therefore, the construction health risk impacts were not re-quantified as part of the analysis in addendum 1 to the FEIR. Operations-related excess cancer risk and $PM_{2.5}$ concentrations of the approved project would also be reduced compared to the project evaluated in the FEIR.[57] The excess cancer risk threshold of 7.0 per million and the project-level cumulative contribution $PM_{2.5}$ concentration threshold of 0.2 $\mu g/m^3$ are both inclusive of emissions from construction and operation. Given the approved project would have decreased construction related and operational toxic air contaminant emissions, it is reasonable to conclude that the approved project's

[57] Ramboll, 2024. Memorandum: Air Quality Health Risk Assessment Update for Potential Modification to the Future End-use of Digester Gas at the Southeast Plant Biosolids Digester Facility, October 7, 2024.

combined excess cancer risk and cumulative $PM_{2.5}$ concentration would be below the values presented in the FEIR, and below CEQA thresholds, even though construction risk was not re-quantified. Because construction risk was not re-quantified, **Tables 7 and 8** below present estimated health risk results from the FEIR.

Table 7 FEIR Project Cumulative Cancer Risks

Source	Excess Cancer Risks (cases per million)	
	Unmitigated	Mitigated
Net Project Excess Cancer Risk (Construction + Operation – Existing)	3.4	1.7
Cumulative Projects	61	24
Adjusted CRRP-HRA Background (from FEIR)	102	85
Total Cumulative Excess Cancer Risk	166	111
Cumulative Significance Threshold	90/100	90/100
Exceeds Cumulative Threshold?	Yes/Yes	Yes/Yes
Project-Level Significance Threshold	7.0/10	7.0/10
Exceeds Project-Level Significance Threshold?	No/No	No/No

SOURCE: FEIR Table 4.8-14

Table 8 FEIR Project Cumulative PM2.5 Concentrations

Source	Maximum Annual $PM_{2.5}$ Concentration (ug/m^3)		
	Construction, Unmitigated	Construction, Mitigated	Operational
Net Project PM2.5 Concentrations	<0.1	<0.1	0.1
Cumulative Projects	<0.1	<0.1	<0.1
CRRP-HRA Background PM2.5 Concentration	9.1	9.1	8.9
Total Cumulative PM2.5 Concentrations	9.2	9.2	9.0
Cumulative Significance Threshold	9.0/10	9.0/10	9.0/10
Exceeds Cumulative Threshold?	Yes/No	Yes/No	No/No
Project-Level Significance Threshold	0.2/0.3	0.2/0.3	0.2/0.3
Exceeds Project-Level Significance Threshold?	No/No	No/No	No/No

SOURCE: FEIR Table 4.8-15

Modified Project

Criteria Air Pollutants

Construction

The approved project included construction of Maintenance Shops 1 and 2 during the second year through fourth year of construction. For consistency with the FEIR, and for a conservative evaluation, construction of the proposed modifications in this addendum (that would replace Maintenance Shops 1 and 2) are evaluated as if they would also be constructed during the second year through fourth year of construction of the approved project, when criteria air pollutant emissions were estimated to be the highest.

Table 9 shows the modified project criteria air pollutant emissions, consisting of emissions from the proposed modifications combined with the approved project emissions. Approved project emissions reflect actual construction activities during the second and third years of construction,[58] while the FEIR emissions estimate is used for the fourth year of construction because actual emissions data is unavailable. The emissions shown in Table 9 assume compliance with FEIR Mitigation Measure M-AQ-1a (Construction Emissions Minimization), presented below. Refer to Appendix B for additional details regarding the modified project construction emissions estimates.

Table 9 shows that, with implementation of **Mitigation Measure M-AQ-1a (Construction Emissions Minimization)**, none of the emissions for years two through four of construction of the modified project would exceed a significance threshold. Construction during all three years would result in slightly higher average daily emissions of NOx, ROG, PM_{10} and $PM_{2.5}$ when compared to the approved project. However, all emissions would be below significance thresholds (less than significant with mitigation).

Implementation of Mitigation Measure M-AQ-1a (Construction Emissions Minimization), as presented below in full, would reduce impacts to less-than-significant levels by requiring the use of emissions control technologies, newer equipment, and renewable diesel.

[58] An updated criteria air pollutant emissions analysis was conducted for the first three years of the Biosolids project construction to estimate the emissions of the project based on the actual construction activities that occurred during those years (years 1 through 3).

Table 9 Modified Project Average Daily Construction Criteria Air Pollutant Emissions During Years 2-4 - Mitigated[59]

Year	Average Daily Emissions (Pounds/Day)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Approved Project				
Year 2	4.2	37	0.3	0.3
Year 3	3.1	30	0.14	0.13
Year 4	13	40	0.5	0.5
Proposed Modifications				
Year 2	0.26	11	0.074	0.070
Year 3	1.3	6.5	0.054	0.052
Year 4	2.4	8.6	0.060	0.056
Modified Project (Proposed Modifications Combined with Approved Project)[60]				
Year 2	4.5	47	0.38	0.37
Year 3	4.4	37	0.19	0.18
Year 4	15	48	0.58	0.57
BAAQMD Thresholds	54	54	82	54
Modified Project Emissions Above Threshold?	No	No	No	No

SOURCES: Appendix B, Table A for the Proposed Modifications Alone emissions; Appendix B Table C for the Modified Project emissions combined with actual emissions for Years 2 and 3 and Table B for Year 4 combined with proposed emissions in the FEIR; Ramboll, 2024. Memorandum: Air Quality Health Risk Assessment Update for Potential Modification to the Future End-use of Digester Gas at the Southeast Plant Biosolids Digester Facility, Table 1, October 7, 2024; and FEIR Table 4.8-9 for Approved Project emissions year 4.

Mitigation Measure M-AQ-1a: Construction Emissions Minimization

The SFPUC's contractors shall comply with the following:

A. Engine Requirements.

1. All off-road equipment with larger engines (greater than or equal to 140 horsepower) shall meet United States Environmental Protection Agency (USEPA) or California Air Resources Board (CARB) Tier 4 Final off-road emission standards, while equipment with smaller engines (less than 140 horsepower) shall meet or exceed Tier 2 off-road emission standards and be equipped with diesel particulate filters (DPFs), which is equivalent to a Level 3 verified diesel emission control strategy (VDECS).

[59] Years 2 through 4 are shown in this table because the approved project included construction of Maintenance Shops 1 and 2 during the second year through fourth year of construction. For consistency with the FEIR, and for a conservative evaluation, construction of the proposed modifications that would replace Maintenance Shops 1 and 2 are evaluated as if they would also be constructed during the second year through fourth year of construction of the approved project. Approved project emissions reflect actual construction activities during the second and third years; the FEIR emissions estimate is used for the fourth year of construction.

[60] Totals shown in this row may not be equal to the sum of values in rows above due to rounding.

2. At least 80 percent of haul trucks (i.e., trucks used to remove or deliver backfill soil, excavated soil, and demolition debris) used must have 2010 or newer engines. The SFPUC should strive to exceed this requirement when possible; if trucks with 2010 or newer engines are available in the Contractor's, or subcontractor's fleet, then those should be used for the project.

   The SFPUC, through its Contractors Assistance Center, will work with the BAAQMD's Strategic Incentives Division and interested, eligible truckers to pursue funding to replace vehicles or retrofit engines to comply with the lower emissions requirement, including but not limited to conducting informational presentations at the Contractors Assistance Center to notify truckers about the grants and incentives and assisting with the completion of applications to the grant programs.

3. All diesel-powered haul trucks and off-road equipment must use renewable diesel.[61]

B. Waivers.

1. Pursuant to the Clean Construction Ordinance, the SFPUC General Manager (GM) or designee may waive the alternative source of power requirement if an alternative source of power is limited or infeasible at the project site. If the SFPUC GM grants the waiver, the contractor shall submit documentation that the equipment used for on-site power generation meets the requirements of Subsection (A)(1).

2. The SFPUC GM or designee may waive the equipment requirements of Subsection (A)(1) but only under any of the following unusual circumstances: if a particular piece of off-road equipment with Tier 4 Final standards or CARB Level 3 VDECS is technically not feasible; the equipment would not produce desired emissions reduction due to expected operating modes; installation of the equipment would create a safety hazard or impaired visibility for the operator; or there is a compelling emergency need to use off-road equipment that is not retrofitted with a CARB Level 3 VDECS. If the SFPUC GM or designee grants the waiver, the contractor shall use the next cleanest piece of off-road equipment, according to the following table:

Compliance Alternative	Engine Emission Standard
1	Tier 4 Interim
2	Tier 3
3	Tier 2

NOTES: How to use the table: If the SFPUC GM or designee determines that the equipment requirements cannot be met, then the contractor shall meet Compliance Alternative 1. If the SFPUC GM or designee determines that the contractor cannot supply off-road equipment meeting Compliance Alternative 1, then the contractor shall meet Compliance Alternative 2. If the SFPUC GM or designee determines that the contractor cannot supply off-road equipment meeting Compliance Alternative 2, then the contractor shall meet Compliance Alternative 3.

Operation

Operational criteria air pollutant emissions associated with the proposed modifications would generally remain unchanged relative to the approved project because there would be no new operational emissions sources with the exception of two new emergency generators that would replace a single existing emergency generator (see below). In addition, the relocated chiller and boiler equipment would serve fewer

[61] In Minor Project Modification 8 the SFPUC proposed an alternative to the requirement to use renewable diesel in on-road haul trucks because there are no renewable diesel fueling facilities for large haul trucks near the project site. The alternative would achieve the same NOx emissions avoidance by replacing 80% of older trucks using renewable diesel with 80% of newer trucks using non-renewable diesel.

buildings with an overall reduced square footage. **Table 10** shows the net increase in operational emissions that would be associated with the modified project. As shown in Table 10, the associated operational emissions increase from the emergency generators would be under 1 ton per year and the total combined increase in criteria air pollutant operational emissions from the modified project would remain below significance thresholds.

Table 10 Modified Project Net Annual Operational Criteria Air Pollutant Emissions

Source	Maximum Annual Emissions (Tons/Year)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Net Operations of Proposed Modifications (Tier 3 Generators)[62]	0.0008	0.10	0.0081	0.0070
Approved Project	-3.4	-0.2	2.3	2.3
Modified Project Emissions (Proposed Modifications plus Approved Project)	-3.4	-0.1	2.3	2.3
Significance Threshold	10	10	15	10
Modified Project Emissions Above Threshold?	No	No	No	No

SOURCE: Appendix B, Table D; and Ramboll, Air Quality Health Risk Assessment Update for Potential Modification to the Future end-use of Digester Gas at the Southeast Plant Biosolids Digester Facility Project in San Francisco, California, October 7, 2024, Table 14.

Toxic Air Contaminants

Table 11 shows the total health risks for the modified project, including the operational emissions for the proposed modifications quantified in Table 10. Adding the maximum health impacts from the proposed modifications to the approved project impacts is conservative because this assumes that these maximums could occur at receptors that would also be experiencing health risks at the level of the maximally exposed individual sensitive receptor for the approved project.[63] The maximum risks at the maximally exposed individual sensitive receptor include risks from the modified project activities such as off-road construction and emergency generator testing. Moreover, the approved project maximally exposed individual sensitive receptor impact value already includes a small portion of risk accounted for from the construction of Maintenance Shops 1 and 2 (i.e., the previously approved design for the currently proposed modification, as was evaluated in the FEIR). The estimate of modified project health risks is also conservative for particulate matter and chronic non-cancer hazard index, which are calculated as maximum annual averages, as the summation assumes they would also overlap in time.

As shown in Table 11 below, with implementation of FEIR Mitigation Measure M-AQ-1a (Construction Emissions Minimization), the resulting maximum health risks at the maximally exposed individual sensitive receptor would be below CEQA thresholds.

[62] Assumes Tier 3 generators for proposed modifications.

[63] The location of the maximally exposed individual sensitive receptor for the proposed modifications is different from the location of the approved project's maximally exposed sensitive receptor.

Table 11 Modified Project Potential Theoretical Maximum Health Risk Impacts[64]

Source	Excess Cancer Risk (in a million)	$PM_{2.5}$ Concentration (ug/m^3)	Chronic Non-Cancer Hazard Index (unitless)
Proposed Modifications MEISR[65] Impact (Construction and Operations)	2.4	0.0047	0.0010
FEIR MEISR[66] Impact Value (Worst-case; construction and operations)	1.7	0.017	0.0036
Approved Project Operation Maximum Impact[67]	-0.009	0.02	0.015
Modified Project Impact (Construction and Operation) [68]	4.2	0.04	0.02
CEQA Significance Threshold	7.0	0.2	1
Exceeds CEQA Significance Threshold	No	No	No

SOURCES: Appendix B, Table E.

Table 12 summarizes the cumulative health impacts of the modified project and compares it to the CEQA significance threshold. As discussed above, since preparation of the FEIR, citywide background health risk has increased due to changes in methodology and due to increases in nearby stationary sources and major roadway and railroad emissions sources, contributing to the increase in cumulative effects. In addition, due to the updated emissions sources the maximally exposed individual sensitive receptor location for the modified project is different from the maximally exposed individual sensitive receptor location in the FEIR. The modified project's impact would be considered cumulatively considerable if the project's contribution to the excess cancer risk exceeded the threshold of 7.0 per million (for the maximally exposed individual sensitive receptor within the air pollutant exposure zone). As shown, the modified project's construction-related and operational net increase in excess cancer risk would not exceed the 7.0 per million threshold. Therefore, the modified project's combined cancer risk would be less than significant, and no mitigation would be necessary. Although the impact would be less than significant, implementation of controls specified in Mitigation Measure M-AQ-1a (Construction Emissions Minimization) would reduce the project's less-than-significant impact by decreasing the project's net increase in cancer risk.

[64] Assumes implementation of Mitigation Measure M-AQ-1a and Tier 3 generators for proposed modifications.

[65] "MEISR" is maximally exposed individual sensitive receptor.

[66] "FEIR Construction MEISR Impact" values include the cancer risk at the MEISR identified in the FEIR from the entire project implementation, including construction and operation, minus the net reduction from decommissioning of certain existing facilities.

[67] Ramboll, Revised Air Quality Health Risk Assessment Update for Potential Modification to the Future End Use of Digester Gas at the Southeast Plant Biosolids Digester Facility Project in San Francisco, California, October 7, 2024.

[68] Total shown in this row may not be equal to the sum of values in rows above due to rounding.

Table 12 Cumulative Health Risk Impacts of the Modified Project, Cumulative Projects, and 2020 Updated Citywide Health Risk Assessment

Source	Excess Cancer Risk (in a million)	$PM_{2.5}$ Concentration (ug/m^3)	Chronic Non-Cancer Hazard Index (unitless)
FEIR Total Cumulative Health Risk (FEIR Construction MEISR Impact)[69]	111	9.2	0.009
Modified Project			
Modified Project Total Net Health Risk (Construction and Operations)[70]	4.2	0.04	0.02
Cumulative Projects	24	0.010	0.0053
Citywide HRA	106	9.5	--
Modified Project plus Cumulative Projects and Citywide HRA Impact	134	9.5	0.025
Significance Thresholds			
Cumulative Significance Threshold	90	9.0	10.0
Exceeds Cumulative Significance Threshold?	Yes	Yes	No
Threshold for Contribution to Cumulative Impact (Project-Level Threshold)	7.0	0.5	1
Modified Project Contribution Significant?	No	No	No

SOURCE: Appendix B, Table F.

Consistency with Clean Air Plan

Impacts associated with consistency with the adopted 2010 Clean Air Plan and Draft 2017 Clean Air Plan associated with the modified project would remain unchanged relative to the approved project because construction emissions during years 2 through 4 would not exceed BAAQMD thresholds with implementation of Mitigation Measure M-AQ-1a (Construction Emissions Minimization), and the only new emissions sources would be routine testing of two new emergency generators that would replace an existing emergency generator resulting in operational emissions below thresholds.

Odors During Construction and Operation

Odor impacts associated with the modified project would remain unchanged relative to the approved project because the proposed modifications would not alter biosolids handling or treatment processes.

[69] "FEIR Construction MEISR Impact" values include the cancer risk at the MEISR identified in the FEIR from the entire project implementation, including construction and operation, minus the net reduction from decommission of certain existing facilities.

[70] The modified project total for each type of health risk is calculated as shown in Table 11 and is the sum of health risks from the proposed modifications, construction maximum health risks from the FEIR, and operations maximum health risks of the approved project (including other approved project modifications). Values shown assume implementation of Mitigation Measure M-AQ-1a and Tier 3 generators for proposed modifications.

Conclusion

With implementation of approved Mitigation Measure M-AQ-1a (Construction Emissions Minimization), the modified project would not result in new significant impacts on air quality that were not previously identified in the FEIR, would not result in more severe impacts than those identified, and would not require new mitigation measures.

5.6 Biological Resources

Biosolids Digester Facilities Project FEIR Findings

The FEIR found that the approved project would have potentially significant impacts related to the following significance criteria regarding biological resources:

- Have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service

The FEIR found that the project would have less than significant impacts related to: federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means; and conflicting with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. The approved project was determined to have no impacts related to riparian habitat or other sensitive natural community, interference with migratory corridors, or conflicts with an adopted habitat conservation plan. As explained in the FEIR, operational impacts on biological resources were not discussed because limited biological resources are found within and near the site, and upon completion of the project, all operations would be restricted to the expanded, modernized Southeast Plant, and no activities would occur in the staging areas.

Special-Status Species

The FEIR found that underutilized buildings, trees, and other structures in and near the project site and construction staging areas could serve as migratory bird nesting habitat and bat roosting sites. The FEIR determined that impacts to nesting birds would be less than significant with implementation of SFPUC's Standard Construction Measure 7 (Biological Resources) that requires pre-construction nesting bird surveys and establishing no-disturbance buffers for any active nests, while Mitigation Measure M-BI-1 (Protective Measures for Special Status Bats and Maternity Roosts) would reduce impacts on bats to a less-than-significant level. Mitigation Measure M-BI-1 (Protective Measures for Special Status Bats and Maternity Roosts) requires pre-construction bat surveys, establishing no disturbance buffers for active nests and roosts, removing bat roosts under certain weather conditions when bats are more active and only in consultation with the California Department of Fish and Wildlife, and installing artificial habitat to compensate for removed roosts.

Federally Protected Wetlands

The FEIR determined that with adherence to Article 4.2 of the San Francisco Public Works Code (Section 146) and the State Water Resources Control Board's Construction General Stormwater Permit during grading and

excavation near wetlands at the Piers 94 and 96 staging areas, the approved project would have a less-than-significant impact on wetlands.

Local Policies or Ordinances Protecting Biological Resources

The FEIR identified that the approved project would not significantly conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, because the design includes planting trees and other landscaping along Jerrold Avenue to replace trees requiring removal and a site-specific Tree Protection Plan would also be required to protect trees that would be retained pursuant to San Francisco Public Works Code Article 16.

Modified Project

Construction of the proposed modifications would be within the existing Southeast Plant boundary, but outside of the approved project boundary. The disturbance footprint is currently developed with pavement, existing buildings, and landscaping which does not support or contain sensitive natural communities, aquatic features, serve as a wildlife corridor, or provide suitable habitat for special-status plants. While the proposed modifications would occur beyond the approved project boundary, operations would occur within the existing Southeast Plant and therefore for the same reasons discussed in the FEIR, operational impacts are not discussed in the impact analysis below.

Special-Status Species

Wildlife habitat within the proposed modifications disturbance footprint is limited to existing landscape trees and buildings, which could support migratory bird nests or bat maternity roosts. Like the approved project, construction of the modified project could affect birds or bats if active nests or maternity roosts are present in the trees or buildings to be removed or demolished. Construction associated noise, vibration, and visual disturbance could also affect avian or bat behavior and disturb or disrupt use of active nests or roosts in the modified project area, if present. As with the approved project, direct impacts on active bird nests or bat maternity roosts resulting from the modified project, such as disturbance that causes nest or roost abandonment, would be potentially significant. Like the approved project, the SFPUC would implement Standard Construction Measure 7 (Biological Resources) and Mitigation Measure M-BI-1 (Protective Measures for Special Status Bats and Maternity Roosts) during construction to ensure that nesting birds and bat maternity roosts would not be adversely affected. Therefore, with implementation of **Mitigation Measure M-BI-1 (Protective Measures for Special Status Bats and Maternity Roosts)** as presented below in full, the modified project impacts on nesting birds, and special-status bat maternity roosts would remain less than significant with mitigation.

> **Mitigation Measure M-BI-1: Protective Measures for Special Status Bats and Maternity Roosts**
>
> The San Francisco Public Utilities Commission (SFPUC) shall engage a qualified biologist to conduct a pre-construction survey of buildings and other structures to be demolished, vacant buildings within 100 feet of construction activities, trees to be removed, and trees located within 100 feet of construction activities to locate potential roosting habitat for special-status bats and active maternal colonies. The pre-construction surveys shall occur no more than two weeks in advance of initiation of building demolition or renovation activities on-site or initiation of construction. No activities that could disturb active roosts of special-status bats or maternal roosts shall proceed prior to the completed surveys. The pre-construction survey shall include at a minimum:

- Identification of potential direct and indirect project-related bat- disturbing activities; and
- Locations of active roosting habitat and maternal colonies.

If the pre-construction survey does not identify signs of potentially active bat roosts (e.g., guano, urine staining, dead bats, etc.) then no further action is required. If the pre-construction survey identifies signs of potentially active bat roosts, the following measures shall be implemented:

- Removal of structures and trees shall occur when bats are active, approximately between the periods of March 1 to April 15 and August 15 to October 15; outside of bat maternity roosting season (approximately April 15 to August 31); and outside of months of winter torpor (approximately October 15 to February 28). On structures where bats were observed during the pre-construction survey, exclusion devices (i.e., one-way doors) shall be installed prior to removal of the structures. Exclusion devices shall be left in place for a minimum of four nights prior to demolition of the structures.
- If removal of structures and trees during the periods when bats are active is not feasible and active bat roosts being used for maternity or hibernation purposes are found on or in the immediate vicinity of the project site where structure demolition or renovation is planned, a no-disturbance buffer of 100 feet or less if determined adequate by a qualified biologist in coordination with the California Department of Fish and Wildlife (CDFW) based on site-specific conditions shall be established around the roost sites until they are determined to be no longer active or volant by a qualified biologist.
- The qualified biologist shall be present during structure and tree disturbance if active bat roosts are present. Structures and trees with active roosts shall be removed only when no rain is occurring or is forecast to occur for three days and when daytime temperatures are at least 50 degrees Fahrenheit (˚F).
- Structures or trees containing or suspected to contain active bat roosts shall be dismantled or removed under the supervision of the qualified biologist in the evening and after bats have emerged from the roost to forage. Structures shall be partially dismantled to significantly change the roost conditions, causing bats to abandon and not return to the roost.
- If significant bat roosting habitat (e.g., maternity roosts or special-status non-maternity roost sites) is destroyed during structure or tree removal, artificial bat roosts shall be constructed in an undisturbed area in the project site vicinity away from human activity and at least 200 feet from project demolition/construction activities. The design and location of the artificial bat roost(s) shall be determined by a qualified bat biologist.
- Bat roosts that begin during construction are presumed to be unaffected, and no buffer would be necessary.

Local Policies or Ordinances Protecting Biological Resources

Construction of the proposed modifications would remove approximately 35 landscaping trees within the modified project's disturbance footprint, including four trees mapped as "significant trees" as defined in San Francisco Public Works Code Article 16.[71] The landscaping plan for the proposed modifications incorporates

[71] San Francisco Planning Department, Biosolids Digester Facilities Project Final Environmental Impact Report Appendix BIO, Planning Department Case No. 2015-000644ENV, State Clearinghouse No. 2015062073 certified March 8, 2018.

planting approximately 35 replacement trees (see Figure 3), consistent with the 1:1 replacement ratio in San Francisco Public Works Code Article 16. Like the approved project, with tree replacement consistent with Article 16 of the San Francisco Public Works Code, the modified project would not substantially conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. Like the approved project, the location of the modified project is not in or near an Urban Bird Refuge and the building design for the proposed modifications does not contain any components that creates feature-related hazards for birds. Therefore, the modified project conforms with the Standards for Bird Safe Buildings.

Conclusion

In summary, with implementation of SFPUC Standard Construction Measure 7 and Mitigation Measure M-BI-1, construction of the modified project would not result in significant impacts on biological resources greater than those identified in the FEIR. Moreover, the modified project would not result in new significant impacts on biological resources that were not previously identified in the FEIR; would not result in more severe impacts than those identified; and would not require new mitigation measures.

Cumulative Impacts

The FEIR establishes that the geographic scope for potential cumulative impacts on biological resources encompasses the species occurrences, habitats, and sensitive natural communities in the vicinity of the project site and off-site staging areas. Cumulative projects that would affect biological resources similar to those of the modified project and that could combine to result in potential cumulative impacts on biological resources include projects that would demolish or remove buildings or structures that could be used as bat roosts or result in adverse effects on nesting birds by removing trees or generating substantial noise. As the use of Piers 94 and 96 for construction staging is no longer proposed, the modified project would have no contribution to potential cumulative impacts on wetlands.

As discussed in Section 4.2, Cumulative Projects in the Site Vicinity, and presented in Appendix A, the list of potential cumulative projects at the at the Southeast Plant has also been revised since the certification of the FEIR. The following cumulative project could involve building demolition, tree or vegetation removal, and/or noise or visual disturbance during construction:

- Islais Creek Bridge Replacement

The building and tree removal of the modified project and cumulative projects in the vicinity could cause potentially significant cumulative impacts on biological resources. However, like the approved project, the modified project would implement Mitigation Measure M-BI-1 (Protective Measures for Special-status Bats and Maternity Roosts) and SFPUC Standard Construction Measure 7 (Biological Resources). As explained above, implementation of these measures would reduce or avoid potential impacts on nesting birds, and special-status bats, and maternity roosts. Therefore, with implementation of Mitigation Measure M-BI-1 and SFPUC Standard Construction Measure 7 (Biological Resources), the modified project's contribution to cumulative impacts would not be considerable, and the impact would be less than significant with mitigation.

In summary, the modified project would not result in new significant cumulative impacts on biological resources that were not previously identified in the FEIR; would not result in new more severe impacts than those identified; and would not require new mitigation measures.

5.7 Geology, Soils, and Paleontological Resources

Biosolids Digester Facilities Project FEIR Findings

The FEIR found that the approved project would have potentially significant impacts related to the following significance criteria regarding geology, soils, and paleontological resources:

- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

The approved project was determined to have less than significant impacts related to seismic ground shaking or seismically induced ground failure, erosion, or being located on a geologic unit or soil that is unstable or could become unstable as a result of the project. The approved project was determined to have no impacts related to fault rupture and landslides, loss of topsoil, expansive soil, septic tanks or alternative water systems, and changes in unique geologic features.

Paleontological Resources

The FEIR found that the Pleistocene-aged, upper-layered sediments underlying the approved project site have high paleontological sensitivity, and that excavations extending into these sediments could encounter and damage or destroy paleontological resources (fossils). The FEIR concluded that this potentially significant impact on paleontological resources would be less than significant with implementation of Mitigation Measure M-GE-4 (Paleontological Resources Monitoring and Mitigation Program), which requires that excavation activities within the upper layered sediments be monitored by a qualified paleontologist, that any substantial find be adequately curated, and establishes procedures in the event of discoveries.

Ground Shaking or Seismically Induced Ground Failure

The FEIR determined that impacts related to ground shaking or seismically induced ground failure, liquefaction, earthquake-induced settlement, lateral spreading, and ground settlement that could expose people or structures to the risk of loss, injury, or death would be less than significant because the approved project was designed in accordance with the San Francisco Building Code and ASCE/SEI 7-10 and the SFPUC's Seismic Design Requirements and the approved project incorporates engineering and design features to withstand a major earthquake. Moreover, the FEIR discussed that the approved project would substantially improve the Southeast Plant's seismic safety, because it would replace the digesters and other existing solids treatment facilities at the Southeast Plant that are over 60 years old and were not built to withstand a major earthquake.

Unstable Geologic Units

The geotechnical interpretive report concluded that there is a low potential for lateral spreading at the approved project site; and measures would be implemented to prevent ground settlement due to excavation, dewatering, and pile driving in accordance with Title 8 of the California Code of Regulations.

Soil Erosion

The FEIR determined that the approved project would not result in substantial erosion, because the SFPUC would be required to prepare and implement a site-specific erosion and sediment control plan pursuant to San Francisco Public Works Code Article 4.2.

Modified Project

To date, no fossils have been exposed during the sampling and monitoring performed for construction of the approved project pursuant to Mitigation Measure M-GE-4 (Paleontological Resources Monitoring and Mitigation Program). However, the SFPUC would continue to implement Mitigation Measure M-GE-4 during construction, same as the approved project. With implementation of Mitigation Measure M-GE-4, presented below in full, construction impacts on paleontological resources would remain less than significant with mitigation.

> **Mitigation Measure M-GE-4: Paleontological Resources Monitoring and Mitigation Program**
>
> The SFPUC shall retain the services of a qualified paleontological consultant having expertise in California paleontology to design and implement a Paleontological Resources Monitoring and Mitigation Program (PRMMP) for construction activities that would disturb the upper layered sediments that are sensitive for paleontological resources. The PRMMP shall not require monitoring in shallower excavations that do not encounter the upper layered sediments.
>
> The PRMMP shall include a description of when and where construction monitoring would be required; emergency discovery procedures; sampling and data recovery procedures; procedure for the preparation, identification, analysis, and curation of fossil specimens and data recovered; pre-construction coordination procedures; and procedures for reporting the results of the monitoring program.
>
> The PRMMP shall be consistent with the Society for Vertebrate Paleontology (SVP) Standard Guidelines for the mitigation of construction–related adverse impacts on paleontological resources and the requirements of the designated repository for any fossils collected. During construction, earth-moving activities shall be monitored by a qualified paleontological consultant having expertise in California paleontology in the areas where these activities have the potential to disturb the upper layered sediments. Monitoring need not be conducted for construction activities that would disturb only artificial fill material and/or young bay mud.
>
> The consultant's work shall be conducted in accordance with this measure and at the direction of the City's Environmental Review Officer (ERO) in coordination with the SFPUC. Plans and reports prepared by the consultant shall be submitted first and directly to the ERO for review and comment and concurrently to the SFPUC for review and comment, and shall be considered draft reports subject to revision until final approval by the ERO. Paleontological monitoring and/or data recovery programs required by this measure could suspend construction of the project in an appropriate buffer zone around a discovered paleontological resource or area determined in the PRMMP to be sensitive for paleontological resources for up to a maximum of four weeks. At the direction of the ERO and in coordination with the SFPUC, the suspension of construction may be extended beyond four weeks for a reasonable time required to implement appropriate measures in accordance with

the PRMMP only if such a suspension is the only feasible means to reduce potential effects on a significant paleontological resource as previously defined to a less-than-significant level.

Ground Shaking or Seismically Induced Ground Failure

Modified project impacts related to ground shaking or seismically induced ground failure, liquefaction, earthquake-induced settlement, lateral spreading, and ground settlement that could expose people or structures to the risk of loss, injury, or death would continue to be less than significant. This is because the modified project is also designed in accordance with the San Francisco Building Code and ASCE/SEI 7-10 and the SFPUC's Seismic Design Requirements.

Unstable Geologic Units

The modified project impacts related to unstable soils and geologic units would remain less than significant because the modified project would implement the recommendations of the geotechnical reports for each project and excavation safety requirements specified in California Code of Regulations Title 8.

Soil Erosion

Like the approved project, site-specific erosion and sediment control measures would continue to be implemented during construction of the modified project, and impacts related to soil erosion would remain less than significant.

Conclusion

In summary, with implementation of Mitigation Measure M-GE-4, construction of the modified project would not result in significant impacts related to geology and soils greater than those identified in the FEIR. Moreover, the modified project would not result in new significant impacts related to geology and soils that were not previously identified in the FEIR; would not result in more severe impacts than those identified; and would not require new mitigation measures.

Cumulative Impacts

The FEIR established that the geographic scope of cumulative impacts related to seismic hazards and erosion is restricted to the project site and adjacent areas, as these geology and soils impacts are relatively localized or even site-specific. The FEIR found that cumulative impacts related to seismic hazards, erosion, and unstable soils or geologic units would be less than significant. As discussed in the FEIR, all of the SFPUC-sponsored cumulative projects would be engineered and designed according to the most current building code requirements, the SFPUC Seismic Design Guidelines, and applicable engineering standards for seismic safety, which would reduce risks associated with seismic hazards. The non-SFPUC cumulative projects would also be subject to local and state building codes. Additionally, all cumulative projects would be required to implement the requirements of Article 4.1 of the San Francisco Public Works Code, which includes stormwater pollution prevention and erosion control requirements applicable to construction projects.

The FEIR establishes that the geographic scope for potential cumulative impacts to paleontological resources includes the Islais Creek area where the upper layered sediments and other Pleistocene-age sediments could be disturbed. As discussed in Section 4.2, Cumulative Projects in the Site Vicinity, and presented in Appendix A, the list of potential cumulative projects at the Southeast Plant has been revised

since the certification of the FEIR. The following cumulative projects could include ground disturbance in the upper layered sediments and other Pleistocene-age sediments:

- Southeast Plant Headworks Replacement Project
- Islais Creek Bridge Replacement

The modified project in combination with cumulative projects could disturb upper layered sediments or other Pleistocene-age sediments and could result in potentially significant cumulative paleontological resources impacts. However, like the approved project, implementation of Mitigation Measure M-GE-4 (Paleontological Resources Monitoring and Mitigation Program) would ensure the modified project's contribution to this cumulative impact would be less than significant with mitigation.

In summary, the modified project would not result in new significant cumulative impacts related to geology and soils that were not previously identified in the FEIR; would not result in new more severe impacts than those identified; and would not require new mitigation measures.

5.8 Wildfire

The Biosolids Digester Facilities Project FEIR did not analyze wildfire impacts, because this topic was not mandated for inclusion under CEQA until 2019, after the FEIR certification. CEQA Guidelines Appendix G Checklist criteria for wildfire impacts are listed below.

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

- Substantially impair an adopted emergency response plan or emergency evacuation plans?
- Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?
- Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?
- Expose people or structure to significant risks including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

The City and County of San Francisco does not have any state responsibility areas for fire prevention or lands that have been classified as very high fire hazard severity zones.[72,73,74] Therefore, the wildfire topics are not applicable to the project and are not discussed further in this addendum. Refer to Section 5.9.10, Hazards

[72] California Department of Forestry and Fire Protection (CAL FIRE), San Francisco County Fire Hazard Severity Zone (FHSZ) Maps, November 2008, https://osfm.fire.ca.gov/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones/fire-hazard-severity-zones-maps, accessed February 13, 2024.

[73] CAL FIRE, San Mateo County Very High FHSZ Map, November 24, 2008, https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/osfm-website/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones/fire-hazard-severity-zones-map/upload-5/fhszl_map41.pdf, accessed April 9, 2024.

[74] CAL FIRE, San Mateo County FHSZ Map, June 15, 2023, https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/osfm-website/what-we-do/community-wildfire-preparedness-and-mitigation/fire-hazard-severity-zones/fire-hazard-severity-zones-map-2022/fire-hazard-severity-zones-maps-2022-files/fhsz_county_sra_11x17_2022_sanmateo_2.pdf, accessed April 9, 2024.

and Hazardous Materials, for a discussion of additional fire risks and emergency response or evacuation plans.

5.9 Other Environmental Topics with Less-Than-Significant Impacts

5.9.1 Land Use and Planning

The existing Southeast Plant is an area designated as Public Facilities and Light Industrial in the San Francisco General Plan. The FEIR discussed that construction would temporarily affect land uses in the project vicinity, particularly related to closing Jerrold Avenue to public through-traffic between Phelps Street and the Caltrain right-of way to maintain a safe work area; however, this would be a less-than-significant impact, because the closure would be temporary, there would be detour routes, and the area affected by the closure does not clearly constitute an established community given the distinct nature of land uses on either side of this closed road segment (e.g., industrial warehouses to the west and residences and commercial uses to the east) along with the large-scale intervening industrial land uses that comprise the existing Southeast Plant site. Regarding operation, the FEIR determined that although the approved project would expand the Southeast Plant wastewater facilities into the Central Shops and Asphalt Plant sites, the new facilities would not divide an established community because those areas were already being used for storage and for industrial uses similar to the Southeast Plant, were already not accessible to the public, and would not block access between adjacent land uses. The FEIR assessed the demolition of Building 870, a contributor to the Southeast Treatment Plant Streamline Moderne Industrial Historic District (See Section 5.1, Cultural Resources) but was subsequently removed from the project and proposed demolition plans.[75] The FEIR concluded that, on the whole, the approved project would not conflict with applicable land use plans and policies, since it would advance the General Plan objective and policy concerning the location of wastewater facilities and provision of effective and efficient wastewater treatment, and the streetscape improvements would be consistent with the Better Streets Plan; however, the project could conflict with General Plan policies related to the preservation of historic resources (impacts would be mitigated to less than significant; see Cultural Resources, Section 5.1).

While the modified project would expand the project footprint to the corner of Phelps Street and Jerrold Avenue, the modified project would be constructed and operated entirely within the Southeast Plant such that, like the approved project, construction and operation would not physically divide an established community. The modified project would demolish Building 850, a contributor to the *Southeast Treatment Plant Streamline Moderne Industrial Historic District* (See Section 5.1, Cultural Resources) to construct the operations, engineering and maintenance Buildings, which could conflict with General Plan policies related to the preservation of historic resources, but would not demolish Building 870, as mentioned above. As discussed in Section 5.1, the demolition of Building 850 would have a comparable impact on the significance of the historic district as the approved project and would be addressed through the same mitigation measure approved in the FEIR, Mitigation Measure M-CR-1, Documentation of Historic Resources and Interpretive Display.

As discussed in the FEIR, the approved project includes long-term streetscape and landscape improvements along Jerrold Avenue that would enhance the safety and connectivity of Jerrold Avenue for various

[75] SFPUC Biosolids Digester Facilities Project Minor Project Modification 10-Modified Facilities, Approved by San Francisco Planning Department February 2, 2021.

transportation modes (e.g., bikes, pedestrians) in the plant's vicinity. As discussed above in the addendum, the modified project would take approximately an additional 1 year to construct, which would extend the closure period of Jerrold Avenue between Rankin and Phelps for safety considerations. During this time, detour routes would continue to be provided.

Therefore, the modified project would not result in new significant land use impacts that were not previously identified in the FEIR; would not result in more severe land use impacts than those identified; and would not require new land use mitigation measures.

5.9.2 Aesthetics

As stated in the FEIR, there are no scenic views or vistas in the project vicinity. The FEIR discussed that construction could affect the visual character of the area due to views of construction activities and staging areas, as well as the creation of new sources of light or glare. The FEIR determined that these impacts would be less than significant because construction equipment would be similar to other equipment and buildings already present in the area; other existing buildings at the Southeast Plant and in the general area, and the 15-foot-tall Caltrain berm would block views of the site from nearby residential, commercial, and industrial properties; views from adjacent or nearby streets for passing motorists, bicyclists, pedestrians, and Caltrain passengers would be brief and quickly replaced by succeeding streetscape views as the viewer moves past the project; views from the hills would be distant and include other industrial facilities; views of construction trailers would replace those of the former greenhouses; and construction equipment and activities would not create a substantial new source of light or glare because the SFPUC would implement Standard Construction Measure 8 to shield lights if used at night. Regarding operations, the FEIR found that the new Biosolids facilities would be similar to the existing Southeast Plant facilities, views of the new facilities from outside the project site would be limited by intervening structures and trees or would be fleeting views from cars or the train, and that the overall visual character of the Southeast Plant as seen from surrounding areas would remain essentially the same as the existing character, that of a major industrial facility. The FEIR also discussed that the design of the new facilities would be consistent with applicable standards (such as the Industrial Area Design Guidelines, the San Francisco Arts Commission Civic Design Review process, and the *Better Streets Plan)* and that landscaping and other street improvements included in the project would enhance the overall long term visual quality of the area. As a result, the FEIR determined that the new permanent facilities would have less-than-significant aesthetics impacts.

The proposed modifications would expand the project construction footprint to the corner of Jerrold Avenue and Phelps Street. On-site trees visible from Jerrold Avenue and Phelps Street would also be removed and replaced to the north of the proposed buildings. Equipment associated with project construction would be the same as that described in the FEIR. As discussed in previous environmental review, views from adjacent or nearby streets for passing motorists, bicyclists, and pedestrians would be brief, and while some project construction may be discernable from hills to the south and southeast, it would be difficult to distinguish from surrounding land uses. The previously approved closure of Jerrold Avenue east of the Caltrain tracks for use as a staging area would further limit views of project construction. For these reasons, construction would not result in new or more substantial temporary impacts on visual character.

Regarding project operations, the proposed modifications would replace an existing two-story building and a parking lot visible from the adjacent streets with a three-story Operations, Engineering, and Maintenance building along Jerrold Avenue and a two-story (including mezzanine) Mechanical Maintenance building at

the corner of Phelps Street and Jerrold Avenue. The new operations, engineering and maintenance buildings would be up to 50 feet tall. As stated in the FEIR, most of the approved project's new structures would be 20 to 50 feet tall, although the digesters would be up to 65 feet tall. The proposed buildings would replace existing buildings and be of similar height as previously approved structures and would be seen in the foreground of the 65-foot-tall digesters that, as with the approved project, would dominate views from Jerrold Avenue overall.

Like the approved project, the modified project facilities would be behind the Southeast Plant perimeter wall and trees would be installed along both sides of Jerrold Avenue consistent with the planned long-term streetscape and landscape improvements along Jerrold Avenue discussed in the FEIR. These improvements would enhance the visual quality of the area compared to existing conditions. The FEIR determined that, overall, the approved project would not substantially degrade the visual character of the area because the new facilities (including the originally approved Maintenance Shops 1 and 2) would be consistent with the existing industrial zoning and visually compatible with existing plant facilities. Additionally, for the typical motorist or pedestrian heading southeast on Jerrold Avenue, views of the new biosolids facilities at the plant would be fleeting. These conditions would remain the same because the modified project proposes structures that would be visually compatible with existing plant facilities and views from the surrounding areas would remain that of a major industrial facility, at heights that are lower than the tallest approved project components evaluated in the FEIR.

Therefore, the modified project would not result in new significant aesthetics impacts that were not previously identified in the FEIR; would not result in more severe impacts than those identified; and would not require new mitigation measures.

5.9.3 Population and Housing

As discussed in the FEIR, the approved project does not involve any housing construction and thus would not directly induce growth by constructing housing that would attract people to the area, nor would it extend roads or other infrastructure that could indirectly induce growth. The FEIR found that construction workers would likely be drawn primarily from the local and regional construction work force and commute from the Bayview-Hunters Point neighborhood or from elsewhere in the city or Bay Area. Accordingly, the approved project would not induce population growth by attracting workers from outside the region. The FEIR found that operation of the approved project would also have a less than significant impact on population and housing because it would not include new homes; increase the number of workers employed at the Southeast Plant; extend roads or other infrastructure into areas lacking such services that could induce substantial population growth; and would not increase existing overall Southeast Plant wastewater treatment capacity and would only provide solids treatment capacity that is consistent with the Association of Bay Area Government's growth forecasts. Thus, the project would not indirectly induce population growth.

The construction and operation of the modified project, including the proposed modifications, would have similar less-than-significant impacts as the approved project because the maximum number of construction workers would not increase compared with the approved project. The proposed modifications are intended to provide improved facilities for existing Southeast Plant employees and no new workers are proposed as part of the modified project. Further, like the approved project, the modified project would not change the Southeast Plant's treatment capacity.

Therefore, the modified project would not result in new significant population and housing impacts that were not previously identified in the FEIR; would not result in more severe impacts than those identified; and would not require new mitigation measures.

5.9.4 Greenhouse Gas Emissions

The FEIR concluded that the approved project would have a less-than-significant impact related to the generation of greenhouse gas emissions, either directly or indirectly, and would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The FEIR discussed that because no individual project could emit greenhouse gases at a level that could result in a significant impact on global climate, greenhouse gas (GHG) emissions are a cumulative impact. The FEIR evaluated the proposed project's consistency with the goals of Assembly Bill 32[76] by comparing the project's net changes in non-biogenic GHG emissions to the stationary source GHG significance threshold from the Bay Area Air Quality Management District (air district), which is 10,000 metric tons of carbon dioxide equivalent (MTCO2E).

The FEIR identified that construction would directly emit GHG from equipment use and vehicles and indirectly emit GHG via electricity providers for electric power. It also determined that the approved project's annualized construction-related GHG emissions[77] would average 894 MTCO2E, which would be below the air district's annual threshold for stationary sources of 10,000 MTCO2E. Further, the SFPUC would be required to use renewable diesel in all municipal fleets (Executive Directive 06-02) and comply with San Francisco Environment Code, chapters 7 and 14, to recycle construction waste. Therefore, the FEIR concluded that the approved project's contribution to global GHGs from construction would be less than significant. Construction of the modified project would require offhaul of up to 21,455 cubic yards of excavated material over the originally anticipated approved project's construction. As noted above, the approved project's annualized construction-related GHG emissions would average 894 MTCO2E, well below the applicable threshold. Moreover, during construction between 2020 and 2023, the actual emissions from approved project construction have been lower than anticipated in the FEIR.[78] Therefore, it is reasonable to conclude that the modified project's annualized construction-related GHG emissions would be substantially less than air district's GHG significance threshold of 10,000 MTCO2E per year for stationary sources.

Regarding operations, the approved project would result in an increase in net non-biogenic emissions[79] of 5,005 MTCO2E per year in 2045 associated with future wastewater treatment demand. In 2045, an annual net total of 19,805 MTCO2E would be emitted per year when accounting for averted non-biogenic emissions (consisting of 5,005 MTCO2E per year non-biogenic emissions and 14,800 MTCO2E per year biogenic emissions). Non-biogenic emissions would be below the GHG significance threshold outlined by the air district, which is 10,000 MTCO2E per year for stationary sources. The FEIR did not consider biogenic greenhouse gas emissions from the Southeast Plant to be a project impact because they would occur regardless of the project and regardless of whether the organic material decomposes in solids processing

[76] Global Warming Solutions Act of 2006. Cal Assembly Bill. 32, Health and Safety Code Section 38500, Division 25.5.

[77] Total GHG emissions from construction activities divided by years of construction activity.

[78] San Francisco Planning Department, SFPUC Biosolids Digester Facilities Project Addendum 1 to Environmental Impact Report, July 12, 2024.

[79] Biogenic GHG emissions are emissions from biological processes involving living organisms (i.e., not related to energy production and consumption). Non-biogenic GHG emissions are emissions related to energy production and consumption.

facilities at the treatment plant or at a land application site elsewhere (such as landfills, composting operations).

The FEIR also noted that the approved project would be subject to the California Air Resources Control Board's Greenhouse Gas Mandatory Reporting Regulation, just as it is now for the existing facilities. The approved project would also be subject to applicable City regulations adopted to reduce operational greenhouse gas emissions as identified in the San Francisco Strategies to Address Greenhouse Gas Emissions, which include but are not limited to: compliance with the City's Commuter Benefits Program, Emergency Ride Home Program, Executive Directive 06-02 requiring use of renewable diesel, Clean Construction Ordinance, bicycle parking requirements, the City's Green Building and recycling and composting ordinance requirements that would reduce greenhouse gas emissions in the City from transportation, waste, and promote energy and water efficiency. Lastly, by planting new landscaping trees consistent with San Francisco's Street Tree planting requirements, the approved project would help offset the effects associated with the proposed removal of about 90 trees and would serve to increase carbon sequestration. Through implementation of these actions, the FEIR determined that the project would be consistent with San Francisco's Strategies to Address Greenhouse Gas Emissions, and thus would not conflict with the goal of Assembly Bill 32 to reduce greenhouse gas emissions to 1990 levels by 2020.

The modified project, including the operations, engineering and maintenance buildings, does not include new types of operations activities that emit greenhouse gases. As discussed in Section 3, the proposed modifications would replace two existing inefficient shared boilers with two updated and smaller, efficient boilers and install a new chiller. As discussed in **Appendix F**, the new buildings would also be LEED certified, further reducing any greenhouse gas emissions associated with the modified project.

Additionally, like the approved project, the modified project would continue to be consistent with San Francisco's Strategies to Address Greenhouse Gas Emissions to reduce emissions during construction and operation and would not conflict with local or state climate goals.

Therefore, the modified project would not result in new significant greenhouse gas emissions impacts that were not previously identified in the FEIR; would not result in more severe impacts than those identified; and would not require new mitigation measures.

5.9.5 Wind and Shadow

The FEIR determined that construction would have no impact on wind or shadow because construction equipment would be smaller than or similar in size and height to other equipment and buildings in the area. Consequently, construction equipment would not substantially alter wind patterns in the project vicinity nor be tall enough to create substantial new shadows that could affect public open spaces. Construction of the modified project would use the same type of construction equipment and contain new structures of similar height (approximately 50 feet tall) as in the approved project. Although the modified project would be outside of the approved project footprint, it would be adjacent to it and within the boundaries of the Southeast Plant and would therefore have similar, less-than-significant impacts on wind and shadow as the approved project.

Regarding the approved project's new permanent facilities, the FEIR found that the approved new project facilities would range in height from 10 feet to 65 feet above grade with most buildings between 20 and 50 feet tall, would be similar in height to some existing buildings at the Southeast Plant and to neighboring

buildings that would remain, and would not be substantially taller than adjacent or nearby buildings or structures. In addition, the FEIR indicated that based on wind analyses for other development projects in San Francisco, a building or structure that does not exceed a height of 80 feet generally has little potential to cause substantial changes to ground level wind conditions. The approved project was not found to alter wind patterns in a manner that substantially affects public areas. The shadow analysis conducted for the FEIR to evaluate the impacts of the new permanent facilities on the nearest recreational facilities found that the project would not create new shadows that would substantially affect outdoor recreational areas, streets, and sidewalks. Wind and shadow impacts were determined to be less than significant.

The approved project would no longer demolish Building SEP 870, which is approximately 30 feet tall. With the proposed modifications, the modified project would instead demolish the existing building SEP 850, which is a two-story building ranging in height from approximately 26-40 feet, and two temporary pre-fabricated trailers (SEP 850A and SEP 850B). The proposed new buildings of the modified project would replace these existing structures and be up to approximately 50 feet tall, which is similar to other approved structures at the Southeast Plant and in nearby areas.

Regarding potential wind impacts, the new operations, engineering and maintenance buildings would be up to 50 feet tall, shorter than the approved project's maximum heights of 65 feet (for the digesters), and shorter than 80 feet (the height at which wind impacts would be expected to occur). Again, as stated in the FEIR, most of the approved project's new structures would be 20 to 50 feet tall, although the digesters would be up to 65 feet tall. The digesters would be located northwest of the modified project site and existing Building SEP 870. According to the FEIR, since wind primarily comes from the west in San Francisco, the approaching wind would be intercepted by the digesters on the western boundary of the Southeast Plant site, to the west of the modified project, and therefore would not significantly impact nearby publicly accessible areas such as streets and sidewalks. As discussed in Section 5.9.6 below, there would be no impact on recreational facilities because none are present within or adjacent to the approved project or the proposed modified project. Like the approved project, the net new project shadow from the modified project would be within the original footprint that was analyzed for shadow with buildings at proposed heights of 65 feet. As stated in Section 4.10 of the FEIR, shadows on streets and sidewalks would be transitory, would not substantially affect the function of sidewalks, and would not exceed levels commonly expected in urban areas[80].

Therefore, the modified project would not result in new significant wind and shadow impacts that were not previously identified in the FEIR; would not result in more severe impacts than those identified; and would not require new mitigation measures.

5.9.6 Recreation

The FEIR found that construction of the approved project would have no impact on recreational facilities, either directly or indirectly, because there are no such facilities within the approved project site or the off-

[80] The FEIR used a "shadow fan" diagram prepared by the San Francisco Planning Department (San Francisco Planning Department, Shadow Fan, September 3, 2015) to determine whether any properties under the jurisdiction of the Recreation and Park Commission could be potentially affected by project shadow. The shadow fan is a diagram that shows the maximum extent of the shadows cast by a building throughout the year, between one hour after sunrise and one hour before sunset. The preliminary shadow fan is typically based on full buildout of the zoning envelope (the maximum three-dimensional space within which a structure can be built, based on the zoning of the relevant lot), including complete lot coverage and maximum building height (in this case, 65 feet). According to the shadow fan analysis, due to the distance between the proposed structures and the nearest recreational facilities, there would be no new shadows created by the approved project that would affect outdoor recreational areas.

site staging areas and the existing parks and trails in the vicinity at over 1,000 feet and 300 feet (Bay Trail) respectively would remain open and are sufficiently far away so as not to be physically deteriorated or degraded by the project. The FEIR found that operation of the project would also have no impact on recreational facilities because it would not permanently affect existing recreational resources, include new residential or other uses that would generate increased demand for parks or other recreational facilities, or increase existing operations staff levels at the Southeast Plant that could increase demand at existing recreational facilities near the Southeast Plant, and that ongoing demand would continue to be met by existing parks and recreational facilities.

Construction and operation of the modified project, like the approved project, would not include the construction or expansion of recreational facilities, or increase the use of existing neighborhood and regional parks or other recreational facilities, because construction workers would continue to be drawn from the local and regional work force and there would be no increase in permanent employees at the Southeast Plant such that there would not be a significant increase in population that could accelerate the physical deterioration existing recreational facilities.

Therefore, the modified project would not result in new significant recreation impacts that were not previously identified in the FEIR; would not result in more severe impacts than those identified; and would not require new mitigation measures.

5.9.7 Utilities and Service Systems

The FEIR evaluated several construction-related utilities and services systems topics, including wastewater discharges in excess of the treatment capacity of the Southeast Plant and associated conveyance infrastructure, landfill capacity for construction waste, and compliance with local, state and federal regulations pertaining to the disposal of solid waste. The FEIR concluded that potential impacts would be less than significant because wastewater discharges from the sanitary needs of construction workers and groundwater dewatering could be accommodated by the Southeast Plant's existing treatment capacity, the SFPUC would be required to recycle construction and demolition debris pursuant to Section 708 and Chapter 14 of the San Francisco Environment Code to divert solid waste from landfills, and that the landfills the project would use have sufficient capacity for the maximum amount of potential waste. By complying with the local codes, the approved project would also be consistent with the California Integrated Waste Management Act of 1989 (AB 939). Regarding potential impacts due to operations, the FEIR identified that the project would increase water demand due to changes in processes and facilities (i.e., for the energy recovery facilities and the Maintenances Shops 1 and 2) and generate 820 cubic yards of solid waste (iron sponge media waste and siloxane media waste) annually from the new digester gas treatment facilities. As discussed in addendum 1 to the FEIR, the approved project would result in similar amounts of water use and solid waste as estimated in the FEIR.[81] The FEIR and addendum concluded that these impacts would be less than significant because the City's existing water supply could sufficiently meet the additional demand and that amount of solid waste constituted a small fraction of available, permitted landfill capacity.

Construction of the modified project would involve slightly more excavation (approximately 21,455 cubic yards more than the approved project) and would demolish an additional 15,270 square feet of existing buildings and structures. The modified project could require more groundwater dewatering due to the expansion of the project footprint within the Southeast Plant. However, any additional groundwater

[81] San Francisco Planning Department, SFPUC Biosolids Digester Facilities Project Addendum 1 to Environmental Impact Report, July 12, 2024.

dewatering required for construction of the modified project could be accommodated by the Southeast Plant's existing treatment capacity and wastewater discharges from the sanitary needs of construction workers would not change from the approved project. The increase in excavation and demolition would constitute a small fraction of available, permitted landfill capacity for solid waste. Similar to the approved project, the SFPUC would be required to divert waste from landfills during construction in accordance with the City code to recycle construction demolition and debris. These changes do not constitute a new or substantially more severe significant impact on utilities and service systems than the approved project.

Operation of the modified project would not use more water during operations than the approved project, because the new facilities would be operated by existing Southeast Plant employees and the modified project does not propose an increase in staff. The modified project would not introduce new work activities or additional staff that could result in more solid waste.

Therefore, the modified project would not result in new significant utilities and service systems impacts that were not previously identified in the FEIR; would not result in more severe impacts than those identified; and would not require new mitigation measures.

5.9.8 Public Services

The FEIR found that construction and operation of the approved project would have a less-than-significant impact on public services, because it would not result in a substantial increase in the local population as construction workers would likely be drawn primarily from the local and regional construction work force, and the new facilities would be operated by existing Southeast Plant employees. Addendum 1 to the FEIR determined that one additional employee as part of the approved project would not result in a substantial increase in the local population. The FEIR also concluded that incidents during construction that require law enforcement, fire protection, or emergency medical services would constitute an incremental increase in demand that would be temporary, could be accommodated by existing services, and would not require construction of new or physically altered facilities to maintain services.

Similar to the approved project, the use of construction equipment and traffic generated by construction workers commuting to the modified project's construction sites could increase the potential for accidents in the modified project area. However, any increase in the number of accidents during construction (no new staff would be added for operation) of the modified project would not be expected to exceed the capacity of existing emergency response services, local medical facilities, or other services to the extent that new emergency response facilities would need to be constructed. As with the approved project, operation of the modified project would not increase the local population, or otherwise affect the need for fire protection, police protection, schools, parks, or other public services (the construction of which could result in impacts on the environment), given that it would not result in an increase of staff at the Southeast Plant. Therefore, no expansion of such services, causing adverse physical impacts, would occur. As with the approved project, the modified project's impact related to public services would be less than significant.

Therefore, the modified project would not result in new significant impacts related to public services that were not previously identified in the FEIR; would not result in more severe impacts than those identified; and would not require new mitigation measures.

5.9.9 Hydrology and Water Quality

The FEIR determined that the approved project would have a less than significant impact on water quality related to stormwater runoff during construction and discharge of groundwater produced during dewatering. Construction would be subject to the regulatory requirements specified in San Francisco Public Works Code Section 146, Articles 4.1 and 4.2, as well as the State Water Quality Control Board's Construction General Permit, and implementation of the required control measures would adequately protect water quality. Similarly, the modified project would be subject to the regulatory requirements specified in Articles 4.1 and 4.2, and Section 146 of the San Francisco Public Works Code and as a result, there would be less-than-significant water quality impacts related to stormwater runoff and groundwater discharge during construction.

The FEIR and minor project modifications determined that operation of the approved project would have a less-than-significant impact on water quality standards, waste discharge requirements, and water quality. The approved project's required compliance with the Bayside National Pollutant Discharge Elimination System permit during operations would also ensure that discharges comply with applicable water quality standards and do not degrade water quality. The modified project includes the same treatment technologies as the approved project[82] and therefore would still be expected to comply with the Bayside National Pollutant Discharge Elimination System permit for effluent limitations and requirements. Therefore, the modified project would have less-than-significant water quality impacts during operations.

The FEIR determined that the approved project would have a less than significant impact on groundwater supplies or recharge during construction because the project would obtain and comply with a Batch Wastewater Discharge Permit for discharging groundwater from temporary construction dewatering into the combined sewer system pursuant to San Francisco Public Works Code Article 4.2 and construction dewatering would be temporary. Similarly, groundwater dewatering for the modified project would be temporary and would be required to comply with the same Batch Wastewater Discharge Permit. As a result, like the approved project, construction of the modified project would have less-than-significant impacts on groundwater supplies and recharge.

No long-term dewatering would be required for operation of the approved project, and the approved project would not withdraw groundwater from the Islais Valley Groundwater Basin for any other purposes during operation. Similarly, the modified project would not require long-term groundwater dewatering or other use of groundwater, and would not result in an increase in impervious surfaces. As discussed in the FEIR, no wells that utilize groundwater are present within 0.5 mile of the approved project site. As a result, like the approved project, operation of the modified project would have less-than-significant impacts on groundwater supplies and recharge.

The FEIR determined that the approved project would have a less than significant impact on the exposure of people or structures to risk of loss, injury, or death involving flooding under current conditions, future conditions resulting from sea level rise, or inundation by seiche or tsunami. The FEIR found that most project components were not within an existing 100-year flood zone and were not within a potential tsunami inundation zone shown on Map 5 of the Community Safety Element of the San Francisco General Plan or on

[82] Including the interim sidestream treatment facility, which was incorporated into the approved project after FEIR certification. SFPUC Biosolids Digester Facilities Project Minor Project Modification 17 – Interim Sidestream Nutrient Removal, reviewed by San Francisco Planning Department February 12, 2024

statewide maps prepared by the California Emergency Management Agency,[83] with the exception of the Piers 94 and 96 staging areas. However, because those staging areas would be temporarily used, would not involve the placement of permanent structures within the 100-year flood zone, and would be subject to the City emergency warning system as well as an operations plan with best management practices for construction-related hazardous materials storage, the FEIR concluded that use of the staging areas would have a less than significant effect on the risk of loss, injury, or death related to flooding or inundation by seiche or tsunami. Similarly, the modified project includes construction worker vehicle parking at 2 Rankin Street, an area within the Federal Emergency Management Agency flood zone, for temporary use during construction and would not involve the placement of structures. The proposed modifications are not within mapped seiche or tsunami zones; accordingly, the modified project would result in less-than-significant impacts related to exposing people or structures to inundation from seiche, tsunami, or mudflow during operation.

The FEIR determined that the approved project would not exceed the capacity of stormwater drainage systems or provide additional sources of polluted runoff because the project would comply with the City's Stormwater Management Ordinance and Stormwater Management Requirements and Design Guidelines. The modified project would also comply with the City's Stormwater Management Ordinance and Stormwater Management Requirements and Design Guidelines, and therefore would have a less-than-significant impact on stormwater drainage systems.

In summary, the modified project would not result in new significant hydrology and water quality impacts that were not previously identified in the FEIR; would not result in more severe impacts than those identified; and would not require new mitigation measures.

5.9.10 Hazards and Hazardous Materials

The FEIR disclosed that, during construction, the approved project would transport, store, and use routine hazardous materials (i.e., fuels, lubricants, and solvents for construction vehicles and equipment). The FEIR concluded that potential impacts would be less than significant because the SFPUC must comply with California Highway Patrol regulations related to transport of hazardous materials, implement site-specific best management practices like proper storage and secondary containment to prevent spills consistent with San Francisco Public Works Article 4.2 (Construction Site Runoff Controls) and the requirements of a Construction General Stormwater Permit from the State Water Resources Control Board, and comply with other applicable state and federal laws. The same types of hazardous materials would be used during construction of the modified project, and the SFPUC would be required to continue transporting and managing the materials properly in accordance with the local, state, and federal laws, as discussed above.

During operation, the FEIR discussed that the approved project would increase the quantity of several chemicals used at the Southeast Plant, use diesel for a backup generator, and may require periodic disposal of hazardous wastes (i.e., fluorescent light tubes), but that impacts would be less than significant, because the SFPUC would be required to update the Hazardous Materials Business Plan for the Southeast Plant that is on file with the San Francisco Health Department pursuant to Article 21 of the San Francisco Health Code and also comply with local, state, and federal regulations for hazardous materials use, storage, and disposal. Operation of the modified project would not introduce new types of chemicals beyond those identified in

[83] San Francisco Planning Department, Biosolids Digester Facilities Project Final Environmental Impact Report, Planning Department Case No. 2015-000644ENV, State Clearinghouse No. 2015062073 certified March 8, 2018.

the FEIR for operation of the approved project. Like the approved project, operation of the modified project would use hazardous materials in accordance with applicable laws.

The FEIR disclosed that the approved project includes the demolition of old structures that could contain hazardous building materials (i.e., asbestos and lead based paint). The approved project would abate building hazards pursuant to well-established regulations prior to demolition, and thereby impacts related to release of hazardous building materials into the environment would be less than significant. The modified project would demolish building SEP 850, which, similar to other structures demolished as part of the approved project, is likely to contain hazardous building materials such as asbestos-containing materials and lead-based paint. In accordance with Rule 11, Regulation 2, of the Bay Area Air Quality Management District, the SFPUC would be required to retain qualified contractors to identify the presence of asbestos-containing materials and complete removal of such materials prior to building demolition using methods that prevent visible asbestos emissions. Demolition activities would also be subject to: Section 3426 of the San Francisco Building Code and to the lead-in-construction standard regulated by the Occupational Safety and Health Administration of California, which aims to reduce the risk of exposing workers and the public to hazardous levels of lead; and California Code of Regulations Title 22 Sections 66261.24 and 66261.9, requiring specific handling of wastes with PCBs or otherwise considered "universal waste" in California. The modified project would comply with the same regulations regarding abatement of asbestos-containing materials, lead-based paint, and electrical equipment that could include polychlorinated biphenyls (PCBs), DEHP[84], or mercury vapors. The modified project would have less-than-significant impacts related to the release of hazardous building materials into the environment.

The FEIR disclosed that the approved project site and staging areas are known to contain contaminated soil and groundwater. The FEIR queried regulatory databases for information about the Southeast Plant as well as surrounding areas within one-quarter mile and found that the Southeast Plant, the Central Shops, and the Asphalt Plant are included on a list of hazardous materials sites compiled by one or more government regulatory agencies. The FEIR concluded that construction of the approved project would be required to comply with Article 22A of the San Francisco Health Code (the Maher Ordinance, which regulates the handling of hazardous soils), Article 22B of the San Francisco Health Code (the San Francisco Dust Control Ordinance, which regulates dust from construction sites), San Francisco Public Works Code Section 147 (construction site runoff controls), Article 4.1 of the San Francisco Public Works Code (groundwater dewatering controls), Article 21 of the San Francisco Health Code (closure of underground storage tanks), California Code of Regulations Title 13 Division 2, Chapter 6 (handling of hazardous materials and wastes), and California Code of Regulations Title 22 Division 4.5, Chapters 13 and 29 (transport of hazardous wastes). The modified project includes ground disturbance outside of the approved project site but within the Southeast Plant. An updated review of regulatory databases found no additional hazardous materials sites within the modified project site.[85] Construction of the modified project would occur within the Southeast Plant under the same regulatory environment such that, like the approved project, it would not affect, or be

[84] Di(2-ethylhexyl) phthalate or DEHP is a manufactured chemical that was use in place of PCBs as a dielectric fluid in some fluorescent light ballasts and other electrical equipment.

[85] California Water Resources Control Board, Geotracker results for area surrounding 750 Phelps Street, San Francisco CA. https://geotracker.waterboards.ca.gov/map/?global_id=T10000016780, accessed September 19, 2024; California Department of Toxic Substances Control, Envirostor Hazardous Waste and Substances Site List (Cortese), https://www.envirostor.dtsc.ca.gov/public/search?cmd=search&reporttype=CORTESE&site_type=CSITES,FUDS&status=ACT,BKLG,COM&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST+%28CORTESE%29, accessed September 19, 2024; California Environmental Protection Agency, Cortese List Data Sources, https://calepa.ca.gov/sitecleanup/corteselist/, accessed September 19, 2024.

affected by, existing soil and/or groundwater contamination that could expose the public and environment to new or more severe significant impacts.

The FEIR disclosed that the approved project could interfere with emergency access. Emergency access with the modified project is discussed in Section 5.3, Transportation and Circulation, above.

The FEIR concluded that the approved project would comply with the California Fire Code requirements for fire safety during construction and therefore result in less-than-significant impacts related to fire hazards. The same California Fire Code requirements would apply to the modified project, and the modified project does not include facilities or materials that would increase project fire hazards. The modified project would have less-than-significant impacts related to fire hazards.

Therefore, the modified project would not result in new significant impacts related to hazards and hazardous materials that were not previously identified in the FEIR; would not result in more severe impacts than those identified; and would not require new mitigation measures.

5.9.11 Mineral Resources, Energy Resources, and Water Use

The FEIR found that the project site and construction areas do not contain substantial mineral resources or locally important mineral resource recovery sites. Similarly, construction of the proposed modifications would not impact mineral resources, because the operations, engineering and maintenance buildings would be built within the same geologic units that the FEIR determined did not contain mineral resources.[86] Although construction of the modified project would require additional truck trips and associated energy use (for example, due to the additional 21,455 cubic yards of excavation; see Section 5.3, Transportation and Circulation), like the approved project, energy consumption during construction would not be wasteful because efficient equipment would be used pursuant to the City's Clean Construction Ordinance and Mitigation Measure M-AQ-1a (Construction Emissions Minimization) and consumption would be temporary such that it would also not result in long-term depletion of local or regional energy resources.

The FEIR discussed that energy, in the form of diesel, gasoline, and electricity would be consumed directly by construction equipment as well as indirectly through the energy needed to make the materials and components used in construction. The FEIR determined that impacts of construction energy use would be less than significant, because construction would be temporary and would therefore not result in long-term depletion of local or regional energy resources, would not be wasteful because efficient equipment and alternative fuels would be used per Mitigation Measure AQ-1a, and would recycle construction waste per Chapter 14 and Section 708 of the San Francisco Environment Code, which would reduce energy associated with extraction and manufacturing of new and raw materials.

Operation of the approved project would increase energy use (natural gas and electricity). The steam needed for digester operations would be generated by the steam boilers operating full time. However, the approved project would process digester gas into renewable natural gas offsetting a portion of natural gas that would have had to be extracted by others elsewhere. In addition, the approved project would also use the same amount of diesel for a back-up generator as conditions existing prior to project approval. The approved project would increase electricity use which would be supplied by hydroelectricity generated by

[86] Kohler-Antablin, S., *Generalized Mineral Land Classification Map of the South San Francisco Bay Production-Consumption Region*, 1996. Published by the California Department of Conservation Division of Mines and Geology.

City-owned facilities, except as identified below related to PG&E, and the SFPUC confirmed its ability to generate sufficient hydroelectricity to provide all the power for the approved project.

As part of the approved project (as reviewed by Addendum 1 to the Biosolids EIR), the developer of the biogas upgrade facility and deoxygenation system, together with PG&E, may elect to use PG&E's power for the biogas utilization system components. In this case, it would represent a small amount of overall power (approximately 1.6 megawatts out of a total of 6.6 megawatts) and, as of 2022, nearly 40 percent of PG&E's power comes from renewable resources. Therefore, the approved project's operations would not result in significant impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, because sufficient clean hydroelectricity would be available to supply the approved project, any portion of energy obtained from PG&E includes renewable resources, diesel use would not increase, and the approved project would offset a portion of natural gas usage elsewhere that would otherwise have been extracted. Regarding operation, the proposed operations, engineering and maintenance buildings would be designed to comply with LEED Gold standards, would incorporate solar panels into the building design, and would use up to approximately 0.60 megawatt annually. With the modified project, the annual operational energy needs of the Southeast Plant would be approximately 7.2 megawatts in 2045. The additional operational energy needs of the new operations, engineering, and maintenance buildings would also be provided by solar and hydroelectric power from SFPUC sources, and therefore modified project operations would result in less-than-significant impacts due to wasteful, inefficient, or unnecessary consumption of energy resources.

The FEIR discussed that potable water use during construction would not be wasteful, inefficient, or unnecessary, with compliance to Article 21 of the San Francisco Public Works Code, which requires the use of recycled water for dust control during construction unless a waiver is obtained from the City Water Department.[87] While the SFPUC obtained a waiver for the use of potable water for dust control, as allowed under applicable sections of Article 21, the use of this water would protect air quality and, in turn, public health, and therefore the modified project would result in less-than-significant impacts related to wasteful, inefficient, or unnecessary use of potable water during construction. Regarding operation, the FEIR discussed that the approved project would increase energy and water use; however, the FEIR concluded that the approved project's design maximizes using recycled water and/or other non-potable water to the extent possible in the new processes along with complying with the San Francisco Building Code and the San Francisco Water Efficient Irrigation Ordinance; furthermore, as discussed in the FEIR, the water would be used for wastewater treatment. Therefore, operation of the approved project would not result in the use of large amounts of water in a wasteful manner and operational impacts related to water usage would be less than significant. Like the approved project, the modified project design would maximize the use of recycled and other non-potable water to the extent possible and comply with the San Francisco Building Code and the San Francisco Water Efficient Irrigation Ordinance such that impacts related to water use would be less than significant.

Therefore, the modified project would not result in new significant impacts related to mineral resources, energy, and water use that were not previously identified in the FEIR; would not result in more severe impacts than those identified; and would not require new mitigation measures.

[87] San Francisco Public Works Code, Article 21, Sections 1101 and 1102.

6.0 Conclusion

Based on the foregoing, the San Francisco Planning Department concludes that the analyses conducted, and the conclusions reached, in the final FEIR certified by the San Francisco Planning Commission on March 8, 2018, and adopted by the San Francisco Public Utilities Commission on December 18, 2018, as well as in determinations made for subsequent minor project modifications and in Addendum 1 to the FEIR, remain valid. The modified project would not cause new significant impacts not identified in the FEIR, would not substantially increase the severity of the previously identified environmental impacts, and would not require new mitigation measures. No changes have occurred with respect to circumstances surrounding the modified project that would cause significant environmental impacts to which the modified project would contribute considerably to cumulative impacts, and no new information has become available that shows that the modified project would cause significant environmental impacts or a substantial increase in the severity of previously identified significant impacts. Therefore, no supplemental environmental review is required beyond this addendum.

I do hereby certify that the above determination has been made pursuant to State and local requirements.

Lisa Gibson
Environmental Review Officer

December 20, 2024
Date of Determination:

cc: Distribution List

Appendix A – Cumulative Projects

Appendix B – Air Quality Technical Memorandum and Health Risk Assessment Update

Appendix C – Historic Resources Evaluation Memorandum

Appendix D – Construction Equipment and Activity

Appendix E – Transportation Demand Estimate and Supporting Documentation

Appendix F – Greenhouse Gas Checklist

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APPENDIX A
CUMULATIVE PROJECTS

Appendix A Projects Considered in Cumulative Impact Analysis

Project No. in FEIR	Project Name (Project Sponsor)	Project Description	Construction Dates
1	Southeast Plant Headworks Replacement Project (SFPUC)	The project would construct a new 250 million gallon per day, all-weather headworks facility to provide better screening and grit removal at the SEP. The project would replace two existing headworks facilities, modify the Bruce Flynn Pump Station (BFS), and construct a new odor control facility. It would provide redundant infrastructure to provide reliability and ensure operational reliability. It would also improve the seismic reliability of the headworks facility and improve odor control. The project would modify and eventually demolish the influent control structure/Southeast Lift Station. The two existing headworks buildings (SEP 011 and SEP 012) would also be demolished. The project was modified to include upgrades to the Bruce Flynn Pump station to enhance reliability in wet weather events, modify influent sewer, remove a proposed new generator and the sewer construction in Evans Avenue, Rankin Street and Davidson Avenue. The modified project would also construct a new SEP 005 Southeast Lift Station and associated piping.	Spring 2018 to Spring 2026 (Revised from January 2017 to December 2021)
6	SEP Power Feed and Primary Switchgear Upgrades (SFPUC)	The objective of the project is to increase reliability, redundancy and capacity of the electrical system at Southeast Plant (SEP) to meet Sewer System Improvement Program (SSIP) level-of-service goals by upgrading the existing power feed by PG&E and obtaining a new feed by SFPUC Power Enterprise. The project will construct an elevated building to house the new Primary Power Switch Station and substructures to provide adequate power for the existing electrical loads and new SSIP facilities, upgrade/replace aging existing substations, install power monitoring and protection system for additional reliability and efficiency, as well as provide redundant services to the nearby pump stations.	January 2024 to May 2025 (Revised from November 2017 to January 2020)
11	SEP Repair and Replacement Treatment Plant Improvement Projects (SFPUC)	In order to maintain the operational reliability of existing facilities, ongoing repair and replacement activities are conducted including replacement of equipment that has reached the end of its useful life, is no longer operational due to continuous operation in a highly corrosive environment, or does not meeting current operational requirements.	Ongoing
12	Demolition of the Existing SEP Digesters and Southside Renovation Project (SFPUC)	This Phase II Sewer System Improvement Program (SSIP) project (Phase II has not yet been approved) would include demolition of the existing SEP digesters and associated control buildings, and improvements within the south side of the SEP. This project has not yet begun	After 2028 (Revised from after 2025)

Project No. in FEIR	Project Name (Project Sponsor)	Project Description	Construction Dates
		the planning phase and the SFPUC has not yet determined the specific improvements to be constructed.	
24	Quint-Jerrold Connector Road (San Francisco County Transportation Authority)[1]	This project would construct a new 950-foot-long roadway to provide access between existing Quint Street and Jerrold Avenue. The roadway would consist of two 13-foot-wide lanes (within a 50-foot-wide corridor), one northbound and one southbound. In addition, the project would construct or install several other elements along or beneath the length of the new roadway. Along the western side of the new roadway, the project would construct a new 5.5-foot-wide to 20-foot-wide sidewalk, depending on location; construct a new 27-foot-wide curb cut located along the San Francisco Wholesale Produce Market property (Project 25, below); and install street trees and street lighting. Along the eastern side of the new roadway, the project would construct a new 6.5-foot-tall reinforced concrete retaining wall. A new stop sign would be installed at the intersection of the new roadway and Jerrold Avenue. New sewer and water pipelines would be installed beneath the new roadway to provide on-site drainage and overall system reliability. The new road would support a potential new Caltrain station at Oakdale Avenue. The intersection with Jerrold Avenue also would accommodate trucks, although some movements would require wide turns. The San Francisco County Transportation Authority (SFCTA), Caltrain, and SF Public Works have coordinated project schedules to minimize the duration of the street closure.	Currently in the right-of-way acquisition phase. If successful, design would begin and construction could start in 2025. (Revised from later 2018 to 2019 depending on land acquisition)
25	San Francisco Market (formerly San Francisco Wholesale Produce Market) Expansion (City and County of San Francisco Market Corporation)[2]	This project consists of phased development to expand the existing San Francisco Wholesale Produce Market. The project would demolish the existing San Francisco Market buildings at the four quadrants of the main site, and would construct new buildings at each of the four quadrants. The project would include warehousing, office, meeting hall, and restaurant/café land uses. The new buildings would be 16 to 45 feet tall and would have a larger footprint than the existing buildings. The project and its associated roadway infrastructure would be built in about nine phases, over a period of approximately 16 years. It would start with the demolition of existing facilities at the SE Quadrant and construction of the 1900 Kirkwood Avenue building in January 2024, and would conclude with the occupancy of the 2000 Kirkwood Avenue building in June 2041. Phases 1 through 4 of the project include: Closure of Jerrold Ave between Toland and Rankin by the San Francisco Market; Demolition of the existing 455 Toland St building (NW Quadrant), and	2024 through 2041: Phases 1 through 4 would occur between 2024 and 2028

Project No. in FEIR	Project Name (Project Sponsor)	Project Description	Construction Dates
		grading for new surface parking lot; Vacation of Jerrold Ave, and other minor right-of-way areas at the Main Site; and Demolition of existing SE Quadrant Building and dock, and construction of 1900 Kirkwood Ave Building. The project would vacate Jerrold Avenue on the main site and reroute through-traffic around the main site on Innes Avenue, which will become the primary route for non-market destined traffic traveling through the area.	
27	Candlestick Point-Hunters Point Shipyard Phase I and II Development Project (Lennar Urban)[3]	This project would redevelop the 702-acre Candlestick Point-Hunters Point Shipyard area along the waterfront between south of India Basin and Candlestick Point. The project includes a mixed-use community with a wide range of residential, retail, office, research and development, civic, and community uses, and parks and recreational open space. In addition, a 300-slip marina would be constructed as would shoreline improvements to stabilize the shoreline. Phase I is already underway, including demolition of Candlestick Park Stadium. Phase II includes 6,225 units of housing (including rebuilding the Alice Griffith Public Housing), a regional retail center, a 220-room hotel, a performance venue, and 160 acres of new and revitalized open space.	Phased construction 2015 - 2035 (expect delays)
29	Pier 70 Waterfront Site (Forest City Development CA)[4]	This project consists of redevelopment of approximately 28 acres (identified as the "Waterfront Site") of the former industrial shipyard at Pier 70 and an additional 7 acres of land owned by the Port and PG&E. The site would be developed into a new mixed-use community with new commercial office development, new residential development, and a retail and arts component. New above-grade and below-grade parking and approximately 8 acres of new and expanded parks and shoreline access would be constructed. The project also includes the rehabilitation and adaptive reuse of Buildings 2, 12, and 21, which contribute to the eligible Pier 70 National Register Historic District. Overall, the project would construct a maximum of 4.2 million gross square feet in four phases over about 11 years. Two land use scenarios are under consideration, each with different amounts of commercial and residential land uses. The project would include up to 3,025 new residential units and up to 2.3 million square feet of commercial, restaurant, retail, and arts/light industrial land uses.	Phased construction 2018 - 2029 (expect delays)
30	Blue Greenway Project (Port of San Francisco)[5]	The Blue Greenway is the City's project to improve the City's southerly portion of the 500-mile, nine-county, region-wide Bay Trail, as well as the newly established Bay Area Water Trail and associated waterfront open space system. The alignment of the Blue Greenway generally follows the	Aqua Vista Park to be completed by 2025-2026

Project No. in FEIR	Project Name (Project Sponsor)	Project Description	Construction Dates
		alignment of the Bay Trail and Bay Area Water Trail from Mission Creek on the north to the County line on the south. Remaining parks: Warm Water Cove Park (in future after 2030), Pier 70 Parks (2028-2029) and Aqua Vista Park (would be completed by 2025-2026). The Port expects to complete all Blue Greenway projects within its jurisdiction by 2035.	
39	India Basin Mixed-Use Development (Build, Inc. and San Francisco Recreation and Parks Department)[6]	This project would encompass publicly and privately owned parcels, including existing streets, totaling approximately 38.8 acres at 700 Innes Avenue, 900 Innes Avenue, India Basin Shoreline Park, and India Basin Open Space locations. The project at 700 Innes Avenue would develop 17.12 acres of privately owned land plus 5.94 acres of developed and undeveloped public rights-of-way in phases; proposed uses include residential, retail, commercial, office, research and development/laboratory and clinical care space, institutional, flex space, recreational and art uses, parking, and a shoreline network of publicly accessible open space. The project at 900 Innes Avenue, India Basin Shoreline Park, and India Basin Open Space would include improvement of 14.2 acres of publicly owned parcels along the shoreline plus 1.58 acres of unimproved "paper" streets to create a publicly accessible network of new and/or improved parkland and open space. This new shoreline network would extend the Blue Greenway/Bay Trail and would provide pedestrian and bicycle connections to and along the shoreline, fronting San Francisco Bay.	On hold (Revised from 2018 – 2024)
40	San Francisco Gateway Project (Prologis, Inc.)[7]	The San Francisco Gateway Project would demolish the four existing single-story buildings at 749 Toland Street and 2000 McKinnon Avenue and construct two new multi-story buildings that would provide new production, distribution, and repair (PDR) space in the city. Each building would be approximately 97 feet tall and would have a maximum height of 115 feet, including rooftop appurtenances. The two new buildings would include PDR space, a logistics yard, vehicular circulation systems, and ground-floor retail spaces; they would total 2,160,000 gross square feet. The proposed project would convert Kirkwood Avenue (along the northern side of the project site, between Toland and Rankin streets) to a single-lane, eastbound one-way street; and convert a portion of McKinnon Avenue (along the southern side of the project site, between Toland and Selby streets) to a single-lane, westbound one-way street. Construction is anticipated to take approximately 31 months. Approximately 140,600 cubic yards of soil would	Summer 2026 through Winter 2028 (Revised from TBD)

Project No. in FEIR	Project Name (Project Sponsor)	Project Description	Construction Dates
		be excavated for the proposed project. The EIR also analyzes an expanded streetscape variant, which would improve the public right-of-way surrounding the project site.	
	Channel Force Main Intertie (SFPUC)	The existing 66-inch Channel Force Main transports wastewater from the northeastern part of San Francisco to the Southeast Treatment Plant. The Channel Force Main Intertie Project will increase reliability, provide operational flexibility, and allow for future inspections and maintenance. This project will construct a new pipeline connection and control systems along the existing force main. The project will also install control panels in the sidewalk along Cesar Chavez Street, between Indiana and Pennsylvania Streets, and replace existing air valves at two locations on Indiana Street, near the 20th Street and 25th Street intersections.	January 2024 - December 2025
	City Distribution Division Headquarters Project (SFPUC)[8]	This project would establish a new City Distribution Division (CDD) headquarters at 2000 Marin Street that would replace the existing CDD yards located at 639 Bryant and 1990 Newcomb. The proposed CDD headquarters would consist of an administrative building, car shop, machine shop, meter shop, warehouse, fabrication shop, paint and autobody shop, auto shop, landscape shop, a parking garage, outdoor vehicle and equipment parking, outdoor storage and laydown area, outdoor space, and a fuel station.	January 2025 - December 2027
	3433 3rd Street (Equity Community Builders)[9]	The proposed project would construct an approximately 16,194 gross square-foot (sf), two-story, office and assembly building with surface parking with an approximate 9,441 sf ground floor footprint. The proposed project would include a 7,364 sf of union assembly/meeting hall, 8,830 sf of office space which includes 2,646 sf of elevators and corridors, 4,215 sf of landscaped area, and 9,372 sf of parking area. The project site is approximately 25,968 sf in area.	Under review with SF Planning
	Bay Corridor Transmission and Distribution (Phase 3 and 4) (SFPUC)	The San Francisco Public Utilities Commission Power Enterprise is building a high voltage transmission and distribution system in the Southeast portion of the city. It is intended to serve existing and future customers with large power needs. There are four phases of the project; phases 1 and 2 were completed in 2022. Phase 3 - 1535 Davidson Avenue - Power Distribution System - builds a new electrical substation at 1535 Davidson Avenue. Phase 4 - The Project proposes the following improvements in the City's Bayview District: Installation of	Phase 3 construction on-going with completion by Winter 2024. Phase 4 construction August 2024-May 2026

Project No. in FEIR	Project Name (Project Sponsor)	Project Description	Construction Dates
		a new duct bank from the intersection of Evans Avenue and Rankin Street to 2000 Marin Street. Replacement of existing 12-inch and 8-inch cast iron potable water mains with new 12-inch ductile iron pipe mains along three segments (Evans Avenue from Napoleon Street north to the existing Evans Avenue bridge near Cesar Chavez Street, Marin Street from Evans Avenue to the Marin Street terminus, and Cesar Chavez Street from Evans Avenue to Mississippi Street). This project component involves: the replacement of water main appurtenances including valves, fire hydrants, and water service; and extension and modernization of the existing emergency water system from the intersection of Evans Avenue and Marin Street to the Marin Street terminus; installation of high-pressure fire hydrants and high pressure valves. Ancillary work including ADA curb ramp upgrades, traffic signal related improvements, and restoration of traffic markings and striping.	
	SEP HVAC and Mechanical Upgrades (SFPUC)	The SFPUC proposes to repair and replace various HVAC equipment and mechanical systems at the Southeast Plant.	December 2022 - Winter 2025
	SEP 545 Electrical Controls Upgrade (SFPUC)	The project would conduct electrical service upgrades and repairs to existing facility valve controls adjacent to the Southeast Plant, Bruce Flynn Pump Station, and Booster Pump Station (adjacent to Islais Creek) to maintain permit compliance and support operational reliability and resilience. Key project scope includes selective demolition of the existing and installation of new power feeders and fiber optic cable between Bruce Flynn Pump Station through the new and existing duct bank to the valve vault and existing pull box; new control panel; new automatic transfer switch, input/output unit; pump station ventilation; bollards; associated conduit and wiring, miscellaneous site and vault upgrades as required.	Spring 2023 - Fall 2024
	1399 Marin Transit Service Operations and Maintenance Plan (SFMTA)[10]	The existing diesel hybrid fleet of approximately 88 buses will be moved from the Kirkland Transit Facility near Fisherman's Wharf to operate from the Islais Creek Transit Facility located at 1301 Cesar Chavez Street, with bus storage and repair-level maintenance occurring at the 1399 Marin facility, located across Indiana Avenue from Islais Creek facility site. Minimal improvements to the site (replacement or upgraded fencing, improved yard lighting, which likely will include some minor trenching and spot repavement of the surface yard area) are planned. No improvements are planned for the interior of the building on site.	Spring - Winter 2025

Project No. in FEIR	Project Name (Project Sponsor)	Project Description	Construction Dates
	Additional Newcomb Yard Improvements (SFPUC)	This program will fund interim improvements at CDD Headquarters at 1990 Newcomb Avenue that are required to address health and safety concerns and to renovate existing facilities to accommodate the division's staffing needs while a new SFWD Headquarters at 2000 Marin is designed and constructed. Interim improvements include: re-roofing the Administration, Shops and Warehouse Building; Emergency Communication Facilities at Newcomb Yard and Lake Merced Pump Station; developing approximately 4,000 square feet of new office space; renovating the Shops Building mechanical systems; developing Incident Command Structure facilities; developing access control systems; and street and sidewalk improvements.	2025 - 2027
	Islais Creek Bridge Project (San Francisco Public Works)[11]	The City and County of San Francisco is proposing to replace the existing Islais Creek Bridge along Third Street in San Francisco's Bayview neighborhood. Construction of the proposed project would result in the replacement of the existing drawbridge with a fixed bridge and large ships would no longer be able access the Islais Creek channel west of the new bridge. Throughout the construction duration, there would be no access for vehicles, the T-Third Street light rail service, or pedestrians to the bridge or Third Street between Marin Street to the north and Cargo Way to the south. Vehicles would be detoured around the site to other routes. T-Third Street passengers would use bus shuttles in lieu of light rail service south of Islais Creek Bridge and the 15 Bayview Hunters Point Express and 91 Third Street/19th Avenue OWL buses would be detoured around the project site.	Spring 2026 -Spring 2028
	Bayview Train Caltrain Station (SFCTA)[12]	The San Francisco County Transportation Authority is proposing a new Caltrain Station in the Bayview community at either Oakdale (Quint Street between Oakdale and Jerrold avenues) or Evans Avenue (between Selby and Rankin streets).	Unknown

NOTES

Projects with numbers were included in the FEIR Cumulative Projects List, with locations shown on FEIR 4.1-1. Projects completed since the FEIR have been removed from the cumulative list. Projects with no numbers are new projects.

SOURCES

Project descriptions without noted sources were prepared by the SFPUC.

1 San Francisco Planning Department, Mitigated Negative Declaration, Quint-Jerrold Connector Road Project, Case No. 2013.0858E, August 5, 2015. Schedule update from SFCTA website project page: https://www.sfcta.org/projects/quint-jerrold-connector-road; accessed January 9, 2024.

2 San Francisco Planning Department, Addendum 2 to Mitigated Negative Declaration, San Francisco Market Project (formerly SF Produce Mart), Case No. 2009-1153ENV-03, July 27, 2022. Available at sfplanning.org/sfceqadocs.

3 City and County of San Francisco, Office of Community Investment and Infrastructure, Hunters Point Shipyard Phase 1 and 2/Candlestick Point. Available online at Hunters Point Shipyard Phase 1 and 2/Candlestick Point | Office of Community Investment and Infrastructure (sfocii.org). Accessed July 8, 2024.

4 San Francisco Planning Department, Pier 70 Mixed-Use District Project Final EIR, Case No. 2014-001272ENV, certified August 24, 2017. Addendum to Environmental Impact Report dated April 16, 2018. Available at sfplanning.org/sfceqadocs. Accessed July 8, 2024.

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APPENDIX B
AIR QUALITY TECHNICAL MEMORANDUM AND HEALTH RISK ASSESSMENT UPDATE

AIR QUALITY MEMO

Date: **October 11, 2024**

To: **Tiffany Edwards, ESA**
Karen Lancelle, ESA
Josh Pollak, San Francisco Planning Department

From: **Michael Keinath, PE**
Rei Zhang

Subject: **Air Quality Health Risk Assessment Update for the Biosolids Digester Facilities Project: SEP-7 Operations, Engineering and Maintenance Buildings**

As part of the original environmental analysis effort in 2017, for the construction and operation of the San Francisco Public Utilities Commission's (SFPUC) Southeast Plant (SEP) Biosolids Digester Facilities Project (BDFP or "the Project"), Ramboll conducted California Environmental Quality Act (CEQA) analyses of greenhouse gases (GHGs), criteria air pollutants (CAPs) and precursors, as well as a health risk assessment (HRA) based on exposure to toxic air contaminants (TACs). Analysis methodology and results were documented in an Air Quality Technical Report (AQTR, 2017), which was incorporated into the Final Environmental Impact Report (FEIR).[1,2] The approved project to date includes one addendum (Addendum 1), which analyzed the potential impacts of constructing and operating a biogas utilization system at the SEP plant.

SFPUC is proposing to modify the approved BDFP to construct the SEP operations, engineering, and maintenance buildings (SEP-7), instead of the originally planned and approved Maintenance Shops 1 and 2 within the SEP along Jerrold Avenue. The SEP-7 area would be adjacent to but outside of the BDFP project site evaluated in the FEIR. SEP-7 would also replace an existing 500 kVA emergency backup generator with two new 750 kVA generators.[3] The two new generators would be at minimum Tier 3 compliant; due to the lack of specifications for the two new generators, both Tier 3 and Tier 4 Final generators were analyzed.

This memorandum analyzes the effects of this proposed modification on construction and operational emissions and health risks. GHG emissions are evaluated for SEP-7 operations only, as the BAAQMD does not identify a significance threshold for construction-related GHG emissions.

The Maintenance Shops 1 and 2 were originally analyzed in the BDFP FEIR as part of the construction and operations emissions estimation and health risk assessment. This analysis estimates SEP-7 emissions and health risk independently before adding them to the construction and operational

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[1] Ramboll. 2017. Air Quality Technical Report. March. Available upon request.

[2] City and County of San Francisco. 2017. Biosolids Digester Facilities Project. May. Available at: https://ceqanet.opr.ca.gov/2015062073/2

[3] Project Description for the SEP-7 Maintenance and Trades Buildings Project, provided on 8/8/2024.

emissions and health risk results from the approved project,[4] which is conservative for the following reasons:

1. Actual BDFP construction emissions have been much lower than estimated in the FEIR;[5] however, this analysis adds SEP-7 to the approved project, which consists of the construction emissions and health risks previously estimated in the FEIR including the former project design of Maintenance Buildings 1 and 2, as well as the operational emissions and health risk from Addendum 1 (the biogas addendum)
2. First analyzing SEP-7 as an individual project would be conservative with regard to exposure assumptions used in the cancer risk analysis, as it would assume a resident is exposed from the third trimester, with the highest exposure numbers; whereas the SEP-7 project would not actually have construction activity in the first year of approved project construction, since that construction began in January of 2020.
3. Adding the maximum individual project health impacts from SEP-7 onto the maximally exposed individual sensitive receptors (MEISR) impacts for the approved project is also conservative since this assumes that the maximum impact from both analyses could be occurring at the same location, when the maximum impacts from each could be in different locations.

OVERVIEW OF PROPOSED CHANGES

As described in the FEIR, Maintenance Shops 1 consisted of a 30-foot-tall building with a footprint of approximately 12,600 square feet and a total floor area of 19,600 square feet. Maintenance Shops 2 consisted of a 15-foot-tall building with a total footprint and floor area of 5,500 square feet.

Instead of Maintenance Shops 1 and 2, the SFPUC proposes to modify the project to construct SEP-7, which would also consist of two buildings (SEP 603 and SEP 914). These modifications are described in more detail in the Project Description for the SEP-7 Operations, Engineering and Maintenance Buildings Project. The modification would also demolish the existing building (SEP 850), two pre-fabricated trailers (SEP 850A and 850B), and the adjacent, paved surface parking lot (a total area of approximately one acre), instead of existing building (SEP 870) as covered in the FEIR. The proposed Mechanical Maintenance building (SEP 603) would consist of an approximately 8,700-square-foot, 35-foot-tall two-story building (including mezzanine) at the corner of Jerrold Avenue and Phelps Street (accessed from Jerrold Avenue). The proposed Operations, Engineering, and Maintenance building (SEP 914) would consist of an approximately 34,600-square-foot, 50-foot-tall three-story building located along Jerrold Avenue between the proposed Mechanical Maintenance building and existing building SEP 870 (also accessed from Jerrold Avenue). Proposed staging areas would be on-site at the SEP and in front of the project site along the parking strip on Jerrold Avenue.

SEP-7 construction would also temporarily relocate SFPUC operational activities in existing Building 850 to the existing 1900 Jerrold Avenue building, within existing Building 870, and to newly constructed temporary shower trailers in the parking area adjacent to Building 870. Activities associated with connections to existing and new utilities, the construction of a utility enclosure for a

[4] The approved project consists of the FEIR and Addendum 1, which analyzed the potential impacts of constructing and operating a biogas utilization system at the SEP plant.

[5] This memorandum builds upon previous analyses done for the biogas utilization system, a previous addendum to the BDFP FEIR. For that project modification, actual construction hours to date were used to estimate emissions. Actual construction activity (horsepower hours) and thus emissions are lower than those estimated in the FEIR.

new chiller, and construction staging would be limited and are accounted for by the overall construction activity occurring with the SEP-7 project construction footprint.

The proposed SEP-7 modification represents an increase in building square footage from the original Maintenance Shops 1 and 2. Project construction would occur outside the project area analyzed in the FEIR, including construction closer to Phelps Street.

Construction Emissions Analysis

Ramboll utilized California Emission Estimator Model version 2022.1 (CalEEMod) and its equivalent methodologies to quantify construction CAP emissions for the SEP-7 project. Emissions are estimated for on-site exhaust, mobile exhaust,. and architectural coatings from six construction subphases. As described below, Ramboll updated several default assumptions to reflect Project-specific information to generate emission estimates.

The construction schedule is shown in **Table 1**. The off-road equipment list is shown in **Table 2**; off-road equipment quantities, utilization, and fuel types were provided by SFPUC. Equipment load factor and horsepower were assumed to be CalEEMod default. These parameters were used along with CAP and GHG emission factors to calculate offroad emissions. Emissions assume compliance with FEIR Mitigation Measure M-AQ-1a, which is the scenario using Tier 4 Final equipment for all equipment greater than or equal to 140 horsepower. Equipment with horsepower less than 140 horsepower were assumed to be Tier 2 equipment with a Diesel Particulate Filter (DPF). This mitigation measure also includes renewable diesel for all diesel offroad equipment and on-road haul trucks.

Construction on-road vehicle trip rates are shown in **Table 3**. All worker vehicles were assumed to be fueled by gasoline, and all vendor vehicles and haul trucks were assumed to be fueled by diesel. On-road emissions were calculated using emission factors from the California Air Resources Board's (CARB) Emission FACtor onroad emissions model (EMFAC2021). Construction emissions are also generated from architectural coatings, as shown in **Table 4**.

The control measures incorporated into the emission estimates for the controlled scenario are consistent with the engine requirements outlined in FEIR Mitigation Measure M-AQ-1a for construction emissions.[6] Summarized CAP and GHG emissions from SEP-7 construction are presented in **Table 5**.

For construction emissions, only diesel particulate matter (DPM) and $PM_{2.5}$ emissions from vendor and hauling trucks were included in the HRA. Construction worker vehicle trips were assumed to be gasoline-fueled and thus not a source of diesel particulate matter. Therefore, construction worker vehicle emissions were not included in the health risk assessment.

All construction equipment was assumed to be diesel-fueled, such that the only TAC evaluated in the health risk assessment is DPM.

Operational Emissions Analysis

Ramboll calculated emissions from the existing 500kva and the two new 750kva backup generators, as shown in **Table 6**. Generator emissions were calculated assuming 50 hours of emergency use in accordance with the San Francisco Planning Department's Air Quality and Greenhouse Gas Analysis

[6] This is the scenario using Tier 4 Final equipment for all equipment greater than or equal to 140 horsepower. Equipment with horsepower less than 140 horsepower were assumed to be Tier 2 equipment with a Diesel Particulate Filter (DPF). Emissions also include renewable diesel for all diesel offroad equipment and on-road haul trucks.

Guidelines.[7] The existing generator's emissions were calculated using emission factors from the generator specifications. Due to the lack of specifications for the two new generators, Ramboll analyzed both Tier 3 and Tier 4 Final generators and conservatively used a power factor of 1 to convert from kva to kW (apparent to actual power).[8]

Air Dispersion Modeling Methodology

Ramboll modeled the SEP-7 sources at the proposed project location, sourced from the project description, shown in **Figure 1**. The construction area was modeled as a single area emissions source, consistent with parameters used for modeling construction in the AQTR. The generators were modelled using information from the generator specification sheets (existing generator) or the BAAQMD's default generator modeling parameters[9] (proposed generators) and the locations provided by SFPUC. Construction traffic routes were not separately modeled and all on-road traffic emissions were conservatively assigned to the construction area source.[10]

Health Risk Assessment Methodology

Project construction would generate TAC emissions, specifically DPM. Per the Consolidated Table of California Office of Environmental Health Hazard Assessment (OEHHA)/CARB Approved Risk Assessment Health Values, DPM can cause cancer and non-cancer chronic health impacts; DPM has no acute toxicity value. Sources of DPM included in the HRA include: vendor truck trips, hauling truck trips, offroad equipment associated with construction, and operational emergency generator emissions.

During the previous health risk assessment associated with the BDFP FEIR, long-term health impacts (such as cancer risk, chronic HI, and $PM_{2.5}$ concentrations) from Project construction and operations were evaluated at sensitive receptors (such as residences), and the MEISR were identified.

Ramboll conducted a health risk assessment for the SEP-7 operations, engineering and maintenance buildings consistent with OEHHA's 2015 Guidance Manual for Preparation of Health Risk Assessment[11] and the 2022 BAAQMD CEQA Guidelines.[12] Following these guidance documents for assessing impacts to exposed populations from emissions resulting from a project's construction, sensitive receptors were evaluated as a fetus *in utero* at the beginning of the third trimester at the start of SEP-7 construction until the end of construction. The exposure parameters for residential receptors are presented in **Table 8**. This approach is conservative because it places the proposed SEP-7 construction activity in the earliest years of exposure, which have the highest intake factors and thus

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[7] SF Environmental Planning. 2024. Air Quality and Greenhouse Gas Analysis Guidelines. Available at: https://sfplanning.org/air-quality

[8] While a power factor of 0.8 is typical, the use of a power factor of 1 is conservative, as emissions are calculated using emission factors in units of g/hp-hr.

[9] BAAQMD. 2023. California Environmental Quality Act Air Quality Guidelines, Appendix E: Recommended Methods For Screening and Modeling Local Risks and Hazards. April.

[10] The construction routes for SEP-7 will include previously modeled routes for the BDFP. Ramboll has previously performed analyses to determine that contributions from construction traffic are small at the MEIR, and that a worst-case screening (worst-case construction traffic) would not result in an exceedance of CEQA thresholds; see MPM 16, available upon request.

[11] OEHHA. 2015. Air Toxics Hot Spot Program. Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February. Available online at: https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf

[12] BAAQMD. 2023. California Environmental Quality Act Air Quality Guidelines. April.

contribution to health risk impacts (i.e., as would be done if SEP-7 was a standalone project, rather than a part of the BDFP project even though the SEP-7 project would actually be built toward the end of the BDFP project). Operations were assumed to start immediately after construction, with the total exposure duration for the health risk assessment set at 30 years (2 years of construction and 28 years of generator operation). The maximum cancer risk, chronic HI, and $PM_{2.5}$ concentrations for the Tier 3 generators scenario are shown in **Table 9a** and the maximum cancer risk, chronic HI, and $PM_{2.5}$ concentrations for the Tier 4 Final generators scenario are shown in **Table 9b**. The maximum health impacts occur at different locations between the Tier 3 and Tier 4 scenarios.

As mentioned above, the SEP-7 operations, engineering and maintenance buildings are a component of the BDFP; therefore, the health risks from SEP-7 construction were then conservatively added to the previously identified MEISRs from BDFP Project construction in the FEIR, as shown also in **Table 9a** and **9b** and **Figure 2**. **Table 9** also includes the results of the cumulative risk assessment, which estimates excess lifetime cancer risks and $PM_{2.5}$ concentrations that are attributable to other mobile and stationary sources within the Project vicinity, in addition to impacts from the Project. The cumulative sources analyzed remained consistent with the AQTR, and consist of additional projects in the surrounding area that will be under construction during the construction and operation of the BDFP, as well as an update of the background risks from the health risks database from the 2020 San Francisco Citywide HRA.[13,14]

RESULTS

Construction Emissions

Table 7 and **Table A** (below) show CAP and GHG construction emissions from the proposed construction of the SEP-7 operations, engineering and maintenance buildings project.

[13] The San Francisco Planning Department evaluated citywide the cumulative cancer risks and $PM_{2.5}$ concentrations from existing known sources of air pollution in 2014 as part of the development of a Community Risk Reduction Plan (CRRP) and corresponding HRA database (CRRP-HRA) and this was used in the AQTR. Since the certification of the FEIR with the AQTR in 2018, the cumulative health risks were re-evaluated and the Citywide HRA was updated in 2020, supplanting the former CRRP-HRA. As requested by the SF Planning Department, this analysis uses the updated Citywide HRA for the cumulative risk assessment.

[14] San Francisco Department of Public Health (SFDPH), San Francisco Planning Department, and Ramboll. 2020. San Francisco Citywide Health Risk Assessment: Technical Support Documentation.

Table A: Average Daily Criteria Air Pollutant and Greenhouse Gas Construction Emissions from SEP-7 Alone

Year	ROG (lb/day)[1]	NOx (lb/day)[1]	PM_{10} (lb/day)[1]	$PM_{2.5}$ (lb/day)[1]	CO_2e (MT/year)[1]
2025 (1st year of SEP-7 construction)	0.3	11	0.07	0.07	405
2026 (2nd year of SEP-7 construction)	1.3	6.5	0.05	0.05	431
2027 (3rd year of SEP-7 construction)	2.4	8.6	0.06	0.06	216
BAAQMD Thresholds[2]	54	54	82	54	N/A
Exceed Thresholds?[2]	N	N	N	N	N/A

Notes:

1. SEP-7 emissions shown here assume compliance with FEIR Mitigation Measure M-AQ-1a and were sourced from the attached Table 5.
2. The BAAQMD construction thresholds do not include thresholds for greenhouse gases.

The Conceptual Engineering Report schedule, which was used in the FEIR, placed the construction of Maintenance Shops 1 and 2 in Years 2-4. **Table B** below therefore shows the SEP-7 emissions added to the FEIR controlled construction emissions for Years 2-4; Years 1 and 5 are the same as presented in the FEIR.

As shown in the tables, CAP emissions for the summation of BDFP and SEP-7 construction would exceed thresholds for NOx in Years 2 and 3; the BDFP Project as analyzed in the FEIR would exceed the NOx threshold in Years 1 and 3 only.

Table B: Average Daily Construction Emissions from SEP-7 Combined with BDFP FEIR Emissions Years 2-4

Year[1]	ROG (lb/day)[1]	NOx (lb/day)[1]	PM_{10} (lb/day)[1]	$PM_{2.5}$ (lb/day)[1]
1st year of SEP-7 construction plus FEIR Year 2	10	**56**	0.7	0.7
2nd year of SEP-7 construction plus FEIR Year 3	11	**62**	0.7	0.7
3rd year of SEP-7 construction plus FEIR Year 4	15	48	0.6	0.6
BAAQMD Thresholds	54	54	82	54
Exceed Thresholds?	N	Y	N	N

Notes:

1. The FEIR Conceptual Engineering Report schedule, which was used in the FEIR, placed the construction of Maintenance Shops 1 and 2 in Years 2-4, which is how the mapping between calendar year and FEIR Year was determined. Construction CAP emissions from the BDFP FEIR are sourced from Table 4c of the AQTR and are consistent with Table 4.8-9 of the FEIR. Construction CAP emissions from the SEP-7 operations, engineering and maintenance buildings are sourced from the attached Table 5 and were added to FEIR Years 2-4. **Bold** represents exceedances of the threshold.
2. BDFP and SEP-7 emissions shown here assume compliance with FEIR Mitigation Measure M-AQ-1a.

These summed emissions are conservative because the SEP-7 construction activities were added to the construction emissions from the FEIR years two through four while the construction emissions that would have occurred from the construction of Maintenance Shops 1 and 2 were not removed. In addition, as a part of separate analyses conducted for the biogas utilization system (Addendum 1, 2024), Ramboll computed actual emissions from BDFP construction for Years 1 through 3, which showed that actual construction emissions are lower than estimated in the FEIR due to fewer construction equipment hours. **Table 7b** and **Table C** show the SEP-7 emissions added to the FEIR actual construction emissions for Years 2-3, since actual construction emissions were only available for Years 1-3 and again this analysis adds SEP-7 to BDFP FEIR Years 2-4.

Table C: Average Daily Construction Emissions from SEP-7 Combined with BDFP Actual Construction Emissions

Year	ROG (lb/day)[1]	NOx (lb/day)[1]	PM_{10} (lb/day)[1]	$PM_{2.5}$ (lb/day)[1]
Year 1 of SEP-7 plus Year 2 of BDFP actual emissions	4.5	47	0.4	0.4
Year 2 of SEP-7 plus Year 3 of BDFP actual emissions	4.4	37	0.2	0.2
Year 3 of SEP-7 plus Year 4 of BDFP actual emissions[2]	N/a	N/a	N/a	N/a
BAAQMD Thresholds	54	54	82	54
Exceed Thresholds?	N	N	N	N

Notes:

1. Actual emissions for the Biosolids Digester Facility Project off-road sources were based on data provided by the Project's construction contractors for Years 1-3 (2020-2022). Construction CAP emissions from the SEP-7 project are sourced from the attached Table 5 and were added to Years 2-3. SEP-7 emissions shown here assume compliance with FEIR Mitigation Measure M-AQ-1a.
2. BDFP actual emissions for year 4 is not available as the construction is currently ongoing as of October 2024; refer to Table B above for average daily construction emissions from SEP-7 combined with BDFP FEIR year 4 construction emissions.

Operational Emissions

Table D shows SEP-7 operational emissions with both Tier 3 and Tier 4 750 kva generators, as well as the SEP-7 operational emissions combined with the biogas Addendum 1 operational emissions.

Table D: Net Annual Operational Emissions from SEP-7 Generators Combined with Approved Project Operational Emissions

Scenario	ROG (ton/year)	NOx (ton/year)	PM_{10} (ton/year)	$PM_{2.5}$ (ton/year)
Approved Project[2]	-3.4	-0.2	2.3	2.3
Net SEP-7 Operations (Tier 3 Generators)[1]	8.4E-04	0.10	0.0081	0.0070
Approved Project plus SEP-7 (Total)	-3.4	-0.1	2.3	2.3
BAAQMD Thresholds	10	10	15	10
Exceed Thresholds?	N	N	N	N

Approved Project[2]	-3.4	-0.2	2.3	2.3
Net SEP-7 Operations (Tier 4 Generators) [1]	-0.0036	0.089	3.7E-04	3.7E-04
Approved Project plus SEP-7 (Total)	-3.4	-0.1	2.3	2.3
BAAQMD Thresholds	10	10	15	10
Exceed Thresholds?	N	N	N	N

Notes:

1. Operational emissions calculated as emissions from the new generators minus the emissions of the removed generator.
2. The approved project includes the biogas Addendum 1 to the EIR.

The operational emissions from SEP-7 are negligible on a ton per year basis; when combined with the operational emissions from the approved project, the total combined emissions would remain under thresholds.

Health Risks

In the FEIR, the MEISR is identified as the sensitive receptor location of the maximum net risk: cancer risks minus the adjusted existing operational risk of existing sources at the SEP planned for removal at the completion of the overall BDFP project. In the FEIR, the net cancer risk was 1.7 in a million, the net chronic HI was 0.0036, and the $PM_{2.5}$ concentration was 0.017 ug/m^3. This risk includes contributions from BDFP construction and approved project operations.

Table 9 and **Table E** below shows the health impacts for the SEP-7 construction and operations, including for the Tier 3 and Tier 4 generators, as well as the combined value of SEP-7 plus the approved project. Adding the maximum health impacts from SEP-7 and the MEISR impacts is conservative because this assumes that these maximums could be occurring at receptors that would also be experiencing health risks at the level of the MEISR in the FEIR. In addition, the FEIR MEISR impact value shown for BDFP already includes a small portion of risk accounted for from the Maintenance Shops 1 and 2 construction as well as operations of the BDFP (as was evaluated in the FEIR). Summing SEP-7 and the FEIR health risk impacts is additionally conservative for PM and chronic HI, which are calculated as maximum annual averages, as the summation assumes they will also overlap in time.

As shown in **Table E** below, the resulting health impacts at this receptor (the MEISR) would be below CEQA thresholds in both the Tier 3 and Tier 4 scenario.

Table E: Potential Theoretical Maximum Health Risk Impacts from SEP-7 combined with Approved Project

Source	Excess Cancer Risk (in a million)[1]	$PM_{2.5}$ Concentration (ug/m^3)[3]	Chronic Non-Cancer Hazard Index (unitless)[3]
SEP-7 MEISR Impact (Construction Emissions and Tier 3 Generators)	2.4	0.0047	0.0010
FEIR Construction MEISR Impact	1.7[2]	0.017[4]	0.0036[4]
Addendum 1 MEISR Impact[5]	-0.009	0.02	0.015
Total Combined Impact	4.2	0.04	0.020
CEQA Significance Threshold	7.0	0.2	1
Exceeds CEQA Significance Threshold?	N	N	N

SEP-7 MEISR Impact (Construction Emissions and Tier 4 Generators)	1.5	0.0047	0.0010
FEIR Construction MEISR Impact	1.7[2]	0.017[4]	0.0036[4]
Addendum 1 MEISR Impact[5]	-0.009	0.02	0.015
Total Combined Impact[6]	3.3	0.04	0.020
CEQA Significance Threshold	7.0	0.2	1
Exceeds CEQA Significance Threshold?	N	N	N

Notes:

1. The cancer risk values reflect the maximum lifetime exposure to the project (construction and operations) of the mitigated scenario described in the FEIR and the approved project operations.
2. This value is from Table 4.8-11 of the FEIR and Table 22 of the AQTR. This cancer risk value includes the cancer risk at the MEISR identified in the FEIR from the entire project implementation, including construction and operation, minus the net reduction from decommission of certain existing facilities. As part of the biogas addendum, risks from BDFP operation, and therefore entire project implementation risks (construction and operation) would likely be lower than evaluated in the FEIR.
3. The values for chronic non-cancer hazard index and $PM_{2.5}$ reflect the annual maximums from any of the project years at the MEISR with the highest level of exposure as identified in the FEIR.
4. These values are from Table 23a of the AQTR and represent the mitigated scenario.
5. Addendum 1 only updated the health risks from the operation of the biogas utilization system.
6. The total combined impact value may not equal the sum of the individual components due to rounding.

Table F below summarizes the cumulative health impacts of SEP-7 plus the approved project, and compares it to the FEIR Construction MEISR impact value. The health impacts from SEP-7 at the MEISR were added onto the construction health impacts from the BDFP EIR at the BDFP MEISR and the operational health impacts from the Biogas addendum at the Addendum MEISR.

Table F: Cumulative Health Impacts from SEP-7 combined with the Approved Project , plus Cumulative Projects and the 2020 Updated Citywide Health Risk Assessment[1]

Source	Excess Cancer Risk (in a million)	$PM_{2.5}$ Concentration (ug/m^3)	Chronic Non-Cancer Hazard Index (unitless)
FEIR Construction MEISR Impact[2]	111	9.2	0.0089
SEP7 (Tier 3 Generators) Construction and Operations plus Addendum 1	4.2	0.04	0.025
Cumulative Projects	24	0.010	0.0053
Citywide HRA	106	9.5	--
Total[3]	134	9.5	0.025
Cumulative CEQA Threshold	90	9.0	10.0
Screening Risks Above Cumulative Threshold?	Y	Y	N

FEIR MEISR Impact[2]	111	9.2	0.0089
SEP7 (Tier 4 Generators) Construction and Operations plus Addendum 1	3.3	0.04	0.025
Cumulative Projects	24	0.010	0.0053
Citywide HRA	100	9.5	--
Total[3]	127	9.5	0.025
Cumulative CEQA Threshold	90	9.0	10.0
Screening Risks Above Cumulative Threshold?	Y	Y	N

Notes:

1. Cumulative impacts include risks from nearby stationary sources, major roadways, and SFPUC-sponsored projects, consistent with the AQTR and FEIR. Nearby stationary sources and major roadway impacts are estimated in the Citywide HRA. Citywide background health risk has increased since the FEIR (and AQTR), contributing to the increase in cumulative effects.
2. FEIR impacts from construction are taken from AQTR Table 26 and Table 27.
3. These values are different because the background concentrations (from the Citywide HRA) vary by location, and the SEP-7 MEISRs are at different locations for the two generator scenarios and for the biogas addendum.

This approach is conservative, as it sums the maximum risks from all project components when the maximum health impacts would occur at different locations. Citywide background health risk has also increased since the FEIR (and AQTR). The approach taken in this analysis is additionally conservative for construction emissions and health risk. As mentioned previously, in the air quality analysis done for the biogas utilization system, actual construction hours were used to estimate emissions. Actual construction activity (horsepower hours) and thus emissions were lower than the estimates in the FEIR. Additionally, the biogas utilization system would result in less construction activity than was analyzed in the FEIR, because fewer and less substantive structures would be built in less time.

CLOSING

The analysis presented above represents a conservative estimate of the CAP, GHG, and health risk emissions from the proposed modifications to the BDFP Project to implement the proposed SEP-7 project. CAP emissions for the conservative summation of BDFP and SEP-7 construction would exceed CEQA threshold for NOx in Years 2 and 3. Year 3 was already determined to be exceeded in the BDFP FEIR with mitigation. Thus, like for the approved project, NOx offsets would be required to mitigate emissions over the threshold. The theoretical worst-case health risk analysis demonstrates that the modifications would not result in exceedances of the CEQA project-level health risk thresholds. The cumulative risk assessment includes the use of the Citywide HRA updated in 2020 for the cumulative health risk assessment; increases in citywide background health risk since the FEIR leads to increases in cumulative effects.

TABLES

Table 1
Construction Phasing Schedule
SFPUC SEP-7
San Francisco, CA

Phase[1]	Start Date	End Date	Number of Work Days	Days per Week
Demolition	2/14/2025	6/19/2025	90	5
Grading	6/20/2025	11/24/2025	112	5
Deep Foundations	11/3/2025	3/2/2026	86	5
Erection	12/1/2025	11/20/2026	255	5
Architectural Finishes	9/1/2026	6/3/2027	198	5
Site Work	12/22/2026	7/2/2027	139	5

Notes:
1. Construction schedule was provided by the Project Applicant.

Table 2
Construction Equipment
SFPUC SEP-7
San Francisco, CA

Phase	Equipment[1]	CalEEMod® Equipment[2]	Number[1]	Horsepower[2]	Daily Usage[1] (hours/day)	Utilization[1]	Engine Tier[3]	Control[3]
Demolition	Air Compressors	Air Compressors	2	37	8	33%	Tier 2	DPF
	Concrete/Industrial Saws	Concrete/Industrial Saws	3	33	4	50%	Tier 2	DPF
	Cranes	Cranes	1	367	4	67%	Tier 4 Final	--
	Crawler Tractors	Crawler Tractors	2	87	8	67%	Tier 2	DPF
	Crushing/Proc. Equipment	Crushing/Proc. Equipment	2	12	6	50%	Tier 2	DPF
	Dumpers/Tenders	Dumpers/Tenders	2	16	4	67%	Tier 2	DPF
	Excavators	Excavators	2	36	4	67%	Tier 2	DPF
	Forklifts	Forklifts	1	82	4	67%	Tier 2	DPF
	Generator Sets	Generator Sets	1	14	8	100%	Tier 2	DPF
Grading	Crawler Tractors	Crawler Tractors	2	87	4	50%	Tier 2	DPF
	Dumpers/Tenders	Dumpers/Tenders	2	16	4	100%	Tier 2	DPF
	Excavators	Excavators	2	36	4	100%	Tier 2	DPF
	Forklifts	Forklifts	1	82	2	33%	Tier 2	DPF
	Generator Sets	Generator Sets	1	14	8	100%	Tier 2	DPF
	Paving Equipment	Paving Equipment	1	89	4	50%	Tier 2	DPF
	Plate Compactors	Plate Compactors	1	8	4	25%	Tier 2	DPF
	Rollers	Rollers	1	36	2	13%	Tier 2	DPF
	Pumps	Pumps	1	11	4	25%	Tier 2	DPF
Deep Foundations	Bore/Drill Rigs	Bore/Drill Rigs	2	83	6	100%	Tier 2	DPF
	Cement and Mortar Mixers	Cement and Mortar Mixers	1	10	4	12%	Tier 2	DPF
	Crawler Tractors	Crawler Tractors	1	87	2	47%	Tier 2	DPF
	Dumpers/Tenders	Dumpers/Tenders	1	16	2	47%	Tier 2	DPF
	Excavators	Excavators	1	36	2	47%	Tier 2	DPF
	Generator Sets	Generator Sets	1	14	8	100%	Tier 2	DPF
	Cranes	Cranes	2	367	8	35%	Tier 4 Final	--
Erection	Air Compressors	Air Compressors	1	37	4	59%	Tier 2	DPF
	Cranes	Cranes	2	367	8	24%	Tier 4 Final	--
	Forklifts	Forklifts	2	82	4	24%	Tier 2	DPF
	Dumpers/Tenders	Dumpers/Tenders	1	16	2	12%	Tier 2	DPF
	Generator Sets	Generator Sets	2	14	8	100%	Tier 2	DPF
Architectural Finishes	Air Compressors	Air Compressors	1	37	4	66%	Tier 2	DPF
	Cranes	Cranes	1	367	8	30%	Tier 4 Final	--
	Cement and Mortar Mixers	Cement and Mortar Mixers	1	10	8	45%	Tier 2	DPF
	Concrete/Industrial Saws	Concrete/Industrial Saws	2	33	4	66%	Tier 2	DPF
	Generator Sets	Generator Sets	2	14	8	100%	Tier 2	DPF
Site Work	Cement and Mortar Mixers	Cement and Mortar Mixers	1	10	4	7%	Tier 2	DPF
	Concrete/Industrial Saws	Concrete/Industrial Saws	1	33	4	4%	Tier 2	DPF
	Crawler Tractors	Crawler Tractors	1	87	2	7%	Tier 2	DPF
	Dumpers/Tenders	Dumpers/Tenders	1	16	2	22%	Tier 2	DPF
	Excavators	Excavators	1	36	4	22%	Tier 2	DPF
	Forklifts	Forklifts	1	82	2	22%	Tier 2	DPF
	Paving Equipment	Paving Equipment	1	89	4	22%	Tier 2	DPF
	Plate Compactors	Plate Compactors	1	8	4	7%	Tier 2	DPF
	Pumps	Pumps	1	11	4	7%	Tier 2	DPF
	Rollers	Rollers	1	36	2	14%	Tier 2	DPF
	Generator Sets	Generator Sets	3	14	8	100%	Tier 2	DPF

Notes:

1. Equipment list was provided by the Project Applicant. Utilization was calculated based on work days of equipment use divided by phase length.
2. CalEEMod® equipment type and horsepower are assigned using defaults from CalEEMod® User's Guide Appendix G, Table 12.
3. Engine tier assumes compliance with the control measures outlined in the BDFP (Biosolids Digesters Facilities Project) Environmental Impact Report (EIR). Equipment with horsepower under 140 use Tier 2 engines with a diesel particulate filter (DPF), while equipment with 140 hp or more employ Tier 4 Final engines. These assumptions also include the use of renewable diesel in off-road equipment based on the Environmental Impact Report (EIR) assumptions and on-road haul trucks.

Abbreviations:

BDFP - Biosolids Digesters Facilities Project
CalEEMod® - California Emissions Estimator Model®
DPF - Diesel Particulate Filter
EIR - Environmental Impact Report

References:

California Air Pollution Control Officers Association (CAPCOA). California Emissions Estimator Model (CalEEMod®), Version 2022.1. Available online at http://www.caleemod.com/

Table 3
Construction Trips
SFPUC SEP-7
San Francisco, CA

Phase	Year	Construction Days (days/year)	Worker Trip Rates[1] (one-way trips/day)	Hauling Trip Number[1] (trips/phase)	Trip Lengths[1] (miles/one way trip)	
					Worker	Hauling
Demolition	2025	90	40	1,260	11.13	20
Grading	2025	112	40	3,584	11.13	20
Deep Foundations	2025	43	80	387	11.13	20
	2026	43		387	11.13	20
Erection	2025	23	120	207	11.13	20
	2026	232		2,088	11.13	20
Architectural Finishes	2026	88	120	880	11.13	20
	2027	110		1,100	11.13	20
Site Work	2026	8	60	56	11.13	20
	2027	131		917	11.13	20

EMFAC Data

Trip Type	EMFAC Settings	Fleet Mix	Fuel Type
Worker	San Francisco County Calendar Years 2025-2027 Annual Season Aggregated Model Year EMFAC2021	50% LDA, 25% LDT1, 25% LDT2	Gasoline
Hauling		100% HHDT	Diesel

Notes:

1. Worker and hauling trip rates are provided by the Project Applicant. Trip lengths are based on CalEEMod® Appendix G defaults for San Francisco County.

Abbreviations:

ARB - [California] Air Resources Board

CalEEMod® - California Emissions Estimator Model®

EMFAC - EMission FACtor Model

LDA - light-duty automobiles

LDT - light-duty trucks

HHDT - heavy-heavy duty trucks

MHDT - medium-heavy duty trucks

References:

California Air Pollution Control Officers Association (CAPCOA). California Emissions Estimator Model (CalEEMod®), Version 2022.1. Available online at http://www.caleemod.com/

California Air Resources Board (ARB) 2021. EMFAC2021. Available at: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/msei-modeling-tools

Table 4
Estimated Emissions from Construction Architectural Coating Off-Gassing
SFPUC SEP-7
San Francisco, CA

Inputs[1,2]

Parameter		Input	Units
Residential Surface Area to Floor Area Ratio		2.7	--
Non-Residential Surface Area to Floor Area Ratio		2.0	
Painted Area in Parking Structures		6%	--
Application Rate		100%	--
Reapplication Rate		10%	--
Fraction of Surface Area (Non-Parking)	Interior Surfaces	75%	--
	Exterior Shell	25%	--
Fraction of Surface Area (Parking)	Interior Surfaces	90%	--
	Exterior Shell	10%	--
Total surface for painting by acreage (in square feet) for parking lot		5%	--
Indoor Paint VOC Content		100	g/L
Exterior Paint VOC Content		150	g/L
Parking VOC Content		100	g/L

Emissions

Phase	Land Use	Square Footage[2] (square feet)	Building Surface Area Painted[2] (square feet)	Interior Area Painted[3] (square feet)	Exterior Area Painted[3] (square feet)	Architectural Coating VOC emissions (lb)
Construction	Mechanical Maintenance Building (SEP 603)	8,700	17,400	13,050	4,350	91
	Operations, Engineering, and Maintenance Building (SEP 914)	34,600	69,200	51,900	17,300	361
	Utility Shed	600	1,200	900	300	6
					Total VOC Emissions (lbs)	**458**

Notes:

[1] Inputs and assumptions are consistent with CalEEMod 2022.1 for San Francisco. Indoor and outdoor paint VOC content parameters were obtained from CalEEMod Appendix G Table G-17 Architectural Coating Emissions Factors by Air District.

[2] Building type square footage is based on information provided by the Project Sponsor. Non-residential square footage is assumed to be 2.0 times the square footage, consistent with CalEEMod Appendix C.

[3] For commercial land use types: calculated based on CalEEMod assumption that 1 gallon of paint covers 180 square feet and that building area is assumed to be 75% indoors and 25% outdoors. For parking land use types: calculated based on CalEEMod assumption that 1 gallon of paint covers 180 square feet and that building area is assumed to be 90% indoors and 10% outdoors.

Abbreviations:

CalEEMod - California Emissions Estimator Model
EF - emission factor
g - grams
L - liter
lb - pound
VOC - volatile organic compound

References:

California Emissions Estimator Model (CalEEMod). 2022.1. Available online at: http://www.caleemod.com

Table 5
Construction Emissions of CAPs and GHGs
SFPUC SEP-7
San Francisco, CA

Summary of Construction Emissions by Source

Construction Subphase	Source	Year	CAP Emissions (lb/year)[1]				GHG Emissions (MT/yr)
			ROG	NO_x	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)	CO_2e
Demolition	On-Site Exhaust	2025	5.6	746	5.1	4.8	59
	Mobile Exhaust		12	235	1.7	1.6	66
Grading	On-Site Exhaust	2025	2.0	448	2.7	2.5	30
	Mobile Exhaust		18	657	4.5	4.3	167
Deep Foundations	On-Site Exhaust	2025	3.3	156	1.3	1.2	28
	Mobile Exhaust		9.5	77	0.63	0.60	29
	On-Site Exhaust	2026	3.2	150	1.2	1.1	28
	Mobile Exhaust		9.1	73	0.61	0.58	28
Erection	On-Site Exhaust	2025	1.1	56	0.50	0.47	8.0
	Mobile Exhaust		7.4	43	0.38	0.36	19
	On-Site Exhaust	2026	11	554	4.9	4.6	81
	Mobile Exhaust		72	409	3.7	3.5	185
Architectural Finishes	On-Site Exhaust	2026	3.5	297	1.9	1.8	30
	Mobile Exhaust		27	170	1.5	1.4	74
	Architectural Coating		204	0	0	0	0
	On-Site Exhaust	2027	4.4	366	2.2	2.1	38
	Mobile Exhaust		33	201	1.8	1.7	90
	Architectural Coating		254	0	0	0	0
Site Work	On-Site Exhaust	2026	0.10	23	0.13	0.12	1.4
	Mobile Exhaust		1.3	10	0.088	0.083	4.0
	On-Site Exhaust	2027	1.7	374	2.1	2.0	23
	Mobile Exhaust		20	162	1.4	1.3	64

Summary of Construction Emissions by Source

Year	Daily Average CAP Emissions (lb/day)[2]				GHG Emissions (MT/yr)
	ROG	NO_x	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)	CO_2e
2025	0.3	11	0.07	0.07	405
2026	1.3	6.5	0.05	0.05	431
2027	2.4	8.6	0.06	0.06	216
BAAQMD Thresholds	54	54	82	54	--
Exceed Thresholds?	**No**	**No**	**No**	**No**	--

Notes:

1. The emissions above include emissions from offroad equipment, emissions from worker, vendor, and hauling trucks, and off-gassing emissions from paving and architectural coating. BAAQMD construction thresholds for PM_{10} and $PM_{2.5}$ evaluate only exhaust emissions.
Emissions shown here assume compliance with EIR Mitigation Measure M-AQ-1a, which is the scenario using Tier 4 Final equipment for all equipment greater than or equal to 140 horsepower. Equipment with horsepower less than 140 horsepower were assumed to be Tier 2 equipment with a Diesel Particulate Filter (DPF). Emissions also include renewable diesel for all diesel offroad equipment and on-road haul trucks.

2. Daily average emissions are computed by dividing by the number of workdays per year.

Abbreviations:

BAAQMD - Bay Area Air Quality Management District
CalEEMod - California Emissions Estimator Model
CAP - criteria air pollutant
CO_2e - carbon dioxide equivalents
EMFAC2021 - California Air Resources Board EMission FACtor model
GHG - greenhouse gas
lb - pound
MT - metric ton
NOx - nitrogen dioxide
$PM_{2.5}$ - particulate matter < 2.5 µm
PM_{10} - particulate matter < 10 µm
ROG - reactive organic gas
yr - year

References:

BAAQMD. 2023. California Environmental Quality Act Air Quality Guidelines. Available at: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines

California Emissions Estimator Model (CalEEMod). 2022.1. Available online at: http://www.caleemod.com

Table 6
Emergency Generator Criteria Air Pollutant Emissions
SFPUC SEP-7
San Francisco, CA

Generator	Generator Size			Hours[1] (hrs/year)	Engine Tier	Annual Emissions[4] (ton/yr)			
	kva	kW	hp			ROG	NOx	PM_{10}	$PM_{2.5}$
Removed	500	500	671	50	--	-0.0091	-0.16	-0.0018	-0.0018
New Tier 3	750	750	1006	50	Tier 3	0.0050	0.13	0.0050	0.0044
New Tier 3	750	750	1006	50	Tier 3	0.0050	0.13	0.0050	0.0044
New Tier 4	750	750	1006	50	Tier 4 Final	0.0028	0.12	0.0011	0.0011
New Tier 4	750	750	1006	50	Tier 4 Final	0.0028	0.12	0.0011	0.0011

Net emissions from new Tier 3 Generators	8.4E-04	0.10	0.0081	0.0070
Net emissions from new Tier 4 Generators	-0.0036	0.089	3.7E-04	3.7E-04

Notes:

[1] Emissions assume 50 hours of emergency use for each generator consistent with the San Francisco Environmental Planning's Air Quality and Greenhouse Gas guidance.

[2] Emission factors for the existing (to be removed) generator are based on generator spec sheets provided by the project sponsor. Emission factors given in NOx + NMHC are assumed to be 95% NOx and 5% VOC.

[3] Emission factors for the new generators are based on CalEEMod 2022 Tier 3 and Tier 4 Final default emission factors, per information from the Project Sponsor.

References:

BAAQMD. 2004. CARB Emission Factors for CI Diesel Engines - Percent HC in Relation to NMHC + NOx. Available at: https://www.baaqmd.gov/~/media/files/engineering/policy_and_procedures/engines/emissionfactorsfordieselengines.pdf

Table 7a
Combined BDFP EIR and SEP-7 Construction Emissions
SFPUC SEP-7
San Francisco, CA

Year	Source	Daily Average CAP Emissions (lb/day)[1,2]			
		ROG	NO_x	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
Year 2	EIR	10	45	0.6	0.6
	SEP-7	0.3	11	0.07	0.07
	Total	10	56	0.7	0.7
Year 3	EIR	10	55	0.6	0.6
	SEP-7	1.3	6.5	0.05	0.05
	Total	11	62	0.7	0.7
Year 4	EIR	13	40	0.5	0.5
	SEP-7	2.4	8.6	0.06	0.06
	Total	15	48	0.6	0.6
BAAQMD Thresholds		54	54	82	54
Exceed Thresholds?		No	Yes	No	No

Notes:

1. Construction CAP emissions from the EIR are sourced from Table 4c of the AQTR and are consistent with Table 4.8-9 of the FEIR.

2. SEP-7 Emissions shown here assume compliance with EIR Mitigation Measure M-AQ-1a, which is the scenario using Tier 4 Final equipment for all equipment greater than or equal to 140 horsepower. Equipment with horsepower less than 140 horsepower were assumed to be Tier 2 equipment with a Diesel Particulate Filter (DPF). Emissions also include renewable diesel for all diesel offroad equipment and on-road haul trucks.

Abbreviations:

BAAQMD - Bay Area Air Quality Management District
CalEEMod - California Emissions Estimator Model
CAP - criteria air pollutant
CO_2e - carbon dioxide equivalents
EIR - Environmental Impact Report
EMFAC2021 - California Air Resources Board EMission FACtor model
GHG - greenhouse gas
lb - pound
MT - metric ton
NOx - nitrogen dioxide
$PM_{2.5}$ - particulate matter < 2.5 µm
PM_{10} - particulate matter < 10 µm
ROG - reactive organic gas
yr - year

References:

BAAQMD. 2023. California Environmental Quality Act Air Quality Guidelines. Available at: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines

California Emissions Estimator Model (CalEEMod). 2022.1. Available online at: http://www.caleemod.com

Table 7b
Combined BDFP Actual Construction Emissions and SEP-7 Construction Emissions
SFPUC SEP-7
San Francisco, CA

Year	Source	Daily Average CAP Emissions (lb/day)[1,2]			
		ROG	NO_x	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
Year 2	Actual	4.2	37	0.3	0.3
	SEP-7	0.3	11	0.07	0.07
	Total	4.5	47	0.4	0.4
Year 3	Actual	3.1	30	0.1	0.1
	SEP-7	1.3	6.5	0.05	0.05
	Total	4.4	37	0.2	0.2
BAAQMD Thresholds		54	54	82	54
Exceed Thresholds?		No	Yes	No	No

Notes:

1. Actual emissions for the Biosolids Digester Facility Project off-road sources were based on data provided by the Project's construction contractors for 2020-2022 (Years 1-3). These emissions reflect the use of renewable diesel in off-road equipment based on the Environmental Impact Report (EIR) assumptions. These actual construction emissions were previously provided to San Francisco Environmental Planning in MPM-9.
   Actual emissions for the on-road sources reflect the control measure that 80% of haul trucks are engine model year 2012 or newer with no renewable diesel. This varies from the control measure in the EIR that equipment be 2010 or newer with renewable diesel. This alternative control measure was approved by San Francisco Environmental Planning (Johnston, 9-30-20).
2. SEP-7 Emissions shown here assume compliance with EIR Mitigation Measure M-AQ-1a, which is the scenario using Tier 4 Final equipment for all equipment greater than or equal to 140 horsepower. Equipment with horsepower less than 140 horsepower were assumed to be Tier 2 equipment with a Diesel Particulate Filter (DPF). Emissions also include renewable diesel for all diesel offroad equipment and on-road haul trucks.

Abbreviations:

BAAQMD - Bay Area Air Quality Management District
CalEEMod - California Emissions Estimator Model
CAP - criteria air pollutant
CO_2e - carbon dioxide equivalents
EIR - Environmental Impact Report
EMFAC2021 - California Air Resources Board EMission FACtor model
GHG - greenhouse gas
lb - pound
MT - metric ton
NOx - nitrogen dioxide
$PM_{2.5}$ - particulate matter < 2.5 µm
PM_{10} - particulate matter < 10 µm
ROG - reactive organic gas
yr - year

References:

BAAQMD. 2023. California Environmental Quality Act Air Quality Guidelines. Available at: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines

California Emissions Estimator Model (CalEEMod). 2022.1. Available online at: http://www.caleemod.com

Table 8
Exposure Parameters
SFPUC SEP-7
San Francisco, CA

Receptor Type	Project Phase	Year	Receptor Age Group	Exposure Parameters						
				Daily Breathing Rate (DBR)[1]	Annual Exposure Duration (ED)	Fraction of Time at Home (FAH)[2]	Exposure Frequency (EF)[3]	Age Sensitivity Factor (ASF)[4]	Averaging Time (AT)	ASF-Weighted Intake Factor, Inhalation (IF_{inh})
				[L/kg-day]	[years]	[unitless]	[days/year]		[days]	[m^3/kg-day]
Resident[5]	Construction	2025	3rd Trimester	361	0.29	1.0	350	10	25,500	0.014
		2025	Age 0-<2 Years	1090	0.71	1.0	350	10	25,500	0.107
		2026	Age 0-<2 Years	1090	1.0	1.0	350	10	25,500	0.150
		2027	Age 0-<2 Years	1090	0.56	1.0	350	10	25,500	0.083
		2027	Age 2-<16 Years	572	0.44	1.0	350	3	25,500	0.010
	Operation	2027	Age 2-<16 Years	572	0.33	1.0	350	3	25,500	0.00768
		2028-2041	Age 2-<16 Years	572	13.39	1.0	350	3	25,500	0.3153
		2041-2055	Age 16-<30 Years	261	14	0.7	350	1	25,500	0.037

Notes:

1. Daily breathing rates for residential receptors and non-residential receptors are consistent with the recommended breathing rates in the BAAQMD's 2022 CEQA Guidelines, Appendix E.

2. Fraction of time spent at home is consistent with the recommended value in the BAAQMD's 2022 CEQA Guidelines, Appendix E for residential receptors.

3. Exposure frequency was determined as follows:

   Resident: reflects default residential exposure frequency from the BAAQMD's 2022 CEQA Guidelines.

4. Age sensitivity factors (ASFs) account for an "anticipated special sensitivity to carcinogens" of infants and children as recommended in the OEHHA Technical Support Document (OEHHA 2015) and current OEHHA guidance (OEHHA 2015). This approach is consistent with the cancer risk adjustment factor calculations recommended by BAAQMD.

5. A resident receptor is assumed to be exposed at the beginning of the infancy (third trimester)

Calculation:

IF_{inh} = DBR * FAH * EF * ED * CF / AT

CF = 0.001 (m^3/L)

MAF = HR / HS * DR / DS *DF

Abbreviations:

AT - averaging time
ASF - Age Sensitivity Factor
BAAQMD - Bay Area Air Quality Management District
DBR - daily breathing rate
ED - exposure duration
EF - exposure frequency
FAH - fraction of time at home
HS - number of hours of source operation per day
DS - number of days of source operation per week
IF_{inh} - intake factor
kg - kilogram
L - liter
m^3 - cubic meter
OEHHA - Office of Environmental Health Hazard Assessment
MAF - model adjustment factor
HR - number of hours per day for which long-term concentration is calculated
DR - number of days per week for which annual average concentration is calculated

References:

OEHHA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. Available at https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf

Bay Area Air Quality Management District (BAAQMD). 2023. California Environmental Quality Act (CEQA) Air Quality Guidelines. Available at: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines

California Air Pollution Control Officers Association (CAPCOA). California Emissions Estimator Model (CalEEMod), Version 2022.1. Available online at http://www.caleemod.com/

Table 9a
Tier 3 Scenario: Project and Cumulative Health Impacts at MEISR and MEI
SFPUC SEP-7
San Francisco, CA

Phase	Source and Location[2]	Excess Cancer Risk	$PM_{2.5}$ Concentration	Chronic HI
		in a million	$\mu g/m^3$	--
SEP-7 Construction and Operation	Off-road Construction Equipment	1.4	0.0046	0.0010
	On-road Construction Vehicles	0.0076	6.4E-05	6.5E-06
	New Generators	1.4	--	--
	Removed Generator	-0.43	--	--
BDFP Construction	Off-road Construction Equipment	1.6	0.012	0.0027
	On-road Construction Vehicles	0.14	0.0050	8.3E-04
Biogas Addendum 1 Net Operations	Net Operations	-0.009	0.02	0.015
SEP7 (Tier 3 Generators) Screening Total From Construction and Operations plus Addendum 1		4.2	0.04	0.020
Cumulative Projects[3]		24	0.010	0.0053
Citywide HRA[4]		106	9.5	--
Total		134	9.5	0.02

Notes:

1. Results are presented for construction assuming compliance with EIR Mitigation Measure M-AQ-1a.
2. This table presents the cancer risk, chronic health impacts, and PM2.5 concentration from the SEP-7 project component at the MEISR for SEP7, which are then added onto the construction health impacts from the BDFP EIR at the BDFP MEISR and the operational health impacts from the Biogas addendum. This approach is conservative, as the maximum health impacts occur at different locations.
3. The health impacts of additional SFPUC projects at the Southeast Plant (SEP) and in the surrounding area that will be under construction during the construction and operation of the BDFP were estimated for the FEIR, and retained for this analysis.
4. The background cancer risk and PM2.5 concentration from existing nearby stationary sources was obtained from the Citywide HRA at the SEP-7 MEISR location. The Citywide HRA does not estimate cumulative chronic HI; therefore, this was not included in the cumulative chronic HI evaluation.

Abbreviations:

EIR - Environmental Impact Report
DPF - diesel particulate filter
HI - hazard index
m - meter
m^3 - cubic meter
MEI - maximally exposed individual
MEISR - maximally exposed individual sensitive receptor
PM - particulate matter
SFPUC - San Francisco Public Utilities Commission
µg - microgram

Table 9b
Tier 4 Scenario: Project and Cumulative Health Impacts at MEISR and MEI
SFPUC SEP-7
San Francisco, CA

Phase	Source and Location[2]	Excess Cancer Risk	$PM_{2.5}$ Concentration	Chronic HI
		in a million	$\mu g/m^3$	--
SEP-7 Construction and Operation	Off-road Construction Equipment	1.6	0.0046	0.0010
	On-road Construction Vehicles	0.0084	6.4E-05	6.5E-06
	New Generators	0.24	--	--
	Removed Generator	-0.28	--	--
BDFP Construction	Off-road Construction Equipment	1.6	0.012	0.0027
	On-road Construction Vehicles	0.14	0.0050	8.3E-04
Biogas Addendum 1 Net Operations	Net Operations	-0.009	0.02	0.015
SEP7 (Tier 4 Generators) Screening Total From Construction and Operations plus Addendum 1		3.3	0.04	0.020
Cumulative Projects[3]		24	0.010	0.0053
Citywide HRA[4]		100	9.5	--
Total		127	9.5	0.02

Notes:

1. Results are presented for construction assuming compliance with EIR Mitigation Measure M-AQ-1a.
2. This table presents the cancer risk, chronic health impacts, and PM2.5 concentration from the SEP-7 project component at the MEISR for SEP7, which are then added onto the construction health impacts from the BDFP EIR at the BDFP MEISR and the operational health impacts from the Biogas addendum. This approach is conservative, as the maximum health impacts occur at different locations.
3. The health impacts of additional SFPUC projects at the Southeast Plant (SEP) and in the surrounding area that will be under construction during the construction and operation of the BDFP were estimated for the FEIR, and retained for this analysis.
4. The background cancer risk and PM2.5 concentration from existing nearby stationary sources was obtained from the Citywide HRA at the SEP-7 MEISR location. The Citywide HRA does not estimate cumulative chronic HI; therefore, this was not included in the cumulative chronic HI evaluation.

Abbreviations:

EIR - Environmental Impact Report
DPF - diesel particulate filter
HI - hazard index
m - meter
m^3 - cubic meter
MEI - maximally exposed individual
MEISR - maximally exposed individual sensitive receptor
PM - particulate matter
SFPUC - San Francisco Public Utilities Commission
µg - microgram

FIGURES

RAMBOLL

Date: 8/9/2024

Dispersion Model Setup
SFPUC SEP-7
San Francisco, CA

FIGURE
1

03-36893A

RAMBOLL

Locations of MEIs and MEISRs
SFPUC SEP-7
San Francisco, CA

FIGURE
2

Date: 6/25/2024

03-36893A

APPENDIX C
HISTORIC RESOURCES EVALUATION MEMORANDUM

San Francisco Planning

49 South Van Ness Avenue, Suite 1400
San Francisco, CA 94103
628.652.7600
www.sfplanning.org

Memorandum to File

Date:	December 3, 2024
To:	Kelly Yong, Environmental Project Manager (415)551-4532 Kyong@sfwater.org
From:	Justin Greving, Senior Preservation Planner (628)652-7553 Justin.greving@sfgov.org
Reviewed by:	Allison Vanderslice, CEQA Cultural Resources Team Manager (628) 652-7505 Allison.Vanderslice@sfgov.org
Re:	Southeast Water Pollution Control Plant, 750 Phelps Street
Case No.	2015-000644ENV

Introduction

The proposed project takes place at the Southeast Water Pollution Control Plant (Southeast Treatment Plant), at 750 Phelps Street, and would be a modification to the previously approved Biosolids Digester Facilities project (Case number 2015-000644ENV), to replace the existing solids treatment facilities with more reliable, efficient, and modern technologies and facilities.

CEQA Historic Resources Evaluation

The Southeast Treatment Plant was previously evaluated and determined to be a historic resource eligible for listing in the National and California registers. The Southeast Treatment Plant Streamline Moderne Industrial Historic District is eligible under Criterion A/1 for its significant contributions to the completion of the 1935 Sewer System Master Plan and C/3 as an important collection of industrial buildings all designed in the Streamline Moderne architectural style. The period of significance for the district is the date of completion of the buildings within the district, 1952. There are a total of 22 contributing buildings, 5 non-contributing buildings, and one none-contributing structure (security fence), within the district boundary which is drawn to capture the area within the plant that contains the highest concentration of buildings constructed during the period of significance.

Proposed Project

The previously approved project to upgrade the Southeast Treatment Plant, known as the Biosolids Digester Facilities project, would demolish Building 870, the "Service Building," to allow for the construction of a new maintenance shop in its location. The previous project underwent CEQA review and the EIR was certified by the San Francisco Planning Commission on March 8, 2018 (Case number 2015-000644ENV). The proposed project has been revised to retain Building 870 and instead demolish a different contributing building within the Southeast Treatment Plant (Building 850, the "Operator's Building"), along with the adjacent surface parking lot, for the construction of two new buildings, a Mechanical Maintenance building (SEP 603) and an Operations, Engineering and Maintenance building (SEP 914).

Project Impacts

Planning department preservation staff reviewed the proposed project modification to determine if there were any new impacts to historic architectural resources that had not been previously disclosed. The environmental impact report (EIR) for the previously approved project did not find project-level significant impacts to historic resources due to the fact that the previously approved project would only demolish one contributing building, Building 870. The analysis in the EIR stated that while Building 870 was a contributor to the district, it was not an anchor building within the historic district and was more utilitarian in comparison with some of the other grander and architecturally detailed buildings within the historic district. Furthermore, the analysis explained that north of Jerrold Avenue, the historic district had less cohesion and contains a higher number of non-contributing buildings within the historic district boundaries. The analysis concluded that the new construction would simply be one new non-historic addition in the mix of buildings within the northern part of the historic district that already has a mixture of contributing and non-contributing buildings.

The previous EIR did however find there was a cumulative impact on the Southeast Treatment Plant Streamline Moderne Industrial Historic District caused by cumulative projects including the Demolition of the Existing SEP Digester and Southside Renovation Project that would demolish all existing digesters and their central control buildings. Implementation of *Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display)* was determined to reduce the severity of the cumulative impact but would not reduce it to a less-than-significant level. The previously approved project's contribution to this cumulative impact was cumulatively considerable (i.e. significant) and the cumulative impact on the historic district would be significant and unavoidable with mitigation.

Planning department staff have reviewed the revised project and determined that it will not have any additional impacts that were not disclosed in the previous environmental review. Building 850 is a more architecturally distinguished building than Building 870 as it was the former administration building and has a more prominent street presence along Phelps Street. While it is true that Building 850 is architecturally more distinguished than Building 870, its demolition instead of Building 870, would not result in enough of a change in the historic district composition to result in a significant and unavoidable impact at the project-level. After demolition of Building 850 the historic district will still retain 21 contributing buildings that as a whole will still communicate their significance in completion of the 1935 Sewer System Master Plan and C/3 as an important collection of industrial buildings all designed in the Streamline Moderne architectural style.

Cumulative impacts to historic resources would still be the same as those identified in the EIR, therefore it is recommended that a Mitigation Measure be implemented that documents and interprets the history of the building that will be demolished.

Mitigation Measure M-CR-1: Documentation of Historic Resources and Interpretive Display. Prior to demolition of any individual historic resource or contributor to a historic district, the SFPUC shall submit to the planning department for review photographic and narrative documentation of the individual historic resource or district contributor. ~~retain~~ The documentation shall be funded by the SFPUC and undertaken by a qualified professional who meets the standards for history, architectural history, or architecture (as deemed appropriate by the department's preservation staff), as set forth by the Secretary of the Interior's Professional Qualification~~s~~ Standards ~~for Architectural History to prepare written and photographic documentation of the Central Shops~~ (36 Code of Federal Regulations, part 61). The documentation scope ~~effort~~ shall be reviewed and approved by the department prior to any work on the documentation. A documentation package shall consist of the required forms of documentation and shall include a summary of the historic resource and an overview of the documentation provided. Documentation of the building should include the following:

- *HABS/HALS-Like Measured Drawings* – A set of Historic American Buildings/Historic American Landscapes Survey-like (HABS/HALS-like) measured drawings that depict the existing size, scale, and dimension of the subject property. The department's preservation staff will accept the original architectural drawings or an as-built set of architectural drawings (plan, section, elevation, etc.). Copies of building plans gathered from the prior evaluations of the Biosolids Digester Facilities Project can be reused and reformatted for this effort. The department's preservation staff will assist the consultant in determining the appropriate level of measured drawings. A cover sheet may be required that describes the historic significance of the property. ~~based on the National Park Service (NPS) Historic American Building Survey (HABS)/Historic American Engineering Record (HAER) Historical Report Level II Guidelines, and NPS's policy for photographic documentation as outline in the National Register of Historic Places and National Historic Landmarks Survey Photo Policy Expansion.~~
- The written historical data for this documentation shall follow HABS/~~HAER~~HALS standards. Efforts shall be made to locate original construction drawings or plans ~~of the Central Shops~~. If located, these drawings shall be reproduced and included in the dataset. Historical information, as well as copies of building plans gathered from the prior evaluations of the SEP ~~and Central Shops~~, can be reused and reformatted for this effort.
- *HABS/HALS-Like Photographs* – Digital photographs of the interior and the exterior of the individual historic resource or district contributor. Large-format negatives are not required. The scope of the digital photographs shall be reviewed by the department's preservation staff for concurrence, and all digital photography shall be conducted according to current National Park Service standards. The photography shall be undertaken by a qualified professional with demonstrated experience in HABS photography. ~~Digital photography shall be used. The ink and paper combinations for printing photographs shall be in compliance with National Register-National Historic Landmark (NR-NHL) Photo Policy Expansion[22] and have a permanency rating of approximately 115 years. Digital photographs shall be taken as uncompressed, Tagged Image~~

~~File Format (TIFF) files. Each image shall be 1,600 by 1,200 pixels at 330 pixels per inch (ppi) or larger in size, color format, and printed in black and white. The file name for each electronic image shall correspond with the index of photographs and photograph label.~~ Photograph views for the dataset shall include (a) contextual views; (b) views of each side of each building and interior views, where possible; (c) oblique views of buildings; and (d) detail views of character-defining features. All views shall be referenced on a photographic key. This photographic key shall be on a map of the property and shall show the photograph number with an arrow to indicate the direction of the view. Historic photographs shall also be collected, reproduced, and included in the dataset.

The SFPUC shall reach out to the following repositories to determine if they would like copies of the documentation and to assess the documentation format (digital or hard copy) preferred: ~~transmit the datasets as hardcopies on archival paper and in electronic PDF format to the~~ History Room of the San Francisco Public Library, ~~the San Francisco Planning Department,~~ the archives of the San Francisco Public Utilities Commission, and to the Northwest Information Center of the California Historical Information Resource System. ~~The SFPUC shall scope the documentation measures with San Francisco Planning Department Preservation staff.~~ Preservation staff shall also review and approve the submitted documentation for adequacy.

In addition, the SFPUC shall provide a permanent display of interpretive materials (which may include, but are not limited to, a display of photographs, a brochure, educational website, or an exhibitive display) concerning the history and architectural features of the individual historic resource or district contributor~~Central Shops~~. Development of the interpretive materials shall be supervised by an architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards. The interpretative materials shall be placed in a prominent, public setting. A proposal describing the general parameters of the interpretive materials shall be approved by Planning Department Preservation staff prior to construction completion. The substance, media, and other elements of such interpretive display shall be approved by Planning Department Preservation staff prior to completion of the project.

Conclusion

Planning department staff finds the change in project scope to include the demolition of Building 850 instead of Building 870 does not affect the conclusion of the previous EIR for the project that found a project level less than significant impact to the Southeast Treatment Plant Streamline Moderne Industrial Historic District, and a significant cumulative impact to the historic district. A mitigation measure that documents and interprets the demolished building would help reduce impacts but the cumulative impact would still be significant, as previously disclosed.

APPENDIX D
CONSTRUCTION EQUIPMENT AND ACTIVITY

DETAILS OF CONSTRUCTION EQUIPMENT AND ACTIVITY

The Phases/Components included below are a draft list; please revise/update as necessary

Please fill out areas highlighted in yellow

Note that cells highlighted in BLUE have formulae and will auto populate

Overall construction timeline: Match to "Const Phasing" tab			
Construction Phase	Start Date	End Date	Number of workdays in Phase
Demolition (NTP)	2/14/2025	6/19/2025	90
Grading and Utilities	6/20/2025	11/24/2025	112
Construction			
Deep Foundations	11/3/2025	3/2/2026	86
Erection – Superstructure, enclosure, framing, building systems, walls	12/1/2025	11/20/2026	255
Architectural Finishes	9/1/2026	6/3/2027	198
Site Work	12/22/2026	7/2/2027	139
Substantial Completion		9/3/2027	

Construction Vehicle Trips by Phase						
Construction Phase	Construction workers/day	Worker trips/day	One-Way Truck Trips/day (Off-haul)	Truck Trips/day (fill)	Construction Material delivery trips/day	Other Trucks one-way truck trips/day*
Demolition (NTP)	20	40	4	0	0	10
Grading and Utilities	20	40	8	1	1	22
Deep Foundations	40	80	0	0	1	8
Erection – Superstructure, enclosure, framing, building systems, walls	60	120	0	0	3	6
Architectural Finishes	60	120	0	0	4	6
Site Work	30	60	0	2	3	2

*Water trucks, tool trucks, delivery trucks, boom lift

Construction Equipment and Activity by Phase					
Phase 1:	Demolition (NTP)				
Equipment NOTE: Please click on a cell and select equipment from the drop down list	Number of Equipment used	Avg Operation (hrs/day)	Number of Work Days in the construction phase equipment is used	Equipment size (hp)	Total Run Time (hours)
Air Compressors	2	8	30	37	240
Concrete/Industrial Saws	3	4	45	33	180
Cranes	1	4	60	367	240
Crawler Tractors	2	8	60	87	480
Crushing/Proc. Equipment	2	6	45	12	270
Dumpers/Tenders	2	4	60	16	240
Excavators	2	4	60	36	240
Forklifts	1	4	60	82	240
Generator Sets	1	8	90	14	720
					0
					0
					0

DETAILS OF CONSTRUCTION EQUIPMENT AND ACTIVITY

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Overall construction timeline: Match to "Const Phasing" tab			
Construction Phase	**Start Date**	**End Date**	**Number of workdays in Phase**
Demolition (NTP)	2/14/2025	**6/19/2025**	**90**
Grading and Utilities	6/20/2025	**11/24/2025**	**112**
Construction			
Deep Foundations	11/3/2025	**3/2/2026**	**86**
Erection – Superstructure, enclosure, framing, building systems, walls	12/1/2025	**11/20/2026**	**255**
Architectural Finishes	9/1/2026	**6/3/2027**	**198**
Site Work	12/22/2026	**7/2/2027**	**139**
Substantial Completion		**9/3/2027**	

Phase 2:	**Grading and Utilities**				
Equipment **NOTE: Please click on a cell and select equipment from the drop down list**	**Number of Equipment used**	**Avg Operation (hrs/day)**	**Number of Work Days in the construction phase equipment is used**	**Equipment size (hp)**	**Total Run Time (hours)**
Crawler Tractors	*2*	*4*	*56*	87	224
Dumpers/Tenders	*2*	*4*	*112*	16	448
Excavators	*2*	*4*	*112*	36	448
Forklifts	*1*	*2*	*37*	82	74
Generator Sets	*1*	*8*	*112*	14	896
Paving Equipment	*1*	*4*	*56*	89	224
Plate Compactors	*1*	*4*	*28*	8	112
Rollers	*1*	*2*	*15*	36	30
Pumps	*1*	*4*	*28*	11	112
					0
					0
					0

Phase 3:	**Deep Foundations**				
Equipment **NOTE: Please click on a cell and select equipment from the drop down list**	**Number of Equipment used**	**Avg Operation (hrs/day)**	**Number of Work Days in the construction phase equipment is used**	**Equipment size (hp)**	**Total Run Time (hours)**
Bore/Drill Rigs	*2*	*6*	*86*	83	516
Cement and Mortar Mixers	*1*	*4*	*10*	10	40
Crawler Tractors	*1*	*2*	*40*	87	80
Dumpers/Tenders	*1*	*2*	*40*	16	80
Excavators	*1*	*2*	*40*	36	80
Generator Sets	*1*	*8*	*86*	14	688
Cranes	*2*	*8*	*30*	367	240
					0
					0
					0
					0
					0
					0
					0

DETAILS OF CONSTRUCTION EQUIPMENT AND ACTIVITY

The Phases/Components included below are a draft list; please revise/update as necessary

Please fill out areas highlighted in yellow

Note that cells highlighted in BLUE have formulae and will auto populate

Overall construction timeline: Match to "Const Phasing" tab			
Construction Phase	**Start Date**	**End Date**	**Number of workdays in Phase**
Demolition (NTP)	2/14/2025	**6/19/2025**	**90**
Grading and Utilities	6/20/2025	**11/24/2025**	**112**
Construction			
Deep Foundations	11/3/2025	**3/2/2026**	**86**
Erection – Superstructure, enclosure, framing, building systems, walls	12/1/2025	**11/20/2026**	**255**
Architectural Finishes	9/1/2026	**6/3/2027**	**198**
Site Work	12/22/2026	**7/2/2027**	**139**
Substantial Completion		**9/3/2027**	

Phase 4:	**Erection – Superstructure, enclosure, framing, building systems, walls**				
Equipment **NOTE: Please click on a cell and select equipment from the drop down list**	**Number of Equipment used**	**Avg Operation (hrs/day)**	**Number of Work Days in the construction phase equipment is used**	**Equipment size (hp)**	**Total Run Time (hours)**
Air Compressors	*1*	*4*	*150*	37	600
Cranes	*2*	*8*	*60*	367	480
Forklifts	*2*	*4*	*60*	82	240
Dumpers/Tenders	*1*	*2*	*30*	16	60
Generator Sets	*2*	*8*	*255*	14	2040
					0
					0
					0
					0
					0
					0
					0
					0

Phase 5:	**Architectural Finishes**				
Equipment **NOTE: Please click on a cell and select equipment from the drop down list**	**Number of Equipment used**	**Avg Operation (hrs/day)**	**Number of Work Days in the construction phase equipment is used**	**Equipment size (hp)**	**Total Run Time (hours)**
Air Compressors	*1*	*4*	*130*	37	520
Cranes	*1*	*8*	*60*	367	480
Cement and Mortar Mixers	*1*	*8*	*90*	10	720
Concrete/Industrial Saws	*2*	*4*	*130*	33	520
Generator Sets	*2*	*8*	*198*	14	1584
					0
					0
					0
					0
					0
					0
					0
					0
					0

DETAILS OF CONSTRUCTION EQUIPMENT AND ACTIVITY

The Phases/Components included below are a draft list; please revise/update as necessary

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Overall construction timeline: Match to "Const Phasing" tab			
Construction Phase	**Start Date**	**End Date**	**Number of workdays in Phase**
Demolition (NTP)	2/14/2025	**6/19/2025**	**90**
Grading and Utilities	6/20/2025	**11/24/2025**	**112**
Construction			
Deep Foundations	11/3/2025	**3/2/2026**	**86**
Erection – Superstructure, enclosure, framing, building systems, walls	12/1/2025	**11/20/2026**	**255**
Architectural Finishes	9/1/2026	**6/3/2027**	**198**
Site Work	12/22/2026	**7/2/2027**	**139**
Substantial Completion		**9/3/2027**	

Phase 6:	**Site Work**				
Equipment **NOTE: Please click on a cell and select equipment from the drop down list**	**Number of Equipment used**	**Avg Operation (hrs/day)**	**Number of Work Days in the construction phase equipment is used**	**Equipment size (hp)**	**Total Run Time (hours)**
Cement and Mortar Mixers	*1*	*4*	*10*	10	40
Concrete/Industrial Saws	*1*	*4*	*5*	33	20
Crawler Tractors	*1*	*2*	*10*	87	20
Dumpers/Tenders	*1*	*2*	*30*	16	60
Excavators	*1*	*4*	*30*	36	120
Forklifts	*1*	*2*	*30*	82	60
Paving Equipment	*1*	*4*	*30*	89	120
Plate Compactors	*1*	*4*	*10*	8	40
Pumps	*1*	*4*	*10*	11	40
Rollers	*1*	*2*	*20*	36	40
Generator Sets	*3*	*8*	*139*	14	1112
					0
					0
					0

APPENDIX E
TRANSPORTATION DEMAND ESTIMATE AND SUPPORTING DOCUMENTATION

Adavant Consulting

Memorandum

To: Karen Lancelle – Environmental Science Associates

From: José I. Farrán – Adavant Consulting

Date: December 18, 2024 **Revised Final Version**

Re: BDFP, Operations, Engineering and Maintenance Buildings
Travel Demand Analysis Case No.: 2015-000644ENV

This memorandum summarizes the assumptions and methodology used to develop the travel demand for the proposed modifications to the Biosolids Digester Facilities Project (BDFP) Final Environmental Impact Report (FEIR) consisting of construction of the Operations, Engineering and Maintenance building, a Mechanical Maintenance building, and a new utility enclosure at SFPUC's Southeast Plant (i.e. the proposed modifications). The proposed new buildings would be located adjacent to, but outside of, the approved project site for the BDFP project at the Southeast Plant. The BDFP (i.e. the approved project) together with the proposed modifications represents the modified project.

The analysis presented in this document estimates the travel demand (i.e. number of person and vehicle trips) associated with the modified project during both construction and operation of such facilities. The travel demand analysis for the modified project relies on the same methodology and assumptions regarding trip generation rates, mode of travel, average vehicle occupancy factors, etc., previously utilized in the CEQA analysis of the approved project[1], as applicable. The travel demand analysis for the approved project was based on standard methodology and practices used in the evaluation of transportation impacts as part of environmental review in San Francisco, which are described in detail in the *Transportation Impact Analysis Guidelines for Environmental Review* (SF Guidelines),[2] prepared by the San Francisco Planning Department (department).

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1 San Francisco Planning Department, *Biosolids Digester Facilities Project FEIR*. Case Number 2015-000644ENV; Final EIR Certification: March 8, 2018. Referred to in this memorandum as BDFP FEIR.

2 Consistent with the BDFP FEIR, the travel demand analysis relies primarily on the San Francisco Planning Department, *Transportation Impact Analysis Guidelines,* from October 2002, referred in this memorandum as SF Guidelines. The updated San Francisco Planning Department, *Transportation Impact Analysis Guidelines*, published in October 2019 have been consulted.

DESCRIPTION OF THE MODIFIED PROJECT

As described above, the proposed modifications in combination with the approved project define the modified project.

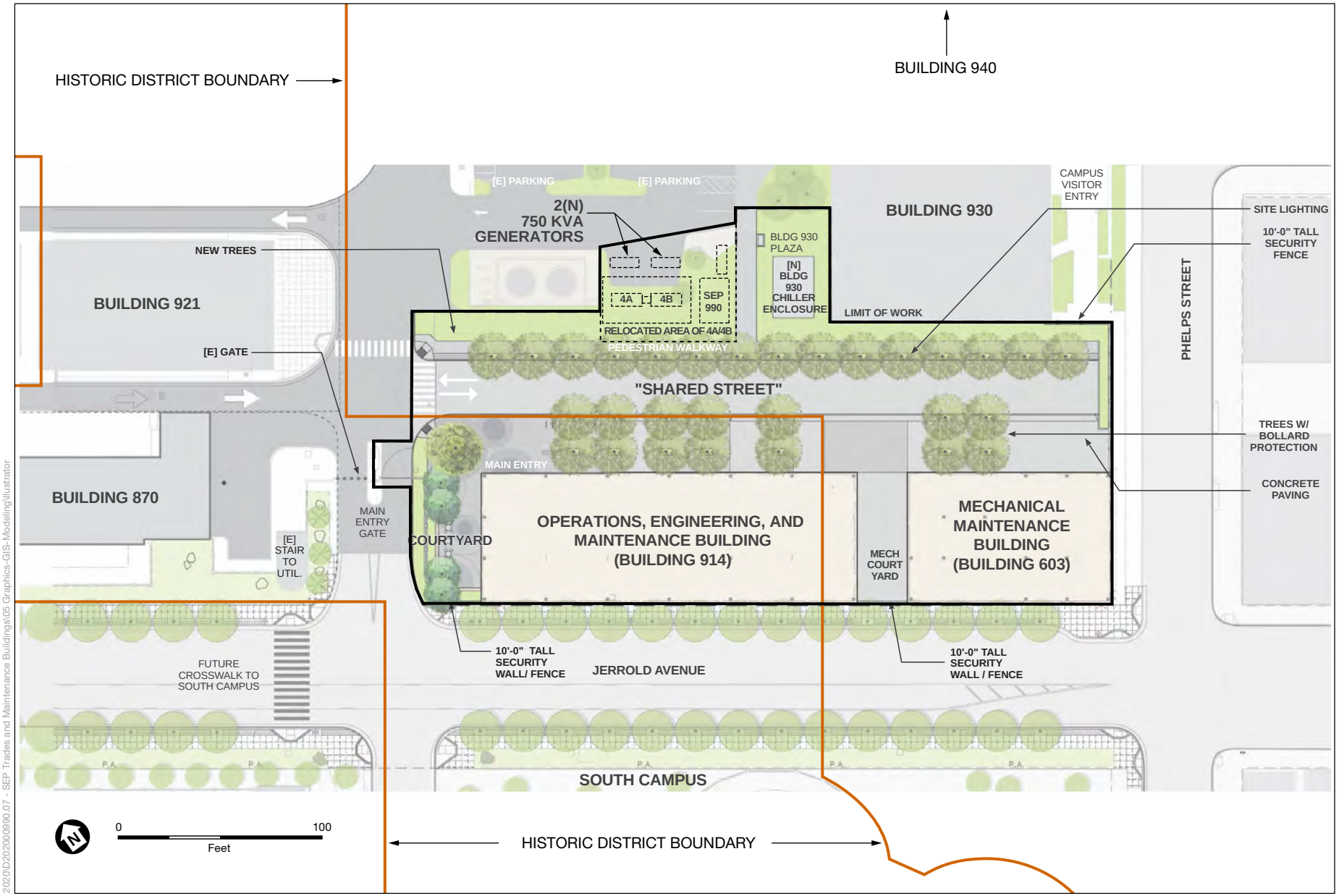
PROPOSED MODIFICATIONS

The proposed modifications to the approved project include: demolition of the existing building SEP 850; removal of the temporary pre-fabricated trailers SEP 850A and SEP 850B and the adjacent surface parking lot; demolition of the existing emergency backup generator, an existing transformer, and related electrical equipment (SEP 990); construction of the Mechanical Maintenance building (SEP 603), the Operations, Engineering, and Maintenance building (SEP 914), and a utility enclosure for a new chiller; and installation of two new boilers located inside building SEP 930 to service both buildings SEP 930 and SEP 940. Two new emergency generators and an associated upgraded transformer and electrical panel (SEP 990) would be constructed and installed for use by proposed buildings SEP 603 and SEP 914. **Figure 1** shows the landscape concept plan.

The proposed approximately 8,400-gross square foot (gsf) Mechanical Maintenance building (SEP 603) would house maintenance bays, tool storage, office space and associated maintenance equipment, while the proposed approximately 35,600-gsf Operations, Engineering, and Maintenance building (SEP 914) would house carpenter, plumbing, and paint shops; offices, conference rooms, and break room; tool and paint storage; showers, lockers, and a wellness room; and records storage. Prior to the start of construction, SFPUC would temporarily relocate the occupants and uses of the SEP 850 building and temporary pre-fabricated trailers (SEP 850A and SEP 850B) to be demolished at the Southeast Plant to 1900 Jerrold Avenue, at the San Francisco Market site. Temporary parking would be arranged for these workers near 1900 Jerrold Avenue, or previously approved staging areas such as 2000 McKinnon Avenue and 1811 Jerrold Avenue, which would not substantially alter employee travel patterns or parking conditions. The workers would return to the Southeast Plant at the end of the construction period.

CONSTRUCTION

In total, approximately 15,270 square feet of existing buildings and structures would be demolished for the proposed modifications, while Building SEP 870 would no longer be demolished as originally proposed in the approved BDFP project. After demolition and site grading, SFPUC would construct the Mechanical Maintenance building (building SEP 603) and the Operations, Engineering, and Maintenance building (building SEP 914). Once building and security fence construction is complete, the internal road and sidewalks would be placed.



SOURCE: Sage Consultion Engineers, Inc., 2024

Operations, Engineering, and Maintenance Buildings

Figure 1
Landscape Concept Plan

Construction of the proposed modifications would extend from February 2025 through July 2027 as shown in Table 1 (substantial completion would occur from July through September 2027), which represents a 30-month construction period. The first two years of construction would overlap with other approved project construction activities, while the remainder represents a six-month extension of the current project construction schedule (in addendum 1 to the BDFP FEIR, for the biogas utilization system, the construction schedule for the project was extended one year to December 2026, which has since been extended through January 2027; the modified project reviewed in addendum 2 would extend that construction schedule to July 2027).

Table 1
Proposed Modifications: Construction Schedule

Construction Phase	Start Date	End Date	Duration (months)
Demolition	2/14/25	6/19/25	4
Grading and Utility Installation	6/20/25	11/24/25	5
Deep Foundations Construction	11/3/25	3/2/26	4
Erection – Superstructure, enclosure, framing, building systems, walls	12/1/25	11/20/26	12
Architectural Finishes	9/1/26	6/3/27	9
Site Work	12/22/26	7/2/27	6

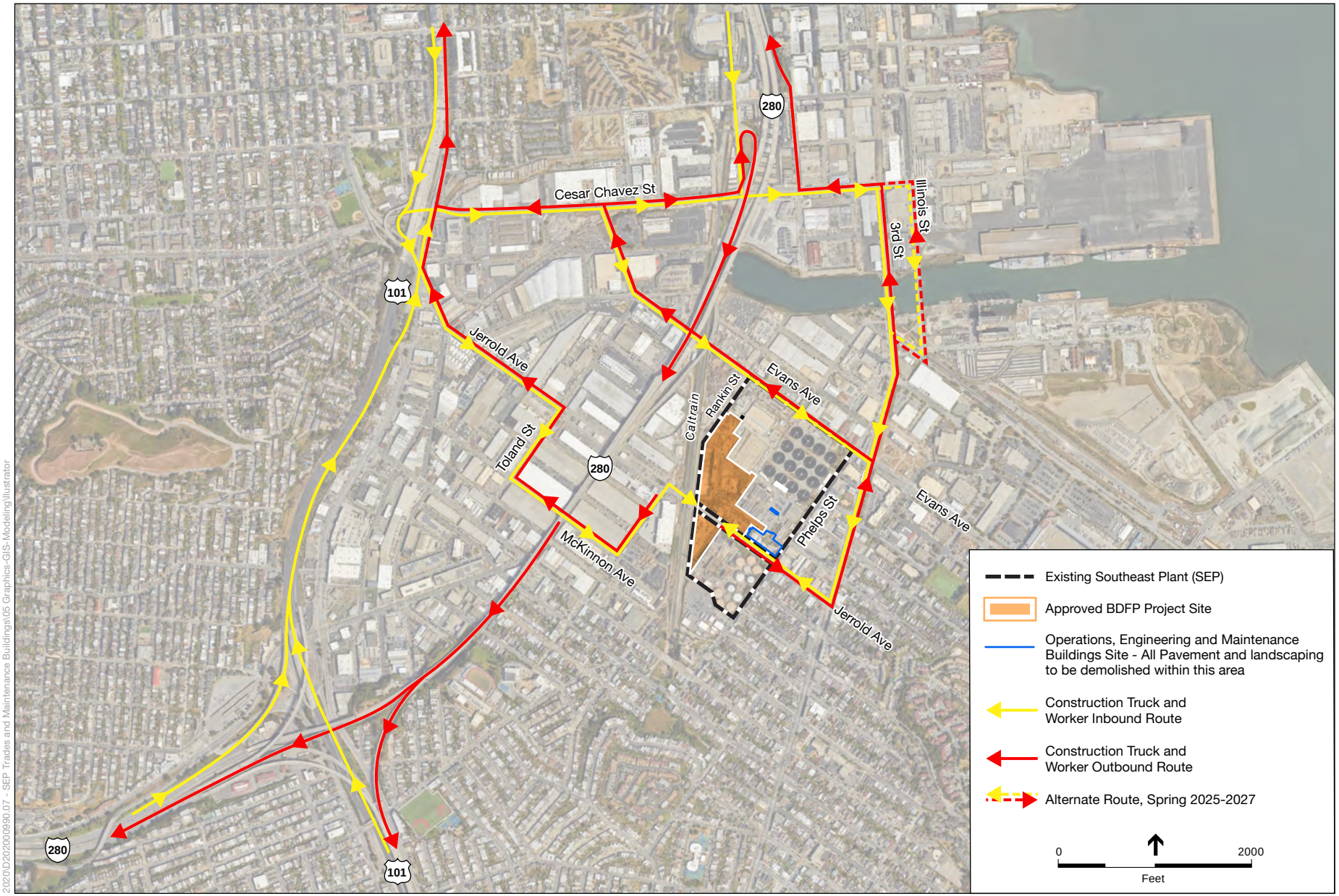
Source: Environmental Science Associates – 2024.

Most of the construction activities at the site would occur Monday through Friday from 7:00 a.m. to 4:30 p.m., the same days and time period as in the approved BDFP FEIR. Prior changes to the approved project extended the end date for construction staging as well as the length of the street closure along Jerrold Avenue to Phelps Street. The proposed modifications would further extend the construction schedule, including the closure of Jerrold Avenue, and add temporary construction worker vehicle parking, in an area large enough for approximately 90 construction worker vehicle parking spaces, at 2 Rankin Street.

Construction trucks and worker vehicles would use the routes shown on Figure 2 to access the site, instead of the routes shown in BDFP FEIR Figure 2-15, as approved in a prior minor project modification (MPM) number 7. Interim truck delivery and off-haul rates for ongoing operations at the Southeast Plant would be the same as shown in BDFP FEIR Figure 2-16.

OPERATIONS

The proposed modifications would not result in changes to the overall treatment capacity of the Southeast Plant. The SFPUC does not propose to increase the existing operations staff levels (about 280 people for the entire Southeast Plant) as part of the proposed modifications. The proposed modifications would not alter the operational employee vehicular travel, on-site employee or vehicle parking, or operational truck routes described in the BDFP FEIR.



2020\D2020009907 - SEP Trades and Maintenance Buildings\05 Graphics-GIS-Modeling\Illustrator

SOURCE: Google Maps 2023; ESA, 2023

Operations, Engineering, and Maintenance Buildings

Figure 2
New Truck Haul Routes

APPROVED PROJECT: BIOGAS UTILIZATION SYSTEM

The approved project includes construction and operation of a biogas utilization system (instead of the originally proposed energy recovery facilities) and other related changes to operational energy demand and supply, that were evaluated in addendum 1 to the BDFP FEIR. The biogas utilization system represents the most substantial construction activity that would overlap with the construction of the proposed modifications, from February 2025 through July 2027 (see **Table 1**).

The biogas utilization system would convert the digester gas generated at the Southeast Plant into renewable natural gas that would become part of the greater energy market. The biogas utilization system, consisting of two new sets of structures, would be built within the project area on either side of Jerrold Avenue between Quint Street and the Caltrain tracks. The Biogas Upgrade Facility south of Jerrold Avenue would include a thermal oxidizer comprised of piping, tanks, and storage container-type structures approximately 15 to 45 feet tall. The PG&E Interconnection Station and Deoxygenation System north of Jerrold Avenue would include above-ground valves and piping.

According to the current project schedule provided by the SFPUC, construction of the biogas utilization system would take almost two years to construct, from April 2025 through January 2027, and require up to approximately 20 workers at any one time.

TRAVEL DEMAND DURING CONSTRUCTION

The travel demand forecasts for the modified project during construction are based on the same methodology and information presented in the previous CEQA analysis of the BDFP, as well as data gathered from the SF Guidelines, as appropriate. Similar to the BDFP FEIR, the travel demand analysis focuses on the construction scenario for the modified project, given that, as previously described, once the modified project becomes operational, the Southeast Plant would have the same number of operational staff and truck demand as was previously analyzed in prior CEQA documents for the approved project.

For the analysis of the construction scenario for the modified project (i.e. the proposed modifications and the biogas utilization system), the same truck trip generation rates, hourly truck travel, and truck origins and destinations developed for the transportation evaluation in the BDFP FEIR were also applied to this analysis. Similarly, other assumptions used in the travel demand analysis related to construction workers, such as mode of travel, a.m. and p.m. peak hour trip generation rates, and average vehicle occupancy rates were also derived from transportation information presented in the BDFP FEIR.

The travel demand model developed for the analysis of the modified project includes four sequential steps (trip generation, mode of travel, trip distribution, and trips assignment). The results of implementing the model are presented in the following tables, which separately identify each project component. Travel demand during construction of the modified project was estimated for weekday daily, as well as the a.m. and p.m. peak hour conditions, and includes travel by construction workers and construction trucks associated

with the proposed modifications. The detailed travel demand calculations for the modified project are presented in Appendix A.

PROPOSED MODIFICATIONS

TRIP GENERATION

Table 2 summarizes the expected construction-related trip generation (workers and trucks) to and from the project site for the proposed modifications during each of the six construction phases.

As shown in Table 2, the maximum number of daily construction workers (60) present at the site would occur during the Erection and the Architectural Finishes phases. On the other hand, the highest number of daily construction-related truck traffic (17 daily trucks) would occur during the Grading and Utility Installation phase, followed by the Demolition and Architectural Finishes phases (seven daily trucks each).

Table 2
Proposed Modifications: Construction Daily Demand by Phase

Construction Phase	Number of Construction Workers	Number of Trucks [a]				
		Off-haul	Fill	Material Deliveries	Other Trucks [b]	Total
Demolition	20	2	0	0	5	7
Grading and Utility Installation	20	4	1	1	11	17
Deep Foundations Construction	40	0	0	1	4	5
Erection – Superstructure, enclosure, framing, building systems, walls	60	0	0	3	3	6
Architectural Finishes	60	0	0	4	3	7
Site Work	30	0	2	3	1	6

Notes:
a. The number of trucks shown in the table represent the number of heavy vehicles accessing the project site on a typical day, and it is equivalent to the number of daily round trips by truck. One-way truck trips are twice the values shown in the table.
b. Water trucks, tool trucks, delivery trucks, boom lift.

Source: Environmental Science Associates – 2024.

Based on the trip generation methodology presented in the BDFP FEIR, the daily trip generation rate for construction workers is two daily person trips per worker, one inbound to the site in the morning, plus one outbound from the site in the afternoon. This assumes that construction workers would either bring their own lunch to the site or travel (generally walk) a short distance to nearby food trucks or a lunch place.

Similarly, the daily trip generation rate for construction trucks is two vehicle trips per truck, one inbound trip to drop off (loaded truck) or pick up (empty truck) materials at the

site, plus a reverse trip leaving the site. Consistent with the BDFP FEIR, the analysis assumes an 8-hour workday for all truck operations.

Table 3 summarizes the weekday daily as well as the a.m. and p.m. peak hours construction worker person trips and construction truck vehicle trips for the proposed modifications for each of the six construction phases. The highest number of person trips would occur during the Erection and Architectural Finishes construction phases (120 daily one-way person trips and 60 one-way person trips during the peak hour), while the highest construction truck demand would occur during the Grading and Utility Installation phase (34 daily one-way truck trips and 5 one-way truck trips during the peak hour).

Table 3
Proposed Modifications: Construction Worker Daily and Hourly Demand by Phase

Construction Phase	Construction Workers One-way Person-trips		Total Construction Truck One-way Vehicle-trips	
	Daily	AM/PM Peak Hour [a]	Daily	AM/PM Peak Hour [b]
Demolition	40	20	14	2
Grading and Utility Installation	40	20	34	5
Deep Foundations Construction	80	40	10	2
Erection – Superstructure, enclosure, framing, building systems, walls	120	60	12	2
Architectural Finishes	120	60	14	2
Site Work	60	30	12	2

Notes:
a. Assumes construction worker trips are all inbound in the a.m. peak hour and all outbound in the p.m. peak hour (same as in BDFP FEIR)
b. Assumes an 8-hour day for truck operations (same as in BDFP FEIR); conservatively, values have been rounded up to the nearest integer. Half of the truck trips are inbound and half are outbound to/from the project site.

Source: Adavant Consulting – 2024.

MODE OF TRAVEL

Mode split or travel mode refer to the estimated way or method people travel (e.g., walking, bicycling, etc.). The daily and hourly construction worker person trips estimated in the previous step were allocated to ways of travel to determine the number of trips by auto, transit, walking and bicycling.

The same travel characteristics presented in the BDFP FEIR for construction workers were used to establish the mode split for the proposed modifications, which assumed that most (80 percent) of the construction workers travel would be by auto, with a small portion (20 percent) traveling by public transit. Table 4 presents the estimated number of daily, and a.m./p.m. peak hour person trips for construction workers by mode of travel and construction phase; more detailed calculations are presented in Appendix A.

Table 4
Proposed Modifications: Construction Worker Daily and Hourly Person-trip Demand by Mode of Travel and Phase

Construction Phase	Number of Construction Worker One-way Person Trips by Mode of Travel					
	Daily			AM/PM Peak Hour [a]		
	Auto	Transit	Total	Auto	Transit	Total
Demolition	32	8	40	16	4	20
Grading and Utility Installation	32	8	40	16	4	20
Deep Foundations Construction	64	16	80	32	8	40
Erection – Superstructure, enclosure, framing, building systems, walls	96	24	120	48	12	60
Architectural Finishes	96	24	120	48	12	60
Site Work	48	12	60	24	6	30

Note:
a. Assumes construction worker trips are all inbound in the a.m. peak hour and all outbound in the p.m. peak hour (same as in BDFP FEIR)

Source: Adavant Consulting – 2024.

Table 5 summarizes the estimated number of daily and peak hour one-way vehicle trips generated by construction workers during each phase. These were estimated by dividing the number of person trips made by auto mode as shown in Table 4, by an average vehicle occupancy of 1.28 persons per vehicle,[3] to account for some carpooling, in accordance with the data presented in the BDFP FEIR. The table also includes the total number of daily and peak hour one-way construction truck trips, based on the data previously presented in Table 3. As shown in Table 5, the highest combined number of daily and peak hour one-way vehicle trips generated by the proposed modifications (90 and 40, respectively) correspond to the Architectural Finishes construction phase, followed by the Erection phase (88 daily one-way vehicle trips and 40 one-way vehicle trips during the peak hour).

As previously indicated in Table 1, construction activities for the Erection phase and the Architectural phase would overlap during a three-month period, between September and November 2026, which would result in the highest travel demand values during the entire construction. Therefore, the overlap of these two construction phases will be used in the transportation impact analysis to represent the travel demand of the proposed modifications.

[3] The estimated number of passengers per vehicle is dependent on the place of origin or destination of the construction worker trip, resulting in an average vehicle occupancy of 1.28 persons per vehicle; more detailed calculations are presented in Appendix A.

As shown in Table 5, the number of vehicles generated by the construction workers during all analysis periods in most cases represents the vast majority (80 to 95 percent) of all the vehicle trips generated by the proposed modifications.

Table 5
Proposed Modifications: Construction Daily and Hourly Vehicle Demand by Phase

Construction Phase	Number of One-way Vehicle Trips					
	Daily			AM/PM Peak Hour		
	Workers [a]	Trucks	Total	Workers [b]	Trucks [c]	Total
Demolition	26	14	40	13	2	15
Grading and Utility Installation	26	34	60	13	5	18
Deep Foundations Construction	50	10	60	25	2	27
Erection – Superstructure, enclosure, framing, building systems, walls [d]	**76**	**12**	**88**	**38**	**2**	**40**
Architectural Finishes [d]	**76**	**14**	**90**	**38**	**2**	**40**
Site Work	38	12	50	19	2	21

Notes:

a. The number of daily worker trips is rounded up to the next even value, given that each worker performs an even number of one-way vehicle trips (one to the site and another from the site).
b. Assumes construction worker trips are all inbound in the a.m. peak hour and all outbound in the p.m. peak hour (same as in BDFP FEIR)
c. Assumes an 8-hour day for truck operations (same as in BDFP FEIR). Half of the truck trips are inbound and half are outbound to/from the project site.
d. The combination of the Erection construction phase and the Architectural Finishes construction phase, shown in **bold**, which would overlap between September and November 2026, represent the highest combined number of daily and peak hour vehicle trips and will be used to assess the potential transportation and circulation impact analyses of the proposed modifications.

Source: Adavant Consulting – 2024.

Table 6, presents the number of inbound and outbound daily one-way vehicle trips generated by the proposed modifications, as well as the in and out split during the a.m. and p.m. peak hours during the three-month period of overlap of the Erection construction phase with the Architectural Finishes construction phase.

Table 6
Proposed Modifications
Overlap of Erection Construction Phase with Architectural Finishes Construction Phase
(September through November 2026)
Daily and Hourly Inbound and Outbound Vehicle Demand [a]

Vehicle Type	Number of One-way Vehicle Trips								
	Daily			AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
Workers [b]	76	76	152	76	0	76	0	76	76
Trucks [c]	13	13	26	2	2	4	2	2	4
All Vehicles	89	89	178	78	2	80	2	78	80

Notes:
a. Includes construction worker vehicle and truck trips.
b. Assumes construction worker trips are all inbound in the a.m. peak hour and all outbound in the p.m. peak hour (same as in BDFP FEIR).
c. Half of the truck trips are inbound and half are outbound to/from the project site.

Source: Adavant Consulting – 2024.

TRIP DISTRIBUTION

Trip distribution refers to whether the trip is destined towards (inbound) or away from (outbound) the project site, and to either an origin for inbound trips or destination for outbound trips (e.g., another neighborhood) of the trip relative to the project site. Thus, the person and vehicle trips estimated in the previous step for each land use were distributed to various points of trip origin or destination, and inbound versus outbound directionality. The trip origins and destinations were allocated to the four San Francisco quadrants and the East Bay, North Bay, and South Bay areas.

Data from the BDFP FEIR for construction workers were used to establish the split between inbound and outbound direction, and the origins and destinations. **Table 7** summarizes the inbound and outbound construction vehicle trips for the a.m. and p.m. peak hour for the three-month period of overlap of the Erection construction phase with the Architectural Finishes construction phase by place of origin or destination; the assumed origin/destination percentage information is presented in **Appendix A**.

Table 7
Proposed Modifications
Overlap of Erection Construction Phase with Architectural Finishes Construction Phase
AM and PM Peak Hour Inbound and Outbound Vehicle Demand
by Place of Origin or Destination

Place of Origin or Destination	Number of One-way Vehicle Trips [a]					
	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
San Francisco SD 1 – NE Quadrant	5	0	5	0	5	5
San Francisco SD 2 – NW Quadrant	7	0	7	0	7	7
San Francisco SD 3 – SE Quadrant	18	0	18	0	18	18
San Francisco SD4 – SW Quadrant	5	0	5	0	5	5
East Bay	7	0	7	0	7	7
North Bay	4	0	4	0	4	4
South Bay	31	2	33	2	31	33
Out of Region	1	0	1	0	1	1
All Origins/Destinations	78	2	80	2	78	80

Note:
a. Includes construction worker vehicle and truck trips.

Source: Adavant Consulting – 2024.

TRIP ASSIGNMENT

The inbound and outbound vehicle trips generated by the proposed modifications and presented in **Table 7** were used as a basis for assigning trips to the transportation network during the a.m. and p.m. peak hours. The construction worker vehicle trips were assigned to the local streets near the project site in a similar manner to those analyzed in the BDFP FEIR, which took into account the most direct routes, the number of travel lanes on the various streets, and typical travel patterns in the area. The truck trips were assigned to the street network in accordance to the routes presented in **Figure 2**.

The results of the trip assignment process for the vehicle trips generated by the proposed modifications during the a.m. and p.m. peak hour are summarized in **Table 8** for key street segments within the study area; they are the same segments as those evaluated in the BDFP FEIR. As shown in the table, most of the vehicle trips generated by the proposed modifications, which corresponds to construction workers, would utilize Rankin Street to access the proposed worker vehicle parking to be located at 2 Rankin Street. Construction trucks would utilize Jerrold Avenue, and then continue onto Third Street to access the I-280 freeway, or vice versa.

Table 8
Proposed Modifications – Overlap of Erection Construction Phase
with Architectural Finishes Construction Phase
AM and PM Peak Hour Vehicle Trip Assignment

Street Name	Location	Two-way Vehicle-trips [a]	
		AM Peak Hour	PM Peak Hour
Evans Avenue	East of Phelps St	14	27
	West of Phelps St	33	33
	West of Rankin St	43	43
Jerold Avenue	East of Phelps St	4	4
	West of Phelps St	4	4
Oakdale Avenue	East of Phelps St	0	0
	West of Phelps St	6	6
Phelps Street	South of Evans Ave.	6	6
	North of Oakdale Ave.	6	6
Rankin Street	North of Evans Ave.	76	76

Note:
a. Includes construction worker vehicle and truck trips.

Source: Adavant Consulting – 2024.

APPROVED PROJECT: BIOGAS UTILIZATION SYSTEM

As described above (**Table 5**), the highest level of construction-related travel demand for the proposed modifications would occur between September and November 2026, when construction activities for the Erection phase and the Architectural phase would overlap. Remaining construction on the approved project during fall 2026 would be limited to work on the biogas utilization system, requiring up to approximately 20 workers and two daily trucks[4] at any one time.

Assumptions used to estimate construction-related travel demand of the biogas utilization system analysis related to workers and trucks are consistent with those shown above for the proposed modifications, as well as transportation information presented in the BDFP FEIR.

TRIP GENERATION AND MODE OF TRAVEL

Table 9 summarizes the expected construction-related daily and peak hour person-trip generation (workers and trucks) to and from the project site during construction of the biogas utilization system, while **Table 10** presents the estimated number of daily, and

[4] The number of daily construction trucks associated with the biogas utilization system has been estimated based on an average ratio of 15 workers per truck, obtained from worker and truck data presented in the BDFP FEIR.

a.m./p.m. peak hour person trips for construction workers by mode of travel and construction phase; more detailed calculations are presented in Appendix B.

Table 9
Biogas Utilization System – Construction Daily and Peak Hour Person-trip Demand

Construction Phase	Construction Workers	Trucks [a]
Daily		
Number of workers/trucks	20	2
Person-trips	40	--
AM/PM Peak Hour [b]		
Person-trips	20	--

Notes:
a. The number of daily construction trucks associated with the biogas utilization system has been estimated based on an average ratio of 15 workers per truck, obtained from worker and truck data presented in the BDFP FEIR; it represents the number of daily round trips to the project site by truck.
b. Assumes construction worker trips are all inbound in the a.m. peak hour and all outbound in the p.m. peak hour (same as in BDFP FEIR).

Source: Environmental Science Associates/Adavant Consulting – 2024.

Table 10
Biogas Utilization System – Construction Worker Daily and Hourly One-way Person-trip Demand by Mode of Travel

Mode of Travel	Daily	AM/PM Peak Hour [a]
Auto	32	16
Transit	8	4
Total	40	20

Note:
a. Assumes construction worker trips are all inbound in the a.m. peak hour and all outbound in the p.m. peak hour (same as in BDFP FEIR)

Source: Adavant Consulting – 2024.

Table 11 summarizes the estimated number of daily and peak hour one-way vehicle trips generated by the biogas utilization system during construction, using the same methodology previously presented in this document for the proposed modifications. The estimated number of passengers per vehicle is dependent on the place of origin or destination of the construction worker trip, resulting in an average vehicle occupancy of 1.28 persons per vehicle; more detailed calculations are presented in Appendix A.

Table 11
Biogas Utilization System – Construction Worker Daily and Hourly One-way Vehicle-trip Demand

Time Period	Inbound	Outbound	Total
Daily			
Workers	12	12	24
Trucks	2	2	4
All Vehicles	14	14	28
AM Peak Hour			
Workers	12	0	12
Trucks	1	0	1
All Vehicles	13	0	13
PM Peak Hour			
Workers	0	12	12
Trucks	0	1	1
All Vehicles	0	13	13

Note:
a. Assumes construction worker trips are all inbound in the a.m. peak hour and all outbound in the p.m. peak hour (same as in BDFP FEIR)

Source: Adavant Consulting – 2024.

TRIP DISTRIBUTION

Table 12 summarizes the inbound and outbound construction vehicle trips for the a.m. and p.m. peak hour for the biogas utilization system by place of origin or destination; the assumed origin/destination percentage information is presented in Appendix B.

Table 12
Biogas Utilization System
AM and PM Peak Hour Inbound and Outbound Construction Vehicle Demand
by Place of Origin or Destination

Place of Origin or Destination	Number of One-way Vehicle Trips [a]					
	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
San Francisco SD 1 – NE Quadrant	1	0	1	0	1	1
San Francisco SD 2 – NW Quadrant	1	0	1	0	1	1
San Francisco SD 3 – SE Quadrant	3	0	3	0	3	3
San Francisco SD4 – SW Quadrant	1	0	1	0	1	1
East Bay	1	0	1	0	1	1
North Bay	1	0	1	0	1	1
South Bay	5	0	5	0	5	5
Out of Region	0	0	0	0	0	0
All Origins/Destinations	13	0	13	0	13	13

Note:
a. Includes construction worker vehicle and truck trips.
Source: Adavant Consulting – 2024.

TRIP ASSIGNMENT

The results of the trip assignment process for the vehicle trips generated by the biogas utilization system during the a.m. and p.m. peak hour are summarized in **Table 13** for the key street segments within the study area; they are the same segments as those that have been presented in **Table 8** for the proposed modifications, and previously evaluated for the approved project in the BDFP FEIR. As shown in the table, most of the construction traffic generated by the biogas utilization project would operate on Oakdale Avenue.

Table 13
Biogas Utilization System
AM and PM Peak Hour Vehicle Trip Assignment

Street Name	Location	Two-way Vehicle-trips [a]	
		AM Peak Hour	PM Peak Hour
Evans Avenue	East of Phelps St	0	0
	West of Phelps St	0	0
	West of Rankin St	0	0
Jerold Avenue	East of Phelps St	0	0
	West of Phelps St	0	0
Oakdale Avenue	East of Phelps St	6	6
	West of Phelps St	6	6
Phelps Street	South of Evans Ave.	0	0
	North of Oakdale Ave.	0	0
Rankin Street	North of Evans Ave.	0	0

Note:
a. Includes construction worker vehicle and truck trips.

Source: Adavant Consulting – 2024.

MODIFIED PROJECT

As described above, the proposed modifications in combination with the approved project define the modified project. Table 14 presents a summary of the person and vehicle trip totals for the modified project, while Table 15 presents the results of the trip assignment process for the modified project, a combination of the data shown in Table 8 and Table 13.

Table 14
Modified Project
Daily and Peak Hour Person- and Vehicle-trip Demand

	Person-trips [a]		Vehicle Trips [b]	
	Daily	AM/PM Peak Hour	Daily	AM/PM Peak Hour
Proposed Modifications	240	120	178	80
Biogas Utilization System	40	20	28	13
Modified Project	280	140	206	93

Notes:
a. From information presented in Table 3 and Table 9.
b. From information presented in Table 6 and Table 11.

Source: Adavant Consulting – 2024.

Table 15
Modified Project
AM and PM Peak Hour Vehicle Trip Assignment

Street Name	Location	Two-way Vehicle-trips [a]	
		AM Peak Hour	PM Peak Hour
Evans Avenue	East of Phelps St	14	27
	West of Phelps St	33	33
	West of Rankin St	43	43
Jerold Avenue	East of Phelps St	4	4
	West of Phelps St	4	4
Oakdale Avenue	East of Phelps St	6	6
	West of Phelps St	12	12
Phelps Street	South of Evans Ave.	6	6
	North of Oakdale Ave.	6	6
Rankin Street	North of Evans Ave.	76	76

Note:
a. Includes construction worker vehicle and truck trips.

Source: Adavant Consulting – 2024.

APPENDIX A
TRAVEL DEMAND CALCULATIONS: PROPOSED MODIFICATIONS

Biosolids Digester Facilities Project
Operations, Engineering, and Maintenance Buildings Project

Construction Phase	Start Date	End Date	Number of workdays in Phase	Construction workers per day	One-Way Truck-trips					
					Off-haul	Fill	Materials Deliveries	Other Trucks [a]	Total Trips per day	Total Trips per hour [b]
Demolition (NTP)	2/14/2025	6/19/2025	90	20	4	0	0	10	14	2
Grading and Utilities	6/20/2025	11/24/2025	112	20	8	2	2	22	34	5
Deep Foundations	11/3/2025	3/2/2026	86	40	0	0	2	8	10	2
Erection – Superstructure, enclosure, framing, building	12/1/2025	11/20/2026	255	60	0	0	6	6	12	2
Architectural Finishes	9/1/2026	6/3/2027	198	60	0	0	8	6	14	2
Site Work	12/22/2026	7/2/2027	139	30	0	4	6	2	12	2
Substantial Completion		9/3/2027								

Notes:

[a] Water trucks, tool trucks, delivery trucks, boom lift

[b] Assumes an 8-hour day for truck operations (same as in BDFP FEIR)

Biosolids Digester Facilities Project
Operations, Engineering, and Maintenance Buildings Project
Vehicle Trips by Construction Phase

Month/ Year	Daily Construction Worker Vehicle Trips							Daily Construction Truck Trips							Daily Workers + Trucks	Hourly Workers	Hourly Trucks	Hourly Workers + Trucks
	Phase 1 Demo	Phase 2 Grading	Phase 3 Found.	Phase 4 Erection	Phase 5 Finishes	Phase 6 Site Wrk	Total	Phase 1 Demo	Phase 2 Grading	Phase 3 Found.	Phase 4 Erection	Phase 5 Finishes	Phase 6 Site Wrk	Total				
February 2025	26						26	14						14	40	13	2	15
March 2025	26						26	14						14	40	13	2	15
April 2025	26						26	14						14	40	13	2	15
May 2025	26						26	14						14	40	13	2	15
June 2025	26						26	14						14	40	13	2	15
July 2025		26					26		34					34	60	13	5	18
August 2025		26					26		34					34	60	13	5	18
September 2025		26					26		34					34	60	13	5	18
October 2025		26					26		34					34	60	13	5	18
November 2025		26	50				76		34	10				44	120	38	6	44
December 2025			50	76			126			10	12			22	148	63	3	66
January 2026			50	76			126			10	12			22	148	63	3	66
February 2026			50	76			126			10	12			22	148	63	3	66
March 2026			50	76			126			10	12			22	148	63	3	66
April 2026				76			76				12			12	88	38	2	40
May 2026				76			76				12			12	88	38	2	40
June 2026				76			76				12			12	88	38	2	40
July 2026				76			76				12			12	88	38	2	40
August 2026				76			76				12			12	88	38	2	40
September 2026				76	76		152				12	14		26	178	76	4	80
October 2026				76	76		152				12	14		26	178	76	4	80
November 2026				76	76		152				12	14		26	178	76	4	80
December 2026					76	38	114					14	12	26	140	57	4	61
January 2027					76	38	114					14	12	26	140	57	4	61
February 2027					76	38	114					14	12	26	140	57	4	61
March 2027					76	38	114					14	12	26	140	57	4	61
April 2027					76	38	114					14	12	26	140	57	4	61
May 2027					76	38	114					14	12	26	140	57	4	61
June 2027					76	38	114					14	12	26	140	57	4	61
July 2027						38	38						12	12	50	19	2	21
Modified Project Person Trips				120	120		240									120		

Biosolids Digester Facilities Project
Operations, Engineering, and Maintenance Buildings Project

Construction Phases: Combined 4-Erection & 5-Architectural Finishes

Proposed Size:		**120 workers (single shift)**						
DAILY					**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip Generation Rate [1]:		2.0 trips/worker	Person-trip Gen Rate [4]:	50.0%	1.0	50.0%	1.0
Total Person Trips:		240 person-trips	Total Person-trips:		120		120
Total Work Trips:	100%	240 person-trips	Work Person-trips:	100%	120	100%	120

Percent of Origin Distribution [2]	Mode of Travel	Percent Distribution [3]	Average Vehicle Occupancy [2]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 8.3%	Auto	67.3%	1.30	13	10	7	5	7	5
	Transit	32.7%		7		3		3	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		20	10	10	5	10	5
SF Superdistrict 2 10.6%	Auto	73.6%	1.26	19	15	9	7	9	7
	Transit	26.4%		7		3		3	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		25	15	13	7	13	7
SF Superdistrict 3 23.9%	Auto	79.4%	1.25	46	36	23	18	23	18
	Transit	20.6%		12		6		6	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		57	36	29	18	29	18
SF Superdistrict 4 7.9%	Auto	78.5%	1.48	15	10	7	5	7	5
	Transit	21.5%		4		2		2	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		19	10	9	5	9	5
East Bay 14.3%	Auto	70.3%	1.61	24	15	12	7	12	7
	Transit	29.7%		10		5		5	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		34	15	17	7	17	7
North Bay 5.6%	Auto	89.5%	1.44	12	8	6	4	6	4
	Transit	10.5%		1		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		13	8	7	4	7	4
South Bay 26.9%	Auto	91.2%	1.13	59	52	29	26	29	26
	Transit	8.8%		6		3		3	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		65	52	32	26	32	26
Out of Region 2.5%	Auto	64.7%	1.56	4	2	2	1	2	1
	Transit	35.3%		2		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		6	2	3	1	3	1
All Origins 100.0%	**Auto**	**79.8%**	**1.28**	**191**	**150**	**96**	**75**	**96**	**75**
	Transit	**20.2%**		**49**		**24**		**24**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**240**	**150**	**120**	**75**	**120**	**75**

Notes:

[1] One inbound plus one outbound trip per worker

[2] SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All)

[3] Adapted from SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All); Walk and Other trip % moved to Auto.

[4] Half of the trips (inbound) occur in the AM and the other half (outbound) occur in the PM

Biosolids Digester Facilities Project
Operations, Engineering, and Maintenance Buildings Project
Construction Phases: 1-Demolition & 2-Grading and Utilities

Proposed Size:		20 workers (single shift)						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		2.0 trips/worker		Person-trip Gen Rate [4]:	50.0%	1.0	50.0%	1.0
Total Person Trips:		40 person-trips		Total Person-trips:		20		20
Total Work Trips:	100%	40 person-trips		Work Person-trips:	100%	20	100%	20

Percent of Origin Distribution [2]	Mode of Travel	Percent Distribution [3]	Average Vehicle Occupancy [2]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
	Auto	67.3%	1.30	2	2	1	1	1	1
SF Superdistrict 1	Transit	32.7%		1		1		1	
8.3%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		3	2	2	1	2	1
	Auto	73.6%	1.26	3	2	2	1	2	1
SF Superdistrict 2	Transit	26.4%		1		1		1	
10.6%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		4	2	2	1	2	1
	Auto	79.4%	1.25	8	6	4	3	4	3
SF Superdistrict 3	Transit	20.6%		2		1		1	
23.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		10	6	5	3	5	3
	Auto	78.5%	1.48	2	2	1	1	1	1
SF Superdistrict 4	Transit	21.5%		1		0		0	
7.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		3	2	2	1	2	1
	Auto	70.3%	1.61	4	2	2	1	2	1
East Bay	Transit	29.7%		2		1		1	
14.3%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		6	2	3	1	3	1
	Auto	89.5%	1.44	2	1	1	1	1	1
North Bay	Transit	10.5%		0		0		0	
5.6%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		2	1	1	1	1	1
	Auto	91.2%	1.13	10	9	5	4	5	4
South Bay	Transit	8.8%		1		0		0	
26.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		11	9	5	4	5	4
	Auto	64.7%	1.56	1	0	0	0	0	0
Out of Region	Transit	35.3%		0		0		0	
2.5%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		1	0	1	0	1	0
	Auto	**79.8%**	**1.28**	**32**	**25**	**16**	**12**	**16**	**12**
All Origins	**Transit**	**20.2%**		**8**		**4**		**4**	
100.0%	**Walk**	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**40**	**25**	**20**	**12**	**20**	**12**

Notes:

[1] One inbound plus one outbound trip per worker

[2] SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All)

[3] Adapted from SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All); Walk and Other trip % moved to Auto.

[4] Half of the trips (inbound) occur in the AM and the other half (outbound) occur in the PM

Biosolids Digester Facilities Project
Operations, Engineering, and Maintenance Buildings Project
Construction Phase: 3-Deep Foundations

Proposed Size:		40 workers (single shift)						
DAILY					AM PEAK HOUR		PM PEAK HOUR	
Person-trip Generation Rate [1]:		2.0 trips/worker	Person-trip Gen Rate [4]:		50.0%	1.0	50.0%	1.0
Total Person Trips:		80 person-trips	Total Person-trips:			40		40
Total Work Trips:	100%	80 person-trips	Work Person-trips:		100%	40	100%	40

Percent of Origin Distribution [2]	Mode of Travel	Percent Distribution [3]	Average Vehicle Occupancy [2]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 8.3%	Auto	67.3%	1.30	4	3	2	2	2	2
	Transit	32.7%		2		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		7	3	3	2	3	2
SF Superdistrict 2 10.6%	Auto	73.6%	1.26	6	5	3	2	3	2
	Transit	26.4%		2		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		8	5	4	2	4	2
SF Superdistrict 3 23.9%	Auto	79.4%	1.25	15	12	8	6	8	6
	Transit	20.6%		4		2		2	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		19	12	10	6	10	6
SF Superdistrict 4 7.9%	Auto	78.5%	1.48	5	3	2	2	2	2
	Transit	21.5%		1		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		6	3	3	2	3	2
East Bay 14.3%	Auto	70.3%	1.61	8	5	4	2	4	2
	Transit	29.7%		3		2		2	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		11	5	6	2	6	2
North Bay 5.6%	Auto	89.5%	1.44	4	3	2	1	2	1
	Transit	10.5%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		4	3	2	1	2	1
South Bay 26.9%	Auto	91.2%	1.13	20	17	10	9	10	9
	Transit	8.8%		2		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		22	17	11	9	11	9
Out of Region 2.5%	Auto	64.7%	1.56	1	1	1	0	1	0
	Transit	35.3%		1		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		2	1	1	0	1	0
All Origins 100.0%	**Auto**	**79.8%**	**1.28**	**64**	**50**	**32**	**25**	**32**	**25**
	Transit	**20.2%**		**16**		**8**		**8**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**80**	**50**	**40**	**25**	**40**	**25**

Notes:
[1] One inbound plus one outbound trip per worker
[2] SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All)
[3] Adapted from SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All); Walk and Other trip % moved to Auto.
[4] Half of the trips (inbound) occur in the AM and the other half (outbound) occur in the PM

Biosolids Digester Facilities Project
Operations, Engineering, and Maintenance Buildings Project

Construction Phases: 4-Erection & 5-Architectural Finishes

Proposed Size:		**60 workers (single shift)**						
DAILY					**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip Generation Rate [1]:		2.0 trips/worker	Person-trip Gen Rate [4]:	50.0%	1.0	50.0%	1.0
Total Person Trips:		120 person-trips	Total Person-trips:		60		60
Total Work Trips:	100%	120 person-trips	Work Person-trips:	100%	60	100%	60

Percent of Origin Distribution [2]	Mode of Travel	Percent Distribution [3]	Average Vehicle Occupancy [2]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 8.3%	Auto	67.3%	1.30	7	5	3	3	3	3
	Transit	32.7%		3		2		2	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		10	5	5	3	5	3
SF Superdistrict 2 10.6%	Auto	73.6%	1.26	9	7	5	4	5	4
	Transit	26.4%		3		2		2	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		13	7	6	4	6	4
SF Superdistrict 3 23.9%	Auto	79.4%	1.25	23	18	11	9	11	9
	Transit	20.6%		6		3		3	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		29	18	14	9	14	9
SF Superdistrict 4 7.9%	Auto	78.5%	1.48	7	5	4	3	4	3
	Transit	21.5%		2		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		9	5	5	3	5	3
East Bay 14.3%	Auto	70.3%	1.61	12	7	6	4	6	4
	Transit	29.7%		5		3		3	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		17	7	9	4	9	4
North Bay 5.6%	Auto	89.5%	1.44	6	4	3	2	3	2
	Transit	10.5%		1		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		7	4	3	2	3	2
South Bay 26.9%	Auto	91.2%	1.13	29	26	15	13	15	13
	Transit	8.8%		3		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		32	26	16	13	16	13
Out of Region 2.5%	Auto	64.7%	1.56	2	1	1	1	1	1
	Transit	35.3%		1		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		3	1	2	1	2	1
All Origins 100.0%	**Auto**	**79.8%**	**1.28**	**96**	**75**	**48**	**37**	**48**	**37**
	Transit	**20.2%**		**24**		**12**		**12**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**120**	**75**	**60**	**37**	**60**	**37**

Notes:

[1] One inbound plus one outbound trip per worker

[2] SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All)

[3] Adapted from SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All); Walk and Other trip % moved to Auto.

[4] Half of the trips (inbound) occur in the AM and the other half (outbound) occur in the PM

Biosolids Digester Facilities Project
Operations, Engineering, and Maintenance Buildings Project

Construction Phases: 6-Site Work

Proposed Size:		**30 workers (single shift)**						
DAILY					**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip Generation Rate [1]:		2.0 trips/worker	Person-trip Gen Rate [4]:		50.0%	1.0	50.0%	1.0
Total Person Trips:		60 person-trips	Total Person-trips:			30		30
Total Work Trips:	100%	60 person-trips	Work Person-trips:		100%	30	100%	30

Percent of Origin Distribution [2]	Mode of Travel	Percent Distribution [3]	Average Vehicle Occupancy [2]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
	Auto	67.3%	1.30	3	3	2	1	2	1
SF Superdistrict 1	Transit	32.7%		2		1		1	
8.3%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		5	3	2	1	2	1
	Auto	73.6%	1.26	5	4	2	2	2	2
SF Superdistrict 2	Transit	26.4%		2		1		1	
10.6%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		6	4	3	2	3	2
	Auto	79.4%	1.25	11	9	6	5	6	5
SF Superdistrict 3	Transit	20.6%		3		1		1	
23.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		14	9	7	5	7	5
	Auto	78.5%	1.48	4	3	2	1	2	1
SF Superdistrict 4	Transit	21.5%		1		1		1	
7.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		5	3	2	1	2	1
	Auto	70.3%	1.61	6	4	3	2	3	2
East Bay	Transit	29.7%		3		1		1	
14.3%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		9	4	4	2	4	2
	Auto	89.5%	1.44	3	2	2	1	2	1
North Bay	Transit	10.5%		0		0		0	
5.6%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		3	2	2	1	2	1
	Auto	91.2%	1.13	15	13	7	7	7	7
South Bay	Transit	8.8%		1		1		1	
26.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		16	13	8	7	8	7
	Auto	64.7%	1.56	1	1	0	0	0	0
Out of Region	Transit	35.3%		1		0		0	
2.5%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		2	1	1	0	1	0
	Auto	**79.8%**	**1.28**	**48**	**37**	**24**	**19**	**24**	**19**
All Origins	**Transit**	**20.2%**		**12**		**6**		**6**	
100.0%	**Walk**	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**60**	**37**	**30**	**19**	**30**	**19**

Notes:

[1] One inbound plus one outbound trip per worker

[2] SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All)

[3] Adapted from SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All); Walk and Other trip % moved to Auto.

[4] Half of the trips (inbound) occur in the AM and the other half (outbound) occur in the PM

APPENDIX B
TRAVEL DEMAND CALCULATIONS: BIOSOLID GAS UTILIZATION SYSTEM

Biosolids Digester Facilities Project
Biogas Utilization System
Construction Phase: Fall 2026

Proposed Size:		**20 workers (single shift)**						
DAILY					**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip Generation Rate [1]:		2.0 trips/worker	Person-trip Gen Rate [4]:		50.0%	1.0	50.0%	1.0
Total Person Trips:		40 person-trips	Total Person-trips:			20		20
Total Work Trips:	100%	40 person-trips	Work Person-trips:		100%	20	100%	20

Percent of Origin Distribution [2]	Mode of Travel	Percent Distribution [3]	Average Vehicle Occupancy [2]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
	Auto	67.3%	1.30	2	2	1	1	1	1
SF Superdistrict 1	Transit	32.7%		1		1		1	
8.3%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		3	2	2	1	2	1
	Auto	73.6%	1.26	3	2	2	1	2	1
SF Superdistrict 2	Transit	26.4%		1		1		1	
10.6%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		4	2	2	1	2	1
	Auto	79.4%	1.25	8	6	4	3	4	3
SF Superdistrict 3	Transit	20.6%		2		1		1	
23.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		10	6	5	3	5	3
	Auto	78.5%	1.48	2	2	1	1	1	1
SF Superdistrict 4	Transit	21.5%		1		0		0	
7.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		3	2	2	1	2	1
	Auto	70.3%	1.61	4	2	2	1	2	1
East Bay	Transit	29.7%		2		1		1	
14.3%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		6	2	3	1	3	1
	Auto	89.5%	1.44	2	1	1	1	1	1
North Bay	Transit	10.5%		0		0		0	
5.6%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		2	1	1	1	1	1
	Auto	91.2%	1.13	10	9	5	4	5	4
South Bay	Transit	8.8%		1		0		0	
26.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		11	9	5	4	5	4
	Auto	64.7%	1.56	1	0	0	0	0	0
Out of Region	Transit	35.3%		0		0		0	
2.5%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		1	0	1	0	1	0
All Origins 100.0%	**Auto**	**79.8%**	**1.28**	**32**	**25**	**16**	**12**	**16**	**12**
	Transit	**20.2%**		**8**		**4**		**4**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**40**	**25**	**20**	**12**	**20**	**12**

Notes:
[1] One inbound plus one outbound trip per worker
[2] SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All)
[3] Adapted from SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All); Walk and Other trip % moved to Auto.
[4] Half of the trips (inbound) occur in the AM and the other half (outbound) occur in the PM

APPENDIX F
GREENHOUSE GAS CHECKLIST

San Francisco Planning

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COMPLIANCE CHECKLIST TABLE FOR GREENHOUSE GAS ANALYSIS: TABLE 2. MUNICIPAL PROJECTS

A. GENERAL PROJECT INFORMATION:

Date:	Case No.:
November 26, 2024	2015-000644ENV-02
Project Name:	
Biosolids Digester Facilities Project - Operations, Engineering and Maintenance Buildings	
Project Address:	**Block/Lot:**
750 Phelps Street	5262/009
Standard to be met (Select one)[1]:	**Date of site permit submittal (if applicable):**
Not Applicable	
Compliance Checklist Prepared By:	**Date:**
Kelly Yong	**November 26, 2024**

Brief Project Description:

On March 13, 2018, the San Francisco Public Utilities Commission (SFPUC) approved construction of new solids treatment, odor control, energy recovery, and associated facilities as part of improvements to the wastewater treatment facilities at the existing Southeast Water Pollution Control Plant (SEP) in San Francisco. The approved project includes the construction and operation of a new solids treatment process, odor control, energy recovery, and associated facilities to replace outdated existing facilities with more reliable, efficient, and modern technologies. As part of the planning process, the SFPUC completed a compliance checklist for greenhouse gas analysis for the project.

Since completing the compliance checklist, the SFPUC has proposed multiple minor changes to the approved project. The San Francisco Planning Department's Environmental Planning Division determined these were minor project modifications that would clearly not alter the FEIR conclusions, including related to greenhouse gas emissions, and documented the changes with memoranda to the case file.

At the time the previous compliance checklist was completed, the project included biogas recovery facilities that would generate sufficient levels of electricity to ultimately power all BDFP process facilities. Since completion of the previous compliance checklist, the SFPUC has proposed a biogas utilization system instead of the originally proposed energy recovery facilities and related changes to operational energy demand and supply. The biogas utilization system would allow SFPUC to provide renewable natural gas to PG&E through a new interconnection station and deoxygenation system.

The SFPUC proposes constructing two new buildings, an Operations, Engineering, and Maintenance building and a Mechanical

1 Refers to the standard to be met per the San Francisco Green Building Code. See http://sfdbi.org/administrative-bulletins for latest "AB-093" to determine which standard your project is required to meet, if applicable.

Maintenance building, replacing the current function of building SEP 850 and temporary prefabricated trailers. These proposed buildings would total approximately 44,000 square feet and are expected to be constructed from 2025 through 2027.

Overall project construction began in January 2020 and was expected to take approximately five years. However, construction is now estimated to take 1.5 years longer than anticipated, independent of the project revisions. Construction of the modified project, including the new buildings, will extend through 2027. As with the approved project, the modified project would not result in changes to the overall treatment capacity of the Southeast Plant. The SFPUC does not propose to increase the existing operations staff levels (about 280 people for the entire Southeast Plant) as part of the modified project.

B. COMPLIANCE CHECKLIST TABLE

Instructions: Complete the following table by determining project compliance with the identified adopted regulations and providing project-level details in the "Remarks" column which explains the selection. Projects that do not comply with an ordinance/regulation may be determined to be inconsistent with San Francisco's qualified GHG reduction strategy, although compliance with most ordinance/regulations is not optional. (See next page)

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Table 2. Regulations Applicable to Municipal Projects

REGULATION	REQUIREMENT	PROJECT COMPLIANCE	SPECIFY HOW PROJECT WOULD COMPLY/NOT COMPLY OR WHY REGULATION NOT APPLICABLE
TRANSPORTATION SECTOR			
Commuter Benefits Ordinance (San Francisco Environment Code, section 427)	City employees are eligible for pre-tax commuter benefits for transit and vanpool expenses.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	All City employees, including San Francisco Public Utilities Commission (SFPUC) staff, are provided commuter benefits in accordance with Environment Code Section 427.
Healthy Air and Clean Transportation Ordinance – Implementing Transit First (San Francisco Environment Code, section 403(a))	Requires all City officers, boards, commissions and department heads responsible for departments that require transportation to fulfill their official duties to reduce the municipal fleet by implementing transit-first policies by: • Maximizing the use of public transit, including taxis, vanpools, and car-sharing; • Facilitating travel by bicycle, or on foot; and, • Minimizing the use of single-occupancy motor vehicles, for travel required in the performance of public duties.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	SFPUC provides to employees commuter checks, bicycle parking, carpooling and/or transit opportunities to in City off-site events to encourage transit-first policies.
Healthy Air and Clean Transportation Ordinance – Optimizing Fleet Management (San Francisco Environment Code, section 403(b))	Requires the reduction of the number of passenger vehicles and light-duty trucks in the municipal fleet. In addition, requires new purchases or leases of passenger vehicles and light-duty trucks to be the cleanest and most efficient vehicles available on the market.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	Existing SFPUC fleet vehicles may be utilized for operation and maintenance activities by SFPUC staff at existing and proposed facilities.

REGULATION	REQUIREMENT	PROJECT COMPLIANCE	SPECIFY HOW PROJECT WOULD COMPLY/NOT COMPLY OR WHY REGULATION NOT APPLICABLE
Clean Construction Ordinance (San Francisco Environment Code, sections 2504-2506)	For all work performed on a major construction project located in an air pollutant exposure zone, equipment is subject to emission and idling standards. Before beginning on-site construction activities, the contractor must submit a construction emissions minimization plan to the head of the department funding the project for review and approval. After the start of construction activities, the contractor shall maintain quarterly reports at the construction site documenting compliance with the plan. For projects located outside the Air Pollutant Exposure Zone, all contracts for large City projects (longer than 20 days) are required to: • Fuel diesel vehicles with B20 biodiesel, and • Use construction equipment that meet U.S. EPA Tier 2 standards or best available control technologies for equipment over 25 horsepower.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	All SFPUC contracts issued for construction of the BDFP (including the operations, engineering and maintenance buildings) will incorporate the relevant requirements into the contract specifications since project components are located within an Air Pollutant Exposure Zone, which are as follows: • Use construction equipment that meets USEPA Tier 2 standards or higher and retrofitted with the most effective Verified Diesel Emission Control Strategies (VDECS, Level 3 is currently available); • Use alternative sources of power where available and prohibit use of portable diesel engines; • Limit idling of diesel engines to two minutes, except as allowed for in applicable state regulations; and • Maintain and tune construction equipment in accordance with manufacturer specifications.
Bicycle parking, showers, and lockers for city-owned and leased properties (San Francisco Planning Code, sections 155.1-155.4 and CalGreen, section 5.106.4)	Requires bicycle facilities for City-owned and leased properties. Refer to sections 155.2 and 155.3 for requirements by use. Requires bicycle facilities for new and expanded buildings, new dwelling units, change of occupancy, increase of use intensity, and added parking capacity/area. For projects that add 10 or more tenant vehicular spaces, provide short-term and long-term bicycle parking for 5 percent of total motorized parking capacity each, or meet San Francisco Planning Code section 155, whichever is greater. May meet LEED SS 4.2.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	Bicycle parking will be provided at the SEP site for use by SEP employees. The number of proposed bicycle parking spaces will be determined later in the design phase, but would be equal to at least five percent of the number of new parking spaces provided at the SEP, in accordance with section 155.2 of the San Francisco Planning Code.

REGULATION	REQUIREMENT	PROJECT COMPLIANCE	SPECIFY HOW PROJECT WOULD COMPLY/NOT COMPLY OR WHY REGULATION NOT APPLICABLE
Tenant Bicycle Parking in Existing Commercial Buildings Ordinance (San Francisco Environment Code, section 402)	The San Francisco Tenant Bicycle Parking in Existing Commercial Buildings Ordinance requires commercial property owners to: • Allow tenants to bring their bicycles to their leased space, or • Provide secure bicycle parking on-site, or • Provide no-cost off-site bike parking access for tenants within 750 feet of the building.	☐ Project Complies ☒ Not Applicable ☐ Project Does Not Comply	The project does not propose new commercial buildings. Therefore, the requirements of San Francisco Environment Code Section 402 are not applicable to the project.
Transportation Management Programs (San Francisco Planning Code, section 163)	Requires new buildings or additions over a specified size (buildings >25,000 sf or 100,000 sf depending on the use and zoning district) within certain zoning districts to implement a Transportation Management Program and provide on- site transportation management brokerage services for the life of the building.	☐ Project Complies ☒ Not Applicable ☐ Project Does Not Comply	The project will not add any new residential or office buildings over 25,000 sf within the applicable zoning districts. Therefore, the requirements of San Francisco Planning Code Section 163 are not applicable to the project.
ENERGY EFFICIENCY SECTOR			
Green Building Rating Systems (San Francisco Environment Code, chapter 7, section 704(a)(1)(A))	**Projects of 10,000 gross square feet or more** shall be certified as LEED Gold® and meet additional requirements, as specified in section 704(a)(1)(A), during the conceptual design phase, schematic design phase, all design phases and project closeout.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The modified project includes approximately 44,000 square feet of new buildings, which include the proposed Operations, Engineering, and Maintenance and Mechanical Maintenance buildings. The Operations, Engineering, and Maintenance building and Mechanical Maintenance building would be certified LEED Gold consistent with this requirement.
Green Building Rating Systems (San Francisco Environment Code, chapter 7, section 704(a)(1)(B))	**Small Projects** do not require LEED certification and LEED credit documentation is not necessary. Instead, the sponsoring City Department, in consultation with a LEED AP With Specialty, shall prepare and submit to the Department a LEED Scorecard for informational and reporting purposes as follows: • At the conclusion of the conceptual design phase, indicating the maximum LEED credits that are practicable for the project, the sponsoring City Department shall integrate the environmental attributes of these LEED credits throughout the design and construction process.	☐ Project Complies ☒ Not Applicable ☐ Project Does Not Comply	The project is not considered a “small project”. Therefore, the requirements of San Francisco Environment Code Chapter 7 Section 704(a)(1)(B) are not applicable to the project.

REGULATION	REQUIREMENT	PROJECT COMPLIANCE	SPECIFY HOW PROJECT WOULD COMPLY/NOT COMPLY OR WHY REGULATION NOT APPLICABLE
	• Upon receiving a temporary certificate of occupancy or similar indication that the project is substantively complete, indicating all LEED credits that have been or would likely be achieved.		
Energy Optimization (San Francisco Environment Code, chapter 7, section 704(b)(1))	Each Municipal Construction Project is subject to compliance with the following locally required measures: • **Electric Service To City Departments And Facilities** (Administrative Code Section 99.3). • **Better Roofs** (San Francisco Green Building Code Chapter 5, Section 5.201.1.2).	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The project will meet these requirements, as applicable.
Energy Optimization (San Francisco Environment Code, chapter 7, section 704(b)(2))	**Commissioning.** For each Municipal Construction Project subject to a LEED certification requirement, the LEED Project Administrator shall submit documentation to the Department of Environment verifying that the project achieves the LEED credit Enhanced Commissioning Option 1, Path 2: Enhanced and monitoring-based commissioning.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The project will meet these requirements, as applicable.
Energy Optimization (San Francisco Environment Code, chapter 7, section 704(b)(3))	**All-Electric Building.** Each New Construction or Major Renovation that includes HVAC system replacement shall be All-Electric, except as follows: • Natural Gas or propane service and plumbing may be installed if necessary for processes or features separate from the operation of systems integral to Building functions, such as vehicle fueling and mechanic shop equipment. • Existing equipment that uses Natural Gas and serves the project area, but is outside the scope of the project, may be retained. Projects which both (i) are served by existing equipment that use Natural Gas and are outside the scope of work, and (ii) include upgrade to electric service in the project scope of work, are encouraged to include sufficient electrical service capacity to, in the future, replace existing systems that use Natural Gas with All-Electric systems.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The project would use R-410A in the variable refrigerant volume system for the HVAC units in project process treatment facilities. SEP 914 and SEP 603 would be served by an upgraded electrical transformer, three new electric boilers and an electric chiller. SEP 930 and 940, existing buildings which are served by gas boilers and chiller, would be served by two smaller, more efficient gas boilers. The modified project includes replacement of the existing 500 kilo volt amperes (kVA) emergency backup generator with two new 750 kVA generators. The two new generators would be fossil fuel powered but have Tier 3 control technology.

REGULATION	REQUIREMENT	PROJECT COMPLIANCE	SPECIFY HOW PROJECT WOULD COMPLY/NOT COMPLY OR WHY REGULATION NOT APPLICABLE
	• Emergency backup electricity generation systems may use any combination of technologies permitted under applicable law, including combustion of fossil fuels. Zero-emissions emergency backup electricity systems are encouraged, such as onsite batteries that store electricity from onsite solar photovoltaics.		
Energy Optimization (San Francisco Environment Code, chapter 7, section 704(b)(4))	**Electrification of Existing Building Systems.** • Each City Department shall conduct an inventory of gas-using equipment in their managed Buildings using a template provided by the Director, and upload the inventory results to the City and County of San Francisco's online data catalog no later than December 31, 2023. • Where a gas-using equipment or system integral to building functions is removed from a Building other than a hospital and/or new equipment is required for a Municipal Construction Project, electric equipment or system must be installed, and: o If new equipment can be supported by existing electric service capacity, no upgrade to electric service infrastructure is required by this subsection 704(b). o If new equipment requires an increase from existing electric service capacity, the upgraded electric service infrastructure must be sufficient to accommodate the new equipment, future replacement, and electrification of the Building's remaining gas-using equipment.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The project will meet these requirements.
Energy Optimization (San Francisco Environment Code, chapter 7, section 704(b)(5))	**Energy Resilience.** This provision shall apply to any Municipal Construction Project for which the initial appropriation request, either whole or partial, is submitted to the Board of Supervisors after the effective date of the ordinance in Board File No. 221223, enacting this Chapter 7 and repealing an earlier version of Chapter 7.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The modified project would replace the existing boiler and chiller and would include electrical system improvements and new photovoltaic arrays. The current design includes battery storage at both new buildings.

REGULATION	REQUIREMENT	PROJECT COMPLIANCE	SPECIFY HOW PROJECT WOULD COMPLY/NOT COMPLY OR WHY REGULATION NOT APPLICABLE
	• **Critical Community Institution:** For New Construction and Major Renovation that includes HVAC system replacement and electrical system upgrade: o Calculate the battery storage capacity and photovoltaic array size sufficient to ensure ongoing operation of the Building's Tier 1 Emergency Loads to be met by battery storage and solar resources in the event of disaster or other disruption to electrical power, using a typical operational 3-day cycle in March as a basis of design; and o Install battery storage and photovoltaics consistent with daily ongoing delivery of Tier 1 Emergency Loads and functions specified in Section 704(b)(5)(A)(i). • **All other Buildings:** For New Construction and Major Renovation, other than at Critical Community Institutions, that includes HVAC system replacement and electrical system upgrade, comply with at least one of the following: o Battery storage and photovoltaics sufficient to sustain ongoing Tier 1 Emergency Loads as specified in Section 704(b)(5)(A)(i); OR o Annual site zero net energy; OR o Design energy use intensity (EUI) 50% better than the national median site EUI; OR o For a Building with process loads that are at least 50% of the Building's total energy use, exceed requirements of ASHRAE 90.1-2019 by 10%.		
WASTE REDUCTION SECTOR			
Responsible Production and Consumption (San Francisco Environment Code, chapter 7, section 704(c)(1),	**Building Material Management.** • Each Municipal Construction Project located within the nine counties surrounding the San Francisco Bay must comply with the **Construction and Demolition Debris Recovery Ordinance** (No. 27-06) and Environment Code Chapter 14.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The project construction contracts will include these requirements.

REGULATION	REQUIREMENT	PROJECT COMPLIANCE	SPECIFY HOW PROJECT WOULD COMPLY/NOT COMPLY OR WHY REGULATION NOT APPLICABLE
chapter 14, section 1402, and chapter 19)	• For each Municipal Construction Project, the contract between the City Department and the Contractor shall require the Contractor responsible for construction and/or demolition (C&D) debris management to: o Conduct a site assessment to estimate the types of material discards that will be generated during the project, including packaging and/or shipping materials. o Write and implement a Material Reduction and Recovery Plan (MRRP) in accordance with regulations promulgated under this Chapter 7 to guide onsite material management procedures for waste prevention and material reuse and recycling. o At a minimum, source-separate for reuse or recycling concrete, metal, clean solid wood, clean and unpainted drywall, and carpet and carpet padding. Other C&D debris must either be source-separated or placed in a C&D debris box for transport to a registered facility to maximize material recovery. The Director may adjust the materials to be source-separated by regulation under Section 702(b)(2) based on the Director's assessment of infrastructure and markets available. o If needed, maintain dedicated separate bins for recyclable, compostable, and trash materials as required by Environment Code Chapter 19 **Mandatory Recycling and Composting**. • For each Tenant Improvement subject to a LEED certification requirement, the LEED Project Administrator shall submit documentation verifying that the project achieves the Interior Design + Construction – Commercial Interiors LEED credit Construction and Demolition Waste Management Option 2: Waste Prevention (1 point).		

REGULATION	REQUIREMENT	PROJECT COMPLIANCE	SPECIFY HOW PROJECT WOULD COMPLY/NOT COMPLY OR WHY REGULATION NOT APPLICABLE
Responsible Production and Consumption (San Francisco Environment Code, chapter 7, section 704(c)(2))	**Material Reuse.** City Departments are encouraged to prioritize source reduction and onsite reuse through whatever means practicable. To the extent permitted by law, City Departments shall list in the Virtual Warehouse all unwanted furniture, fixtures, equipment, computers, and supplies purchased with City and County of San Francisco funds. Before buying any new furniture, fixtures, equipment, computers, or supplies, City Departments shall check the Virtual Warehouse for available items that meet their needs.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The SFPUC will check the Virtual Warehouse before buying any new furniture or equipment in accordance with these requirements.
Responsible Production and Consumption (San Francisco Environment Code, chapter 7, section 704(c)(3), and chapter 19)	**Material Recovery.** City Departments shall ensure that all City-Owned Properties and City Leaseholds have adequate, accessible, and convenient areas for the collection, storage, and loading of 100% of recyclable, compostable, and refuse materials. Design and/or construction contract documents shall incorporate requirements of Environment Code Chapter 19 **Mandatory Recycling and Composting** City Departments shall ensure that the designed and designated areas are sufficient to accommodate containers consistent with both current methods and projected needs when zero waste goals are met, as well as allow for easy access by a collector's vehicle. • City Departments are required to recycle used fluorescent and other mercury-containing lamps, batteries, and universal waste as defined by California Code of Regulations Section 66261.9.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The project will meet these requirements.
Responsible Production and Consumption (San Francisco Environment Code, chapter 7, section 704(c)(4))	**Embodied Carbon.** • Each Municipal Construction Project of 10,000 gross square feet or more shall submit to the Department an embodied carbon reduction strategies checklist on a form provided by the Director for informational and reporting purposes as follows: o At the conclusion of the schematic design phase, as an assessment of the maximum embodied carbon reduction strategies that are practicable for the project. The sponsoring City Department shall prioritize	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The project will implement these requirements for the design of the Operations, Engineering, and Maintenance building and Mechanical Maintenance building, given the criteria of 10,000 gross square feet and the nature of the project as a municipal construction. The Operations, Engineering, and Maintenance building and Mechanical Maintenance building would be certified LEED Gold consistent with these requirements. SFPUC would complete carbon reduction strategies checklist during subsequent project design.

REGULATION	REQUIREMENT	PROJECT COMPLIANCE	SPECIFY HOW PROJECT WOULD COMPLY/NOT COMPLY OR WHY REGULATION NOT APPLICABLE
	the integration of these strategies throughout the design and construction process. o Upon receiving a temporary certificate of occupancy or similar indication that the project is substantively complete, explaining the embodied carbon reduction strategies that have been successfully integrated into the design and/or construction process. • For each New Construction or Major Renovation subject to a LEED certification requirement, the LEED Project Administrator shall submit documentation verifying that the project achieves the LEED credit Building Life-Cycle Impact Reduction Option 2: Whole-Building Life-Cycle Assessment, Path 3 by addressing at least three product categories or building assembly types. For each Tenant Improvement subject to a LEED certification requirement, the LEED Project Administrator shall submit documentation verifying that the project achieves the LEED credit Interiors Life-Cycle Impact Reduction Option 1: Interior Furniture and Nonstructural Elements Reuse (1 point) or Option 3: Building Interiors Life Cycle Assessment (2 points). • For each Municipal Construction Project subject to a LEED certification requirement, the LEED Project Administrator shall submit documentation verifying that the project achieves the LEED credit Environmental Product Declarations (1 point).		
Resource Conservation Ordinance (San Francisco Environment Code, chapter 5, section 3 & Executive Directive 08-02)	This ordinance establishes a goal for each City department to (i) maximize purchases of recycled products and (ii) divert from disposal as much solid waste as possible and appoint at least one person responsible for compliance with the chapter. Each City department shall prepare a waste assessment annually. The ordinance requires janitorial contracts to consolidate Recyclable materials for pick up. Lastly, the ordinance requires departments to specify the purchase of 30 percent post-consumer recycled content for all paper products except copier and bond paper.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The project will meet these requirements. SFPUC includes the ordinance requirements in their construction contract specifications.

REGULATION	REQUIREMENT	PROJECT COMPLIANCE	SPECIFY HOW PROJECT WOULD COMPLY/NOT COMPLY OR WHY REGULATION NOT APPLICABLE
Resource Conservation Ordinance: : Non-PVC Plastics (San Francisco Environment Code, chapter 5, section 9)	This ordinance requires non-PVC plastics to be specified in city purchasing and construction projects.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The project will meet these requirements. SFPUC includes the ordinance requirements in their construction contract specifications.
Preference for Local Manufacturers and Industry/Recycled Content Materials Ordinance (San Francisco Administrative Code, section 6.4)	Ordinance requires the use of recycled content material in public works projects to the maximum extent feasible and gives preference to local manufacturers and industry.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The SFPUC will comply with this ordinance, which requires utilization of recycled content materials, rather than virgin materials, to the maximum extent feasible.
Bottled and Package Free Water Ordinance (San Francisco Environment Code, chapter 24, section 5)	No City officer, department, or agency shall use City funds to purchase bottled water for its own general use. A department may use City funds to purchase bottled water for uses specifically exempted from or allowed under chapter 24. It shall be City policy not to have drinking water systems in City offices or facilities that use plastic water bottles of any size where satisfactory alternatives exist and are feasible at the location under consideration.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The SFPUC implements these requirements.
Food Service and Packaging Waste Reduction Ordinance (San Francisco Environment Code, chapter 16, section 3)	City Departments (city contractors, lessees, and food providers) may not purchase, acquire, or use food service ware if (1) the food service ware is made, in whole or in part, from polystyrene foam, or if (2) the food service ware is not compostable or recyclable, and (3) where the food service ware is compostable and not fluorinated chemical free. In addition, they shall not purchase or acquire, any single-use straws, stirrers, splash sticks, cocktail sticks, or toothpicks made with plastic, including compostable, bio- or plant-based plastic, except as expressly provided in this Chapter 16 and/or as required by applicable State or federal laws, regulations, or guidelines.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The SFPUC implements these requirements

REGULATION	REQUIREMENT	PROJECT COMPLIANCE	SPECIFY HOW PROJECT WOULD COMPLY/NOT COMPLY OR WHY REGULATION NOT APPLICABLE
ENVIRONMENT/CONSERVATION SECTOR			
Street Tree Planting Requirements (San Francisco Public Works Code, Article 16, section 806(d) and San Francisco Planning Code, section 138.1)	Public Works Code section 806(d) requires projects that include new construction, significant alterations, new curb cuts, a new garage, or new dwelling units to plant a 24-inch box tree for every 20 feet along the property street frontage. Any street trees removed without obtaining a permit, must be replaced by street trees that are equal or greater than the total diameter of the street trees removed.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	Removal and replacement of any street trees along Jerrold Avenue (publicly accessible right-of-way) will be conducted consistent with Public Works Code section 806(d), which requires planting of a minimum of one 24-inch box tree for every 20 feet of property street frontage. This requirement does not apply to trees within the SEP which is a non-DPW public right-of-way.
Human and Environmental Health (San Francisco Environment Code, chapter 7, section 704(d)(2))	**Toxics Reduction and Pollution Prevention.** • For each Municipal Construction Project subject to a LEED certification requirement, the LEED Project Administrator shall submit documentation verifying that the project achieves the LEED credit Building Product Disclosure and Optimization – Material Ingredients (1 point) using reporting methodologies that inventory content of a product's homogeneous materials to at least 1,000 ppm. • For all Municipal Construction Projects and for purchases made by or on behalf of City Departments for these projects, product categories including but not limited to furniture, countertops, door hardware, paints, ceilings, and flooring shall comply with regulations promulgated under this Chapter 7 pertaining to the following attributes, subject to verification by the Department of the Environment: o Added flame retardant chemicals; o Antimicrobial chemicals; o Fluorinated chemicals; o Volatile organic compounds (VOCs) content or emissions. o Polyvinyl chloride (PVC) content; o Recycled content and recyclability; o Sustainably grown and harvested wood; and	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The project will implement this requirement for the Operations, Engineering, and Maintenance building and Mechanical Maintenance building.

REGULATION	REQUIREMENT	PROJECT COMPLIANCE	SPECIFY HOW PROJECT WOULD COMPLY/NOT COMPLY OR WHY REGULATION NOT APPLICABLE
	o Other environmental attributes, consistent with this Chapter.		
Construction Site Runoff Ordinance (Public Works Code, section 146)	Municipal construction projects that involve land-disturbing activities on 5,000 or more square feet of ground surface must implement construction site run-off best management practices in compliance with the Construction Site Runoff Ordinance (See Public Works Code section 146).	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The SFPUC will develop and implement an erosion control plan in accordance with Article 4.2 of the San Francisco Public Works Code, Section 146, and construction activities will include pollution prevention and stormwater controls.
San Francisco Stormwater Management Ordinance (Public Works Code, article 4.2, section 147)	All projects creating or replacing impervious surface of 5,000 square feet or more in combined or separate sewer areas must manage stormwater on-site using low impact design. Projects must comply with the Stormwater Management Ordinance, including SFPUC Stormwater Design Guidelines, and implement Post Construction Stormwater Controls and prepare a Stormwater Control Plan. All projects creating or replacing impervious surface of between 2,500 and 5,000 square feet in separate sewer areas must implement Post Construction Stormwater Controls.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	Drainage for the project will be designed in accordance with the SFPUC Article 4.2 of the San Francisco Public Works Code, Section 147, and the SFPUC's Stormwater Design Guidelines to the extent feasible.
Indoor Water Use Reduction (Green Building Code, Section 5.103.1.2)	For each Municipal Construction Project subject to a LEED certification requirement, the LEED Project Administrator shall submit documentation verifying that the project achieves the LEED credit Indoor Water Use Reduction (30% reduction minimum).	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The project will implement this requirement for the Operations, Engineering, and Maintenance building and Mechanical Maintenance building.
Water Efficient Irrigation Ordinance (Administrative Code Chapter 63)	All public agency landscape rehabilitation projects, with a modified landscape area equal to or greater than 1,000 square feet and less than 2,500 square feet, shall comply with Chapter 63 and the rules and regulations adopted by the Public Utilities Commission. All public agency new construction landscape projects with a landscape area equal to or greater than 500 square feet; landscape rehabilitation projects with a modified landscape area equal to or greater than 2,500 square feet; or a project under Tier 1 with a turf limitation exceeding 25% of the	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The modified project includes vegetated areas exceeding a total of 1,000 square feet and therefore qualifies as a landscape rehabilitation project. Low water use plants will be specified and the irrigation design will comply with Chapter 63.

REGULATION	REQUIREMENT	PROJECT COMPLIANCE	SPECIFY HOW PROJECT WOULD COMPLY/NOT COMPLY OR WHY REGULATION NOT APPLICABLE
	landscape area, shall comply with Chapter 63 and the rules and regulations adopted by the Public Utilities Commission.		
Water Conservation (San Francisco Environment Code, chapter 7, section 704(e))	A Municipal Construction Project located outside of the City and County of San Francisco may be subject to the following locally required measures if the project is not mandated by the local agency having jurisdiction to meet equivalent requirements: • **Construction Site Runoff Ordinance** (Public Works Code Sections 146-146.11). • **Stormwater Management Ordinance** (Public Works Code Sections 147-147.6). • **Indoor Water Use Reduction.** (Green Building Code, Section 5.103.1.2). For each Municipal Construction Project subject to a LEED certification requirement, the LEED Project Administrator shall submit documentation verifying that the project achieves the LEED credit Indoor Water Use Reduction (30% reduction minimum). • **Water Efficient Irrigation Ordinance** (Administrative Code Chapter 63).	☐ Project Complies ☒ Not Applicable ☐ Project Does Not Comply	The project would only include ground disturbance in San Francisco and would not be required to meet these requirements.
Human and Environmental Health (San Francisco Environment Code, chapter 7, section 704(d)(1))	**Indoor Air Quality.** For each Municipal Construction Project subject to a LEED certification requirement, the LEED Project Administrator shall submit documentation verifying that the project achieves the following LEED credits: • Enhanced Indoor Air Quality Strategies (1 point); • Low-Emitting Materials (5 product categories); • Construction Indoor Air Quality Management Plan (1 point); and • Indoor Air Quality Assessment Option 2: Air Testing (2 points).	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The project will implement this requirement for the Operations, Engineering, and Maintenance building and Mechanical Maintenance building.

REGULATION	REQUIREMENT	PROJECT COMPLIANCE	SPECIFY HOW PROJECT WOULD COMPLY/NOT COMPLY OR WHY REGULATION NOT APPLICABLE
Environmentally Preferable Purchasing Ordinance (San Francisco Environment Code, chapter 2, section 3)	For certain common product categories, the ordinance mandates that City Departments purchase only products listed as "required" on the SFApproved.org website, which is maintained by the Department of the Environment. The items on the SFApproved.org website meet the most rigorous standards for protecting our health and environment.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	Some of the products that would be needed for the project fall under the Approved Green Products List product categories, including (but not limited to): building materials, fuel, landscaping products, lighting, and paint and lacquer thinner. These products would be utilized during the project construction phase; therefore, contract specifications will include the requirement to use products from the Approved Green Products List when feasible. Any applicable products from the Approved Green Products List needed for conducting operations and maintenance activities will be utilized by SFPUC staff when feasible.
Tropical Hardwood and Virgin Redwood Ban (San Francisco Environment Code, chapter 8, section 3)	The ordinance prohibits City departments from procuring or engaging in contracts that would use the ordinance-listed tropical hardwoods and virgin redwood.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	All contracts associated with construction of the project will prohibit the utilization of the ordinance-listed tropical hardwoods and virgin redwood
Wood Burning Rule (Bay Area Air District Regulation 6, Rule 3 Rule 3: Wood-Burning Devices)	Bans the construction of wood-burning devices in new buildings constructed in the Bay Area since November 1, 2016. Gas-fueled fireplaces and logs, gas inserts, and electrical fireplaces are okay.	☐ Project Complies ☒ Not Applicable ☐ Project Does Not Comply	The project will not include the installation of fireplaces, wood burning or otherwise.
Arsenic-Treated Wood Ordinance (San Francisco Environment Code, chapter 13, section 3)	For City departments, prohibits the use of arsenic-treated wood for most applications, with the exception of seawater immersion. Details can be found at SFApproved.org/wood.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	Construction of the project will not use arsenic-treated wood.
Human and Environmental Health (San Francisco Environment Code, chapter 7, section 704(d)(3))	**Biodiversity and Wildlife Habitat.** Each Municipal Construction Project shall follow the City and County of San Francisco's Biodiversity Guidelines.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The project will adhere to the City's Better Roof Ordinance, the Stormwater Management Ordinance, the City's Integrated Pest Management program, and the Bird-Safe Building Ordinance. The project will utilize wildlife-friendly lighting, including downward-facing lights to reduce light pollution.

C. DETERMINATION OF COMPLIANCE WITH CITY'S GHG REDUCTION STRATEGY (TO BE FILLED OUT BY ENVIRONMENTAL PLANNING STAFF)

☒ Project Complies with San Francisco's *Strategies to Address Greenhouse Gas Emissions*

Project Notes:

☐ Project Does Not Comply

If Project does not comply, provide discussion of non-compliant features:

Planner Name: Timothy Johnston Date of Determination: 11/26/2024

Biosolids Digester Facilities Project

California Environmental Quality Act Findings: Findings of Fact, Evaluation of Mitigation Measures and Alternatives

San Francisco Public Utilities Commission

In determining to approve the Biosolids Digester Facilities Project ("BDFP" or "Project") described in Section I, Project Description, below, the San Francisco Public Utilities Commission ("SFPUC" or "Commission") makes and adopts the following findings of fact and decisions regarding mitigation measures and alternatives, based on substantial evidence in the whole record of this proceeding and under the California Environmental Quality Act ("CEQA"), California Public Resources Code Sections 21000 et seq., particularly Sections 21081 and 21081.5, the Guidelines for Implementation of CEQA ("CEQA Guidelines"), 14 California Code of Regulations Sections 15000 et seq., particularly Sections 15091 through 15093, and Chapter 31 of the San Francisco Administrative Code.

This document is organized as follows:

Section I provides a description of the Project proposed for adoption, the environmental review process for the Project Environmental Impact Report (the "Final EIR" or "EIR"), Planning Department Case No., 2015-000644ENV, State Clearinghouse No. 2015062073, the approval actions to be taken and the location of records;

Section II identifies the impacts found not to be significant that do not require mitigation;

Section III identifies potentially significant impacts that can be avoided or reduced to less-than-significant levels through mitigation and describes the disposition of the mitigation measures;

Section IV identifies significant impacts that cannot be avoided or reduced to less-than-significant levels and describes any applicable mitigation measures as well as the disposition of the mitigation measures; and

Section V evaluates the different Project alternatives and the economic, legal, social, technological and other considerations that support approval of the Project and the rejection of alternatives, or elements thereof, analyzed.

Section VI presents a statement of overriding considerations setting forth specific reasons in support of the Commission's actions and rejection of alternatives not incorporated into the Project.

The Mitigation Monitoring and Reporting Program ("MMRP") for the mitigation measures that have been proposed for adoption is attached with these findings as Attachment B to Resolution

No. _____ . The MMRP is required by CEQA Section 21081.6 and CEQA Guidelines Section 15091. Attachment B provides a table setting forth each mitigation measure listed in the Final Environmental Impact Report for the Project ("Final EIR") that is required to reduce or avoid a significant adverse impact. Attachment B also specifies the agency responsible for implementation of each measure and establishes monitoring actions and a monitoring schedule. The full text of the mitigation measures is set forth in Attachment B.

These findings are based upon substantial evidence in the entire record before the Commission. The references set forth in these findings to certain pages or sections of the Draft Environmental Impact Report ("Draft EIR" or "DEIR") or the Responses to Comments document in the Final EIR are for ease of reference and are not intended to provide an exhaustive list of the evidence relied upon for these findings.

I. Approval of the Project

A. Project Description

By this action, the SFPUC adopts and implements the BDFP identified in the Final EIR. The Project as adopted by the Commission is described in detail in the Draft EIR at pages 2-1 through 2-69. A summary of the key components of the Project follows.

The proposed project would replace the outdated existing solids treatment facilities with more reliable, efficient, and modern technologies and facilities. Biosolids are the recyclable solid materials removed from wastewater during the treatment process, and digesters are the major facility used in the solid treatment process. Many of the existing Southeast Water Pollution Control Plant (“Southeast Plant” or “SEP”) solids treatment facilities are over 60 years old, require significant maintenance, and are operating well beyond their useful life.

The project facilities would be situated on portions of the SEP located at 750 Phelps Street and 1700 Jerrold Avenue, and two adjacent properties at 1800 Jerrold Avenue (Central Shops site) and 1801 Jerrold Avenue (Asphalt Plant site). The project site encompasses approximately 562,000 square feet (12.9 acres).

Specifically, the Project adopted by the SFPUC includes the following components:

- Replace and relocate the solids processing treatment processes with new processes and new facilities;

- Replace the 10 existing digesters (1.8-million gallons each) with five (5) digesters (1.66 million gallons each), and place the new digesters further away from residential uses;

- Upgrade the solids treatment process such that quality of the biosolids produced by the SEP would achieve Class A biosolids, which contains no detectable levels of pathogens and do not attract vectors such as flies, mosquitoes and other potential disease-carrying organisms;

- Install odor control facility to collect and treat odors from solids handling and energy recovery facilities, thereby limit odors from biosolids facilities to within revised SEP site boundaries;

- Reuse 100 percent of the digester gas generated by the proposed solids processing facilities to produce energy for heating and power uses at the SEP; increase digester gas production from 1.3 million cubic feet/day (cfd) to 2 million cfd;

- Increase the annual average electricity generation from up to 2 megawatt (MW) to up to 5.2 MW;

- Install support facilities such as buildings for operations and maintenance staff, and ancillary piping and electrical facilities; and

- Make changes to vehicular circulation and access, landscaping, and architectural improvements.

The BDFP would require construction of new structures on approximately 206,000 square feet of the project site and excavation in certain areas to a maximum depth of about 41 feet below grade. The height of new structures would be up to 65 feet above grade.[1] To accommodate the proposed facilities, a number of existing structures within the project site would be demolished. This includes the Central Shops buildings and existing SEP facilities within the SEP boundaries of the project site totaling about 136,000 square feet.

Project construction would require five years to complete, from 2018 through 2023. During the construction period, the SFPUC would operate and maintain the existing solids treatment facilities to ensure no interruption of service and ongoing compliance with applicable regulatory permits. To maintain a safe construction work area, the Project includes a temporary closure of approximately two blocks of Jerrold Avenue to public through traffic (starting at the Caltrain right-of-way and up to the SEP entrance on Jerrold Avenue west of Phelps Street) during the five-year project construction period.

Construction would require temporary use of other off-site locations for staging including construction employee parking during the five-year construction period. The BDFP would require up to 12 acres for off-site construction staging at one or more sites, in addition to areas within the project site itself. Potential staging areas include the segments of Quint Street and Jerrold Avenue that would be closed during construction, the Southeast Greenhouses site and the 1550 Evans Avenue site if they are available for use (both owned by SFPUC), and portions of Piers 94 and 96 and the Pier 94 Backlands (administered by the Port of San Francisco and available for lease).For most of the project construction period, construction activities at the project site would occur Monday through Friday from 7:00 a.m. to 3:30 p.m., with some activities extending to 8:00 p.m. as needed. Construction could also occur on Saturdays and Sundays when needed. Work would

[1] Heights listed exclude mechanical penthouses, catwalks, and similar accessory structures that qualify for exemption from the 65-foot height limit for the project site pursuant to Section 260(b) of the San Francisco Planning Code.

occur on holidays and 24 hours per day only if needed for critical facility connections. Pile driving would generally occur between 7:00 a.m. and 3:30 p.m., Monday to Friday, and at times until 8:00 p.m. consistent with the City's Noise Ordinance. During the peak of construction, a period of approximately one year, and other times during critical functions, construction would occur in two shifts per day if needed: Monday through Saturday from 7:00 a.m. to 3:30 p.m. and from 2:30 p.m. to 11:00 p.m. Nighttime work (after 8:00 p.m.) would be limited to interior facility work and outside work with minimal noise. The size of the construction work force would vary over the five-year construction period, averaging about 333 workers per day and ranging from about 133 to 550 workers per day.

Proposed long-term improvements to Jerrold Avenue would occur in accordance with San Francisco Better Streets Plan guidelines and could include traffic calming measures, curb extensions (road narrowing), sidewalk improvements, lighting, street trees, and safer pedestrian and worker crossings.

The project would also include a new entrance at Rankin Street to facilitate the movement of truck traffic to and from the proposed facilities. Two entrances (as well as emergency access gates) on either side of Jerrold Avenue and one entrance on Quint Street are also proposed. The project would include redesign of on-site vehicular circulation within the SEP boundaries to accommodate the new entrances, exits, and facility layout.

B. Project Objectives

The overall goal of the BDFP is to replace the existing aged and unreliable solids processing facilities at the SEP with new, modern, and efficient facilities to ensure the long-term sustainability of the SEP wastewater treatment system. The specific BDFP objectives are as follows:

- Replace the existing solids treatment facilities at the SEP with new infrastructure with modern and more efficient treatment technologies to protect public health and safety and provide continued regulatory compliance;
- Maximize the efficiency of the current treatment process operations and maintenance, staffing resources, and the use of existing SFPUC infrastructure;
- Reliably meet treatment capacity for projected 2045 flows and loads associated with projected population growth;
- Beneficially use 100 percent of biosolids generated;
- Beneficially use 100 percent of digester gas generated;
- Build critical processes with redundant infrastructure to provide reliability and operational flexibility;
- Improve seismic reliability;
- Limit noticeable odors from BDFP facilities to the SEP property boundary;

- Provide visual improvements that promote a cohesive architectural design and identity at the BDFP site, enhance the overall aesthetics, and improve the public edges in a manner consistent with the surrounding neighborhood and the rest of the SEP;
- Design and site new facilities to accommodate or adapt to expected sea level rise over their expected life;
- Allow for timely construction of the proposed BDFP; and
- Maintain rate payer affordability.

C. Environmental Review

Biosolids Digester Facilities Project Environmental Impact Report

In accordance with Sections 15063 and 15082 of the CEQA Guidelines, the Environmental Planning ("EP") staff of the San Francisco Planning Department, as lead agency, prepared a Notice of Preparation ("NOP") and conducted a scoping meeting for the Project EIR. The San Francisco Planning Department released the NOP on June 24, 2015, held a scoping meeting on July 16, 2015 at the Southeast Community Facility, 1800 Oakdale Avenue in San Francisco, and accepted written comments on the NOP through July 27, 2015.

EP distributed the NOP to the State Clearinghouse, and mailed notices of the availability of the NOP to over 1,540 interested parties, including property owners and tenants within 300 feet of the proposed Project. The scoping meeting was noticed in local newspapers through the San Francisco Neighborhood Newspaper Association, including El Tecolote, a Spanish/ English publication and in Sing Tao (published in Chinese). Approximately 22 people attended the meeting.

The San Francisco Planning Department received 17 verbal comments at the scoping meeting and three written comment letters/email. The comments are included in the Scoping Report in Appendix NOP of the EIR.

The San Francisco Planning Department then prepared the Draft EIR, which described the Project and the environmental setting, identified potential impacts, presented mitigation measures for impacts found to be significant or potentially significant, and evaluated Project alternatives. The Draft EIR analyzed the impacts associated with each of the key components of the Project, and identified mitigation measures applicable to reduce impacts found to be significant or potentially significant for each key component. It also included an analysis of three alternatives to the Project. In assessing construction and operational impacts of the Project, the EIR considered the impacts of the Project as well as the cumulative impacts associated with the proposed Project in combination with other past, present, and reasonably foreseeable future actions that could affect the same resources.

Each environmental issue presented in the Draft EIR was analyzed with respect to significance criteria that are based on EP guidance regarding the environmental effects to be considered

significant. EP guidance is, in turn, based on CEQA Guidelines Appendix G, with some modifications.

The Draft EIR was circulated for public comment on May 3, 2017 for a 47-day comment period, which closed at 5:00pm on June 19, 2017. The San Francisco Planning Commission held a public hearing on the Draft EIR to accept written or oral comments at San Francisco City Hall on June 1, 2017. During the public review period, the Planning Department received written comments sent through the mail, fax, or email. A court reporter was present at the public hearing, transcribed the public hearing verbatim, and prepared a written transcript.

The Planning Department then prepared the Responses to Comments document, which provided written responses to each comment received on the Draft EIR. The Responses to Comments document was published on February 23, 2018 and included copies of all of the comments received on the Draft EIR and responses to those comments. The Responses to Comments provided additional, updated information and clarification on issues raised by commenters, as well as SFPUC and Planning Department staff-initiated text changes to address Project updates. The Final EIR provided augmented and updated information presented in the Draft EIR, on the following topics: project description, aesthetics, cultural resources, transportation, air quality, cultural resources, sea level rise, hazardous materials, cumulative projects, and alternatives. Other topics covered which are not part of the CEQA process include project merits, socioeconomics, community benefits, and environmental justice. This augmentation and update of information in the Draft EIR did not constitute new information or significance that altered any of the conclusions of the EIR. The Planning Commission reviewed and considered the Final EIR, which includes the Draft EIR and the Responses to Comments document, and all of the supporting information.

In certifying the Final EIR, the Planning Commission determined that none of the factors that would necessitate recirculation of the Final EIR under CEQA Guidelines Section 15088.5 are present. Specifically, the Final EIR contains no information revealing (1) any new significant environmental impact that would result from the Project or from a new mitigation measure proposed to be implemented, (2) any substantial increase in the severity of a previously identified environmental impact, (3) any feasible Project alternative or mitigation measure considerably different from others previously analyzed that would clearly lessen the environmental impacts of the Project, but that was rejected by the Project's proponents, or (4) that the Draft EIR was so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded. This Commission concurs in that determination.

The Commission finds that the Project is within the scope of the Project analyzed in the Final EIR and the Final EIR fully analyzed the Project proposed for approval. No new impacts have been identified that were not analyzed in the Final EIR.

D. Approval Actions

Under San Francisco's Administrative Code Chapter 31 procedures, the San Francisco Planning Commission certifies the Final EIR as complete and all approving bodies subject to CEQA adopt CEQA findings at the time of the approval actions. Anticipated approval actions are listed below.

1. San Francisco Public Utilities Commission

The SFPUC is taking the following actions and approvals to implement the Project:

- Adopts these CEQA findings and the attached Mitigation Monitoring and Reporting Program.
- Approves the Project, as described in these findings, and authorizes the General Manager or his designee to obtain necessary permits, consents, agreements and approvals
- Authorizes the General Manager to proceed to implement the Project and proceed with the Construction Phase

2. San Francisco Board of Supervisors Actions

- Considers any appeal of the Planning Commission's certification of the Final EIR.
- Releases appropriated funds for implementation of the Project.

3. Other – Federal, State, and Local Agencies

Implementation of the Project may involve consultation with or required approvals by other local, state, and federal regulatory agencies, including (but not limited to) the following:

- United States Environmental Protection Agency:
  - Consideration for Water Infrastructure Finance and Innovation Act loan and review of environmental review requirements that must be completed to apply for a loan
- State Water Resources Control Board:
  - Construction General Permit and Stormwater Pollution Prevention Plan, if more than one acre of land were disturbed[2]
  - Consideration for Clean Water State Revolving Fund loan and review of environmental review requirements that must be completed to apply for a loan
- State Historic Preservation Officer: Review under Section 106 of the National Historic Preservation Act (as part of the Water Infrastructure Finance and Innovation Act and State Revolving Fund loan application process)
- San Francisco Planning Commission: Certification of the BDFP Final EIR

[2] Applicable to areas that do not drain to the City's combined sewer system; therefore, not applicable to the project site but potentially applicable to the Piers 94 and 96 staging areas.

- San Francisco Public Works (SFPW): Approval of Sidewalk Changes (SFDPW Order) and Street Improvement Permit
- San Francisco Department of Public Health: Approval of Site Mitigation Plan
- San Francisco Board of Supervisors: Approval of Sidewalk Legislation (if needed)
- San Francisco Municipal Transportation Agency: Approval of On-Street Parking Legislation (if needed)
- Bay Area Air Quality Management District: Authority to Construct and Permit to Operate
- San Francisco Port Commission: Approval of use of Pier 94 and Pier 96 for construction staging

To the extent that the identified mitigation measures require consultation or approval by these other agencies, this Commission urges these agencies to assist in implementing, coordinating, or approving the mitigation measures, as appropriate to the particular measure.

E. Contents and Location of Records

The record upon which all findings and determinations related to the Project are based ("Record of Proceedings") includes the following:

- The Draft EIR and all documents referenced in or relied upon by the EIR, including technical memoranda and reports prepared by the Planning Department, the SFPUC, and the EIR consultants and subconsultants. (The references in these findings to the EIR or Final EIR include both the Draft EIR and the Comments and Responses document.)

- All information (including written evidence and testimony) provided by City staff to the SFPUC and Planning Commission relating to the EIR, the Project, and the alternatives set forth in the EIR.

- All information (including written evidence and testimony) presented to the SFPUC and the Planning Commission by the environmental consultant and sub-consultants who prepared the EIR or that was incorporated into reports presented to the SFPUC.

- All information presented at any public hearing or workshop related to the Project and the EIR.

- The Mitigation Monitoring and Reporting Program.

- All other documents available to the SFPUC and the public, comprising the administrative record pursuant to Public Resources Code Section 21167.6(e).

The Commission has relied on all of the information listed above in reaching its decision on the Project, even if not every document was formally presented to the SFPUC. Without exception, these documents fall into one of two categories. Many documents reflect prior planning or legislative decisions that the SFPUC was aware of in approving the Project. Other documents

influenced the expert advice provided to Planning Department staff or consultants, who then provided advice to the SFPUC. For these reasons, such documents form part of the underlying factual basis for the SFPUC's decisions relating to the adoption of the Project.

The public hearing transcript, a copy of all letters regarding the Draft EIR received during the public review period, the administrative record, and background documentation for the Final EIR are available at the San Francisco Planning Department, 1650 Mission Street, San Francisco. **Jonas P. Ionin**, Commission Secretary, is the Custodian of Records for the Planning Department. Materials concerning approval of the Project and adoption of these findings are contained in SFPUC files, **SFPUC Project No. CWWSIPDP01** in the Bureau of Environmental Management, San Francisco Public Utilities Commission, 525 Golden Gate Avenue, San Francisco, California 94102. The Custodian of Records is **Karen Frye.** All files have been made available to the SFPUC and the public for review in considering these findings and whether to approve the Project.

F. Findings about Significant Environmental Impacts and Mitigation Measures

The following Sections II, III, and IV set forth the SFPUC's findings about the Final EIR's determinations regarding significant environmental impacts and the mitigation measures proposed to address them. These findings provide the written analysis and conclusions of the SFPUC regarding the environmental impacts of the Project and the mitigation measures included as part of the Final EIR and adopted by the SFPUC as part of the Project. To avoid duplication and redundancy, and because the SFPUC agrees with, and hereby adopts, the conclusions in the Final EIR, these findings will not repeat the analysis and conclusions in the Final EIR but instead incorporate them by reference and rely upon them as substantial evidence supporting these findings.

In making these findings, the SFPUC has considered the opinions of SFPUC staff and experts, other agencies, and members of the public. The SFPUC finds that (i) the determination of significance thresholds is a judgment decision within the discretion of the City and County of San Francisco; (ii) the significance thresholds used in the EIR are supported by substantial evidence in the record, including the expert opinion of the EIR preparers and City staff; and (iii) the significance thresholds used in the EIR provide reasonable and appropriate means of assessing the significance of the adverse environmental effects of the Project. Thus, although, as a legal matter, the SFPUC is not bound by the significance determinations in the EIR (see Public Resources Code, Section 21082.2, subdivision (e)), the SFPUC finds them persuasive and hereby adopts them as its own.

These findings do not attempt to describe the full analysis of each environmental impact contained in the Final EIR. Instead, a full explanation of these environmental findings and conclusions can be found in the Final EIR, and these findings hereby incorporate by reference the discussion and analysis in the Final EIR supporting the determination regarding the project impact and mitigation measures designed to address those impacts. In making these findings, the SFPUC ratifies, adopts and incorporates in these findings the determinations and conclusions of

the Final EIR relating to environmental impacts and mitigation measures, except to the extent any such determinations and conclusions are specifically and expressly modified by these findings.

As set forth below, the SFPUC adopts and incorporates all of the mitigation measures set forth in the Final EIR and the attached MMRP to substantially lessen or avoid the potentially significant and significant impacts of the Project. Accordingly, in the event a mitigation measure recommended in the Final EIR has inadvertently been omitted in these findings or the MMRP, such mitigation measure is hereby adopted and incorporated in the findings below by reference. In addition, in the event the language describing a mitigation measure set forth in these findings or the MMRP fails to accurately reflect the mitigation measures in the Final EIR due to a clerical error, the language of the policies and implementation measures as set forth in the Final EIR shall control. The impact numbers and mitigation measure numbers used in these findings reflect the information contained in the Final EIR.

In Sections II, III and IV below, the same findings are made for a category of environmental impacts and mitigation measures. Rather than repeat the identical finding dozens of times to address each and every significant effect and mitigation measure, the initial finding obviates the need for such repetition because in no instance is the SFPUC rejecting the conclusions of the Final EIR or the mitigation measures recommended in the Final EIR for the Project.

II. Impacts Found Not To Be Significant and Thus Do Not Require Mitigation

Under CEQA, no mitigation measures are required for impacts that are less than significant (Public Resources Code, Section 21002; CEQA Guidelines, Sections 15126.4, subdivision (a)(3), 15091). Based on the evidence in the whole record of this proceeding, the SFPUC finds that the implementation of the Project will result in no impacts in the following areas: project-level impacts to recreation and agriculture and forest resources. These subjects are not further discussed in these findings.

The SFPUC further finds that implementation of the Project will not result in any significant impacts in the following areas and that these impact areas therefore do not require mitigation:

Land Use

- **Impact LU-1:** The project would not physically divide an established community. (DEIR Section 4.2.3.3, Page 4.2-7 to 4.2-8)

- **Impact LU-2:** The project would not conflict with land use plans and policies adopted for the purpose of avoiding or mitigating an environmental effect. (DEIR Section 4.2.3.3, Page 4.2-8)

- **Impact C-LU-1:** The project, in combination with past, present, and probable future projects, would not physically divide an established community, nor would it conflict with applicable land use plans and policies adopted for the purpose of avoiding or mitigating an environmental effect. (DEIR Section 4.2.3.3, Pages 4.2-9 to 4.2-10)

Aesthetics

- **Impact AE-1:** Project construction would not substantially degrade the existing visual character of the site or its surroundings or damage scenic resources. (DEIR Section 4.3.3.3, Pages 4.3-20 to 4.3-22)

- **Impact AE-2:** Project construction would not create a substantial new source of light or glare that could adversely affect nighttime views in the area, or could substantially impact other people or properties. (DEIR Section 4.3.3.3, Page 4.3-22)

- **Impact AE-3:** Project operation would not substantially degrade the existing visual character of the site or its surroundings or damage scenic resources. (DEIR Section 4.3.3.3, Pages 4.3-23 to 4.3-28)

- **Impact AE-4:** Project operation would not create a substantial new source of light or glare that could adversely affect day or nighttime views in the area, or substantially impact other people or properties. (DEIR Section 4.3.3.3, Pages 4.3-29 to 4.3-30)

- **Impact C-AE-1:** Implementation of the BDFP, in combination with past, present, and probable future projects in the vicinity, would not substantially degrade the existing visual character of the site or its surroundings or damage scenic resources. (DEIR Section 4.3.3.3, Pages 4.3-30 to 4.3-31)

- **Impact C-AE-2:** Implementation of the BDFP, in combination with past, present, and probable future projects in the vicinity, would not contribute considerably to substantial new sources of light or glare that could adversely affect nighttime views in the area, or could substantially impact other people or properties. (DEIR Section 4.3.3.3, Pages 4.3-31 to 4.3-32)

Population and Housing

- **Impact PH-1:** Construction of the BDFP would not directly or indirectly induce substantial population growth in the area or create demand for additional housing. (DEIR Section 4.4.3.3, Pages 4.4-6 to 4.4-7)

- **Impact PH-2:** Operation of the BDFP would not directly or indirectly induce substantial population growth in the area or create demand for additional housing. (DEIR Section 4.4.3.3, Pages 4.4-7 to 4.4-8)

- **Impact C-PH-1:** The project, in combination with past, present, and probable future projects, would not directly or indirectly induce substantial population growth or create demand for additional housing. (DEIR Section 4.4.3.3, Pages 4.4-8 to 4.4-9)

Transportation and Circulation

- **Impact TR-1:** Project construction would not result in substantial interference with pedestrian, bicycle, or vehicle circulation and accessibility to adjoining areas, and would not result in potentially hazardous conditions. (DEIR Section 4.6.3.3, Pages 4.6-35 to 4.6-46)

- **Impact TR-2:** Project construction would not result in inadequate emergency vehicle access. (DEIR Section 4.6.3.3, Pages 4.6-46 to 4.6-47)

- **Impact TR-3:** Project operations and maintenance activities would not cause substantial additional vehicle miles traveled (VMT), substantially induce automobile travel, or cause or worsen traffic safety hazards. (DEIR Section 4.6.3.3, Pages 4.6-47 to 4.6-50)

- **Impact C-TR-1:** Construction of the project, in combination with past, present, and probable future projects, would not result in significant transportation impacts. (DEIR Section 4.6.3.3, Pages 4.6-52 to 4.6-58)

- **Impact C-TR-2:** Project operations and maintenance activities, in combination with past, present, and probable future projects, would not result in significant transportation impacts. (DEIR Section 4.6.3.3, Pages 4.6-58 to 4.6-61)

Noise and Vibration

- **Impact NO-2:** Construction of the project would not expose structures or persons to excessive groundborne vibration levels. (DEIR Section 4.7.3.3, Pages 4.7-33 to 4.7-35)

- **Impact NO-3:** Operation of the project would not result in a substantial permanent increase in ambient noise levels in the project vicinity and permanently expose persons to noise levels in excess of standards in the Noise Ordinance (Article 29 of the Police Code). (DEIR Section 4.7.3.3, Pages 4.7-35 to 4.7-39)

- **Impact NO-4:** The project would not result in substantial permanent increases in traffic-related ambient noise levels in the project vicinity. (DEIR Section 4.7.3.3, Page 4.7-39)

- **Impact NO-5:** Operation of the project would not expose any people or off-site structures to excessive groundborne vibration levels. (DEIR Section 4.7.3.3, Page 4.7-40)

- **Impact C-NO-2:** Operation of the project when considered with other cumulative development would not cause a substantial permanent increase in ambient noise levels or result in excessive groundborne vibration levels in the project vicinity. (DEIR Section 4.7.3.3, Pages 4.7-44 to 4.7-46)

Air Quality

- **Impact AQ-2:** During project operations, net changes in criteria air pollutant emissions would not result in any new violations of air quality standards, contribute to an existing or projected air quality violation, or result in a cumulatively considerable net increase in criteria air pollutants. (DEIR Section 4.8.3.3, Pages 4.8-51 to 4.8-54 and Response to Comments (RTC) Section 10.6, page 10.6-20)

- **Impact AQ-3:** : Construction and operation of the project would generate toxic air contaminants, including diesel particulate matter, but would not expose sensitive receptors to substantial air pollutant concentrations or result in a cumulatively considerable net increase in health risks or hazards. (DEIR Section 4.8.3.3, Pages 4.8-55 to 4.8-62)

- **Impact AQ-5:** Construction and operation of the BDFP facilities would not create objectionable odors that would affect a substantial number of people. (DEIR Section 4.8.3.3, Pages 4.8-66 to 4.8-70)

- **Impact C-AQ-1b:** Operation of the project, in combination with other past, present, and probable future projects, would not result in a cumulatively considerable net increase in criteria air pollutants nor contribute to cumulative regional air quality impacts. (DEIR Section 4.8.3.3, Page 4.8-71)

- **Impact C-AQ-2:** Construction and operation of the project, in combination with other past, present, and probable future projects, would generate toxic air contaminants, including diesel particulate matter, but would not expose sensitive receptors to substantial air pollutant concentrations or result in a cumulatively considerable net increase in health risks and hazards. (DEIR Section 4.8.3.3, Pages 4.8-71 to 4.8-75)

- **Impact C-AQ-3:** The project, in combination with past, present, and probable future projects, would not create objectionable odors that would affect a substantial number of people. (DEIR Section 4.8.3.3, Pages 4.8-76 to 4.8-80)

Greenhouse Gas Emissions

- **Impact C-GG-1:** The project would generate greenhouse gas emissions, but not at levels that would result in a significant impact on the environment or conflict with any policy, plan, or regulation adopted for the purpose of reducing greenhouse gas emissions. (DEIR Section 4.9.3.3, Pages 4.9-15 to 4.9-21)

Wind and Shadow

- **Impact WS-1:** The project structures would not alter wind in a manner that would substantially affect public areas. (DEIR Section 4.10.3.3, Pages 4.10-7 to 4.10-8)

- **Impact WS-2:** Project structures would not create new shadow in a manner that would substantially affect outdoor recreation facilities or other public areas. (DEIR Section 4.10.3.3, Pages 4.10-8 to 4.10-9)

- **Impact C-WS-1:** The project, in combination with past, present, and probable future projects, would not substantially contribute to cumulative impacts on wind. (DEIR Section 4.10.3.3, Pages 4.10-9 to 4.10-11)

- **Impact C-WS-2:** The project, in combination with past, present, and probable future projects, would not substantially contribute to cumulative impacts on shadow. (DEIR Section 4.10.3.3, Page 4.10-11)

Utilities and Service Systems

- **Impact UT-1:** Project construction would not result in a determination by the wastewater treatment provider that would serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments. (DEIR Section 4.12.3.3, Pages 4.12-14 to 4.12-15)

- **Impact UT-2:** Project construction would not result in a substantial adverse effect related to landfill capacity. (DEIR Section 4.12.3.3, Pages 4.12-15 to 4.12-16)

- **Impact UT-3:** Project construction would not result in a substantial adverse effect related to compliance with federal, state, or local statutes and regulations related to solid waste. (DEIR Section 4.12.3.3, Pages 4.12-16 to 4.12-17)

- **Impact UT-4:** The City's water supply provider would have sufficient water supply available to serve project operations from existing entitlements and resources, and the project would not require new or expanded water distribution or treatment facilities. (DEIR Section 4.12.3.3, Pages 4.12-17 to 4.12-18)

- **Impact UT-5:** Project operations would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs. (DEIR Section 4.12.3.3, Pages 4.12-18 to 4.12-19)

- **Impact UT-6:** Project operations would not result in a substantial adverse effect related to compliance with federal, state, or local statutes and regulations related to solid waste. (DEIR Section 4.12.3.3, Page 4.12-20)

- **Impact C-UT-1:** The project, in combination with past, present, and probable future projects, would not result in significant cumulative impacts on utilities and service systems. (DEIR Section 4.12.3.3, Pages 4.12-21 to 4.12-22)

Public Services

- **Impact PS-1:** Construction and operation of the BDFP would not increase demand for public services to an extent that would require new or physically altered governmental facilities in order to maintain acceptable service ratios, response times, or other performance objectives for public services. (DEIR Section 4.13.3.3, Pages 4.13-7 to 4.13-8)

- **Impact C-PS-1:** The project, in combination with past, present, and probable future projects, would not substantially contribute to cumulative impacts related to public services. (DEIR Section 4.13.3.3, Pages 4.13-8 to 4.13-9)

Biological Resources

- **Impact BI-2:** Project construction would not have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means. (DEIR Section 4.14.3.3, Page 4.14-20)

- **Impact BI-3:** Construction activities would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (DEIR Section 4.14.3.3, Page 4.14-21)

Geology and Soils

- **Impact GE-1:** The project would not expose people or structures to the risk of loss, injury, or death involving seismic ground shaking or seismically induced ground failure. (DEIR Section 4.15.3.3, Pages 4.15-20 to 4.15-21)

- **Impact GE-2:** The project would not result in substantial erosion. (DEIR Section 4.15.3.3, Page 4.15-22)

- **Impact GE-3:** The project site is not located on a geologic unit or soil that is unstable, and the site would not become unstable as a result of the project. (DEIR Section 4.15.3.3, Pages 4.15-22 to 4.15-24)

- **Impact C-GE-1:** The project, in combination with past, present, and probable future projects, would not substantially contribute to cumulative impacts on geology or soils. (DEIR Section 4.15.3.3, Pages 4.15-26 to 4.15-27)

Hydrology and Water Quality

- **Impact HY-1:** Construction of the project would not violate water quality standards or waste discharge requirements or otherwise substantially degrade water quality. (DEIR Section 4.16.3.3, Pages 4.16-37 to 4.16-41)

- **Impact HY-2:** Construction of the project would not substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table. (DEIR Section 4.16.3.3, Pages 4.16-41 to 4.16-42)

- **Impact HY-3:** Construction of the project would not place structures within a 100-year flood zone or expose people or structures to a significant risk of loss, injury, or death involving flooding under current conditions or future conditions resulting from sea level rise. (DEIR Section 4.16.3.3, Pages 4.16-42 to 4.16-43)

- **Impact HY-4:** Construction of the project would not expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche or tsunami. (DEIR Section 4.16.3.3, Pages 4.16-43 to 4.16-44)

- **Impact HY-5:** Operation of the project would not violate water quality standards or waste discharge requirements or otherwise substantially degrade water quality. (DEIR Section 4.16.3.3, Pages 4.16-44 to 4.16-49)

- **Impact HY-6:** Operation of the project would not substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table. (DEIR Section 4.16.3.3, Pages 4.16-49 to 4.16-50)

- **Impact HY-7:** Operation of the project would not exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. (DEIR Section 4.16.3.3, Page 4.16-50)

- **Impact HY-8:** Operation of the project would not include the construction of structures that would impede flood flows within an existing 100-year flood zone or 100-year flood zones resulting from sea level rise. (DEIR Section 4.16.3.3, Pages 4.16-51 to 4.16-52)

- **Impact C-HY-1:** The project, in combination with past, present, and probable future projects in the site vicinity, would not result in significant adverse cumulative hydrology impacts. (DEIR Section 4.16.3.3, Pages 4.16-52 to 4.16-53)

- **Impact C-HY-2:** The project, in combination with past, present, and probable future projects in the site vicinity, would not result in significant adverse cumulative water quality impacts. (DEIR Section 4.16.3.3, Page 4.16-54)

Hazards and Hazardous Materials

- **Impact HZ-1:** Project construction and operation would not result in a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. (DEIR Section 4.17.3.3, Pages 4.17-25 to 4.17-26)

- **Impact HZ-2:** Project construction and operation would not result in reasonably foreseeable conditions involving the release of hazardous building materials to the environment. (DEIR Section 4.17.3.3, Pages 4.17-27 to 4.17-28)

- **Impact HZ-3:** Project construction and operation would not release hazardous emissions or handle acutely hazardous materials, substances, or waste within one- quarter mile of an existing or proposed school. (DEIR Section 4.17.3.3, Page 4.17-29)

- **Impact HZ-4:** The project would be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5; however, project construction and operation would not result in a significant hazard to the public or the environment under reasonably foreseeable conditions. (DEIR Section 4.17.3.3, Pages 4.17-29 to 4.17-34)

- **Impact HZ-5:** Project construction and operation would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (DEIR Section 4.17.3.3, Pages 4.17-34 to 4.17-35)

- **Impact HZ-6:** Project construction and operation would not result in a significant risk of loss, injury, or death involving fire. (DEIR Section 4.17.3.3, Pages 4.17-35 to 4.17-36)

- **Impact C-HZ-1:** The project, in combination with past, present, and probable future projects, would not substantially contribute to cumulative hazards or hazardous materials impacts. (DEIR Section 4.17.3.3, Pages 4.17-36 to 4.17-38)

Mineral and Energy Resources

- **Impact ME-1:** Construction of the project would not result in the use of large amounts of fuel, water, or energy, or use these resources in a wasteful manner. (DEIR Section 4.18.3.3, Pages 4.18-13 to 4.18-15)

- **Impact ME-2:** Operation of the project would not result in the use of large amounts of fuel, water, or energy, or use these resources in a wasteful manner. (DEIR Section 4.18.3.3, Pages 4.18-15 to 4.18-20)

- **Impact C-ME-1:** The project, in combination with past, present, and probable future projects, would not encourage activities that result in the use of large amounts of fuel, water, or energy, or use such resources in a wasteful manner. (DEIR Section 4.18.3.3, Pages 4.18-20 to 4.18-21)

III. Findings of Potentially Significant or Significant Impacts That Can Be Avoided or Reduced to a Less-Than-Significant Level through Mitigation and the Disposition of the Mitigation Measures

CEQA requires agencies to adopt mitigation measures that would avoid or substantially lessen a project's identified significant impacts or potentially significant impacts if such measures are feasible (unless mitigation to such levels is achieved through adoption of a project alternative). The findings in this Section III and in Section IV concern mitigation measures set forth in the EIR. These findings discuss mitigation measures as proposed in the EIR and recommended for adoption by the SFPUC, which can be implemented by the SFPUC. The mitigation measures proposed for adoption in this section and referenced following each Project impact discussed in this Section III, are the same as the mitigation measures identified in the Final EIR for the Project. The full text of each mitigation measure listed in this section is contained in the Final EIR and in Attachment B, the MMRP. Attachment B identifies the SFPUC as the agency responsible for the implementation of all mitigation measures and establishes monitoring actions and a monitoring schedule.

This Commission recognizes that some of the mitigation measures are partially within the jurisdiction of other agencies. The agencies and measures are:

- San Francisco Planning Department (Mitigation Measure M-CR-1: Documentation of Historic Resources and Interpretive Display; Mitigation Measure M-CR-2a: Archaeological Testing, Monitoring, and/or Data Recovery; Mitigation Measure M-CR-2b: Accidental Discovery of Archaeological Resources; Mitigation Measure M-AQ-1b: Emissions Offsets; Mitigation and Mitigation Measure M-GE-4: Paleontological Resources Monitoring and Mitigation Program).

- San Francisco Planning Department and Bay Area Air Quality Management District (BAAQMD) (Mitigation Measure M-AQ-1b: Emissions Offsets).

- CDFW (Mitigation Measure M-BI-1e: Protective Measures for Special Status Bats and Maternity Roosts); and

The Commission urges these remaining agencies to assist in implementing these mitigation measures and finds that these agencies can and should participate in implementing these mitigation measures.

The Commission adopts all of the mitigation measures proposed for the Project. The Commission finds that all of the mitigation measures are appropriate and feasible and that changes or alterations will be required in, or incorporated into, the Project that mitigate or avoid the significant environmental effects as identified in the Final EIR. The Commission finds that for the reasons set forth in the Final EIR and elsewhere in the record, the impacts identified in this section would be reduced to a less-than-significant level through implementation of the mitigation measures identified in this section.

Project Impacts

Cultural Resources

Impact CR-2: The project could cause a substantial adverse change in the significance of an archeological resource. (DEIR Section 4.5.3.3, Pages 4.5-45 to 4.5-54)

Implementation of Mitigation Measure M-CR-2a and Mitigation Measure M-CR-2b would reduce any impacts on known (CA-SFR-171, a National Register-eligible prehistoric archaeological site) or previously unrecorded and buried (or otherwise obscured) archaeological deposits to *less-than-significant* levels by requiring the SFPUC and its contractors to implement the Archaeological Research Design and Treatment Plan and adhere to the appropriate procedures and protocols to identify and appropriately treat possible archaeological resources discovered during construction activities.

- *Mitigation Measure M-CR-2a: Archeological Testing, Monitoring, and/or Data Recovery*

- *Mitigation Measure M-CR-2b: Accidental Discovery of Archeological Resources*

Impact CR-3: The project could disturb human remains, including those interred outside of formal cemeteries. (DEIR Section 4.5.3.3, Pages 4.5-54 to 4.5-55)

Implementation of Mitigation Measure M-CR-2a would reduce any impacts on buried human remains and associated burial items that are accidentally discovered during project construction activities to *less-than-significant* levels by requiring the SFPUC to solicit the Most Likely Descendant's recommendations and adhere to appropriate excavation, removal, recordation, analysis, custodianship, curation, and final disposition protocols.

- *Mitigation Measure M-CR-2a: Archeological Testing, Monitoring, and/or Data Recovery*

Impact C-CR-2: The project, in combination with past, present, and probable future projects, could result in cumulative adverse impacts on archeological resources and human remains. (DEIR Section 4.5.3.3, Pages 4.5-57 to 4.5-58)

See Impacts CR-2 and CR-3. Implementation of the listed mitigation measures would reduce the Project's contribution to cumulative impacts on archaeological resources and human remains encountered during construction to a *less-than-significant* level.

- *Mitigation Measure M-CR-2a: Archeological Testing, Monitoring, and/or Data Recovery*

- *Mitigation Measure M-CR-2b: Accidental Discovery of Archeological Resources*

Noise

Impact NO-1: Construction of the project could cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project and could expose people to or generate noise levels in excess of standards in the Noise Ordinance. (DEIR Section 4.7.3.3, Pages 4.7-22 to 4.7-33)

Implementation of Mitigation Measure M-NO-1a and M-NO-1b would reduce any noise impacts during construction to *less-than-significant* levels by requiring temporary noise control measures in proximity of sensitive receptors.

- *Mitigation Measure M-NO-1a: Shielding of Concrete Saw Operations*

- *Mitigation Measure M-NO-1b: Construction Noise Control Measures at Southeast Greenhouses Staging Area*

Impact C-NO-1: : Construction activities of the project combined with cumulative construction noise in the project vicinity could cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity or result in excessive groundborne vibration levels during construction. (DEIR Section 4.7.3.3, Pages 4.7-41 to 4.7-44)

- Implementation of Mitigation Measure M-NO-1b would reduce the project's contribution to potential cumulative noise impacts to less than significant.

- *Mitigation Measure M-NO-1b: Construction Noise Control Measures at Southeast Greenhouses Staging Area*

Air Quality

Impact AQ-4: The project's construction-related air pollutant emissions could conflict with, or obstruct implementation of, the 2010 Clean Air Plan. (DEIR Section 4.8.3.3, Pages 4.8-62 to 4.8-66, RTC Section 10.6, pages 10.6-15 and 10.6-16, and RTC Section 11.2, pages 11-1 to 11-2)

Implementation of Mitigation Measure M-AQ-1a and M-AQ-1b would ensure that the project with be consistent with the 2010 Clean Air Plan's control measures, such that the project would not conflict with or obstruct the implementation of the 2010 Clean Air Plan, and the impact would be *less-than-significant.*

- *Mitigation Measure M-AQ 1a: Construction Emissions Minimization*

- *Mitigation Measure M-AQ-1b: Emission Offsets*

Biological Resources

Impact BI-1: Project construction could have a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or United States Fish and Wildlife Service. (DEIR Section 4.14.3.3, Pages 4.14-16 to 4.14-20)

Implementation of Mitigation Measures M-BI-1 would reduce any potential impacts on special-status bats and maternity roosts to *less-than-significant* levels by requiring preconstruction surveys and specific avoidance or minimization measures.

- *Mitigation Measure M-BI-1: Protective Measures for Special Status Bats and Maternity Roosts*

Impact C-BI-1: The project, in combination with past, present, and probable future projects, could substantially contribute to cumulative impacts on biological resources. (DEIR Section 4.14.3.3, Pages 4.14-22 to 4.14-23)

Implementation of Mitigation Measure M-BI-1 would reduce the project's contribution to potential cumulative impacts to less than significant.

- *Mitigation Measure M-BI-1: Protective Measures for Special Status Bats and Maternity Roosts*

Geology and Soils

Impact GE-4: Project construction could result in a substantial adverse effect by directly or indirectly destroying a unique paleontological resource or site or unique geologic feature. (DEIR Section 4.15.3.3, Pages 4.15-24 to 5.15-25)

Implementation of Mitigation Measure M-GE-4, Paleontological Resources Monitoring and Mitigation Program, would reduce the Project's potential construction-related impacts on paleontological resources to *less-than-significant* levels by requiring the preparation and implementation of a Paleontological Resources Monitoring and Mitigation Program, which shall specify emergency discovery procedures to be followed in the event of a discovery.

- *Mitigation Measure M-GE-4: Paleontological Resources Monitoring and Mitigation Program*

Impact C-GE-2: The project, in combination with past, present, and probable future projects, could substantially contribute to cumulative impacts on paleontological resources. (DEIR Section 4.15.3.3, Page 4.15-27)

See Impacts GE-3. Implementation of the listed mitigation measure would reduce the Project's contribution to cumulative impacts on paleontological resources encountered during construction to a *less-than-significant* level.

- *Mitigation Measure M-GE-4: Paleontological Resources Monitoring and Mitigation Program*

IV. Significant Impacts That Cannot Be Avoided or Reduced to a Less-Than-Significant Level

Based on substantial evidence in the whole record of these proceedings, the SFPUC finds that, where feasible, changes or alterations have been required or incorporated into the Biosolids Digester Facilities Project to reduce the significant environmental impacts as identified in the Final EIR for the Project. Most Project-specific impacts will be reduced to a **less-than-significant level** with the implementation of the mitigation measures proposed in the Final EIR and set forth in the MMRP, attached hereto as Attachment B.

The SFPUC further finds, however, that the Project will contribute to the significant and unavoidable impacts, even with implementation of mitigation measures. For the impacts listed below, the effect remains **significant and unavoidable**. The SFPUC determines that the following significant impacts on the environment, as reflected in the Final EIR, are unavoidable, but under Public Resources Code Section 21081(a) (3) and (b), and CEQA Guidelines Sections 15091(a) (3), 15092(b) (2) (B), and 15093, the SFPUC determines that the impacts are acceptable due to the overriding considerations described in Section VI below. This finding is supported by substantial evidence in the record of this proceeding.

<u>Cultural Resources Impacts</u>

- **Impact CR-1: The project would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco Planning Code.** (DEIR Section 4.5.3.3, Pages 4.5-42 to 4.5-45)

- **Impact C-CR-1: The project, in combination with past, present, and probable future projects, would substantially contribute to cumulative adverse historic architectural resources impacts.** (DEIR Section 4.5.3.3, Pages 4.5-55 to 4.5-57)

The project would result in the removal of the Central Shops (including Buildings A and B), which comprise a complex that is eligible for listing in the California and National Registers. The removal of Buildings A and B at the Central Shops would cause a substantial adverse change in the significance of the historical resource because the project would demolish the physical characteristics that convey the resource's historical significance and that justify its individual eligibility for inclusion in the California and National Registers, resulting in a significant impact under CEQA Guidelines Section 15064.5. Implementing Mitigation Measure M-CR-1

(Documentation of Historic Resources and Interpretive Display) would reduce the severity of the impact. However, implementation of Mitigation Measure M-CR-1 would not reduce the severity of the impact to a less-than-significant level, and the impact would be significant and unavoidable with mitigation.

In addition, a portion of the SEP, including 26 buildings and structures that comprise most of the southernmost block of the SEP and a portion of the block adjacent to the north, qualifies as a California Register- and National Register-eligible historic district, named the *Southeast Treatment Plant Streamline Moderne Industrial Historic District* (district). The SHPO concurred with this recommendation in a letter dated October 6, 2016. Of the 26 buildings within the historic district, 22 buildings and structures were assessed as contributors to the district's significance. The impacts associated with the loss of SEP Building 870 (as part of the Project) in combination with the impact associated with the proposed future demolition of all existing digesters (Buildings 630-730) and their control buildings (Buildings 620 and 680), as part of the Demolition of the Existing SEP Digesters and Southside Renovation Project (a reasonably foreseeable future project included in the cumulative analysis), would result in a significant, adverse cumulative impact on historic architectural resources. With these two projects combined, the district would lose approximately 13 of its 22 contributors, or 59 percent of the district's contributory buildings as part of a future cumulative scenario. The material impairment of over 50 percent of the district's contributory buildings would mean that the district as a whole would no longer retain sufficient integrity to convey its associations under National Register/California Register criteria A/1 or C/3. This would be considered a significant impact. Implementation of Mitigation Measure M-CR-1 (Documentation of Historic Resources and Interpretive Display) would reduce the severity of the cumulative impact but would not reduce the impacts to the district to a less-than-significant level. As such, the cumulative impact of the project in combination with the future demolition of the existing digesters and control buildings would be a significant and unavoidable cumulative impact on historic resources, even with mitigation. The proposed future demolition of the existing digesters will be subject to CEQA environmental review.

Although the Project would result in the loss of Building 870, only one of the district's 22 contributory buildings, the overall implementation of the Project would replace the function of the existing digesters and associated control buildings, thereby allowing for demolition of the existing digesters and control buildings. Therefore, the project's contribution to this cumulative impact would be cumulatively considerable (i.e., significant), and the cumulative impact on historic districts would be ***significant and unavoidable with mitigation.***

Air Quality Impacts

- **Impact AQ-1: The project's construction activities would not generate fugitive dust that could violate an air quality standard or contribute substantially to an existing or projected air quality violation, but project construction would generate criteria air pollutants that would violate an air quality standard and contribute substantially to an**

existing or projected air quality violation, and result in a cumulatively considerable net increase in criteria air pollutants. (DEIR Section 4.8.3.3, Pages 4.8-43 to 4.8-51)

- **Impact C-AQ-1a: Construction of the project, in combination with other past, present, and probable future projects, would result in a cumulatively considerable net increase in criteria air pollutants and contribute to cumulative regional air quality impacts.** (DEIR Section 4.8.3.3, Pages 4.8-70 to 4.8-71)

Construction of the project would occur over approximately five years. The SFPUC, through its contractors, would be required to implement air emissions control measures in compliance with the requirements of the Clean Construction Ordinance. With these control measures, estimated average daily construction emissions of NO_x, would exceed the applicable significance thresholds. Implementation of Mitigation Measure M-AQ-1a (Construction Emissions Minimization) would help to reduce NO_x emissions, but not to below the applicable significance threshold during the first and third construction years. Implementation of Mitigation Measure M-AQ-1b (Emission Offsets) could offset the residual NO_x emissions to below significance thresholds. While use of waivers allowed under Mitigation Measure M-AQ-1a could alter the residual NOx emissions requiring offsets under Mitigation Measure M-AQ-1b, use of these waivers is not expected to occur frequently enough to alter the amount of offsets that would be required under Mitigation Measure M-AQ-1b.

While direct SFPUC offset opportunities have not been fully verified, to further mitigate these significant and unavoidable impacts, the SFPUC has evaluated and recommends potential offset projects as listed in the Response to Comments document (pg. 4.6-17) to satisfy Mitigation Measure M-AQ-1b. These offset projects include use of renewable diesel for the SFPUC Headworks Replacement Project and replacing old diesel equipment at SFPUC facilities (at the Southeast Community Facility and the City Distribution Division). These emission reductions would occur in the vicinity of the BDFP and mitigate the construction impacts on air quality in the vicinity of the Bayview-Hunters' Point neighborhood. If verified and approved, these opportunities could sufficiently offset the estimated NOx exceedances.

Although implementation of these two mitigation measures combined would mitigate NO_x emissions to below threshold levels, construction-related NO_x emissions are considered ***significant and unavoidable with mitigation*** because the offsets identified by SFPUC, described above and in the RTC, are not verified at this time, and therefore some uncertainty remains as to their ability to fully mitigate this impact..

Likewise, the Project would also be considered to result in a cumulatively considerable contribution to regional air quality impacts even with implementation of mitigation measures identified for Impact AQ-1, and the cumulative impact is also considered significant and unavoidable with mitigation for the first and third years of construction, and less than significant with mitigation for all other construction years. Because the project's criteria pollutant emissions could result in a cumulatively considerable contribution to regional air quality impacts during the first and third years of construction, the cumulative impact of construction-related criteria pollutant emissions is considered significant and unavoidable with mitigation. Therefore, the

residual impact of construction emissions was conservatively considered ***significant and unavoidable with mitigation***, even with implementation of identified mitigation measures.

V. Evaluation of Project Alternatives

This section describes the Project as well as alternatives and the reasons for approving the Project and for rejecting the alternatives as infeasible. CEQA mandates that an EIR evaluate a reasonable range of alternatives to the Project or the Project location that generally reduce or avoid potentially significant impacts of the Project. CEQA requires that every EIR also evaluate a "No Project" alternative. Alternatives provide a basis of comparison to the Project in terms of their significant impacts and their ability to meet Project objectives. This comparative analysis is used to consider reasonable, potentially feasible options for minimizing environmental consequences of the Project.

A. Alternatives Rejected and Reasons for Rejection

The Commission rejects the alternatives set forth in the Final EIR and listed below because the Commission finds that there is substantial evidence, including evidence of economic, legal, social, technological, and other considerations described in this section in addition to those described in Section VI below under CEQA Guidelines 15091(a)(3), that make such Alternatives infeasible. In making these infeasibility determinations, the Commission is aware that CEQA defines "feasibility" to mean "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, legal, and technological factors." The Commission is also aware that under CEQA case law the concept of "feasibility" encompasses (i) the question of whether a particular alternative promotes the underlying goals and objectives of a project, and (ii) the question of whether an alternative is "desirable" from a policy standpoint to the extent that desirability is based on a reasonable balancing of the relevant economic, environmental, social, legal, and technological factors.

The following four alternatives are analyzed in the EIR:

- Alternative A: No Project
- Alternative B: Pier 94 Backlands
- Alternative C: Historical Resources Relocation
- Alternative D: SEP South/Quint Street

Alternative A: No Project

The No Project Alternative represents what would reasonably be expected to occur in the foreseeable future if the project were not to be approved. Under the No Project Alternative, the BDFP would not be constructed and the SFPUC would continue to operate and maintain the existing SEP solids treatment and energy recovery facilities indefinitely. The SFPUC would not demolish Central Shops Buildings A and B, an identified individual historical resource. However, because of the age and condition of the existing facilities, the SFPUC would need a more rigorous

program to repair and replace facilities, requiring up to five additional permanent staff over the existing conditions. In addition, in order to maintain reliable operations, increased levels of repair and replacement of equipment and facilities would ultimately be required.

The No Project Alternative would have the same risk of upset compared to existing conditions, but the risk of upset in the future would increase the longer the existing solids treatment facilities are in use. The risk of upset would be substantially higher than what would occur under the proposed project. The existing facilities are not built to current seismic standards, nor are they designed for future sea level rise considerations. Thus, long-term continued use of the existing solids treatment facilities under the No Project Alternative would result in an increasing risk of failure and shutdown the longer this equipment is used. A seismic event in the SEP vicinity could have severe consequences. In addition to the increased likelihood of physical damage and release during an earthquake, failure of portions of the SEP could reduce the efficacy of wastewater and solids treatment and limit the facilities available for wastewater processing. The SFPUC's ability to treat wastewater could be compromised, with implications for public health and safety as well as regulatory permit violations.

The No Project Alternative would avoid the significant and unavoidable impacts related to historical resources and construction-phase nitrogen oxide emissions identified for the proposed project. Under "normal" conditions (without breakdowns and equipment failure), the No Project Alternative would also avoid all construction and operational impacts that were identified for the project, but under possible future scenarios with breakdowns and equipment failures, there would be potential for a wide range of impacts, depending on the nature and extent of those breakdowns.

However, unlike the proposed project, the No Project Alternative would have a potentially significant impact related to greenhouse gas emissions because it would not recapture energy from increased digester gas production (and would not improve biosolids reuse opportunities). Thus, the No Project Alternative would not be consistent with adopted policies intended to reduce statewide greenhouse gas emissions. This would also be considered a wasteful use of a local energy resource, and would be a significant impact that would not occur under the proposed project. However, there are feasible mitigation measures that could reduce these impacts to less than significant.

The No Project Alternative is hereby rejected as infeasible because, although it would eliminate the Project’s significant and unavoidable impacts, it would fail to meet most of the Project’s objectives, and would still result in the potential for a wide range of impacts that may or may not be more severe than those identified for the project, depending on the nature and extent of breakdowns of existing equipment. Therefore, the No Project Alternative is not a feasible alternative.

Alternative B: Pier 94 Backlands

The Pier 94 Backlands Alternative would construct the BDFP facilities on approximately 15-acres within the 27-acre Pier 94 Backlands, one of the same sites as the potential staging areas under the proposed project. Under this alternative, no construction or demolition activities would

occur at the project site, and Central Shops Buildings A and B would not be demolished. This alternative was selected for evaluation because it would avoid a significant impact on a historical resource, and thus is a full preservation alternative. This alternative was also one of two sites recommended by an advisory group representing the local Bayview-Hunters Point community (the advisory group, the Southeast Digester Task Force, recommended the Central Shops site and the Pier 94 Backlands site).[3]

This alternative would also require construction and operation of multiple pipelines to convey sludge and other materials about 4,000 feet between the SEP and the Pier 94 Backlands. Under this alternative, the SFPUC would have to secure permission to use the Pier 94 Backlands site from the Port of San Francisco, and the State Lands Commission would have to make a public trust determination. To secure access to the site, the SFPUC would enter a trust exchange agreement with the State Lands Commission either through negotiation or if authorized by special legislation. In the trust exchange agreement, the SFPUC would need to place into the trust land of similar size and value as the area needed for this alternative.

The proposed facilities under this alternative would occupy a larger area than the proposed project (15 acres compared to 10 acres), and the maximum height of structures would be lower (40 feet compared to 65 feet). The distance of the digesters to the nearest residences would be greater than under the proposed project (more than 1,800 feet compared to 1,000 feet). Construction requirements at the Pier 94 Backlands site would generally be the same as those of the proposed project, but there would be additional construction required for new utilities at the site and for the pipelines construction between the Pier 94 Backlands and the SEP. Construction duration would be the same as the proposed project, but the start date for construction would be delayed by at least several years due to site acquisition and use requirements.

The Pier 94 Backlands Alternative would avoid one significant and unavoidable impact on historical resources by retaining Central Shops Buildings A and B in place, but the other significant and unavoidable impacts of this alternative on historical resources and construction-phase nitrogen oxide emissions would be the same or more severe than those of the proposed project. This alternative would have additional construction noise impacts associated with pipeline construction that would not occur under the proposed project as well as increased potential for vibration impacts along the pipeline route, although these impacts could be mitigated to less than significant with similar mitigation measures to those identified for the proposed project. The Pier 94 Backlands Alternative would result in minor differences in construction-related toxic air contaminant emissions, but like the proposed project, impacts would be less than significant. Unlike the proposed project that would have significant but mitigable impacts, impacts of this alternative on biological resources (roosting bats) and on paleontological resources would be less than significant. All other impacts would be less than significant, assuming compliance with and implementation of all federal, state, and local regulations designed to protect the environment and implementation of SFPUC standard construction measures.

[3] Southeast Digester Task Force for the San Francisco Public Utilities Commission, *Review of the Biosolids Digester Facility Project*, June 2, 2010.

The Pier 94 Backlands Alternative is hereby rejected as infeasible because, although it would eliminate the significant, unavoidable impact to Central Shops Buildings A and B, it would 1) not eliminate the other significant, unavoidable impacts to the historic district and air quality; 2) fail to meet four of the Project's objectives (related to visual improvements at the SEP, construction schedule, efficiency of existing infrastructure and resources, and rate payer affordability); 3) result in a greater area of disturbance (about 10 additional acres) compared to the project; and 4) require approval from the Stand Lands Commission (and possibly approval from state legislature) for the trust exchange agreement and approval of long-term use of Pier 94 Backlands from the Port which could increase complexity and uncertainty on the viability of this alternative). Therefore, the Pier 94 Backlands Alternative is not a feasible alternative.

Alternative C: Historical Resources Relocation

The Historical Resources Relocation Alternative is a full preservation alternative that would consist of full construction and operation of the BDFP as proposed, plus the relocation and rehabilitation of Central Shops Buildings A and B to a similar industrial setting in San Francisco. The relocation, rehabilitation, and reuse of Buildings A and B would be consistent with the Secretary of the Interior's Standards and would reduce the significant and unavoidable impact on historical resources under the proposed project to a less-than-significant level. The SFPUC has identified an approximately three-acre site at Pier 90 on Amador Street east of Illinois Street and Cargo Way as a potential new location for Buildings A and B. The Pier 90 site is within a port-priority use area, and it is assumed that future uses of Buildings A and B at this site would be consistent with the existing use of the Central Shops, as well as with allowable uses within a port-priority area. Construction requirements for this alternative would be the same as those of the proposed project, with the addition of about one year at the beginning of the construction period to dismantle and transport Buildings A and B to Pier 90 plus the site preparation and construction activities required to reconstruct and rehabilitate these buildings at the new site.

Because the Historical Resources Relocation Alternative would involve full implementation of the BDFP as proposed, this alternative would have all of the same environmental impacts as those identified for the proposed project, with the exception of avoiding the significant and unavoidable impact associated with demolition of Central Shops Buildings A and B. However, the significant and unavoidable impact of this alternative on the historic district would be the same as those of the project, and the significant and unavoidable impact associated with construction-phase nitrogen oxide emissions would be more severe than those of the proposed project because of the additional emissions resulting from relocation and rehabilitation of the Central Shops buildings. In addition, there would be impacts associated with relocation and rehabilitation of the Central Shops Buildings A and B at an off-site location, although any significant impacts could generally be mitigated to less than significant with similar mitigation measures identified for the proposed project.

The Historical Resources Relocation Alternative is hereby rejected as infeasible because, although it would eliminate the significant, unavoidable impact to Central Shops Buildings A and B, it would 1) not eliminate the other significant, unavoidable impacts to the historic district and air quality; 2) fail to meet two of the Project's objectives (related to construction schedule and

rate payer affordability), 3) result in a slightly greater area of disturbance (about 3 additional acres) compared to the project and 4) the feasibility of meeting Secretary of the Interior standards for the relocated historic resource is uncertain. Therefore, the Historical Resources Relocation Alternative is not a feasible alternative.

Alternative D: SEP South/Quint Street Alternative

The SEP South/Quint Street Alternative is a full preservation alternative that would consist of construction and operation of the same processes and facilities as the proposed project, except that the project facilities would be reconfigured and located within different portions of the SEP boundaries, the Asphalt Plant site, portions of the Central Shops site, and within the right-of-way of Quint Street between Jerrold Avenue and the Caltrain right-of way. Central Shops Buildings A and B and the immediate surrounding area would be preserved, thereby avoiding the significant impact on this historical resource that would occur with its demolition under the proposed project. Under this alternative, the digesters would be located at the Asphalt Plant site, placing the digesters closer to the nearest residences (600 feet to Phelps Street and 700 feet to Oakdale Avenue) compared to the proposed project (1,000 feet). The location of the waste gas burners would also be closer to residences.

Construction of facilities within SEP South would require demolition of existing solids treatment facilities that need to operate during construction of the new facilities. Therefore, this alternative would require construction of interim facilities (e.g., gravity belt thickeners, centrifuge systems, sludge pipelines, biosolids dewatering, cake storage and loadout, etc.) at another location prior to construction, and these interim facilities would be required to operate for at least seven years, until construction is completed and the new facilities are fully commissioned. One possible site for the interim facilities is the Southeast Greenhouses site. In addition, this alternative would require permanently vacating the segment of Quint Street between Jerrold Avenue and the Caltrain right-of way for construction of both aboveground and below ground structures. This is unlike the proposed project, under which this same portion of Quint Street would be closed to the public and incorporated into the project site, but no permanent facilities would be constructed here, and relocation of underground utilities would not be required. The SEP South/Quint Street Alternative would require relocation of existing utilities under Quint Street, including a 24-inch diameter high pressure gas line. The location and extent of relocating the existing utilities has not been identified, but could require construction in locations outside of the SEP boundaries. The construction schedule for this alternative would be at least seven years, substantially longer than the five years estimated for the proposed project, and the start date of construction would be delayed by several years.

The SEP South/Quint Street Alternative would result in most of the same impacts as the proposed project, plus several significant impacts that would not occur under the proposed project. Even though the Central Shops Buildings A and B would be retained in place, at least seven structures that are contributors to the eligible historic district would be demolished, a significant and unavoidable impact that would not occur under the proposed project. In addition, due to the closer proximity of sensitive receptors, health risk impacts associated with exposure to toxic air contaminants would be greater than those under the proposed project, a potentially significant

impact. Increased exposure to toxic air contaminants due to closer proximity to sensitive receptors would occur during construction (due to construction equipment and trucks) as well as during operations (due to waste gas burners). The extended construction period for this alternative would extend the duration of all construction-related impacts, and specifically air pollutant emissions and noise impacts, which as stated above would occur in closer proximity to sensitive receptors, further exacerbating these impacts.

The SEP South/Quint Street Alternative is hereby rejected as infeasible because, although it would eliminate the significant, unavoidable impact to Central Shops Buildings A and B, it would 1) not eliminate the other significant, unavoidable impacts to the historic district and air quality; 2) have an additional project specific significant and unavoidable impact on the historic district, 3) fail to meet two of the Project's objectives (related to construction schedule and rate payer affordability), and 4) require a longer construction duration in proximity to sensitive receptors which could generate greater health risks. Therefore, the SEP South/Quint Street Alternative is not a feasible alternative.

Environmentally Superior Alternative. Either Alternative B, Pier 94 Backlands Alternative or Alternative C, the Historical Resources Relocation Alternative would be considered environmentally superior to the proposed project because either would avoid the proposed project's significant and unavoidable impact on historical resources associated with the demolition of Central Shops Buildings A and B. However, on balance, the Historical Resources Relocation Alternative would have a slight environmental advantage over the Pier 94 Backlands Alternative as the environmentally superior alternative. This is mainly because, although operational impacts would be substantially the same for these two alternatives, the construction impacts under the Pier 94 Backlands Alternative would have a substantially greater area of disturbance and affect more sensitive resources along the 4,000-foot pipeline corridor between the SEP and Pier 94 compared to the construction impacts of the Historical Resources Relocation Alternative.

C. Alternatives Considered but not Analyzed in Detail

The Draft EIR, Section 6.5 explains the process for selecting the BDFP and the alternatives considered and evaluated in the Draft EIR. Nineteen options/alternatives considered but eliminated from detailed consideration in the EIR, together with the reasons why they were eliminated, include:

- Seven alternative site locations or combinations of locations
- Three alternative site layouts
- Seven alternative approaches to preserve historical resources
- Two alternative strategies (divert wastewater flows to Oceanside Plant and use of railways for hauling biosolids)

The Draft EIR explains that all of these alternative options or strategies were eliminated from further evaluation. Reasons for elimination include but are not limited to infeasibility, greater project-level impacts on historical resources, increased risk to existing operations, complicated site acquisition and construction, reduction in operational redundancy, and inability to meet the project objectives. Some alternatives were determined to be feasible, but they did not have any environmental advantages compared to the other alternatives carried forward for analysis. The process the SFPUC undertook to consider all of these alternatives and a detailed analysis of these alternatives considered and the reasons they have been rejected from further analysis is described in the Draft EIR, Section 6.5. The SFPUC finds each of the reasons identified provide sufficient independent grounds for rejecting these alternatives.

The SFPUC finds that the Draft EIR evaluated a reasonable range of alternatives, as required by CEQA that allows Project decision-makers and the public to evaluate and compare the potential impacts of the proposed project with alternatives designed to avoid or lessen the project's environmental effects.

VI. Statement of Overriding Considerations

Pursuant to CEQA Section 21081 and CEQA Guidelines Section 15093, the Commission hereby finds, after consideration of the Final EIR and the evidence in the record, that each of the specific overriding economic, legal, social, technological and other benefits of the Project as set forth below, independently and collectively outweighs the significant and unavoidable impacts and is an overriding consideration warranting approval of the Project. Any one of the reasons for approval cited below is sufficient to justify approval of the Project. Thus, even if a court were to conclude that not every reason is supported by substantial evidence, the Commission will stand by its determination that each individual reason is sufficient. The substantial evidence supporting the various benefits can be found in the preceding findings, which are incorporated by reference into this section, and in the documents found in the Record of Proceedings, as defined in Section I.

On the basis of the above findings and the substantial evidence in the whole record of this proceeding, the Commission specifically finds that there are significant benefits of the Project that outweigh the unavoidable significant impacts to air quality and historic resources described in Section IV, above, and therefore makes this Statement of Overriding Considerations. The Commission further finds that, as part of the process of obtaining Project approval, all significant effects on the environment from implementation of the Project have been eliminated or substantially lessened where feasible. All mitigation measures proposed in the Final EIR for the Project are adopted as part of this approval action. Furthermore, the Commission has determined that any remaining significant effects on the environment found to be unavoidable are acceptable due to the following specific overriding economic, technical, legal, social, and other considerations.

Many of the existing SEP solids treatment facilities are over 60 years old, require significant maintenance, and are operating well beyond their useful life. As specified in Section 6.3.1.1 of the EIR, the Needs Assessment Report found that, in addition to failing to meet the Sewer System Improvements Program (SSIP) levels of service goals, many individual structures and facilities lack redundancy, are structurally inadequate (e.g., concrete structures exhibited cracking, leakage, and

spalling), are seismically unreliable, do not provide adequate treatment capacity to treat the solids from the projected 2045 flows and loads, and use equipment that (due, for example, to corrosion) require major maintenance, repair, or replacement. Thus, there are important public health and welfare reasons for the Project to be implemented.

The project would meet all of the objectives of the project and provide multiple benefits, as identified below:

1. The Project would replace the existing solids treatment facilities at the SEP with new infrastructure with modern and more efficient treatment technologies to protect public health and safety and provide continued regulatory compliance.

2. The Project would be co-located with the existing SEP, to maximize the efficiency of the current treatment process operations and maintenance, staffing resources, and the use of existing SFPUC infrastructure.

3. The Project would treat the solids from projected 2045 flows and loads associated with projected population growth. The project would not change the existing overall capacity of the SEP for wastewater treatment (250 million gallons per day [mgd] wet weather flow and 85 mgd dry weather flow).

4. The Project would increase the quality of the biosolids from Class B to Class A biosolids, such that 100 percent of the biosolids could be reused. Class A biosolids contain no detectable levels of pathogens and do not attract vectors such as flies, mosquitoes, and other potential disease-carrying organisms. According to the United States Environmental Protection Agency (USEPA) Guide to Part 503 Rule, Class A biosolids that meet the USEPA's metals pollutant limits are labeled "Exceptional Quality (EQ)" biosolids and have the fewest restrictions for land applications such as soil conditioning and fertilizer. Class B biosolids are treated but still contain detectible levels of pathogens.

5. With the Project, 100 percent of the digester gas generated would be used. The energy recovery facilities would maximize digester gas utilization and energy recovery for the production of heat, steam, and electrical power. The project would generate up to 5.2 megawatt of electricity in 2045which would meet the BDFP operational power needs as well as provide power to other SEP facilities. Because digester gas would be used beneficially, less flaring by the waste gas burners would occur (limited to only testing, planned maintenance and emergencies)..

6. The Project would build critical processes with redundant infrastructure to provide reliability and operational flexibility.

7. The Project would improve seismic reliability by rebuilding the digesters and solid treatment facilities to meet the latest seismic criteria, thereby reducing the possibility of structure failure.

8. The Project would limit odors from the biosolids facilities to within revised SEP site boundaries, thus minimizing impacts to neighbors. In addition, the Project would locate the digesters farther away from residents. Currently the digesters are located south of Jerrold Avenue, adjacent to residents along Phelps Street. The proposed digesters would be located at the farthest end of the project site away from these receptors, along the Caltrain right-of-way within the Central Shops site.

9. The Project would provide visual improvements that promote a cohesive architectural design and identity at the Project site, enhance the overall aesthetics, and improve the public edges in a manner consistent with the surrounding neighborhood and the rest of the SEP. Jerrold Avenue would be redesigned as part of the Project. Proposed long-term improvements to Jerrold Avenue would occur in accordance with San Francisco Better Streets Plan guidelines and may include traffic calming measures, curb extensions (road narrowing), sidewalk improvements, lighting, street trees, and safer pedestrian and worker crossings, a benefit to the neighborhood.

10. The Project would provide new facilities that are capable of accommodating or adapting to expected sea level rise over their expected life.

11. The Project would allow for timely construction of the proposed BDFP. Project construction has the shortest construction duration (5 years) compared to the other alternatives. Thus, this project would minimize construction impacts to the public.

12. The Project has the lowest cost and least amount of uncertainties with respect to timely initiation of project construction compared to the other alternatives. Hence, this Project will best serve rate payer affordability.

While the EIR concluded that the Project would result in significant unavoidable impacts to air quality from construction NOx emissions, as described above, SFPUC has committed to implement a NOx offsets program as part of its implementation of mitigation measure M-AQ-1b as described in RTC Section 10.6, pages 10.6-16 to 10.6-17), that would in practice reduce the impact to a level comparable to less than significant. The significant and unavoidable with mitigation conclusion is due to the fact that the emissions reductions that will result from the offset program are not verified yet, and therefore some uncertainty remains. The program would require the use of renewable diesel by the SFPUC Headworks Replacement Project and replacement of old, diesel equipment with newer equipment that reduce NOx emissions. Thus, with implementation of the NOx offsets, the project would likely not increase emissions above CEQA thresholds.

Having considered these benefits, including the benefits discussed in Section I above, the Commission finds that the benefits of the Project outweigh its unavoidable adverse environmental effects, and that the adverse environmental effects are therefore acceptable.

MITIGATION MONITORING AND REPORTING PROGRAM FOR BIOSOLIDS DIGESTER FACILITIES PROJECT				
MEASURES ADOPTED AS CONDITIONS OF APPROVAL	**Implementation Responsibility**	**Mitigation Schedule**	**Monitoring/Reporting Responsibility**	**Monitoring Actions/Schedule and Verification of Compliance**
MITIGATION MEASURES FOR THE BIOSOLIDS DIGESTER FACILITIES PROJECT				
Cultural Resources (Historic Resources) Mitigation Measures				
Applicable to Central Shops site **Mitigation Measure M-CR-1. Documentation of Historic Resources and Interpretive Display** Prior to demolition, the SFPUC shall retain a professional who meets the Secretary of the Interior's Professional Qualifications Standards for Architectural History to prepare written and photographic documentation of the Central Shops. The documentation effort shall be based on the National Park Service (NPS) Historic American Building Survey (HABS)/Historic American Engineering Record (HAER) Historical Report Level II Guidelines, and NPS's policy for photographic documentation as outlined in the National Register of Historic Places and National Historic Landmarks Survey Photo Policy Expansion. The written historical data for this documentation shall follow HABS/HAER standards. Efforts shall be made to locate original construction drawings or plans of the Central Shops. If located, these drawings shall be reproduced and included in the dataset. Historical information, as well as copies of building plans gathered from the prior evaluations of the SEP and Central Shops, can be reused and reformatted for this effort. Digital photography shall be used. The ink and paper combinations for printing photographs shall be in compliance with National Register-National Historic Landmark (NR-NHL) Photo Policy Expansion[1] and have a permanency rating of approximately 115 years. Digital photographs shall be taken as uncompressed, Tagged Image File Format (TIFF) files. Each image shall be 1,600 by 1,200 pixels at 330 pixels per inch (ppi) or larger in size, color format, and printed in black and white. The file name for each electronic image shall correspond with the index of photographs and photograph label. Photograph views for the dataset shall include (a) contextual views; (b) views of each side of each building and interior views, where possible; (c) oblique views of buildings; and (d) detail views of character-defining features. All views shall be referenced on a photographic key. This photographic key shall be on a map of the property and shall show the photograph number with an arrow to indicate the direction of the view. Historic photographs shall also be collected, reproduced, and included in the dataset. The SFPUC shall transmit the datasets as hardcopies on archival paper and in electronic PDF format to the History Room of the San Francisco Public Library, the San Francisco Planning Department, the archives of the San Francisco Public Utilities Commission, and to the Northwest Information Center of the California Historical Information Resource System. The SFPUC shall scope the documentation measures with San Francisco Planning Department Preservation staff. Preservation staff shall also review and approve the submitted documentation for adequacy. In addition, the SFPUC shall provide a permanent display of interpretive materials (which may include, but are not limited to, a display of photographs, a brochure, educational website or an exhibitive display) concerning the history and architectural features of the Central Shops. Development of the interpretive materials shall be supervised by an architectural historian or historian who meets the Secretary of the Interior's Professional Qualification Standards. The interpretative materials shall be placed in a prominent, public setting. A proposal describing the general parameters of the interpretive materials shall be approved by Planning Department Preservation staff prior to construction completion. The substance, media and other elements of such interpretive display shall be approved by Planning Department Preservation staff prior to completion of the project.	1. Qualified professional to prepare written and photographic documentation of the Central Shops 2. Qualified professional to prepare interpretative display material. 3. SFPUC to install interpretative display.	1. Prior to demolition. 2. During construction. 3. Prior to completion of the project.	1. SFPUC Bureau of Environmental Management (BEM) and San Francisco (SF) Planning Department Preservation staff 2. SFPUC BEM and SF Planning Department Preservation staff 3. SFPUC BEM and SF Planning Department Preservation staff	1. Distribution of approved HABS/HAER Historic Report to specified entities. 2. SF Planning Department Preservation staff approval of interpretative display material. 3. Documentation of installed interpretive display.

[1] National Park Service, *National Register Photo Policy Factsheet*, Updated May 15, 2013.

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MEASURES ADOPTED AS CONDITIONS OF APPROVAL	**Implementation Responsibility**	**Mitigation Schedule**	**Monitoring/Reporting Responsibility**	**Monitoring Actions/Schedule and Verification of Compliance**
MITIGATION MEASURES FOR THE BIOSOLIDS DIGESTER FACILITIES PROJECT				
Cultural Resources (Archeological Resources) Mitigation Measures				
Applicable to project site **Mitigation Measure M-CR-2a. Archeological Testing, Monitoring, and/or Data Recovery** Based on the results of the project Archeological Research Design and Treatment Plan[2] (ARDTP), legally-significant prehistoric archeological resources are present within the archeological C-APE. The following measures shall be undertaken to avoid any potentially significant adverse effects from the project on an historical resource under CEQA. The SFPUC shall retain the services of a qualified archeological consultant(s), based on standards developed by the City and County of San Francisco Environmental Review Officer (ERO). The archeological consultant(s) shall have demonstrated experience in geoarcheology and historical archeology. The archeological consultant shall implement archeological testing and other treatment as specified in the project ARDTP, as detailed below, which shall include archeological monitoring and data recovery as required pursuant to findings of ongoing testing and this measure. The archeological consultant's work shall be conducted in accordance with this measure and with the requirements of the project ARDTP at the direction of ERO or its designated representative and in coordination with the SFPUC. In instances of inconsistency between the requirement of the project ARDTP and of this archeological mitigation measure, the requirements of this archeological mitigation measure shall prevail. Project design changes after finalizing the ARDTP eliminated the portion of the C-APE that was identified in the ARDTP as sensitive for historical archeological resources. Testing as discussed below for historical archeological resources shall only be required if future design changes call for excavation in that location. If future project design changes further revise other parts of the C-APE, then testing shall only be required in archeologically sensitive areas that potentially would be adversely affected by project implementation. All plans and reports prepared by the consultant as specified herein shall be submitted directly to the ERO for review and comment and concurrently to the SFPUC for review and comment, and shall be considered draft reports, subject to revision until final approval by the ERO. Archeological monitoring and/or data recovery programs required by this measure could suspend construction of the affected area of the project for up to a maximum of four weeks. At the direction of the ERO, the suspension of construction can be extended beyond four weeks only if such a suspension is the only feasible means to reduce to a less-than-significant level potential effects on a significant archeological resource as defined in CEQA Guidelines Section 15064.5 (a) and (c).	SFPUC BEM to retain qualified professional archeologist determined, in consultation with EP archaeologist, to have specialized expertise in geoarchaeology and historical archaeology	Prior to ground disturbing activities.	SFPUC Archeological consultant to prepare and submit archeological testing plan and archaeological monitoring plan to the ERO for review and approval. BEM and ERO.	Considered complete when SFPUC retains a qualified professional archeological consultant, archeological consultant's scope has been approved by the ERO, and required plans and reports have been submitted to and approved by the ERO and submits any required reports to ERO for the archeological testing plan.
Consultation with Descendant Communities. On discovery of an archeological site[3] associated with descendant Native Americans, the Overseas Chinese, or other potentially interested descendant group, an appropriate representative[4] of the descendant group, the ERO, and the SFPUC shall be contacted. The representative of the descendant group shall be given the opportunity to monitor archeological field investigations of the site and to offer recommendations to the ERO and SFPUC regarding appropriate archeological treatment of the site, of recovered data from the site, and, if applicable, any interpretative treatment of the associated archeological site. A copy of the Final Archeological Resources Report (FARR) shall be provided to the representative of the descendant group.	1. SFPUC and archeological consultant to inform descendant group and ERO on discovery of site 2. Qualified archaeological consultant to prepare FARR 3. SFPUC to provide FARR to representative of the descendant group	1. For the duration of soil-disturbing activities 2. Prior to completion of the project.	1. SFPUC BEM and ERO 2. SFPUC BEM and ERO	1 & 2. Considered complete upon documentation of consultation and submittal of FARR to descendant group(s).

[2] Byrd, Brian F., Philip Kaijankoski, Rebecca Allen, and Matthew Russell, Archaeological Research Design and Treatment Plan for the Biosolids Digester Facility Project, Southeast Water Pollution Control Plant, San Francisco, California. Prepared for San Francisco Public Utilities Commission, October, 2016.

[3] The term "archeological site" is intended here to minimally include any archeological deposit, feature, burial, or evidence of burial.

[4] An "appropriate representative" of the descendant group is here defined to mean, in the case of Native Americans, any individual listed in the current Native American Contact List for the City and County of San Francisco maintained by the California Native American Heritage Commission and in the case of the Overseas Chinese, the Chinese Historical Society of America. An appropriate representative of other descendant groups should be determined in consultation with the Department archeologist.

MITIGATION MONITORING AND REPORTING PROGRAM FOR BIOSOLIDS DIGESTER FACILITIES PROJECT

MEASURES ADOPTED AS CONDITIONS OF APPROVAL	Implementation Responsibility	Mitigation Schedule	Monitoring/Reporting Responsibility	Monitoring Actions/Schedule and Verification of Compliance
MITIGATION MEASURES FOR THE BIOSOLIDS DIGESTER FACILITIES PROJECT				
Cultural Resources (Archeological Resources) Mitigation Measures (cont.)				
Archeological Testing Program–Prehistoric Archeology. Depending on the results of on-going prehistoric archeological testing outlined in the project ARDTP, additional testing may be required to define site boundaries of CA-SFR-171 or other prehistoric deposits at the SEP, and to assess whether redeposited and/or reworked prehistoric archeological material identified in the project ARDTP within the C-APE has sufficient integrity to contribute to the significance of known resources at SEP. At the direction of the ERO and in coordination with SFPUC, additional testing may be rolled into a subsequent data recovery program (see below).	1. Qualified archeological consultant to scope additional testing if warranted, in consultation with the ERO, and to implement that testing 2. Qualified consultant to prepare supplemental testing report if warranted and report of supplemental archaeological testing	If additional testing is warranted, it shall be carried out prior to any soil disturbing activities that, in the assessment of the project archaeologist in consultation with ERO, have the potential to disturb archaeological resources based on the results of Phase 1 and Phase 2 preconstruction archaeological testing.	SFPUC BEM and ERO	1. Considered complete upon finding by the ERO that the archaeological testing program has been adequate to identify and assess resources likely to be present and that supplemental testing is not required. 2. If supplemental testing is required, considered complete upon submittal of the supplemental archaeological testing report.
Archeological Testing Program–Historical Archeology. If future design changes would affect the area identified as sensitive for historical archeological resources, the archeological consultant shall implement the historical archeological testing plan outlined in the project ARDTP for potential historical archeological resources that could be adversely affected by the project. The archeological testing program shall be conducted in accordance with the approved ARDTP. The project ARDTP identifies the property types of the expected archeological resource(s) that could be adversely affected by the project, the testing method to be used, and the locations recommended for testing. The purpose of the archeological testing program will be to determine to the extent possible the presence or absence of historical archeological resources and to identify and to evaluate whether any archeological resource encountered on the site constitutes an historical resource under CEQA. If future project design changes further alter the C-APE from what is identified in the ARDTP, then the archeological consultant shall prepare and submit to the ERO for review and approval an archeological testing plan (ATP) for both prehistoric and historical archeological resources to address any area added to the C-APE to accommodate the project design changes. The archeological testing program shall be conducted in accordance with the approved ATP. The ATP shall identify the property types of the expected archeological resource(s) that potentially could be adversely affected by the project, the testing method to be used, and the locations recommended for testing. The purpose of the archeological testing program will be to determine to the extent possible the presence or absence of archeological resources and to identify and to evaluate whether any archeological resource encountered on the site constitutes an historical resource under CEQA.	1. If future design changes would affect sensitive historical archaeological resources outside the C-APE but within the ATP outlined in the ARDTP, a qualified archeological consultant shall implement the ATP as outlined in the ARDTP. 2. Qualified archaeological consultant to prepare, implement and report upon an updated ATP for any new areas outside the C-APE in consultation with the ERO	1. Prior to any soil disturbing activities. 2. Prior to any soil disturbing activities.	1. SFPUC BEM and ERO 2. SFPUC BEM and ERO	1. Considered complete upon approval of the ATP in the ARDTP by the ERO and finding by the ERO that the ATP has been implemented and no further testing is warranted based on testing results. 2. Considered complete upon approval of the updated ATP by the ERO, finding by the ERO that the ATP has been implemented, and submittal and approval of a supplemental archaeological testing report.
At the completion of the archeological testing program, as required, the archeological consultant shall submit a written report of the findings to the ERO and the SFPUC. If based on the archeological testing program the archeological consultant finds that significant archeological resources may be present, the ERO in consultation with the archeological consultant and coordination with the SFPUC shall determine if additional measures are warranted. Additional measures that may be undertaken include additional archeological testing, archeological monitoring, and/or an archeological data recovery program. No archeological data recovery shall be undertaken without the prior approval of the ERO or the Planning Department archeologist. If the ERO determines that a significant archeological resource is present and that the resource could be adversely affected by the project, at the discretion of the SFPUC either: A) The project shall be re-designed so as to avoid any adverse effect on the significant archeological resource; or B) An archeological data recovery program shall be implemented, unless the ERO determines that the archeological resource is of greater interpretive than research significance and that interpretive use of the resource is feasible.	1. Based on findings of approved testing report, and if impacts cannot be avoided, SFPUC BEM and qualified archeological consultant will consult with ERO, to determine, based on relationship between locations of known and suspected resources and anticipated soil disturbance, whether additional treatment is warranted, and appropriate scope of additional treatment. 2. Qualified archaeological consultant to prepare archeological data recovery program (ADRP)	1. Upon completion of the archeological testing program and ERO approval of the archaeological testing report, and prior to ground disturbing activity at the project site. 2. Upon completion of ERO consultation on scope and prior to any ground disturbing activity.	1. SFPUC BEM, qualified archaeological consultant and ERO 2. SFPUC BEM, qualified archaeologist and ERO	1. Considered complete after ERO review and approval of report(s) on ATP findings, and after concurrence by ERO on appropriate scope of ADRP. 2. Considered complete after ERO review and approval of ADRP and implementation of the ADRP and/or interpretive program.

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MEASURES ADOPTED AS CONDITIONS OF APPROVAL	Implementation Responsibility	Mitigation Schedule	Monitoring/Reporting Responsibility	Monitoring Actions/Schedule and Verification of Compliance
MITIGATION MEASURES FOR THE BIOSOLIDS DIGESTER FACILITIES PROJECT				
Cultural Resources (Archeological Resources) Mitigation Measures (cont.)				
Archeological Monitoring Program. Preparation of an archeological monitoring program (AMP) may be required prior to project construction depending on the results of the prehistoric and historical archeological testing programs outlined above. If the ERO in consultation with the archeological consultant determines that an archeological monitoring program shall be implemented, the archeological monitoring program shall minimally include the following provisions: • The archeological consultant, SFPUC, and ERO shall meet and consult on the scope of the AMP reasonably prior to commencement of any project-related soils disturbing activities. The ERO in consultation with the archeological consultant shall determine what project activities shall be archeologically monitored based on the results of pre-construction archeological testing currently approved and underway or planned, and archeological sensitivity assessment based on the results of that testing; • The archeological consultant shall advise all project contractors to be on the alert for evidence of the presence of the expected resource(s), of how to identify the evidence of the expected resource(s), and of the appropriate protocol in the event of discovery of a potential archeological resource; • The archeological monitor(s) shall be present on the project site according to a schedule agreed upon by the archeological consultant and the ERO or until the ERO has, in consultation with project archeological consultant, otherwise determined that project construction activities could have no effects on significant archeological deposits and monitoring can conclude; • The archeological monitor shall record and be authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis; • If an intact archeological deposit is encountered, all soils-disturbing activities in the vicinity of the deposit shall cease. The archeological monitor shall be empowered to temporarily redirect demolition/excavation/construction activities and equipment until the deposit is evaluated. The archeological consultant shall immediately notify the ERO and the SFPUC of the encountered archeological deposit. The archeological consultant shall make a reasonable effort to assess the identity, integrity, and significance of the encountered archeological deposit, and present the findings of this assessment to the ERO and the SFPUC. Whether or not significant archeological resources are encountered, the archeological consultant shall submit a written report of the findings of the monitoring program to the ERO and the SFPUC.	1. Qualified archaeological consultant to prepare an AMP 2. Qualified archaeological consultant to implement the AMP, including notification of ERO of any potentially significant discoveries, and consultation with the ERO on scope of subsequent assessment and treatment 3. Qualified archaeological consultant to prepare written report of findings during construction. Monitoring results may be included in FARR.	1. AMP to be subject to approval by ERO prior to construction. Qualified archaeologist to conduct construction crew training prior to soil disturbing activities 2. During construction 3. Post-construction	1. SFPUC BEM and ERO 2. SFPUC BEM and ERO 3. SFPUC BEM and ERO	1. Considered complete on approval of AMP(s) by ERO. 2. ERO to be notified quarterly of monitoring progress including any proposed changes in monitoring schedule or intensity; notified immediately of any potentially significant discoveries; and consulted in development of proposed assessment and treatment plan in the event of a discovery 3. ERO approval of written report of monitoring findings/ FARR.
Archeological Data Recovery Program. An archeological data recovery program shall be implemented in accord with an archeological data recovery plan (ADRP). The ADRP shall incorporate (1) programmatic-level procedures for deeply buried prehistoric archeological deposits; (2) site-specific procedures for identified prehistoric archeological deposits; (2) and site-specific procedures for historical archeological deposits (as warranted). The archeological consultant, SFPUC, and ERO shall meet and consult on the scope of the ADRP prior to preparation of a draft ADRP. The archeological consultant shall submit a draft ADRP to the ERO and SFPUC. The ADRP shall identify how the proposed data recovery program will preserve the significant information the archeological resource is expected to contain. That is, the ADRP shall identify what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, should be limited to the portions of the historical resource	1. Qualified archeological consultant to prepare an ADRP to address those portions of the historic resources that could be adversely affected by the project. 2. Archaeological consultant to implement the ADRP. 3. Archaeological consultant to prepare written report of findings of the data recovery program.	1. Prior to soil disturbing activities 2. Prior to and during soil-disturbing construction activities. 3. Upon completion of all soil-disturbing activities that may trigger ADRP implementation, and upon completion of all ADRP analyses.	1. SFPUC BEM and ERO 2. SFPUC BEM and ERO	1. ERO approval of the ADRP 2. ERO approval of the final archaeological report(s) documenting implementation of the ADRP and curation of resultant archaeological collections.

MITIGATION MONITORING AND REPORTING PROGRAM FOR BIOSOLIDS DIGESTER FACILITIES PROJECT				
MEASURES ADOPTED AS CONDITIONS OF APPROVAL	**Implementation Responsibility**	**Mitigation Schedule**	**Monitoring/Reporting Responsibility**	**Monitoring Actions/Schedule and Verification of Compliance**
MITIGATION MEASURES FOR THE BIOSOLIDS DIGESTER FACILITIES PROJECT				
Cultural Resources (Archeological Resources) Mitigation Measures (cont.)				
that could be adversely affected by the project. Destructive data recovery methods shall not be applied to portions of the archeological resources if non-destructive methods are practical. The scope of the ADRP shall include the following elements: • *Field Methods and Procedures.* Descriptions of proposed field strategies, procedures, and operations for the following elements: 1) Programmatic-level procedures for deeply buried prehistoric archeological deposits potentially uncovered during excavation for deep foundations (e.g., driven, drilled, or augured piles). 2) Site-specific procedures for known/identified prehistoric archeological deposits potentially affected by project excavation activities (e.g. CA-SFR-171). 3) Site-specific procedures for historical archeological deposits (as warranted) potentially affected by project excavation activities. • *Cataloguing and Laboratory Analysis.* Description of selected cataloguing system and artifact analysis procedures. • *Discard and Deaccession Policy*. Description of and rationale for field and post-field discard and deaccession policies. • *Interpretive Program.* Consideration of an on-site/off-site public interpretive program during the course of the archeological data recovery program. • *Security Measures*. Recommended security measures to protect the archeological resource from vandalism, looting, and non-intentionally damaging activities. • *Final Report*. Description of proposed report format and distribution of results. • *Curation*. Description of the procedures and recommendations for the curation of any recovered data having potential research value, identification of appropriate curation facilities, and a summary of the accession policies of the curation facilities.				
Human Remains and Associated or Unassociated Funerary Objects. The treatment of human remains and of associated or unassociated funerary objects discovered during any soils disturbing activity, in the context of an archeological deposit or in isolation, shall comply with applicable state and federal laws. This shall include immediate notification of the Coroner of the City and County of San Francisco and in the event of the Coroner's determination that the human remains are Native American remains, notification of the California State Native American Heritage Commission (NAHC) who shall appoint a Most Likely Descendant (MLD) (PRC Section 5097.98). PRC 5097.98 indicates that " The descendants shall complete their inspection and make their recommendation within 48 hours of their notification by the Native American Heritage Commission." The archeological consultant, SFPUC, ERO, and MLD shall have up to but not beyond six days of discovery to make all reasonable efforts to develop an agreement for the treatment of human remains and associated or unassociated funerary objects with appropriate dignity (CEQA Guidelines Section 15064.5[d]). The agreement should take into consideration the appropriate excavation, removal, recordation, analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects. Nothing in existing State regulations or in this mitigation measure compels the SFPUC and the ERO to accept recommendations of an MLD. The archeological consultant shall retain possession of any Native American human remains and associated or unassociated burial objects until completion of any scientific analyses of the human remains or objects as specified in the treatment agreement if such as agreement has been made or, otherwise, as determined by the archeological consultant and the ERO.	SFPUC and qualified archeological consultant, in consultation with the San Francisco Coroner, NAHC, ERO, and MLD.	In the event human remains and/or funerary objects are encountered, during soils disturbing activity; immediately, upon each such discovery	SFPUC BEM and ERO	Considered complete on notification of the San Francisco County Coroner and ERO, and if Native American remains are discovered, then notification to NAHC, and MLD, and completion of treatment agreement and/or analysis and archaeological reporting.

MITIGATION MONITORING AND REPORTING PROGRAM FOR BIOSOLIDS DIGESTER FACILITIES PROJECT				
MEASURES ADOPTED AS CONDITIONS OF APPROVAL	**Implementation Responsibility**	**Mitigation Schedule**	**Monitoring/Reporting Responsibility**	**Monitoring Actions/Schedule and Verification of Compliance**
MITIGATION MEASURES FOR THE BIOSOLIDS DIGESTER FACILITIES PROJECT				
Cultural Resources (Archeological Resources) Mitigation Measures (cont.)				
Applicable to project site **Final Archeological Resources Report.** The archeological consultant shall submit a Draft Final Archeological Resources Report (FARR) to the ERO and SFPUC that evaluates the historical significance of any discovered archeological resource and describes the archeological and historical research methods employed in the archeological testing/monitoring/data recovery program(s) undertaken. The FARR shall include new updated DPR forms, as applicable. Information that may put at risk any archeological resource shall be provided in a separate removable insert within the final report. Once approved by the ERO, copies of the FARR shall be distributed as follows: Northwest Information Center (NWIC) of the California Historical Resources Information System shall receive one (1) copy and the ERO shall receive a copy of the transmittal of the FARR to the NWIC. The Environmental Planning division of the Planning Department shall receive one bound, one unbound and one unlocked, searchable PDF copy on CD of the FARR along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of high public interest in or the high interpretive value of the resource, the ERO may require a different final report content, format, and distribution than that presented above.	1. SFPUC and qualified archeological consultant to consult with ERO regarding interpretive value of identified resources and, if so, to develop an interpretive plan 2. Qualified archeological consultant to prepare the FARR and/or FARR with interpretive augmentation	1. Post-construction, upon recommendation by qualified archaeologist based on preliminary analytical results 2. Within one year of the completion of all soil disturbing activity at the project site that has potential for archaeological impacts	1. SFPUC BEM, qualified archaeologist and ERO 2. SFPUC BEM and qualified archaeologist	1. If the ERO determines that the findings have high interpretive value, completion and approval of an interpretive report or other interpretive product, to be scope in consultation between the ERO, SFPUC and the qualified archaeological consultant 2. Considered complete on submittal of FARR and approval by ERO, written confirmation the FARR has been distributed to specified entities and that any archaeological collections have been curated as specified in the ADRP.
Applicable to project site, 1550 Evans, and Piers 94 and 96 staging areas **Mitigation Measure M-CR-2b. Accidental Discovery of Archeological Resources** The following mitigation measure is required to avoid any potential adverse effect from the project on accidentally discovered buried or submerged historical resources as defined in CEQA Guidelines Section 15064.5(a) and (c). The project sponsor shall distribute the Planning Department archeological resource "ALERT" sheet to the project prime contractor; to any project subcontractor (including demolition, excavation, grading, foundation, pile installation, etc. firms); or utilities firm involved in soils disturbing activities within the project site. Prior to any soils disturbing activities being undertaken each contractor is responsible for ensuring that the "ALERT" sheet is circulated to all field personnel including, machine operators, field crew, pile drivers, supervisory personnel, etc. A preconstruction training shall be provided to all construction personnel by a qualified archeologist prior to their starting work on the project. The training may be provided in person or using a video and include a handout prepared by the qualified archeologist. The video and materials shall be reviewed and approved by the ERO and the SFPUC. The purpose of the training is to enable personnel to identify archeological resources that may be encountered and to instruct them on what to do if a potential discovery occurs. Images or video of expected archeological resource types and archeological testing and data recovery methods should be included in the training. As possible, video or images should utilize archeological investigations that have occurred at the project site. The training should also include general information about the known archeological resources identified within the project site. The project sponsor shall provide the Environmental Review Officer (ERO) with a signed affidavit from the responsible parties (prime contractor, subcontractor[s], and utilities firm) to the ERO confirming that all field personnel have received copies of the Alert Sheet and have taken the preconstruction training. Should any indication of an archeological resource be encountered during any soils disturbing activity of the project, the project Head Foreman and/or project sponsor shall immediately notify the ERO and the SFPUC and shall immediately suspend any soils disturbing activities in the vicinity of the discovery until the ERO, in coordination with the SFPUC, has determined what additional measures should be undertaken.	1. SFPUC Construction Management Bureau (CMB)/BEM to prepare training materials and conduct preconstruction training and provide signed affidavit. 2. Qualified archaeological consultant to notify the ERO and the SFPUC, immediately suspend any soils disturbing activities in the vicinity of the discovery, and consult with ERO to assess significance and identify appropriate treatment measures. 3. Qualified archaeological consultant to implement significance assessment and treatment measures 4. Qualified archaeological consultant to prepare a FARR.	1. Prior to any ground disturbing activity. 2. In the event archeological resources are encountered during soil disturbing activity 3. Upon concurrence by ERO on significance assessment and treatment measures proposed by qualified archaeologist and prior to further construction activities that would impact the resource. 4. Post construction	1. SFPUC BEM and ERO 2. SFPUC BEM and ERO 3. SFPUC BEM and ERO 4. SFPUC BEM and ERO	1. Considered complete on approval of training materials and when signed affidavit from responsible parties is received by ERO. 2. Considered complete on notification of the ERO, and completion of ERO consultation on treatment 3. Upon completion of agreed upon significance assessment/treatment of the discovery. 4. SF Planning Department approval of FARR and confirmation that FARR has been distributed to specified entities and the collection has been curated as specified in the ADRP.

MITIGATION MONITORING AND REPORTING PROGRAM FOR BIOSOLIDS DIGESTER FACILITIES PROJECT				
MEASURES ADOPTED AS CONDITIONS OF APPROVAL	**Implementation Responsibility**	**Mitigation Schedule**	**Monitoring/Reporting Responsibility**	**Monitoring Actions/Schedule and Verification of Compliance**
MITIGATION MEASURES FOR THE BIOSOLIDS DIGESTER FACILITIES PROJECT				
Cultural Resources (Archeological Resources) Mitigation Measures (cont.)				
If the ERO determines that the find may represent an archeological resource, the project sponsor shall retain the services of an archeological consultant. The archeological consultant shall advise the ERO and the SFPUC as to whether the discovery is an archeological resource, retains sufficient integrity, and is of potential scientific/historical/cultural significance. If an archeological resource is present, the archeological consultant shall identify and evaluate the archeological resource. The archeological consultant shall make a recommendation as to what action, if any, is warranted. Based on this information, the ERO may require, if warranted, specific additional measures to be implemented by the project sponsor. Measures might include: preservation in situ of the archeological resource; an archeological monitoring program; or an archeological testing program. If an archeological monitoring program or archeological testing program is required, it shall be consistent with the Environmental Planning (EP) division guidelines for such programs. The ERO may also require that the project sponsor immediately implement a site security program if the archeological resource is at risk from vandalism, looting, or other damaging actions. The project archeological consultant shall submit a Final Archeological Resources Report (FARR) to the ERO and the SFPUC that evaluates the historical significance of any discovered archeological resource and describing the archeological and historical research methods employed in the archeological monitoring/data recovery program(s) undertaken. Information that may put at risk any archeological resource shall be provided in a separate removable insert within the final report. Copies of the Draft FARR shall be sent to the ERO for review and approval and concurrently to the SFPUC for review and comment. Once approved by the ERO, copies of the FARR shall be distributed as follows: California Archaeological Site Survey Northwest Information Center (NWIC) shall receive one (1) copy and the ERO shall receive a copy of the transmittal of the FARR to the NWIC. The Environmental Planning division of the Planning Department shall receive one bound copy, one unbound copy and one unlocked, searchable PDF copy on CD three copies of the FARR along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of high public interest or interpretive value, the ERO may require a different final report content, format, and distribution than that presented above.				
Noise and Vibration Mitigation Measures				
Applicable to work at Southeast Greenhouses Staging Area **Mitigation Measure M-NO-1a. Shielding of Concrete Saw Operations** Project contractors shall erect temporary shielding when concrete saw operations are conducted within 100 feet of a sensitive receptor. Shielding shall be sufficient to reduce noise levels to 80 dBA at a distance of 100 feet (an approximate 5 dBA reduction), consistent with the noise limit specified in Section 2907 of the Noise Ordinance.	Contractors to erect shielding when concrete saw operations are conducted within 100 feet of a sensitive receptor.	Prior to conducting concrete saw operations within 100 feet of a sensitive receptor.	SFPUC BEM	Documentation of compliance
Applicable to work at Southeast Greenhouses Staging Area **Mitigation Measure M-NO-1b. Construction Noise Control Measures at Southeast Greenhouses Staging Area** Project contractors shall implement noise control measures at the Southeast Greenhouses staging area, such as one of the following strategies, to ensure that construction-related noise does not exceed 77 dBA at the closest residences located across Phelps Street or 70 dBA at the daycare center (including its outdoor play area) at the Southeast Community Facility (this performance standard is based on the City's ambient +10 dBA noise limit):	Contractor to implement noise control measures; SFPUC CMB to post sign.	Prior to and during construction activities at the Southeast Greenhouses staging area.	SFPUC BEM	Documentation of compliance

MITIGATION MONITORING AND REPORTING PROGRAM FOR BIOSOLIDS DIGESTER FACILITIES PROJECT				
MEASURES ADOPTED AS CONDITIONS OF APPROVAL	**Implementation Responsibility**	**Mitigation Schedule**	**Monitoring/Reporting Responsibility**	**Monitoring Actions/Schedule and Verification of Compliance**
MITIGATION MEASURES FOR THE BIOSOLIDS DIGESTER FACILITIES PROJECT				
Noise and Vibration Mitigation Measures (cont.)				
• ***Restrict Use of Heavy Equipment***. Restrict operation of heavy equipment and trucks in the southern portion of the Southeast Greenhouses staging area within approximately 200 feet of the daycare center (including the outdoor play area) and residences across Phelps Street such that noise levels are maintained below this performance standard. • ***Temporary Noise Barrier***. Erect temporary noise barrier(s) along the southern and eastern boundaries of the Southeast Greenhouses staging area to shield the daycare facility and residences from noise generated by staging area activities necessary to achieve this performance standard. • The SFPUC shall also post a sign on-site describing permitted construction days and hours, noise complaint procedures, and a complaint hotline number (available during construction hours).				
Air Quality Mitigation Measures				
Applicable to all project locations **Mitigation Measure M-AQ-1a. Construction Emissions Minimization** The SFPUC's contractors shall comply with the following: ***A. Engine Requirements.*** 1. All off-road equipment with larger engines (greater than or equal to 140 horsepower) shall meet United States Environmental Protection Agency (USEPA) or California Air Resources Board (CARB) Tier 4 Final off-road emission standards, while equipment with smaller engines (less than 140 horsepower) shall meet or exceed Tier 2 off-road emission standards and be equipped with diesel particulate filters (DPFs), which is equivalent to a Level 3 verified diesel emission control strategy (VDECS). 2. At least 80 percent of haul trucks (i.e., trucks used to remove or deliver backfill soil, excavated soil, and demolition debris) used must have 2010 or newer engines. The SFPUC should strive to exceed this requirement when possible; if trucks with 2010 or newer engines are available in the Contractor's, or subcontractor's fleet, then those should be used for the project. The SFPUC, through its Contractors Assistance Center, will work with the BAAQMD's Strategic Incentives Division and interested, eligible truckers to pursue funding to replace vehicles or retrofit engines to comply with the lower emissions requirement, including but not limited to conducting informational presentations at the Contractors Assistance Center to notify truckers about the grants and incentives and assisting with the completion of applications to the grant programs. 3. All diesel-powered haul trucks and off-road equipment must use renewable diesel. ***B. Waivers.*** 1. Pursuant to the Clean Construction Ordinance, the SFPUC General Manager (GM) or designee may waive the alternative source of power requirement if an alternative source of power is limited or infeasible at the project site. If the SFPUC GM grants the waiver, the contractor shall submit documentation that the equipment used for on-site power generation meets the requirements of Subsection (A)(1).	SFPUC CMB and contractor.	Implement prior to and during construction activities.	SFPUC BEM.	Considered complete upon Planning Department review and approval of documentation.

MITIGATION MONITORING AND REPORTING PROGRAM FOR BIOSOLIDS DIGESTER FACILITIES PROJECT

MEASURES ADOPTED AS CONDITIONS OF APPROVAL	Implementation Responsibility	Mitigation Schedule	Monitoring/Reporting Responsibility	Monitoring Actions/Schedule and Verification of Compliance
MITIGATION MEASURES FOR THE BIOSOLIDS DIGESTER FACILITIES PROJECT				
Air Quality Mitigation Measures (cont.)				
2. The SFPUC GM or designee may waive the equipment requirements of Subsection (A)(1) but only under any of the following unusual circumstances: if a particular piece of off-road equipment with Tier 4 Final standards or CARB Level 3 VDECS is technically not feasible; the equipment would not produce desired emissions reduction due to expected operating modes; installation of the equipment would create a safety hazard or impaired visibility for the operator; or there is a compelling emergency need to use off-road equipment that is not retrofitted with a CARB Level 3 VDECS. If the SFPUC GM or designee grants the waiver, the contractor shall use the next cleanest piece of off-road equipment, according to the following table: **Compliance Alternative** / **Engine Emission Standard** 1 / Tier 4 Interim 2 / Tier 3 3 / Tier 2 NOTES: How to use the table: If the SFPUC GM or designee determines that the equipment requirements cannot be met, then the contractor shall meet Compliance Alternative 1. If the SFPUC GM or designee determines that the contractor cannot supply off-road equipment meeting Compliance Alternative 1, then the contractor shall meet Compliance Alternative 2. If the SFPUC GM or designee determines that the contractor cannot supply off-road equipment meeting Compliance Alternative 2, then the contractor shall meet Compliance Alternative 3.				
Mitigation Measure M-AQ-1b. Emission Offsets During the five-year construction period and prior to project completion, the SFPUC, with the oversight of the Planning Department, shall implement either of the following two options or a combination of both: 1. Directly implement a specific offset program (such as replace equipment) to achieve reductions of 2.3 tons per year of ozone precursors, subject to Environmental Review Officer (ERO) approval. To qualify under this mitigation measure, the specific emissions retrofit project must result in emissions reductions within the San Francisco Bay Area Air Basin (SFBAAB) that are real, surplus, quantifiable, enforceable, and would not otherwise be achieved through compliance with existing regulatory requirements or any other legal requirement. Prior to implementation of the offset project, the SFPUC must obtain Planning Department's approval of the proposed offset project by providing documentation of the estimated amount of emissions of 2.3 tons per year of ozone precursors within the SFBAAB from the emissions reduction project(s). The project sponsor shall notify the Planning Department within six months of completion of the offset project for verification. 2. Pay a mitigation offset fee to the Bay Area Air Quality Management District's (BAAQMD) Bay Area Clean Air Foundation (Foundation) in an amount to be determined at the time of the impact. The mitigation offset fee will be no less than $30,000 per weighted ton of ozone precursors per year requiring emissions offsets plus an administrative fee of no less than 5 percent, to fund one or more emissions reduction projects within the SFBAAB. The $30,000 will be adjusted to reflect annual California Consumer Price Index adjustments between 2017 and the estimated first year of exceedance. This fee will be determined by the Planning Department in consultation with the SFPUC and BAAQMD and based on the type of projects available at the time of impact. This fee is intended to fund emissions reduction projects to achieve reductions of 2.3 tons per year of ozone precursors.	SFPUC	*Offset program*: During construction and notify the Planning Department within 6 months of completion of the offset project(s). and/or *Mitigation Fee*: Pay amount determined at time of impact	*Offset program*: SFPUC and ERO *Mitigation Fee*: BAAQMD	*Offset program*: Documentation of offset projects implemented. *Mitigation Fee*: BAAQMD confirmation of receipt of payment.

MITIGATION MONITORING AND REPORTING PROGRAM FOR BIOSOLIDS DIGESTER FACILITIES PROJECT				
MEASURES ADOPTED AS CONDITIONS OF APPROVAL	**Implementation Responsibility**	**Mitigation Schedule**	**Monitoring/Reporting Responsibility**	**Monitoring Actions/Schedule and Verification of Compliance**
MITIGATION MEASURES FOR THE BIOSOLIDS DIGESTER FACILITIES PROJECT				
Air Quality Mitigation Measures (cont.)				
For this option, the SFPUC is required to enter into a Memorandum of Understanding (MOU) with the BAAQMD's Foundation. The MOU will include details regarding the funds to be paid, administrative fee and the timing of the emissions reductions project. Acceptance of this fee by the BAAQMD shall serve as an acknowledgment and commitment by the BAAQMD to: (1) implement an emissions reduction project(s) within a time frame to be determined based on the type of project(s) selected, after receipt of the mitigation fee to achieve the emission reduction objectives specified above; and (2) provide documentation to the ERO and the SFPUC describing the amount of and the project(s) funded by the mitigation fee, including the amount of emissions of NOx reduced (tons per year) within the SFBAAB from the emissions reduction project(s). If there is any remaining unspent portion of the mitigation offset fee following implementation of the emission reduction project(s), the SFPUC shall be entitled to a refund in that amount from the BAAQMD. To qualify under this mitigation measure, the specific emissions reduction project must result in emission reductions within the SFBAAB that are real, surplus, quantifiable, enforceable, and would not otherwise be achieved through compliance with existing regulatory requirements or any other legal requirement.				
Biological Resources Mitigation Measures				
Applicable to buildings and structures to be demolished, trees to be removed, and buildings/structures and trees within 100 feet of construction activity. **Mitigation Measure M-BI-1: Protective Measures for Special Status Bats and Maternity Roosts** The San Francisco Public Utilities Commission (SFPUC) shall engage a qualified biologist to conduct a pre-construction survey of buildings and other structures to be demolished, vacant buildings within 100 feet of construction activities, trees to be removed, and trees located within 100 feet of construction activities to locate potential roosting habitat for special-status bats and active maternal colonies. The pre-construction surveys shall occur no more than two weeks in advance of initiation of building demolition or renovation activities on-site or initiation of construction. No activities that could disturb active roosts of special-status bats or maternal roosts shall proceed prior to the completed surveys. The pre-construction survey shall include at a minimum: • Identification of potential direct and indirect project-related bat- disturbing activities; and • Locations of active roosting habitat and maternal colonies. If the pre-construction survey does not identify signs of potentially active bat roosts (e.g., guano, urine staining, dead bats, etc.) then no further action is required. If the pre-construction survey identifies signs of potentially active bat roosts, the following measures shall be implemented: • Removal of structures and trees shall occur when bats are active, approximately between the periods of March 1 to April 15 and August 15 to October 15; outside of bat maternity roosting season (approximately April 15 to August 31); and outside of months of winter torpor (approximately October 15 to February 28). On structures where bats were observed during the pre-construction survey, exclusion devices (i.e., one-way doors) shall be installed prior to removal of the structures. Exclusion devices shall be left in place for a minimum of four nights prior to demolition of the structures. • If removal of structures and trees during the periods when bats are active is not feasible and active bat roosts being used for maternity or hibernation purposes are found on or in the immediate vicinity of the project site where structure demolition or renovation is planned, a no-disturbance buffer of 100 feet or less if determined adequate by a qualified biologist in coordination with the California Department of Fish and Wildlife (CDFW) based on site-specific conditions shall be established around the roost sites until they are determined to be no longer active or volant by a qualified biologist.	1. Qualified biologist to conduct preconstruction surveys no more than two weeks in advance of building demolition or renovation activities onsite 2. If active bat roosts are identified, qualified biologist to implement one of the avoidance/protective measures.	1. Prior to construction Conduct pre-construction surveys no more than two weeks in advance of initiation of building demolition or renovation activities on-site or initiation of construction. 2. During construction	1. SFPUC BEM 2. SFPUC BEM	1. Documentation of surveys 2. Documentation that avoidance / protective measures were taken.

MITIGATION MONITORING AND REPORTING PROGRAM FOR BIOSOLIDS DIGESTER FACILITIES PROJECT				
MEASURES ADOPTED AS CONDITIONS OF APPROVAL	**Implementation Responsibility**	**Mitigation Schedule**	**Monitoring/Reporting Responsibility**	**Monitoring Actions/Schedule and Verification of Compliance**
MITIGATION MEASURES FOR THE BIOSOLIDS DIGESTER FACILITIES PROJECT				
Biological Resources Mitigation Measures (cont.)				
• The qualified biologist shall be present during structure and tree disturbance if active bat roosts are present. Structures and trees with active roosts shall be removed only when no rain is occurring or is forecast to occur for three days and when daytime temperatures are at least 50 degrees Fahrenheit (˚F). • Structures or trees containing or suspected to contain active bat roosts shall be dismantled or removed under the supervision of the qualified biologist in the evening and after bats have emerged from the roost to forage. Structures shall be partially dismantled to significantly change the roost conditions, causing bats to abandon and not return to the roost. • If significant bat roosting habitat (e.g., maternity roosts or special-status non-maternity roost sites) is destroyed during structure or tree removal, artificial bat roosts shall be constructed in an undisturbed area in the project site vicinity away from human activity and at least 200 feet from project demolition/construction activities. The design and location of the artificial bat roost(s) shall be determined by a qualified bat biologist. • Bat roosts that begin during construction are presumed to be unaffected, and no buffer would be necessary.				
Geology and Soils Mitigation Measures				
Applicable to project site **Mitigation Measure M-GE-4: Paleontological Resources Monitoring and Mitigation Program** The SFPUC shall retain the services of a qualified paleontological consultant having expertise in California paleontology to design and implement a Paleontological Resources Monitoring and Mitigation Program (PRMMP) for construction activities that would disturb the upper layered sediments that are sensitive for paleontological resources. The PRMMP shall not require monitoring in shallower excavations that do not encounter the upper layered sediments. The PRMMP shall include a description of when and where construction monitoring would be required; emergency discovery procedures; sampling and data recovery procedures; procedure for the preparation, identification, analysis, and curation of fossil specimens and data recovered; pre-construction coordination procedures; and procedures for reporting the results of the monitoring program. The PRMMP shall be consistent with the Society for Vertebrate Paleontology (SVP) Standard Guidelines for the mitigation of construction–related adverse impacts on paleontological resources and the requirements of the designated repository for any fossils collected. During construction, earth-moving activities shall be monitored by a qualified paleontological consultant having expertise in California paleontology in the areas where these activities have the potential to disturb the upper layered sediments. Monitoring need not be conducted for construction activities that would disturb only artificial fill material and/or young bay mud. The consultant's work shall be conducted in accordance with this measure and at the direction of the City's Environmental Review Officer (ERO) in coordination with the SFPUC. Plans and reports prepared by the consultant shall be submitted first and directly to the ERO for review and comment and concurrently to the SFPUC for review and comment, and shall be considered draft reports subject to revision until final approval by the ERO. Paleontological monitoring and/or data recovery programs required by this measure could suspend construction of the project in an appropriate buffer zone around a discovered paleontological resource or area determined in the PRMMP to be sensitive for paleontological resources for up to a maximum of four weeks. At the direction of the ERO and in coordination with the SFPUC, the suspension of construction may be extended beyond four weeks for a reasonable time required to implement appropriate measures in accordance with the PRMMP only if such a suspension is the only feasible means to reduce potential effects on a significant paleontological resource as previously defined to a less-than-significant level.	1. PRMMP: qualified paleontological consultant. 2. Monitoring: Paleontological consultant and SFPUC CMB	1. PRMMP: Before the start of any ground disturbing activities. 2. Monitoring: During construction	1. SFPUC BEM and ERO 2. SFPUC BEM and ERO	1. Final PRMMP approved by ERO 2. Documentation of compliance

APPENDIX BIO

Special Status Species List and Tree Survey Results

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APPENDIX BIO
SPECIAL-STATUS SPECIES THAT MAY OCCUR IN THE PROJECT AREA

Common Name ***Scientific Name***	**Federal Status**	**State Status**	**CNPS Listing**	**Habitat Description / Blooming Period**	**Potential to Occur in the Project Area**
Invertebrates					
San Bruno elfin butterfly *Callophrys mossii bayensis*	FE	--	--	Coastal scrub on rocky outcrops with broadleaf stonecrop (*Sedum spathulifolium*)	**Low.** No suitable habitat present. Three known populations at San Bruno Mountain, Montara, and Pacifica.
Bay checkerspot butterfly *Euphydryas editha bayensis*	FT	--	--	Serpentine grasslands.	**Absent.** No suitable habitat present.
Mission blue butterfly *Plebejus icarioides missionensis*	FE	--	--	Grassland with *Lupinus albifrons, L. Formosa*, and *L. varicolor*.	**Low.** No suitable habitat present.
Callippe silverspot butterfly *Speyeria callippe callippe*	FE	--	--	Found in native grasslands with *Viola pedunculata* as larval food plant.	**Low.** No suitable habitat present.
Monarch butterfly *Danaus plexippus*	--	*	--	Eucalyptus groves (wintering sites).	**Low.** Several records of this species in Golden Gate Park but no wintering sites known at or adjacent to project site.
Mimic tryonia (=California brackishwater snail) *Tryonia imitator*	--	*	--	Inhabits coastal lagoons, estuaries and salt marshes, from Sonoma County south to San Diego County. Found only in permanently submerged areas in a variety of sediment types; able to withstand a wide range of salinities.	**Low**. No suitable habitat present.
Reptiles					
Western pond turtle *Emys marmorata*	--	CSC	--	Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires basking sites and suitable upland habitat for egg-laying. Nest sites most often characterized as having gentle slopes (<15%) with little vegetation or sandy banks.	**Absent.** No suitable habitat present.
San Francisco garter snake *Thamnophis sirtalis tetrataenia*	FE	CE	--	Densely vegetated ponds near open hillsides with abundant small mammal burrows.	**Absent.** No suitable habitat present. Species is considered likely extirpated from San Francisco.
Amphibians					
California red-legged frog *Rana aurora draytonii*	FT	CSC	--	Freshwater ponds and slow streams with emergent vegetation for egg attachment.	**Absent.** No suitable habitat present.

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Common Name ***Scientific Name***	**Federal Status**	**State Status**	**CNPS Listing**	**Habitat Description / Blooming Period**	**Potential to Occur in the Project Area**
Birds					
Western snowy plover *Charadrius alexandrines nivosus*	FT	CSC	--	Sandy beaches, salt pond levees and shores or large alkali lakes.	**Low.** Potential low-quality foraging habitat present along Pier 94 and Heron's Head Park salt marshes, but low potential for species to occur with high frequency of disturbance within proximity of project site.
Ridgway's rail *Rallus obsoletus*	FE	CE/CFP	--	Salt marsh wetlands along San Francisco Bay.	**Low.** Potential low-quality foraging habitat present along Pier 94 and Heron's Head Park salt marshes, but moderate potential for species to occur with high frequency of disturbance within proximity of project site.
California least tern *Sternula antillarum browni*	FE	CE/CFP	--	Nests along the coast from San Francisco Bay south to northern Baja California. Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, landfills, or paved areas.	**Low.** May migrate and forage over project staging areas on a transient basis and forage. Nesting colony is located on Alameda Island approximately 4.5 miles east of project area.
Burrowing owl *Athene cunicularia*		CSC	--	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation.	**Absent.** No suitable habitat present.
Northern harrier *Circus cyaneus*		CSC	--	Nests on ground in shrubby vegetation, usually at marsh edge. Nest built of large mound of sticks in wet areas.	**Absent.** No recorded occurrences in San Francisco Peninsula. No suitable habitat present.
White-tailed kite *Elanus leucurus*		CFP	--	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland.	**Absent.** No suitable habitat present.
American peregrine falcon *Falco peregrinus anatum*	FD/ BCC	CFP	--	Woodlands, coastal habitats, riparian areas, coastal and inland waters, human-made structures that may be used as nest or temporary perch sites.	**Low.** No suitable habitat present.
Bank swallow *Riparia riparia* (nesting)	--	CT	--	Vertical banks and cliffs with sandy soil, near water. Nests in holes dug in cliffs and river banks.	**Low.** Could be present on a transient basis adjacent to project site.
California black rail *Laterallus jamaicensis coturniculus*	--	CT	--	Salt and brackish marshes; also in freshwater marshes at low elevations. Requires waters that do not fluctuate during the year and dense vegetation for nesting habitat.	**Low.** Potential low-quality foraging habitat present along Pier 94 and Heron's Head Park salt marshes, but low potential for species to occur with high frequency of disturbance within proximity of project site.
Salt marsh common yellowthroat *Geothlypis trichas sinuous*	--	CSC	--	Forages in various marsh, riparian and upland habitats. Nests on or near the ground in concealed locations. Requires thick, continuous cover down to water surface for foraging. Nests in tall grasses, tule patches, and willows.	**Moderate.** This species is known to breed in the freshwater marshes in the western part of the city. Potential suitable foraging habitat north of Pier 94 staging area; however, staging area setback precludes any potential impacts.

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SPECIAL-STATUS SPECIES THAT MAY OCCUR IN THE PROJECT AREA

Common Name ***Scientific Name***	**Federal Status**	**State Status**	**CNPS Listing**	**Habitat Description / Blooming Period**	**Potential to Occur in the Project Area**
Birds (cont.)					
Alameda song sparrow *Melospiza melodia pusillula*	--	CSC	--	Salt marshes of eastern and south San Francisco Bay.	**Low.** Potential foraging habitat in salt marsh north of Pier 94 staging area. However, species only recorded in East Bay.
San Pablo song sparrow *Melospiza melodia samuelis*	--	CSC	--	Salt marshes of eastern and north San Francisco Bay.	**Low.** No suitable habitat present.
Double-crested cormorant *Phalacrocorax auritus*	--	WL, 3503.5	--	Coastal areas and inland lakes in fresh, saline, and estuarine waters.	**Moderate.** Could forage in waters near Piers 94 and 96 staging areas. Cargo crane facilities on eastern edge of Pier 96.
Cooper's hawk *Accipiter cooperii*	--	3503.5	--	Nests in riparian areas and oak woodlands, forages at woodland edges.	**Low.** Foraging is known in Lake Merced over 5 miles east of project site, though breeding remains undocumented. Large trees in project area, including eucalyptus and Monterey cypress, could support nests for this species.
Sharp-shinned hawk *Accipiter striatus*	--	3503.5	--	Nests in riparian areas and oak woodlands, forages in open areas.	**Low.** Could nest in large trees near project site.
Red-tailed hawk *Buteo jamaicensis*	--	3503.5	--	Found in nearly all habitats and elevations.	**Low.** Large trees in project area, including eucalyptus and Monterey pines, could support nests for this species.
Red-shouldered hawk *Buteo lineatus*	--	3503.5	--	Riparian woodlands with swamps and emergent wetlands.	**Low.** Large trees in project area, including eucalyptus and Monterey pines, could support nests for this species.
Caspian tern *Hydroprogne caspia*	BCC	--	--	Nests colonially on sandy estuarine shores, on levees in salt ponds, and on islands in alkali and freshwater lakes. Breeding adults often fly substantial distances to forage in lacustrine, riverine, and fresh and saline emergent wetland habitats.	**Low.** Species known to nest in Heron's Head Park, south of Pier 96 staging area; however, existing industrial activities preclude potential impacts to species as a result of the project.
Snowy egret *Egretta thula*	--	3503.5	--	Nests colonially on along margins of water bodies.	**Moderate.** Nests locally on Farm Island and Alcatraz. Only potential suitable nesting site for species would be in restored saltmarsh north of Pier 94 staging area, but lack of trees or large shrubs in this area preclude nesting habitat.
Osprey *Pandion haliaetus*	--	3503.5	--	Habitat varies greatly and usually includes adequate supply of accessible fish, shallow waters, open and elevated nest sites (10 to 60 feet in height), and artificial structures such as towers. Builds large platform stick nests near or in open waters such as lakes, estuaries, and bays.	**Low.** Could forage in shoreline vicinity.
Great blue heron	--	3503.5	--	Shallow estuaries and fresh and saline emergent wetlands.	**Low.** Could forage in shoreline vicinity.

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Common Name ***Scientific Name***	**Federal Status**	**State Status**	**CNPS Listing**	**Habitat Description / Blooming Period**	**Potential to Occur in the Project Area**
Ardea herodias					
Mammals					
Salt-marsh harvest mouse *Reithrodontomys raviventris*	FE	CE/FP	--	Only in the saline emergent wetlands of San Francisco Bay and its tributaries. Found primarily in pickleweed (*Salicornia* spp.). Does not burrow, builds loosely organized nests. Requires higher areas for flood escape.	**Absent.** Suitable habitat not found onsite.
Pallid bat *Antrozous pallidus*	--	CSC	--	Prefers caves, crevices, hollow trees, or buildings in areas adjacent to open space for foraging. Associated with lower elevations in California. Very sensitive to disturbance of roosting sites.	**Low.** Species may migrate through area but ongoing disturbance occurring at site not suitable for pallid bat roost.
Townsend's big-eared bat *Corynorhinus townsendii*	--	CSC	--	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings of rocky areas with caves or tunnels. Roosting sites limited. Extremely sensitive to human disturbance.	**Moderate.** Suitable roosting habitat is available in undisturbed portions of Central Shops and Asphalt Plant.
Western red bat *Lasiurus blossevillii*	--	CSC	--	Roosts primarily in trees, 2 to 40 feet above ground, from sea level up through mixed conifer forests.	**Low.** No suitable habitat present.
Hoary bat *Lasiurus cinereus*	--	--	--	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths; requires water.	**Low.** Low quality roosting habitat is available in undisturbed portions of Asphalt Plant or Central Shops. May be present on a transient basis. Nearest CNDDB occurrence is approximately 1.5 miles south of project site at Gilman Playground, although this occurrence is historical.
American badger *Taxidea taxus*	--	CSC	--	Open grasslands with loose, friable soils.	**Low.** No suitable habitat present.
Plants					
Presidio manzanita *Arctostaphylos montana* ssp. *Ravenii*	FE	CE	1B.1	Open, rocky, serpentine slopes in chaparral, coastal scrub, and coastal prairie. February – March	**Absent.** No suitable habitat present.
Presidio clarkia *Clarkia franciscana*	FE	CE	1B.1	Serpentine outcrops in coastal scrub, and valley and foothill grassland. May – July	**Absent.** No suitable habitat present.

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Common Name ***Scientific Name***	**Federal Status**	**State Status**	**CNPS Listing**	**Habitat Description / Blooming Period**	**Potential to Occur in the Project Area**
Plants (cont.)					
Santa Cruz tarplant *Holocarpha macradenia*	FT	CE	1B.1	Coastal prairie, coastal scrub, valley and foothill grassland. June – October	**Absent.** No suitable habitat present.
San Francisco lessingia *Lessingia germanorum*	FE	CE	1B.1	Coastal scrub, sandy soils free of competing species. July – November	**Absent.** No suitable habitat present. Historically known in San Francisco.
White rayed pentachaeta *Pentachaeta bellidiflora*	FE	CE	1B.1	Open, dry, rocky slopes and grassy areas, usually on serpentine. March – May	**Absent.** No suitable habitat present.
Marin western flax *Hesperolinon congestum*	FE	CT	1B.1	Chaparral and grassland, usually on serpentine barrens. April – July	**Absent.** No suitable habitat present.
Robust spineflower *Chorizanthe robusta var. robusta*	FE	--	1B.1	Sandy or gravelly coastal dunes, coastal scrub, cismontane woodland, and maritime chaparral. April – September	**Absent.** Potentially suitable habitat present north of Pier 94 staging area but species presumed extirpated in San Francisco.
San Bruno Mountain manzanita *Arctostaphylos imbricada*	--	CE	1B.1	Chaparral and coastal scrub, usually on sandstone outcrops. February – May	**Absent.** No suitable habitat present.
San Francisco popcorn-flower *Plagiobothrys diffusus*	--	CE	1B.1	Coastal prairie, and valley and foothill grasslands. March – June	**Absent.** Known to be extirpated in San Francisco. No suitable habitat present.
California seablite *Suaeda californica*	FE	--	1B.1	Margins of coastal salt marshes and swamps. July – October	**Low.** Species restored in salt marsh north of Pier 94 staging area, but highly disturbed habitat within the project area is unlikely to support this species. Curb separating staging area from restored population would preclude impacts to this species.
Adobe sanicle *Sanicula maritima*	--	--	1B.1	Moist clay or ultramafic soil in chaparral, coastal prairie, meadows, seeps, and valley and foothill grassland. February – May	**Absent.** No suitable habitat present.
Two-fork clover *Trifolium amoenum*				Valley and foothill grassland, coastal bluff scrub. April – June	**Absent.** No suitable habitat present.
Hairless popcorn-flower *Plagiobothrys glaber*	--	--	1A	Coastal salt marshes and alkaline meadows. March – May	**Low.** Known to be extirpated in San Francisco. No suitable habitat present.

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Plants (cont.)					
Kellogg's horkelia *Horkelia cuneata* ssp. *sericea*	--	--	1B.1	Coastal scrub, dunes, and openings of closed-cone coniferous forests. February – July	**Absent.** No suitable habitat present.
Rose leptosiphon *Leptosiphon rosaceus*	--	--	1B.1	Coastal bluff scrub. April – July	**Absent.** No suitable habitat present.
Oregon polemonium *Polemonium carneum*	--	--	1B.1	Coastal prairie, coastal scrub, lower montane coniferous forest. April – September	**Absent.** No suitable habitat present.
Franciscan onion *Allium peninsulare var. franciscanum*			1B.2	Cistamone woodland, valley and foothill grassland in clay soils, often on dry, serpentine hillsides. April -June	**Absent.** No suitable habitat present.
Bent-flowered fiddleneck *Amsinckia lunaris*	--	--	1B.2	Coastal bluff scrub, cismontane woodland, and valley and foothill grassland. March – June	**Absent.** No suitable habitat present.
Franciscan manzanita *Arctostaphylos franciscana*	--	--	1B.1	Open, rocky, serpentine outcrops in chaparral. February – April	**Absent.** No suitable habitat present.
Montara manzanita *Arctostaphylos montaraensis*	--	--	1B.2	Slopes and ridges in chaparral and coastal scrub. January – March	**Absent.** No suitable habitat present.
Coastal marsh milk-vetch *Arctostaphylos pycnostachyus var pycnostachyus*	--	--	1B.2	Coastal salt marshes, scrub and dunes. April – October	**Low.** Nearest occurrence recorded near Crystal Springs Reservoir over 15 miles south of project site.
Alkali milk-vetch *Astragualus tener* var. *tener*	--	--	1B.2	Alkali flats, flooded grassland, playas, and vernal pools. March – June	**Low.** No suitable habitat present; species presumed extirpated in San Francisco.
Pappose tarplant *Centromadia parryi* ssp. *parryi*	--	--	1B.2	Chaparral, coastal prairie, meadows, seeps, coastal salt marshes and swamps, and vernally mesic, often alkaline, valley and foothill grasslands. May – November	**Absent.** No suitable habitat present.

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Common Name ***Scientific Name***	**Federal Status**	**State Status**	**CNPS Listing**	**Habitat Description / Blooming Period**	**Potential to Occur in the Project Area**
Plants (cont.)					
Franciscan thistle *Cirsium andrewsiisnowy*	--	--	1B.2	Coastal bluff scrub, coastal prairie, coastal mesic scrub, and broadleaf upland forest; sometimes on serpentine. March – July	**Absent.** No suitable habitat present.
San Francisco Bay spineflower *Chorizanthe cuspidata* var. *cuspidata*	--	--	1B.2	Coastal scrub, dunes and grassland. April – July	**Absent.** No suitable habitat present.
Point Reyes bird's-beak *Chloropyron maritimum* ssp. *palustre*	--	--	1B.2	Coastal salt marshes and swamps. June – October	**Low.** All recorded occurrences in San Francisco Peninsula are extirpated besides localized Presidio occurrence.
Round-headed Chinese-houses *Collinsia corymbosa*	--	--	1B.2	Coastal dunes and coastal prairie. April – June	**Absent.** No suitable habitat present. Only historical occurrence of species recorded in San Francisco.
Fragrant fritillary *Fritillaria liliacea*	--	--	1B.1	On clay, often serpentine-derived soils in coastal scrub, grassland, and coastal prairie. February – April	**Absent.** No suitable habitat present.
Blue coast gilia *Gilia capitata* spp. *chamissonis*	--	--	1B.1	Coastal dunes and scrub. April – July	**Absent.** No suitable habitat present.
San Francisco gumplant *Grindelia hirsutula* var. *maritime*	--	--	1B.2	On sandy or serpentine slopes of sea bluffs in coastal scrub, or valley and foothill grasslands. June – September	**Absent.** Serpentine soils necessary. No suitable habitat present.
Diablo helianthella *Helianthella castanea*	--	--	1B.2	On rocky soils in broadleaf upland forest, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland. March – June	**Absent.** No suitable habitat present.
Short-leaved evax *Hesperevax sparsiflora* var. *brevifolia*	--	--	1B.2	Sandy bluffs and flats in coastal scrub and coastal dunes. March – June	**Absent.** No suitable habitat present.
Arcuate bush mallow *Malacothamnus arcuatus*	--	--	1B.2	Gravelly alluvium in chaparral and cismontane woodland. April – September	**Absent.** No suitable habitat present.

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Common Name ***Scientific Name***	**Federal Status**	**State Status**	**CNPS Listing**	**Habitat Description / Blooming Period**	**Potential to Occur in the Project Area**
Plants (cont.)					
Marsh microseris *Microseris paludosa*	--	--	1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, and valley and foothill grassland. August – June	**Absent.** No suitable habitat present.
Choris's popcorn-flower *Plagiobothrys chorisianus* var. *chorisianus*	--	--	1B.2	Mesic sites in chaparral, coastal scrub, and coastal prairie. March – June	**Absent.** No suitable habitat.
San Francisco campion *Silene verecunda* ssp. *verecunda*	--	--	1B.2	Mudstone, shale, or serpentine substrates in coastal scrub, coastal prairie, chaparral and valley and foothill grassland. March – June	**Absent.** No suitable habitat present.
Santa Cruz microseris *Stebbinsoseris decipiens*	--	--	1B.2	On sandstone, shale or serpentine-derived seaward-facing slopes in broadleaf upland forest, closed-cone coniferous forest, chaparral, coastal prairie, and coastal scrub. April – May	**Absent.** No suitable habitat present.
Coastal triquetrella *Triquetrella californica*	--	--	1B.2	On soil in coastal bluff and coastal scrub.	**Absent.** No suitable habitat present.
San Francisco owl's clover *Triphysaria floribunda*	--	--	1B.2	Grasslands. April – June	**Absent.** Historically occurred in San Francisco. No suitable habitat present.
Saline clover *Trifolium depauperatum var. hydrophilum*			1B.2	Marshes and swamps, valley and foothill grassland, vernal pools. Mesic, alkaline sites.	**Absent**. Suitable habitat not found onsite.
Marin knotweed *Polygonum marinense*	--	--	3.1	Marshes and swamps. April – October	**Low.** No suitable habitat present.

NOTES:
The "Potential for Effect" category is defined as follows:
High = Species is expected to occur and habitat meets species requirements.
Moderate = Habitat is only marginally suitable or is suitable but not within species geographic range.
Low = Habitat does not meet species requirements as currently understood in the scientific community.

APPENDIX BIO
SPECIAL-STATUS SPECIES THAT MAY OCCUR IN THE PROJECT AREA

STATUS CODES:

Federal:
FE = Listed as "endangered" under the Federal Endangered Species Act
FT = Listed as "threatened" under the Federal Endangered Species Act
FS = United States Forest Service Sensitive
BCC = USFWS Birds of Conservation Concern
FSC = NOAA Fisheries designated "species of concern"
FPD = Proposed delisted
FD = Delisted

CNPS:
List 1A= Plants presumed extirpated in California and either rare or extinct
List 1B= Plants rare, threatened, or endangered in California and elsewhere
List 2 = Plants rare, threatened, or endangered in California, but more common elsewhere
List 3 = Plants about which we need more information--a review list
List 4 = Plants of limited distribution--a watch list
LS = Locally Significant Species

State:
CE = Listed as "endangered" under the California Endangered Species Act
CT = Listed as "threatened" under the California Endangered Species Act
CSC = California Department of Fish and Wildlife designated "species of special concern"
CFP = California Department of Fish and Wildlife designated "fully protected"
SC = California Department of Fish and Wildlife designated "candidate threatened"
WL = California Department of Fish and Wildlife designated "watch list"
3503.5 = Eggs, Nests, and Nestlings Protected under section 3503.5 of the California Department of Fish and Game Code
* = California special animal

SOURCE: United States Fish and Wildlife Service (USFWS), 2015, Endangered Species Act Species List for the SFPUC Biosolids Digester Facilities Project, available online: http://ecos.fws.gov/ipac/, accessed on September 16, 2015; California Department of Fish and Wildlife (CDFW), 2015, California Natural Diversity Database (CNDDB) Summary Table Report for 7.5-minute topographic quadrangles San Francisco North, San Francisco South, Hunters Point, Montara Mountain, Oakland West, San Mateo, Commercial Version, September 16, 2015; California Native Plant Society (CNPS), Rare Plant Program, 2015, Inventory of Rare and Endangered Plants (online edition, v8-02), California Native Plant Society, Sacramento, CA, website http://www.rareplants.cnps.org, accessed on September 16, 2015.

APPENDIX A: August 7, 2015 and July 19, 2016 Tree Survey Results, Main Project Area (Figures 1 and 2)

SFPUC SEP Biosolids Digester Facilities Project, San Francisco CA

Tree #	Common Name	Scientific Name	Diameter (inches) at 54"	Height feet (approx.)	Spread feet (approx.)	Protection Category[1]	Effect Code[2]	General Condition[3]	Comments
1	Brisbane box	*Lophostemon confertus*	10.5	34	20	SG	PE-TP	Good	
2	Bailey acacia	*Acacia baileyana*	8.5	19	18	SG	PE-TP	Good	
3	Bailey acacia	*Acacia baileyana*	7	24	16	SG	PE-TP	Good	
4	Brisbane box	*Lophostemon confertus*	7	32	12	SG	PE-TP	Good	
5	Bailey acacia	*Acacia baileyana*	6	18	15	SG	R	Fair	Trunk scar at 3'. Canopy unbalanced to south.
6	Brisbane box	*Lophostemon confertus*	7	18	8	SG	R	Poor	Topped @ 4'. Watersprouts with weak attachments from cut.
7	Brisbane box	*Lophostemon confertus*	10.5	29	18	C	PE-TP	Good	
8	Brisbane box	*Lophostemon confertus*	6	24	12	C	PE-TP	Good	
9	Brisbane box	*Lophostemon confertus*	10	17	17	C	PE-TP	Good	
10	Lombardy poplar	*Populus nigra*	6+3	14	14	C	R	Poor	Against concrete wall. Codominant stems with weak attachment.
11	Pyracantha	*Pyracantha angustifolia*	6	15	15	C	R	Poor	Against concrete wall. 40% dead canopy.
12	Pyracantha	*Pyracantha angustifolia*	5.5	17	17	C	R	Fair	Against concrete wall. 20% dead canopy.
13	Monterey pine	*Pinus radiata*	20	36	30	C	R	Fair	Pitch canker, dead branches.
14	Monterey pine	*Pinus radiata*	13	32	15	C	R	Fair	Pitch canker, dead branches.
15	Lombardy poplar	*Populus nigra*	14.5	42	12	C	R	Fair	Suppressed by neighboring trees.
16	Lombardy poplar	*Populus nigra*	27	46	20	C	R	Good	
17	Monterey pine	*Pinus radiata*	19.5	40	20	C	R	Fair	Canopy unbalanced to south
18	London plane tree	*Platanus x acerifolia*	26	54	43	C	PE-TP	Good	
19	blackwood acacia	*Acacia melanoxylon*	8.5	36	10	C	R	Poor	Thin unbalanced canopy. Bark cracked and peeling.
20	blackwood acacia	*Acacia melanoxylon*	12	42	16	C	R	Fair	Unbalanced canopy, 10% dead wood.
21	blackwood acacia	*Acacia melanoxylon*	22	47	28	C	R	Good	
22	blackwood acacia	*Acacia melanoxylon*	13	34	15	C	R	Poor	Canopy unbalanced to west
23	blackwood acacia	*Acacia melanoxylon*	15.5	46	20	C	R	Fair	Canopy unbalanced to east.
24	blackwood acacia	*Acacia melanoxylon*	11	36	16	C	R	Fair	Trunk lean 10 to west. Canopy unbalanced and thin.
25	blackwood acacia	*Acacia melanoxylon*	14	34	15	C	R	Poor	40% dead canopy. Codominant stems @ 6' with included bark.

[1] Protection category: Tree protected under San Francisco Urban Forestry Ordinance as: **ST** = **Street tree**, within public right-of-way, **SG** = **Significant tree**, a tree (1) on property under the jurisdiction of the Department of Public Works or (2) on privately owned-property with any portion of its trunk within 10 feet of the public right-of-way, and (3) that satisfies at least one of the following criteria: (a) a diameter at breast height (DBH, or 54 inches) in excess of twelve (12) inches, (b) a height in excess of twenty (20) feet, or (c) a canopy in excess of fifteen (15) feet. ,**C** = tree on **City property**.

[2] Effect code: **R** = Remove for project development, **PE-TP** = Potential effect, tree protection may be necessary.

[3] Condition: **Good** = 80-100% healthy foliage and no significant defects; **Fair** = 50-79% healthy foliage and/or minor defects; **Poor** = 5-49% healthy foliage and/or other significant defects; **Dead** = less than 5% healthy foliage.

Tree #	Common Name	Scientific Name	Diameter (inches) at 54"	Height feet (approx.)	Spread feet (approx.)	Protection Category[1]	Effect Code[2]	General Condition[3]	Comments
26	blackwood acacia	*Acacia melanoxylon*	12.5	36	15	C	R	Fair	Canopy unbalanced to east.
27	blackwood acacia	*Acacia melanoxylon*	14	36	16	C	R	Fair	30% dead wood.
28	blackwood acacia	*Acacia melanoxylon*	15	36	20	C	R	Fair	Codominant stems @ 10' with weak attachment.
29	blackwood acacia	*Acacia melanoxylon*	12	36	12	C	R	Fair	Canopy thin with dead branches.
30	blackwood acacia	*Acacia melanoxylon*	17	36	24	C	R	Fair	Trunk scar from 2-7'.
31	blackwood acacia	*Acacia melanoxylon*	14	34	22	C	R	Fair	Lion tailed canopy.
32	blackwood acacia	*Acacia melanoxylon*	13	38	18	C	R	Fair	Canopy unbalanced to east.
33	blackwood acacia	*Acacia melanoxylon*	18	30	24	C	R	Poor	Cracked and peeling bark @10' on 2 of 4 main stems.
34	London plane tree	*Platanus x acerifolia*	25.5	42	44	SG	R	Fair	Canopy thin. Large branch removed on south side.
35	Lombardy poplar	*Populus nigra*	21	48	16	C	R	Good	
36	Lombardy poplar	*Populus nigra*	16.5	46	12	C	R	Fair	Unbalanced to northeast.
37	Lombardy poplar	*Populus nigra*	19	46	18	C	R	Good	
38	London plane tree	*Platanus x acerifolia*	8.5	23	20	SG	PE-TP	Fair	Thin canopy.
39	London plane tree	*Platanus x acerifolia*	11.5	33	20	C	R	Good	
40	London plane tree	*Platanus x acerifolia*	8	26	12	SG	R	Poor	60% dead canopy.
41	London plane tree	*Platanus x acerifolia*	13	35	25	SG	R	Fair	15% dead top.
42	blackwood acacia	*Acacia melanoxylon*	13.5	34	20	C	R	Good	
43	Lombardy poplar	*Populus nigra*	18	46	14	C	R	Good	
44	Lombardy poplar	*Populus nigra*	16	46	16	C	R	Good	
45	Lombardy poplar	*Populus nigra*	18.5	48	15	C	R	Good	
46	blackwood acacia	*Acacia melanoxylon*	17	46	22	C	R	Good	
47	Lombardy poplar	*Populus nigra*	12	40	10	C	R	Fair	Thin canopy, unbalanced to northeast.
48	Lombardy poplar	*Populus nigra*	13	42	12	C	R	Fair	Cavity at base of trunk. 30% void or decayed wood.
49	Lombardy poplar	*Populus nigra*	17	43	14	C	R	Good	
50	Monterey pine	*Pinus radiata*	39	54	56	C	**Removed** (per arborist-hazard risk)	Poor	40% dead canopy. Bark beetle pitch tubes along trunk with significant frass accumulated at tree base.
51	Monterey pine	*Pinus radiata*	45	46	52	C	**Removed** (per arborist-hazard risk)	Poor	40% dead canopy. Bark beetle pitch tubes along trunk with significant frass accumulated at tree base.

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Tree #	Common Name	Scientific Name	Diameter (inches) at 54"	Height feet (approx.)	Spread feet (approx.)	Protection Category[1]	Effect Code[2]	General Condition[3]	Comments
52	London plane tree	*Platanus x acerifolia*	10	36	18	C	PE-TP	Fair	
53	London plane tree	*Platanus x acerifolia*	11	36	22	C	PE-TP	Good	
54	London plane tree	*Platanus x acerifolia*	11	32	20	C	PE-TP	Good	
55	London plane tree	*Platanus x acerifolia*	9	30	16	C	PE-TP	Fair	Unbalanced to east. Wind burned.
56	American sweet gum	*Liquidambar styraciflua*	9	27	16	SG	PE-TP	Fair	Poor branching structure.
57	American sweet gum	*Liquidambar styraciflua*	9	28	18	SG	PE-TP	Fair	Poor branching structure.
58	London plane tree	*Platanus x acerifolia*	20	44	50	SG	PE-TP	Good	
59	London plane tree	*Platanus x acerifolia*	9	38	15	C	PE-TP	Fair	Canopy thin.
60	London plane tree	*Platanus x acerifolia*	16.5	50	40	C	PE-TP	Fair	Topped for power line
61	London plane tree	*Platanus x acerifolia*	17	54	42	C	PE-TP	Good	
62	London plane tree	*Platanus x acerifolia*	15	52	38	C	PE-TP	Fair	Wind pruned
63	London plane tree	*Platanus x acerifolia*	17	44	33	C	PE-TP	Fair	Wind pruned
64	London plane tree	*Platanus x acerifolia*	15	46	30	C	PE-TP	Fair	Wind pruned
65	London plane tree	*Platanus x acerifolia*	19	44	38	ST	PE-TP	Good	Topped for power line
66	London plane tree	*Platanus x acerifolia*	13	40	27	ST	PE-TP	Good	Topped for power line
67	London plane tree	*Platanus x acerifolia*	10	36	27	ST	PE-TP	Fair	Topped for power line
68	London plane tree	*Platanus x acerifolia*	10	36	28	ST	PE-TP	Fair	Topped for power line
69	London plane tree	*Platanus x acerifolia*	11	33	28	ST	PE-TP	Good	Topped for power line
70	London plane tree	*Platanus x acerifolia*	6.5	30	12	ST	PE-TP	Poor	Topped for power line. Canopy thin.
71	London plane tree	*Platanus x acerifolia*	11.5	35	30	ST	PE-TP	Fair	Topped for power line
72	London plane tree	*Platanus x acerifolia*	10.5	35	24	ST	PE-TP	Fair	Topped for power line
73	London plane tree	*Platanus x acerifolia*	10	35	25	ST	PE-TP	Fair	Topped for power line
74	London plane tree	*Platanus x acerifolia*	10.5	36	26	ST	PE-TP	Fair	Topped for power line
75	London plane tree	*Platanus x acerifolia*	16	32	30	ST	PE-TP	Fair	Topped for power line
76	London plane tree	*Platanus x acerifolia*	20	36	40	ST	PE-TP	Fair	Topped for power line
77	Victorian box	*Pittosporum undulatum*	12.5	26	18	SG	R	Fair	Against fence. Multistemed @ 4' & 6"
78	Victorian box	*Pittosporum undulatum*	9	25	19	SG	R	Fair	Against fence. Multistemed @ 4'
79	avocado	*Persea americana*	6	14	13	C	R	Poor	Against fence. 30% dead wood. Bark cracked and peeling.
80	ngaio tree	*Myoporum laetum*	17.5+16	28	28	C	PE-TP	Poor	Canopy heavily weighted to west side of trunk. 20% dead wood in canopy.
81	little-leaf fig	*Ficus microcarpa*	8.5	20	14	C	PE-TP	Fair	25° lean to west. 15 gal. container with roots now anchored in the ground.
82	Canary Island pine	*Pinus canariensis*	12	24	11	C	PE-TP	Fair	24" box with roots now anchored in the ground. Growing against brick wall.

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Tree #	Common Name	Scientific Name	Diameter (inches) at 54"	Height feet (approx.)	Spread feet (approx.)	Protection Category[1]	Effect Code[2]	General Condition[3]	Comments
83	little-leaf fig	*Ficus microcarpa*	12.5	18	20	C	PE-TP	Good	
84	tulip tree	*Liriodendron tulipifera*	9.5	18	18	ST	PE-TP	Fair	
85	tulip tree	*Liriodendron tulipifera*	14.5	22	26	ST	PE-TP	Good	
86	tulip tree	*Liriodendron tulipifera*	10.5	18	16	ST	PE-TP	Fair	
87	tulip tree	*Liriodendron tulipifera*	11	26	20	ST	PE-TP	Good	
88	tulip tree	*Liriodendron tulipifera*	11.5	26	22	ST	PE-TP	Good	
89	tulip tree	*Liriodendron tulipifera*	6.5	25	18	ST	PE-TP	Fair	Decay in branch attachment at 7'.
90	tulip tree	*Liriodendron tulipifera*	8	24	18	ST	PE-TP	Poor	Deep trunk scars @ 1' and 5'-9'.
91	American sweet gum	*Liquidambar styraciflua*	12	24	20	ST	PE-TP	Fair	Rootbound. Roots lifting sidewalk.
92	tulip tree	*Liriodendron tulipifera*	8	10	10	ST	PE-TP	Poor	Topped @ 9'.
93	tulip tree	*Liriodendron tulipifera*	12	22	24	ST	PE-TP	Poor	Deep trunk scar south side @ 1'-8'. Dead top.
94	glossy privet	*Ligustrum lucidum*	11	20	24	C	PE-TP	Fair	
95	glossy privet	*Ligustrum lucidum*	9	22	12	C	PE-TP	Fair	
96	glossy privet	*Ligustrum lucidum*	12	24	20	C	PE-TP	Fair	
97	maidenhair tree	*Ginkgo biloba*	7	28	12	C	PE-TP	Fair	
98	maidenhair tree	*Ginkgo biloba*	7	17	12	C	PE-TP	Fair	Premature leaf drop. Multi-branched @ 7'.
99	maidenhair tree	*Ginkgo biloba*	6	28	14	C	PE-TP	Fair	
100	New Zealand tea tree	*Leptospermum scoparium*	6.5+5+5	12	16	C	PE-TP	Good	
101	New Zealand tea tree	*Leptospermum scoparium*	4.5+4+4+3+3	12	15	C	PE-TP	Good	
102	Lombardy poplar	*Populus nigra*	26	44	21	C	R	Good	
103	Lombardy poplar	*Populus nigra*	15	46	12	C	R	Fair	
104	Lombardy poplar	*Populus nigra*	17.5	46	18	C	R	Fair	
105	Lombardy poplar	*Populus nigra*	14	46	14	C	R	Fair	
106	Lombardy poplar	*Populus nigra*	27	50	24	C	R	Good	
107	Brisbane box	*Lophostemon confertus*	19.5	38	25	SG	PE-TP	Good	
108	Brisbane box	*Lophostemon confertus*	8	26	8	SG	PE-TP	Poor	Thin, dead branches in canopy.
109	Brisbane box	*Lophostemon confertus*	17	28	17	SG	PE-TP	Fair	
110	American sweet gum	*Liquidambar styraciflua*	9.5	25	22	SG	PE-TP	Fair	Poor branching structure.
111	American sweet gum	*Liquidambar styraciflua*	14	34	20	SG	PE-TP	Fair	Poor branching structure.
112	American sweet gum	*Liquidambar styraciflua*	9	25	20	C	PE-TP	Fair	Poor branching structure.
113	Monterey pine	*Pinus radiata*	38	48	50	C	PE-TP	Fair	Canopy unbalanced to south.
114	London plane tree	*Platanus x acerifolia*	16.5	50	38	C	PE-TP	Fair	
115	London plane tree	*Platanus x acerifolia*	16.5	48	30	C	PE-TP	Fair	
116	London plane tree	*Platanus x acerifolia*	11	30	26	C	PE-TP	Fair	
117	Brazilian pepper tree	*Schinus terebinthifolius*	15	26	25	C	R	Fair	Concrete cracked and lifted by tree roots.
118	Brazilian pepper tree	*Schinus terebinthifolius*	12	18	16	C	R	Fair	Concrete cracked and lifted by tree roots.

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APPENDIX B: March 7 and July 19, 2016 Tree Survey Results, 1550 Evans Avenue (Figure 3) SFPUC
SEP Biosolids Digestor Facilities Project, San Francisco, CA

Tree #	Common Name	Scientific Name	Diameter (inches) at 54" above grade	Height feet (approx.)	Spread	Protection Category[1]	Effect Code[2]	General Condition[3]	Comments
E-1	carob	*Ceratonia siliqua*	7	15	12	C	R	Fair	
E-2	carob	*Ceratonia siliqua*	6	12	12	C	R	Fair	
E-3	Chinese elm	*Ulmus parvifloia*	10	25	22	C	R	Fair	
E-4	Chinese elm	*Ulmus parvifloia*	11	28	28	C	R	Good	
E-5	Chinese elm	*Ulmus parvifloia*	9	24	24	C	R	Fair	
E-6	Chinese elm	*Ulmus parvifloia*	11	28	22	C	R	Fair	
E-7	mayten	*Maytenus boaria*	7	20	10	C	R	Fair	20% dead canopy
E-8	mayten	*Maytenus boaria*	7	22	14	C	R	Fair	
E-9	NUMBER SKIPPED								
E-10	blackwood acacia	*Acacia melanoxylon*	17	38	24	C	R	Poor	Poor structure, trunk decay at base, 6' and 12'
E-11	hopseed	*Dodonea viscosa*	10 (at base)	20	15	C	R	Poor	Multi-stemmed @ 18", 80% defoliated
E-12	loquat	*Eriobotrya japonica*	5	12	14	C	R	Fair	Top out @ 5', thin foliage
E-13	evergreen pear	*Pyrus kawakamii*	7	14	15	C	R	Fair	
E-14	evergreen pear	*Pyrus kawakamii*	5	11	10	C	R	Fair	
E-15	evergreen pear	*Pyrus kawakamii*	5	10	10	C	R	Fair	Significant leaf spot, chlorotic
E-16	evergreen pear	*Pyrus kawakamii*	5	11	10	C	R	Fair	
E-17	evergreen pear	*Pyrus kawakamii*	6	14	12	C	R	Fair	Thin canopy
E-18	evergreen pear	*Pyrus kawakamii*	5	12	9	C	R	Fair	Thin canopy, chlorotic
E-19	evergreen pear	*Pyrus kawakamii*	9	18	18	C	R	Fair	
E-20	redwood	*Sequoia sempervirens*	11	13	14	C	PE-TP	Poor	Disfigured and stunted @ 8'
E-21	redwood	*Sequoia sempervirens*	10	13	12	C	PE-TP	Poor	Disfigured and stunted, epicormic sprouts
E-22	redwood	*Sequoia sempervirens*	15+13	25	18	C	R	Poor	Canopy 100% brown, few basal sprouts
E-23	carob	*Ceratonia siliqua*	5	10	15	C	R	Fair	Full green canopy but short multi-stemmed
E-24	loquat	*Eriobotrya japonica*	7+4	15	17	C	R	Fair	Multi-stemmed with sprouts from base
E-25	loquat	*Eriobotrya japonica*	7+4	18	14	C	R	Poor	Dead stems with decay@ 2', thin canopy
E-26	redwood	*Sequoia sempervirens*	14+14+4	38	18	C	PE-TP	Poor	Canopy 90% brown, few epicormic sprouts
E-27	redwood	*Sequoia sempervirens*	14	36	16	C	PE-TP	Poor	Canopy 90% brown, few epicormic sprouts
E-28	redwood	*Sequoia sempervirens*	18+13+6	38	18	C	PE-TP	Poor	Canopy 90% brown, few epicormic sprouts
E-29	redwood	*Sequoia sempervirens*	20	30	15	C	PE-TP	Poor	Canopy 80% brown, codominant stems @ 6'
E-30	redwood	*Sequoia sempervirens*	14	26	14	C	PE-TP	Poor	Canopy 95% brown, basal sprouts

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Tree #	Common Name	Scientific Name	Diameter (inches) at 54" above grade	Height (feet (approx.)	Spread (feet (approx.)	Protection Category[1]	Effect Code[2]	General Condition[3]	Comments
E-31	blackwood acacia	*Acacia melanoxylon*	18	28	35	C	PE-TP	Fair	Unbalanced to south, numerous root sprouts, trunk sanwiched between 2 fences
E-32	redwood	*Sequoia sempervirens*	11	20	15	C	PE-TP	Poor	Canopy 30% brown, thin canopy
E-33	redwood	*Sequoia sempervirens*	16	22	12	C	PE-TP	Fair	Disfigured, multi-stemmed @10-12', unbalanced to south
E-34	redwood	*Sequoia sempervirens*	18	28	18	C	PE-TP	Fair	Codominant stems @ 12'
E-35	redwood	*Sequoia sempervirens*	20	38	15	C	PE-TP	Poor	Canopy 80% brown, un balanced to south, multi-stemmed @ 10'
E-36	redwood	*Sequoia sempervirens*	17	36	15	C	R	Poor	Canopy 95% brown, few epicormic sprouts
E-37	redwood	*Sequoia sempervirens*	20	36	12	C	R	Poor	Canopy 95% brown, few epicormic sprouts
E-38	redwood	*Sequoia sempervirens*	27	28	18	C	R	Poor	Canopy 95% brown, few epicormic sprouts
E-39	redwood	*Sequoia sempervirens*	20.5	30	16	C	PE-TP	Fair	Top wind pruned, multi-stemmed @ 16'
E-40	redwood	*Sequoia sempervirens*	18	32	12	C	PE-TP	Fair	Top wind pruned, multi-stemmed @ 15'
E-41	redwood	*Sequoia sempervirens*	20	28	16	C	PE-TP	Fair	Top wind pruned, multi-stemmed @ 14'
E-42	redwood	*Sequoia sempervirens*	17	27	15	C	PE-TP	Fair	Top wind pruned, disfigured
E-43	redwood	*Sequoia sempervirens*	15.5	23	14	C	PE-TP	Fair	Top wind pruned, disfigured
E-44	redwood	*Sequoia sempervirens*	16.5	30	12	C	R	Fair	Within 4' of building
E-45	redwood	*Sequoia sempervirens*	15	33	12	C	R	Fair	Within 6' of building
E-46	redwood	*Sequoia sempervirens*	17	28	15	C	R	Fair	Top wind pruned, disfigured
E-47	redwood	*Sequoia sempervirens*	24	50	20	C	PE-TP	Fair	
E-48	Brazilian pepper tree	*Schinus terebinthifolius*	15	28	22	C	R	Fair	Trunk scar 2-4' NW side.
E-49	Brazilian pepper tree	*Schinus terebinthifolius*	9.5	18	16	C	R	Good	
E-50	Chinese elm	*Ulmus parvifolia*	20	34	42	C	R	Fair	Trunk split @ 3' with 5" gap
E-51	mayten	*Maytenus boaria*	11.5	27	13	C	R	Fair	Unbalanced to north (away from E-50)
E-52	jacaranda	*Jacaranda mimosifolia*	7	18	20	C	R	Fair	15° lean to the NW towards bulding
E-53	silk oak	*Grevillea robusta*	10	23	16	C	PE-TP	Fair	Canopy unbalanced to SW
E-54	silk oak	*Grevillea robusta*	12	24	22	C	R	Fair	
E-55	silk oak	*Grevillea robusta*	8	18	16	C	R	Fair	

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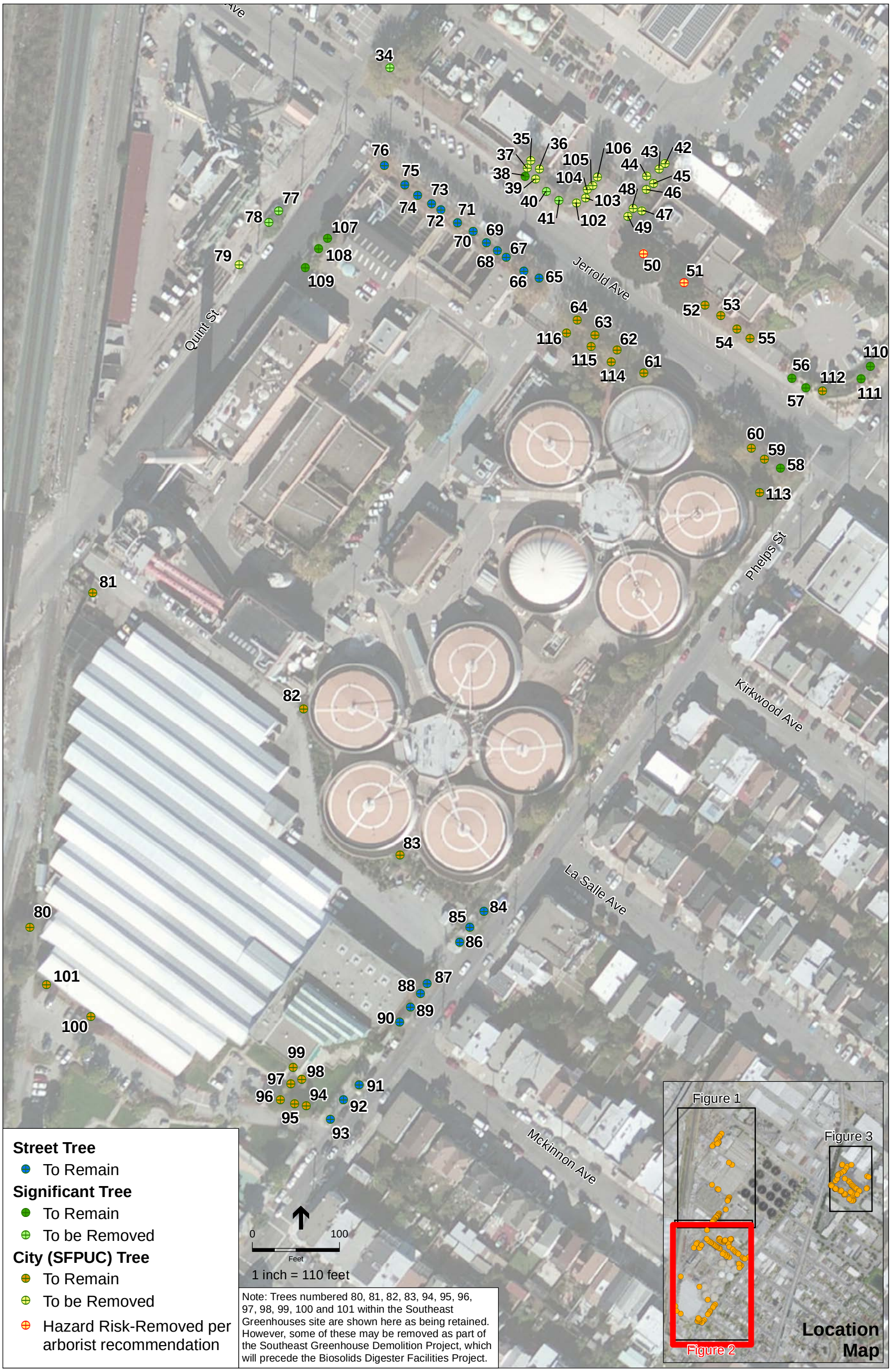
SOURCE: Orion Environmental Associates

SFPUC Biosolids Digester Facilities Project

Figure 1

Main Survey Area (North) - Tree Surveys August 7, 2015 and July 19, 2016



SOURCE: Kramer Botanical, 2016

SFPUC Biosolids Digester Facilities Project

Figure 2

Main Survey Area (South) - Tree Surveys August 7, 2015 and July 19,2016

SOURCE: Orion Environmental Associates

SFPUC Biosolids Digester Facilities Project

Figure 3

1550 Evans Avenue - Tree Surveys March 7, 2016 and July 19, 2016

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APPENDIX HAZ

Soil and Groundwater Sampling Data

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San Francisco Water Power Sewer
Services of the San Francisco Public Utilities Commission

SEWER SYSTEM IMPROVEMENT PROGRAM | Grey. Green. Clean.

Environmental Site Investigation Work Plan for San Francisco Department of Public Health Article 22A Compliance

Technical Memorandum

July 2015

Prepared for:
San Francisco Public Utilities Commission

Authored by:
Biosolids Digester Facilities Project Consultant Team

Contract CS-235 Biosolids Digester Facilities Project

Brown AND Caldwell
with
ch2m
BLACK & VEATCH
and associated firms

FINAL

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Environmental Site Investigation Work Plan for San Francisco Department of Public Health Article 22A Compliance

Contract Reference for Deliverables

Task Order 3

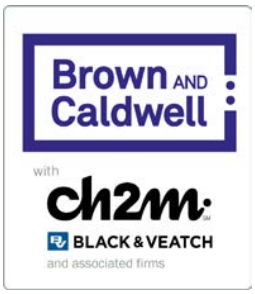
Subtask 11

July 2015

Prepared for:
San Francisco Public Utilities Commission

Authored by:
Biosolids Digester Facilities Project Consultant Team

Contract CS-235 Biosolids Digester Facilities Project



Guy Graening
California License M 29796
July 15, 2015

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Environmental Site Investigation Work Plan for San Francisco Department of Public Health Article 22A Compliance

Contract Reference for Deliverables

Task Order 3

Subtask 11

Acknowledgements

People listed in the table below have provided significant input on this report.

Acknowledgements	
Name	**Organization**
Kenneth Leung	AEW Engineering
G. “Neel” Neelakantan	Geotechnical Consultants

Program Quality Assurance and Quality Control Review

Reviewers listed in the table below have completed an internal quality review check and approval process that is consistent with procedures and directives previously identified by SFPUC. The table below outlines the reviewers for this document.

Identification of Technical and Administrative Reviewers			
Subtask	**Deliverable (list both Draft and Final versions)**	**Technical Reviewer**	**Complete**
	Draft	Michael Yacyshyn/Brown and Caldwell	4/21/2015
		Tom Birmingham/Brown and Caldwell	4/30/2015
	Revised Draft	Kenn Conner/AMEC-Foster Wheeler	6/9/2015
		Tracy Stigers/Brown and Caldwell	6/9/2015
		Guy Graening/Brown and Caldwell	7/15/2015

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Environmental Site Investigation Work Plan for San Francisco Department of Public Health Article 22 Compliance

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Attachment C: Tabulated Results of Chemical Analyses, 2013 Site Investigation, 1800 Jerrold Avenue Property

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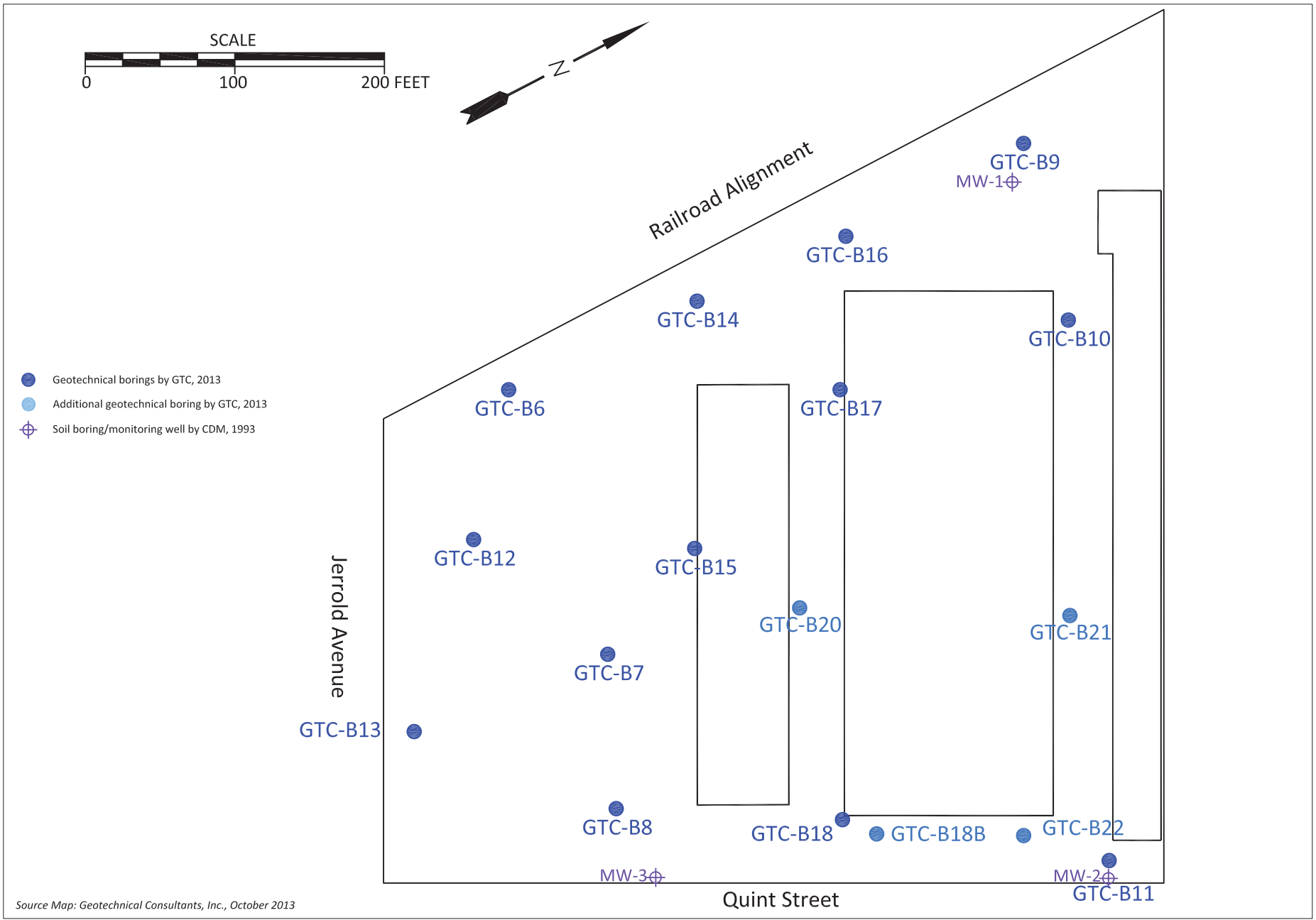

Source Map: Geotechnical Consultants, Inc., October 2013

AEW Engineering, Inc.
55 New Montgomery Street
Suite 722
San Francisco, CA 94105

Designed by: RNM	*Drawn by: RNM*
Reviewed by: RY	*Approved by: RY*
Date: 9/10/2014	*Project No: 2013-024 Task 1*
Version Number: 0	*File Name: Fig2_ Boring Location.dwg*

Site Layout
1800 Jerrold Ave
San Francisco, CA

Figure 2

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TABLE 1
LIST OF CHEMICAL ANALYSES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Chemical Analyses (Note 2)																		
Laboratory ID	**Sample ID**	**Boring ID**	**Depth (Feet bgs)(1)**	**TPHs-G/ BTEX/ MTBE**	**TPHs-D**	**TPHs-MO**	**VOCs**	**SVOCs**	**Title-22 Metals**	**WET As**	**WET Ba**	**WET Cr**	**TCLP Cr**	**WET Cu**	**WET Pb**	**TCLP Pb**	**WET Ni**	**WET Zn**	**Asbestos**	**pH**	**Total Suspended Solids**	**Total Solids**	**Total Recoverable Oil & Grease**
Soil Samples																							
Group 1: GTC-B9, GTC-B10 & GTC-B16																							
GTC-B9, B10 & B16 Comp 2.5	GTC-B9-2.5	GTC-B9	2.5	✓	✓	✓	✓	✓	✓	NR (3)	NR	NR	NR	NR	NR	NR	NR	NR	✓	--	--	--	--
	GTC-B10-2.5	GTC-B10	2.5																				
	GTC-B16-2.5	GTC-B16	2.5																				
GTC-B9, B10 & B16 Comp 5	GTC-B9-5.5	GTC-B9	5.5	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	--	--	--	--
	GTC-B10-5.5	GTC-B10	5.5																				
	GTC-B16-5.5	GTC-B16	5.5																				
GTC-B9, B10 & B16 Comp 10	GTC-B9-9.5	GTC-B9	9.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	NR	NR	NR	NR	NR	✓	--	--	--	--
	GTC-B10-9.5	GTC-B10	9.5																				
	GTC-B16-10.5	GTC-B16	10.5																				
GTC-B9, B10 & B16 Comp 15	GTC-B9-14	GTC-B9	14	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	✓	NR	✓	NR	NR	✓	--	--	--	--
	GTC-B10-16.5	GTC-B10	16.5																				
	GTC-B16-16	GTC-B16	16																				
GTC-B9, B10 & B16 Comp 20	GTC-B9-21.5	GTC-B9	21.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	NR	NR	NR	NR	NR	✓	--	--	--	--
	GTC-B10-19.5	GTC-B10	19.5																				
	GTC-B16-20.5	GTC-B16	20.5																				
GTC-B9, B10 & B16 Comp 25	GTC-B9-25.5	GTC-B9	25.5	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	NR	NR	NR	NR	NR	✓	--	--	--	--
	GTC-B10-25.5	GTC-B10	25.5																				
	GTC-B16-25.5	GTC-B16	25.5																				
GTC-B9, B10 & B16 Comp 30	GTC-B9-30.5	GTC-B9	30.5	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B10-30.5	GTC-B10	30.5																				
	GTC-B16-30.5	GTC-B16	30.5																				
GTC-B9, B10 & B16 Comp 35	GTC-B9-35.5	GTC-B9	35.5	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B10-35.5	GTC-B10	35.5																				
	GTC-B16-35.5	GTC-B16	35.5																				
GTC-B9, B10 & B16 Comp 40	GTC-B9-40.5	GTC-B9	40.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B10-40.5	GTC-B10	40.5																				
	GTC-B16-40.5	GTC-B16	40.5																				
GTC-B9, B10 & B16 Comp 45 & 50	GTC-B9-45.5	GTC-B9	45.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	✓	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B10-45.5	GTC-B10	45.5																				
	GTC-B16-45.5	GTC-B16	45.5																				
	GTC-B9-50.5	GTC-B9	50.5																				
	GTC-B10-50.5	GTC-B10	50.5																				
	GTC-B16-50	GTC-B16	50																				
GTC-B9, B10 & B16 Comp 55 & 60	GTC-B9-55.5	GTC-B9	55.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B10-55.5	GTC-B10	55.5																				
	GTC-B16-55.5	GTC-B16	55.5																				
	GTC-B9-60	GTC-B9	60																				
	GTC-B10-60	GTC-B10	60																				
	GTC-B16-60.5	GTC-B16	60.5																				
GTC-B9, B10 & B16 Comp 65 & 70	GTC-B9-65.5	GTC-B9	65.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B10-65.5	GTC-B10	65.5																				
	GTC-B16-65.5	GTC-B16	65.5																				
	GTC-B9-70.5	GTC-B9	70.5																				
	GTC-B10-70.5	GTC-B10	70.5																				
	GTC-B16-70.5	GTC-B16	70.5																				
GTC-B9, B10 & B16 Comp 75 & 80	GTC-B9-75.5	GTC-B9	75.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B10-75.5	GTC-B10	75.5																				
	GTC-B16-75.5	GTC-B16	75.5																				
	GTC-B9-80.5	GTC-B9	80.5																				
	GTC-B10-80.5	GTC-B10	80.5																				
	GTC-B16-80.5	GTC-B16	80.5																				
GTC-B9, B10 & B16 Comp 85 & 90	GTC-B9-85.5	GTC-B9	85.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B10-85	GTC-B10	85																				
	GTC-B16-85.5	GTC-B16	85.5																				
	GTC-B9-90	GTC-B9	90																				
	GTC-B10-90	GTC-B10	90																				
	GTC-B16-90	GTC-B16	90																				

TABLE 1
LIST OF CHEMICAL ANALYSES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

Laboratory ID	Sample ID	Boring ID	Depth (Feet bgs)(1)	TPHs-G/ BTEX/ MTBE	TPHs-D	TPHs-MO	VOCs	SVOCs	Title-22 Metals	WET As	WET Ba	WET Cr	TCLP Cr	WET Cu	WET Pb	TCLP Pb	WET Ni	WET Zn	Asbestos	pH	Total Suspended Solids	Total Solids	Total Recoverable Oil & Grease
GTC-B9, B10 & B16 Comp 95 & 100	GTC-B9-95.5	GTC-B9	95.5	√	√	√	√	√	√	NR	NR	√	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B10-95	GTC-B10	95																				
	GTC-B16-95	GTC-B16	95																				
	GTC-B9-100	GTC-B9	100																				
	GTC-B10-100	GTC-B10	100																				
	GTC-B16-100	GTC-B16	100																				
Group 2: GTC-B6, GTC-B14 & GTC-B17																							
GTC-B6, B14 & B17 Comp 2.5	GTC-B6-2.5	GTC-B6	2.5	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	√	--	--	--	--
	GTC-B14-2.5	GTC-B14	2.5																				
	GTC-B17-2.5	GTC-B17	2.5																				
GTC-B6, B14 & B17 Comp 5	GTC-B6-5	GTC-B6	5	√	√	√	√	√	√	NR	NR	√	√	NR	√	√	√	NR	√	--	--	--	--
	GTC-B14-5.5	GTC-B14	5.5																				
	GTC-B17-5.5	GTC-B17	5.5																				
GTC-B6, B14 & B17 Comp 10	GTC-B6-12	GTC-B6	12	√	√	√	√	√	√	NR	NR	√	√	NR	√	NR	NR	NR	√	--	--	--	--
	GTC-B14-10.5	GTC-B14	10.5																				
	GTC-B17-10.5	GTC-B17	10.5																				
GTC-B6, B14 & B17 Comp 15	GTC-B6-15.5	GTC-B6	15.5	√	√	√	√	√	√	NR	NR	√	NR	NR	√	√	NR	NR	√	--	--	--	--
	GTC-B14-15.5	GTC-B14	15.5																				
	GTC-B17-17.5	GTC-B17	17.5																				
GTC-B6, B14 & B17 Comp 20	GTC-B6-20.5	GTC-B6	20.5	√	√	√	√	√	√	NR	NR	√	NR	NR	NR	NR	NR	NR	√	--	--	--	--
	GTC-B14-20.5	GTC-B14	20.5																				
	GTC-B17-21.5	GTC-B17	21.5																				
GTC-B6, B14 & B17 Comp 25	GTC-B6-25.5	GTC-B6	25.5	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	√	--	--	--	--
	GTC-B14-25.5	GTC-B14	25.5																				
	GTC-B17-25.5	GTC-B17	25.5																				
GTC-B6, B14 & B17 Comp 30	GTC-B6-30.5	GTC-B6	30.5	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR		--	--	--	--
	GTC-B14-30.5	GTC-B14	30.5																				
	GTC-B17-30.5	GTC-B17	30.5																				
GTC-B6, B14 & B17 Comp 35	GTC-B6-35.5	GTC-B6	35.5	√	√	√	√	√	√	NR	NR	√	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B14-35.5	GTC-B14	35.5																				
	GTC-B17-35.5	GTC-B17	35.5																				
GTC-B6, B14 & B17 Comp 40	GTC-B6-40.5	GTC-B6	40.5	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B14-40.5	GTC-B14	40.5																				
	GTC-B17-40.5	GTC-B17	40.5																				
GTC-B6, B14 & B17 Comp 45 & 50	GTC-B6-45	GTC-B6	45	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B14-45.5	GTC-B14	45.5																				
	GTC-B17-45.5	GTC-B17	45.5																				
	GTC-B6-50.5	GTC-B6	50.5																				
	GTC-B14-50.5	GTC-B14	50.5																				
	GTC-B17-50.5	GTC-B17	50.5																				
GTC-B6, B14 & B17 Comp 55 & 60	GTC-B6-55.5	GTC-B6	55.5	√	√	√	√	√	√	NR	NR	√	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B14-55.5	GTC-B14	55.5																				
	GTC-B17-55.5	GTC-B17	55.5																				
	GTC-B6-60.5	GTC-B6	60.5																				
	GTC-B14-60.5	GTC-B14	60.5																				
	GTC-B17-60.5	GTC-B17	60.5																				
GTC-B6, B14 & B17 Comp 65 & 70	GTC-B6-65.5	GTC-B6	65.5	√	√	√	√	√	√	NR	NR	√	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B14-65.5	GTC-B14	65.5																				
	GTC-B17-65.5	GTC-B17	65.5																				
	GTC-B6-70.5	GTC-B6	70.5																				
	GTC-B14-70.5	GTC-B14	70.5																				
	GTC-B17-70.5	GTC-B17	70.5																				
GTC-B6, B14 & B17 Comp 75 & 80	GTC-B6-75.5	GTC-B6	75.5	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B14-76	GTC-B14	76																				
	GTC-B17-75	GTC-B17	75																				
	GTC-B6-80.5	GTC-B6	80.5																				
	GTC-B14-80.5	GTC-B14	80.5																				
	GTC-B17-80.5	GTC-B17	80.5																				
GTC-B6, B14 & B17 Comp 85 & 90	GTC-B6-85	GTC-B6	85	√	√	√	√	√	√	NR	NR	√	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B14-85.5	GTC-B14	85.5																				
	GTC-B17-85	GTC-B17	85																				
	GTC-B6-90	GTC-B6	90																				
	GTC-B14-90	GTC-B14	90																				
	GTC-B17-90	GTC-B17	90																				
GTC-B6, B14 & B17 Comp 95 & 100	GTC-B6-95.5	GTC-B6	95.5	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B14-95	GTC-B14	95																				
	GTC-B17-95	GTC-B17	95																				
	GTC-B6-100	GTC-B6	100																				
	GTC-B14-100	GTC-B14	100																				
	GTC-B17-100	GTC-B17	100																				

TABLE 1
LIST OF CHEMICAL ANALYSES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

Laboratory ID	Sample ID	Boring ID	Depth (Feet bgs)(1)	TPHs-G/ BTEX/ MTBE	TPHs-D	TPHs-MO	VOCs	SVOCs	Title-22 Metals	WET As	WET Ba	WET Cr	TCLP Cr	WET Cu	WET Pb	TCLP Pb	WET Ni	WET Zn	Asbestos	pH	Total Suspended Solids	Total Solids	Total Recoverable Oil & Grease
Group 3: GTC-B8, GTC-B11 & GTC-B18																							
GTC-B8, B11 & B18 Comp 2.5	GTC-B8-2.5	GTC-B8	2.5	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	NR	✓	✓	NR	NR	✓	--	--	--	--
	GTC-B11-2.5	GTC-B11	2.5																				
	GTC-B18-2.5	GTC-B18	2.5																				
GTC-B8, B11 & B18 Comp 5	GTC-B8-5	GTC-B8	5	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	✓	✓	✓	NR	NR	✓	--	--	--	--
	GTC-B11-5.5	GTC-B11	5.5																				
	GTC-B18-4.5	GTC-B18	4.5																				
GTC-B8 & B11 Comp 10	GTC-B8-10.5	GTC-B8	10.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	NR	NR	✓	NR	NR	✓	--	--	--	--
	GTC-B11-11	GTC-B11	11																				
GTC-B8 & B11 Comp 15	GTC-B8-15.5	GTC-B8	15.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	NR	✓	✓	NR	NR	✓	--	--	--	--
	GTC-B11-15.5	GTC-B11	15.5																				
GTC-B8 & B11 Comp 20	GTC-B8-22.5	GTC-B8	22.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	NR	NR	NR	NR	NR	✓	--	--	--	--
	GTC-B11-20.5	GTC-B11	20.5																				
GTC-B8 & B11 Comp 25	GTC-B8-26.5	GTC-B8	26.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	NR	NR	NR	NR	NR	✓	--	--	--	--
	GTC-B11-25.5	GTC-B11	25.5																				
GTC-B8 & B11 Comp 30	GTC-B8-30.5	GTC-B8	30.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	NR	NR	NR	NR	NR		--	--	--	--
	GTC-B11-31	GTC-B11	31																				
GTC-B8 & B11 Comp 35	GTC-B8-35.5	GTC-B8	35.5	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B11-35.5	GTC-B11	35.5																				
GTC-B8 & B11 Comp 40	GTC-B8-40.5	GTC-B8	40.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B11-40.5	GTC-B11	40.5																				
GTC-B8 & B11 Comp 45 & 50	GTC-B8-45.5	GTC-B8	45.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	✓	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B11-45.5	GTC-B11	45.5																				
	GTC-B8-50.5	GTC-B8	50.5																				
	GTC-B11-50.5	GTC-B11	50.5																				
GTC-B8 & B11 Comp 55 & 60	GTC-B8-55	GTC-B8	55	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B11-55	GTC-B11	55																				
	GTC-B8-60.5	GTC-B8	60.5																				
	GTC-B11-60	GTC-B11	60																				
GTC-B8 & B11 Comp 65 & 70	GTC-B8-65.5	GTC-B8	65.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B11-65.5	GTC-B11	65.5																				
	GTC-B8-70.5	GTC-B8	70.5																				
	GTC-B11-70.5	GTC-B11	70.5																				
GTC-B8 & B11 Comp 75 & 80	GTC-B8-75.5	GTC-B8	75.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B11-75.5	GTC-B11	75.5																				
	GTC-B8-80.5	GTC-B8	80.5																				
	GTC-B11-80.5	GTC-B11	80.5																				
GTC-B8 & B11 Comp 85 & 90	GTC-B8-85	GTC-B8	85	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B11-85.5	GTC-B11	85.5																				
	GTC-B8-90	GTC-B8	90																				
	GTC-B11-90	GTC-B11	90																				
GTC-B8 & B11 Comp 95 & 100	GTC-B8-95.5	GTC-B8	95.5	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B11-95.5	GTC-B11	95.5																				
	GTC-B8-100	GTC-B8	100																				
	GTC-B11-100	GTC-B11	100																				
Group 4a: GTC-B7, GTC-B12 & GTC-B15																							
GTC-B7, B12 & B15 Comp 2.5	GTC-B7-2.5	GTC-B7	2.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	✓	✓	✓	✓	NR	✓	--	--	--	--
	GTC-B12-2.5	GTC-B12	2.5																				
	GTC-B15-2.5	GTC-B15	2.5																				
GTC-B7, B12 & B15 Comp 5	GTC-B7-5.5	GTC-B7	5.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	✓	NR	✓	✓	✓	NR	✓	--	--	--	--
	GTC-B12-5.5	GTC-B12	5.5																				
	GTC-B15-5.5	GTC-B15	5.5																				
GTC-B7, B12 & B15 Comp 10	GTC-B7-10.5	GTC-B7	10.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	✓	✓	NR	✓	✓	✓	✓	--	--	--	--
	GTC-B12-10	GTC-B12	10																				
	GTC-B15-11	GTC-B15	11																				
GTC-B7, B12 & B15 Comp 15	GTC-B7-15.5	GTC-B7	15.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	NR	✓	NR	NR	NR	✓	--	--	--	--
	GTC-B12-15.5	GTC-B12	15.5																				
	GTC-B15-15.5	GTC-B15	15.5																				
GTC-B7, B12 & B15 Comp 20	GTC-B7-20.5	GTC-B7	20.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	NR	NR	NR	NR	NR	✓	--	--	--	--
	GTC-B12-20.5	GTC-B12	20.5																				
	GTC-B15-20.5	GTC-B15	20.5																				
GTC-B7, B12 & B15 Comp 25	GTC-B7-25.5	GTC-B7	25.5	✓	✓	✓	✓	✓	✓	NR	NR	NR	NR	NR	NR	NR	NR	NR		--	--	--	--
	GTC-B12-27.5	GTC-B12	27.5																				
	GTC-B15-25.5	GTC-B15	25.5																				
GTC-B7, B12 & B15 Comp 30	GTC-B7-30.5	GTC-B7	30.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	NR	NR	NR	NR	NR	✓	--	--	--	--
	GTC-B12-30.5	GTC-B12	30.5																				
	GTC-B15-30.5	GTC-B15	30.5																				

TABLE 1
LIST OF CHEMICAL ANALYSES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

Laboratory ID	Sample ID	Boring ID	Depth (Feet bgs)(1)	TPHs-G/ BTEX/ MTBE	TPHs-D	TPHs-MO	VOCs	SVOCs	Title-22 Metals	WET As	WET Ba	WET Cr	TCLP Cr	WET Cu	WET Pb	TCLP Pb	WET Ni	WET Zn	Asbestos	pH	Total Suspended Solids	Total Solids	Total Recoverable Oil & Grease
GTC-B7, B12 & B15 Comp 35	GTC-B7-35.5	GTC-B7	35.5	√	√	√	√	√	√	NR	NR	√	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B12-35.5	GTC-B12	35.5																				
	GTC-B15-35.5	GTC-B15	35.5																				
GTC-B7, B12 & B15 Comp 40	GTC-B7-40.5	GTC-B7	40.5	√	√	√	√	√	√	NR	NR	√	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B12-40.5	GTC-B12	40.5																				
	GTC-B15-40.5	GTC-B15	40.5																				
GTC-B7, B12 & B15 Comp 45 & 50	GTC-B7-45.5	GTC-B7	45.5	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B12-45.5	GTC-B12	45.5																				
	GTC-B15-45.5	GTC-B15	45.5																				
	GTC-B7-50.5	GTC-B7	50.5																				
	GTC-B12-50.5	GTC-B12	50.5																				
	GTC-B15-50.5	GTC-B15	50.5																				
GTC-B7 & B15 Comp 55 & 60	GTC-B7-55	GTC-B7	55	√	√	√	√	√	√	NR	NR	√	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B15-55	GTC-B15	55																				
	GTC-B7-60.5	GTC-B7	60.5																				
	GTC-B15-60.5	GTC-B15	60.5																				
GTC-B7 & B15 Comp 65 & 70	GTC-B7-65.5	GTC-B7	65.5	√	√	√	√	√	√	NR	NR	√	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B15-65.5	GTC-B15	65.5																				
	GTC-B7-70.5	GTC-B7	70.5																				
	GTC-B15-70.5	GTC-B15	70.5																				
GTC-B7 & B15 Comp 75 & 80	GTC-B7-75.5	GTC-B7	75.5	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B15-75.5	GTC-B15	75.5																				
	GTC-B7-80.5	GTC-B7	80.5																				
	GTC-B15-80.5	GTC-B15	80.5																				
GTC-B7 & B15 Comp 85 & 90	GTC-B7-85.5	GTC-B7	85.5	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B15-85.5	GTC-B15	85.5																				
	GTC-B7-90.5	GTC-B7	90.5																				
	GTC-B15-90.5	GTC-B15	90.5																				
GTC-B7 & B15 Comp 95 & 100	GTC-B7-95.5	GTC-B7	95.5	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B15-95.5	GTC-B15	95.5																				
	GTC-B7-100.5	GTC-B7	100.5																				
	GTC-B15-100.5	GTC-B15	100.5																				
Group 4b: GTC-B13																							
GTC-B13-2.5	GTC-B13-2.5	GTC-B13	2.5	√	√	√	√	√	√	NR	NR	√	√	NR	NR	NR	√	NR	√	--	--	--	--
GTC-B13-5	GTC-B13-5	GTC-B13	5	√	√	√	√	√	√	NR	NR	NR	NR	√	NR	√	NR	NR	√	--	--	--	--
GTC-B13-10.5	GTC-B13-10.5	GTC-B13	10.5	√	√	√			√	NR	NR	NR	NR	√	NR	√	NR	NR	√	--	--	--	--
GTC-B13-15	GTC-B13-15	GTC-B13	15	√	√	√	√	√	√	NR	NR	√	NR	NR	NR	NR	NR	NR	√	--	--	--	--
GTC-B13-20.5	GTC-B13-20.5	GTC-B13	20.5	√	√	√			√	NR	NR	NR	NR	NR	NR	NR	NR	NR	√	--	--	--	--
GTC-B13 Comp 25, 30	GTC-B13-24.5	GTC-B13	24.5	√	√	√	√	√	√	NR	NR	√	NR	NR	NR	NR	NR	NR	√	--	--	--	--
	GTC-B13-29	GTC-B13	29																				
GTC-B13 Comp 35, 40	GTC-B13-35.5	GTC-B13	35.5	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B13-40.59	GTC-B13	40.5																				
GTC-B13 Comp 45, 50	GTC-B13-45.5	GTC-B13	45.5	√	√	√	√	√	√	NR	NR	√	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B13-50	GTC-B13	50																				
GTC-B13 Comp 55, 60	GTC-B13-55	GTC-B13	55	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B13-60.5	GTC-B13	60.5																				
GTC-B13 Comp 65, 70	GTC-B13-65.5	GTC-B13	65.5	√	√	√	√	√	√	NR	NR	√	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B13-70.5	GTC-B13	70.5																				
GTC-B13 Comp 75, 80	GTC-B13-75	GTC-B13	75	√	√	√	√	√	√	NR	NR	√	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B13-80.5	GTC-B13	80.5																				
GTC-B13 Comp 85, 90	GTC-B13-85	GTC-B13	85	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B13-90.5	GTC-B13	90.5																				
GTC-B13 Comp 95, 100	GTC-B13-95	GTC-B13	95	√	√	√	√	√	√	NR	NR	√	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B13-100	GTC-B13	100																				
Group 5: GTC-B18B & GTC-B20																							
GTC-B18B & GTC-B20 Comp 2.5	GTC-B18B-2.5	GTC-B18B	2.5	√	√	√	√	√	√	NR	√	NR	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B20-2.5	GTC-B20	2.5																				
GTC-B18B & GTC-B20 Comp 5	GTC-B18B-5.5	GTC-B18B	5.5	√	√	√	√	√	√	NR	√	√	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B20-5.5	GTC-B20	5.5																				
GTC-B18B & GTC-B20 Comp 10	GTC-B18B-10.5	GTC-B18B	10.5	√	√	√	√	√	√	NR	NR	√	√	NR	√	NR	NR	NR	--	--	--	--	--
	GTC-B20-10.5	GTC-B20	10.5																				
GTC-B18B & GTC-B20 Comp 15	GTC-B18B-15.5	GTC-B18B	15.5	√	√	√	√	√	√	NR	NR	NR	NR	NR	√	√	NR	NR	--	--	--	--	--
	GTC-B20-15.5	GTC-B20	15.5																				
GTC-B18B & GTC-B20 Comp 20	GTC-B18B-21.5	GTC-B18B	21.5	√	√	√	√	√	√	NR	NR	√	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B20-21.5	GTC-B20	21.5																				

TABLE 1
LIST OF CHEMICAL ANALYSES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

Laboratory ID	Sample ID	Boring ID	Depth (Feet bgs)(1)	TPHs-G/ BTEX/ MTBE	TPHs-D	TPHs-MO	VOCs	SVOCs	Title-22 Metals	WET As	WET Ba	WET Cr	TCLP Cr	WET Cu	WET Pb	TCLP Pb	WET Ni	WET Zn	Asbestos	pH	Total Suspended Solids	Total Solids	Total Recoverable Oil & Grease
Group 6: GTC-B21 & GTC-B22																							
GTC-B21 & GTC-B22 Comp 2.5	GTC-B-21-2.5	GTC-B21	2.5	√	√	√	√	√	√	NR	√	NR	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B22-2.5	GTC-B22	2.5																				
GTC-B21 & GTC-B22 Comp 5	GTC-B-21-5.5	GTC-B21	5.5	√	√	√	√	√	√	NR	NR	√	NR	NR	√	NR	NR	NR	--	--	--	--	--
	GTC-B22-5.5	GTC-B22	5.5																				
GTC-B21 & GTC-B22 Comp 10	GTC-B-21-10.5	GTC-B21	10.5	√	√	√	√	√	√	NR	NR	√	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B22-10.5	GTC-B22	10.5																				
GTC-B21 & GTC-B22 Comp 15	GTC-B-21-15.5	GTC-B21	15.5	√	√	√	√	√	√	NR	√	NR	NR	√	NR	√	NR	NR	--	--	--	--	--
	GTC-B22-15.5	GTC-B22	15.5																				
GTC-B21 & GTC-B22 Comp 20	GTC-B-21-20.5	GTC-B21	20.5	√	√	√	√	√	√	NR	NR	√	NR	NR	NR	NR	NR	NR	--	--	--	--	--
	GTC-B22-20.5	GTC-B22	20.5																				
Groundwater Samples - 2013																							
GTC-B6-W	GTC-B6-W	GTC-B6	--	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	√	√	√	√
GTC-B8-W	GTC-B8-W	GTC-B8	--	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	√	√	√	√
GTC-B9-W	GTC-B9-W	GTC-B9	--	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	√	√	√	√
GTC-B10-W	GTC-B10-W	GTC-B10	--	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	√	√	√	√
GTC-B11-W	GTC-B11-W	GTC-B11	--	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	√	√	√	√
GTC-B15-W	GTC-B15-W	GTC-B15	--	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	√	√	√	√
GTC-B16-W	GTC-B16-W	GTC-B16	--	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	√	√	√	√
GTC-B17-W	GTC-B17-W	GTC-B17	--	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	√	√	√	√
GTC-B21-W	GTC-B21-W	GTC-B21	--	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	--	--	--	--
GTC-B22-W	GTC-B22-W	GTC-B22	--	√	√	√	√	√	√	NR	NR	NR	NR	NR	NR	NR	NR	NR	--	--	--	--	--

Notes **:**

1. bgs = below existing ground surface.
2. TPHs-G = Total Petroleum Hydrocarbons (TPHs) as Gasoline by United States Environmental Protection Agency (USEPA) Method 8015 modified.
   BTEX/MTBE = Benzene, Toluene, Ethylbenzene and Xylenes; and Methyl tert-Butyl Ether by USEPA Method 8020.
   TPHs-D and TPHs-MO = TPHs as Diesel and TPHs as Motor Oil by USEPA Method 8015 modified with silica gel cleanup.
   VOCs = Volatile Organic Compounds by USEPA Method 8260.
   SVOCs = Semi-Volatile Organic Compounds by USEPA Method 8270.
   Pesticides = Organochlorine Pesticides by USEPA Method 8080 series.
   PCBs = Polychlorinated Biphenyls by USEPA Method 8080 series.
   Title-22 Metals = 17 Metals as listed in Title 22 of the California Code of Regulations by USEPA Methods 6000/7000 series.
   Sb=Antimony, As=arsenic, Ba=Barium, Be=Beryllium, Cd=Cadmium, Cr=Chromium, Cr+6=Chromium VI, and Co=Cobalt.
   Cu=Copper, Pb=Lead, Hg=Mercury, Mo=Molybdenum, Ni=Nickel, Se=Selenium, Ag=Silver, Tl=Thallium, V=Vanadium; and Zn=Zinc.
   WET = California Waste Extraction Test.
   TCLP = United States Environmental Protection Agency's Toxicity Characteristic Leaching Procedure.
   Asbestos = Asbestos analyses by Air Resources Board's Method 435.
   pH = pH analyses by USEPA Method 9040;
   TSS & TS = Total susepended solids and total solids by USEPA Method 2540;
   O&G = Oil and Grease by USEPA Method 1664;
3. - - = Not Analyzed, NR = Not Required.

TABLE 2
RESULTS OF TOTAL PETROLEUM HYDROCARBONS, BTEX, AND MTBE ANALYSES ON SOIL SAMPLES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Total Petroleum Hydrocarbons, BTEX, and MTBE (1)							
				TPHs-G	TPHs-D	TPHs-MO	Benzene	Ethyl Benzene	Toluene	Total Xylenes	MTBE
			Unit (2)	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Risk Regulatory Criteria (3)											
			USEPA RSL Industrial	NA (4)	NA	NA	5.1	25	47000	2500	210
			ESL - Commerical (Table B)	500	110	500	1.2	4.7	9.3	11	8.4
			ESL - Construction Workers (K-3)	2700	900	28000	71	490	4300	2500	3800
			CHHSLs - Commercial/Industrial	NA	NA	NA	NA	NA	NA	NA	NA
Hazardous Waste Criteria (5)											
			TTLC	NA	NA	NA	NA	NA	NA	NA	NA
			10 x STLC	NA	NA	NA	NA	NA	NA	NA	NA
			STLC	NA	NA	NA	NA	NA	NA	NA	NA
			20 x TCLP	NA	NA	NA	10	NA	NA	NA	NA
			TCLP	NA	NA	NA	NA	NA	NA	NA	NA
Laboratory ID	**Sample ID**	**Boring ID**	**Depth (Feet bgs)(1)**	**Min: <1 Max: 250 Ave: 9**	**Min: <1 Max: 590 Ave: 21.1**	**Min: <5 Max: 1300 Ave: 60.5**	**Min: <0.005 Max: 0.71 Ave: 0.025**	**Min: <0.005 Max: 0.16 Ave: 0.009**	**Min: <0.005 Max: 1.6 Ave: 0.03**	**Min: <0.005 Max: 0.8 Ave: 0.02**	**Min: <0.05 Max: <1 Ave: 0.08**
Soil Samples (6)											
Group 1: GTC-B9, GTC-B10, GTC-B16											
GTC-B9, B10 & B16 Comp 2.5	GTC-B9-2.5	GTC-B9	2.5	<1	***2.2***	***20***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B10-2.5	GTC-B10	2.5								
	GTC-B16-2.5	GTC-B16	2.5								
GTC-B9, B10 & B16 Comp 5	GTC-B9-5.5	GTC-B9	5.5	<1	***12***	***36***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B10-5.5	GTC-B10	5.5								
	GTC-B16-5.5	GTC-B16	5.5								
GTC-B9, B10 & B16 Comp 10	GTC-B9-9.5	GTC-B9	9.5	<1	***6.1***	***33***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B10-9.5	GTC-B10	9.5								
	GTC-B16-10.5	GTC-B16	10.5								
GTC-B9, B10 & B16 Comp 15	GTC-B9-14	GTC-B9	14	***6.8***	***5.3***	***11***	***0.71***	***0.038***	***0.056***	***0.17***	<0.2
	GTC-B10-16.5	GTC-B10	16.5								
	GTC-B16-16	GTC-B16	16								
GTC-B9, B10 & B16 Comp 20	GTC-B9-21.5	GTC-B9	21.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B10-19.5	GTC-B10	19.5								
	GTC-B16-20.5	GTC-B16	20.5								
GTC-B9, B10 & B16 Comp 25	GTC-B9-25.5	GTC-B9	25.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B10-25.5	GTC-B10	25.5								
	GTC-B16-25.5	GTC-B16	25.5								
GTC-B9, B10 & B16 Comp 30	GTC-B9-30.5	GTC-B9	30.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B10-30.5	GTC-B10	30.5								
	GTC-B16-30.5	GTC-B16	30.5								
GTC-B9, B10 & B16 Comp 35	GTC-B9-35.5	GTC-B9	35.5	<1	***1.4***	***7.7***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B10-35.5	GTC-B10	35.5								
	GTC-B16-35.5	GTC-B16	35.5								
GTC-B9, B10 & B16 Comp 40	GTC-B9-40.5	GTC-B9	40.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B10-40.5	GTC-B10	40.5								
	GTC-B16-40.5	GTC-B16	40.5								
GTC-B9, B10 & B16 Comp 45 & 50	GTC-B9-45.5	GTC-B9	45.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B10-45.5	GTC-B10	45.5								
	GTC-B16-45.5	GTC-B16	45.5								
	GTC-B9-50.5	GTC-B9	50.5								
	GTC-B10-50.5	GTC-B10	50.5								
	GTC-B16-50	GTC-B16	50								
GTC-B9, B10 & B16 Comp 55 & 60	GTC-B9-55.5	GTC-B9	55.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B10-55.5	GTC-B10	55.5								
	GTC-B16-55.5	GTC-B16	55.5								
	GTC-B9-60	GTC-B9	60								
	GTC-B10-60	GTC-B10	60								
	GTC-B16-60.5	GTC-B16	60.5								
GTC-B9, B10 & B16 Comp 65 & 70	GTC-B9-65.5	GTC-B9	65.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B10-65.5	GTC-B10	65.5								
	GTC-B16-65.5	GTC-B16	65.5								
	GTC-B9-70.5	GTC-B9	70.5								
	GTC-B10-70.5	GTC-B10	70.5								
	GTC-B16-70.5	GTC-B16	70.5								

TABLE 2 (Con't.)
RESULTS OF TOTAL PETROLEUM HYDROCARBONS, BTEX, AND MTBE ANALYSES ON SOIL SAMPLES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Total Petroleum Hydrocarbons, BTEX, and MTBE (1)							
				TPHs-G	TPHs-D	TPHs-MO	Benzene	Ethyl Benzene	Toluene	Total Xylenes	MTBE
			Unit (2)	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Risk Regulatory Criteria (3)											
			USEPA RSL Industrial	NA (4)	NA	NA	5.1	25	47000	2500	210
			ESL - Commerical (Table B)	500	110	500	1.2	4.7	9.3	11	8.4
			ESL - Construction Workers (K-3)	2700	900	28000	71	490	4300	2500	3800
			CHHSLs - Commercial/Industrial	NA	NA	NA	NA	NA	NA	NA	NA
Hazardous Waste Criteria (5)											
			TTLC	NA	NA	NA	NA	NA	NA	NA	NA
			10 x STLC	NA	NA	NA	NA	NA	NA	NA	NA
			STLC	NA	NA	NA	NA	NA	NA	NA	NA
			20 x TCLP	NA	NA	NA	10	NA	NA	NA	NA
			TCLP	NA	NA	NA	NA	NA	NA	NA	NA
Laboratory ID	**Sample ID**	**Boring ID**	**Depth (Feet bgs)(1)**	**Min: <1 Max: 250 Ave: 9**	**Min: <1 Max: 590 Ave: 21.1**	**Min: <5 Max: 1300 Ave: 60.5**	**Min: <0.005 Max: 0.71 Ave: 0.025**	**Min: <0.005 Max: 0.16 Ave: 0.009**	**Min: <0.005 Max: 1.6 Ave: 0.03**	**Min: <0.005 Max: 0.8 Ave: 0.02**	**Min: <0.05 Max: <1 Ave: 0.08**
Soil Samples (6)											
GTC-B9, B10 & B16 Comp 75 & 80	GTC-B9-75.5	GTC-B9	75.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B10-75.5	GTC-B10	75.5								
	GTC-B16-75.5	GTC-B16	75.5								
	GTC-B9-80.5	GTC-B9	80.5								
	GTC-B10-80.5	GTC-B10	80.5								
	GTC-B16-80.5	GTC-B16	80.5								
GTC-B9, B10 & B16 Comp 85 & 90	GTC-B9-85.5	GTC-B9	85.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B10-85	GTC-B10	85								
	GTC-B16-85.5	GTC-B16	85.5								
	GTC-B9-90	GTC-B9	90								
	GTC-B10-90	GTC-B10	90								
	GTC-B16-90	GTC-B16	90								
GTC-B9, B10 & B16 Comp 95 & 100	GTC-B9-95.5	GTC-B9	95.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B10-95	GTC-B10	95								
	GTC-B16-95	GTC-B16	95								
	GTC-B9-100	GTC-B9	100								
	GTC-B10-100	GTC-B10	100								
	GTC-B16-100	GTC-B16	100								
Group 2: GTC-B6 GTC-B14 GTC-B17											
GTC-B6, B14 & B17 Comp 2.5	GTC-B6-2.5	GTC-B6	2.5	<1	***27***	***310***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B14-2.5	GTC-B14	2.5								
	GTC-B17-2.5	GTC-B17	2.5								
GTC-B6, B14 & B17 Comp 5	GTC-B6-5	GTC-B6	5	<1	***8.1***	***44***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B14-5.5	GTC-B14	5.5								
	GTC-B17-5.5	GTC-B17	5.5								
GTC-B6, B14 & B17 Comp 10	GTC-B6-12	GTC-B6	12	***1.1***	***2.6***	***12***	***0.0086***	***0.0083***	***0.0088***	***0.028***	<0.05
	GTC-B14-10.5	GTC-B14	10.5								
	GTC-B17-10.5	GTC-B17	10.5								
GTC-B6, B14 & B17 Comp 15	GTC-B6-15.5	GTC-B6	15.5	<1	***2.7***	***14***	***0.0063***	<0.005	<0.005	<0.005	<0.05
	GTC-B14-15.5	GTC-B14	15.5								
	GTC-B17-17.5	GTC-B17	17.5								
GTC-B6, B14 & B17 Comp 20	GTC-B6-20.5	GTC-B6	20.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B14-20.5	GTC-B14	20.5								
	GTC-B17-21.5	GTC-B17	21.5								
GTC-B6, B14 & B17 Comp 25	GTC-B6-25.5	GTC-B6	25.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B14-25.5	GTC-B14	25.5								
	GTC-B17-25.5	GTC-B17	25.5								
GTC-B6, B14 & B17 Comp 30	GTC-B6-30.5	GTC-B6	30.5	<1	***1.9***	***12***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B14-30.5	GTC-B14	30.5								
	GTC-B17-30.5	GTC-B17	30.5								
GTC-B6, B14 & B17 Comp 35	GTC-B6-35.5	GTC-B6	35.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B14-35.5	GTC-B14	35.5								
	GTC-B17-35.5	GTC-B17	35.5								
GTC-B6, B14 & B17 Comp 40	GTC-B6-40.5	GTC-B6	40.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B14-40.5	GTC-B14	40.5								
	GTC-B17-40.5	GTC-B17	40.5								
GTC-B6, B14 & B17 Comp 45 & 50	GTC-B6-45	GTC-B6	45	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B14-45.5	GTC-B14	45.5								
	GTC-B17-45.5	GTC-B17	45.5								
	GTC-B6-50.5	GTC-B6	50.5								
	GTC-B14-50.5	GTC-B14	50.5								
	GTC-B17-50.5	GTC-B17	50.5								

TABLE 2 (Con't.)
RESULTS OF TOTAL PETROLEUM HYDROCARBONS, BTEX, AND MTBE ANALYSES ON SOIL SAMPLES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Total Petroleum Hydrocarbons, BTEX, and MTBE (1)							
				TPHs-G	TPHs-D	TPHs-MO	Benzene	Ethyl Benzene	Toluene	Total Xylenes	MTBE
			Unit (2)	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Risk Regulatory Criteria (3)											
			USEPA RSL Industrial	NA (4)	NA	NA	5.1	25	47000	2500	210
			ESL - Commerical (Table B)	500	110	500	1.2	4.7	9.3	11	8.4
			ESL - Construction Workers (K-3)	2700	900	28000	71	490	4300	2500	3800
			CHHSLs - Commercial/Industrial	NA	NA	NA	NA	NA	NA	NA	NA
Hazardous Waste Criteria (5)											
			TTLC	NA	NA	NA	NA	NA	NA	NA	NA
			10 x STLC	NA	NA	NA	NA	NA	NA	NA	NA
			STLC	NA	NA	NA	NA	NA	NA	NA	NA
			20 x TCLP	NA	NA	NA	10	NA	NA	NA	NA
			TCLP	NA	NA	NA	NA	NA	NA	NA	NA
Laboratory ID	**Sample ID**	**Boring ID**	**Depth (Feet bgs)(1)**	**Min: <1 Max: 250 Ave: 9**	**Min: <1 Max: 590 Ave: 21.1**	**Min: <5 Max: 1300 Ave: 60.5**	**Min: <0.005 Max: 0.71 Ave: 0.025**	**Min: <0.005 Max: 0.16 Ave: 0.009**	**Min: <0.005 Max: 1.6 Ave: 0.03**	**Min: <0.005 Max: 0.8 Ave: 0.02**	**Min: <0.05 Max: <1 Ave: 0.08**
Soil Samples (6)											
GTC-B6, B14 & B17 Comp 55 & 60	GTC-B6-55.5	GTC-B6	55.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B14-55.5	GTC-B14	55.5								
	GTC-B17-55.5	GTC-B17	55.5								
	GTC-B6-60.5	GTC-B6	60.5								
	GTC-B14-60.5	GTC-B14	60.5								
	GTC-B17-60.5	GTC-B17	60.5								
GTC-B6, B14 & B17 Comp 65 & 70	GTC-B6-65.5	GTC-B6	65.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B14-65.5	GTC-B14	65.5								
	GTC-B17-65.5	GTC-B17	65.5								
	GTC-B6-70.5	GTC-B6	70.5								
	GTC-B14-70.5	GTC-B14	70.5								
	GTC-B17-70.5	GTC-B17	70.5								
GTC-B6, B14 & B17 Comp 75 & 80	GTC-B6-75.5	GTC-B6	75.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B14-76	GTC-B14	76								
	GTC-B17-75	GTC-B17	75								
	GTC-B6-80.5	GTC-B6	80.5								
	GTC-B14-80.5	GTC-B14	80.5								
	GTC-B17-80.5	GTC-B17	80.5								
GTC-B6, B14 & B17 Comp 85 & 90	GTC-B6-85	GTC-B6	85	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B14-85.5	GTC-B14	85.5								
	GTC-B17-85	GTC-B17	85								
	GTC-B6-90	GTC-B6	90								
	GTC-B14-90	GTC-B14	90								
	GTC-B17-90	GTC-B17	90								
GTC-B6, B14 & B17 Comp 95 & 100	GTC-B6-95.5	GTC-B6	95.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B14-95	GTC-B14	95								
	GTC-B17-95	GTC-B17	95								
	GTC-B6-100	GTC-B6	100								
	GTC-B14-100	GTC-B14	100								
	GTC-B17-100	GTC-B17	100								
Group 3: GTC-B8 GTC-B11 GTC-B18											
GTC-B8, B11 & B18 Comp 2.5	GTC-B8-2.5	GTC-B8	2.5	<1	***3.2***	***28***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B11-2.5	GTC-B11	2.5								
	GTC-B18-2.5	GTC-B18	2.5								
GTC-B8, B11 & B18 Comp 5	GTC-B8-5	GTC-B8	5	***7.0***	***2.6***	***15***	***0.018***	***0.012***	***0.023***	***0.11***	<0.05
	GTC-B11-5.5	GTC-B11	5.5								
	GTC-B18-4.5	GTC-B18	4.5								
GTC-B8 & B11 Comp 10	GTC-B8-10.5	GTC-B8	10.5	***190***	***350***	***290***	<0.1	<0.1	<0.1	<0.1	<1
	GTC-B11-11	GTC-B11	11								
GTC-B8 & B11 Comp 15	GTC-B8-15.5	GTC-B8	15.5	<1	<1	<5	***0.052***	<0.005	<0.005	<0.005	<0.05
	GTC-B11-15.5	GTC-B11	15.5								
GTC-B8 & B11 Comp 20	GTC-B8-22.5	GTC-B8	22.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B11-20.5	GTC-B11	20.5								
GTC-B8 & B11 Comp 25	GTC-B8-26.5	GTC-B8	26.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B11-25.5	GTC-B11	25.5								
GTC-B8 & B11 Comp 30	GTC-B8-30.5	GTC-B8	30.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B11-31	GTC-B11	31								
GTC-B8 & B11 Comp 35	GTC-B8-35.5	GTC-B8	35.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B11-35.5	GTC-B11	35.5								
GTC-B8 & B11 Comp 40	GTC-B8-40.5	GTC-B8	40.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B11-40.5	GTC-B11	40.5								

TABLE 2 (Con't.)
RESULTS OF TOTAL PETROLEUM HYDROCARBONS, BTEX, AND MTBE ANALYSES ON SOIL SAMPLES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Total Petroleum Hydrocarbons, BTEX, and MTBE (1)							
				TPHs-G	TPHs-D	TPHs-MO	Benzene	Ethyl Benzene	Toluene	Total Xylenes	MTBE
			Unit (2)	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Risk Regulatory Criteria (3)											
			USEPA RSL Industrial	NA (4)	NA	NA	5.1	25	47000	2500	210
			ESL - Commerical (Table B)	500	110	500	1.2	4.7	9.3	11	8.4
			ESL - Construction Workers (K-3)	2700	900	28000	71	490	4300	2500	3800
			CHHSLs - Commercial/Industrial	NA	NA	NA	NA	NA	NA	NA	NA
Hazardous Waste Criteria (5)											
			TTLC	NA	NA	NA	NA	NA	NA	NA	NA
			10 x STLC	NA	NA	NA	NA	NA	NA	NA	NA
			STLC	NA	NA	NA	NA	NA	NA	NA	NA
			20 x TCLP	NA	NA	NA	10	NA	NA	NA	NA
			TCLP	NA	NA	NA	NA	NA	NA	NA	NA
Laboratory ID	**Sample ID**	**Boring ID**	**Depth (Feet bgs)(1)**	**Min: <1 Max: 250 Ave: 9**	**Min: <1 Max: 590 Ave: 21.1**	**Min: <5 Max: 1300 Ave: 60.5**	**Min: <0.005 Max: 0.71 Ave: 0.025**	**Min: <0.005 Max: 0.16 Ave: 0.009**	**Min: <0.005 Max: 1.6 Ave: 0.03**	**Min: <0.005 Max: 0.8 Ave: 0.02**	**Min: <0.05 Max: <1 Ave: 0.08**
Soil Samples (6)											
GTC-B8 & B11 Comp 45 & 50	GTC-B8-45.5	GTC-B8	45.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B11-45.5	GTC-B11	45.5								
	GTC-B8-50.5	GTC-B8	50.5								
	GTC-B11-50.5	GTC-B11	50.5								
GTC-B8 & B11 Comp 55 & 60	GTC-B8-55	GTC-B8	55	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B11-55	GTC-B11	55								
	GTC-B8-60.5	GTC-B8	60.5								
	GTC-B11-60	GTC-B11	60								
GTC-B8 & B11 Comp 65 & 70	GTC-B8-65.5	GTC-B8	65.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B11-65.5	GTC-B11	65.5								
	GTC-B8-70.5	GTC-B8	70.5								
	GTC-B11-70.5	GTC-B11	70.5								
GTC-B8 & B11 Comp 75 & 80	GTC-B8-75.5	GTC-B8	75.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B11-75.5	GTC-B11	75.5								
	GTC-B8-80.5	GTC-B8	80.5								
	GTC-B11-80.5	GTC-B11	80.5								
GTC-B8 & B11 Comp 85 & 90	GTC-B8-85	GTC-B8	85	<1	***1.5***	***5.2***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B11-85.5	GTC-B11	85.5								
	GTC-B8-90	GTC-B8	90								
	GTC-B11-90	GTC-B11	90								
GTC-B8 & B11 Comp 95 & 100	GTC-B8-95.5	GTC-B8	95.5	<1	***1.9***	***9.0***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B11-95.5	GTC-B11	95.5								
	GTC-B8-100	GTC-B8	100								
	GTC-B11-100	GTC-B11	100								
Group 4a: GTC-B7 GTC-B12 GTC-B15											
GTC-B7, B12 & B15 Comp 2.5	GTC-B7-2.5	GTC-B7	2.5	***1.2***	***47***	***120***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B12-2.5	GTC-B12	2.5								
	GTC-B15-2.5	GTC-B15	2.5								
GTC-B7, B12 & B15 Comp 5	GTC-B7-5.5	GTC-B7	5.5	<1	***2.9***	***21***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B12-5.5	GTC-B12	5.5								
	GTC-B15-5.5	GTC-B15	5.5								
GTC-B7, B12 & B15 Comp 10	GTC-B7-10.5	GTC-B7	10.5	<1	***53***	***190***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B12-10	GTC-B12	10								
	GTC-B15-11	GTC-B15	11								
GTC-B7, B12 & B15 Comp 15	GTC-B7-15.5	GTC-B7	15.5	<1	***1.2***	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B12-15.5	GTC-B12	15.5								
	GTC-B15-15.5	GTC-B15	15.5								
GTC-B7, B12 & B15 Comp 20	GTC-B7-20.5	GTC-B7	20.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B12-20.5	GTC-B12	20.5								
	GTC-B15-20.5	GTC-B15	20.5								
GTC-B7, B12 & B15 Comp 25	GTC-B7-25.5	GTC-B7	25.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B12-27.5	GTC-B12	27.5								
	GTC-B15-25.5	GTC-B15	25.5								
GTC-B7, B12 & B15 Comp 30	GTC-B7-30.5	GTC-B7	30.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B12-30.5	GTC-B12	30.5								
	GTC-B15-30.5	GTC-B15	30.5								
GTC-B7, B12 & B15 Comp 35	GTC-B7-35.5	GTC-B7	35.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B12-35.5	GTC-B12	35.5								
	GTC-B15-35.5	GTC-B15	35.5								
GTC-B7, B12 & B15 Comp 40	GTC-B7-40.5	GTC-B7	40.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B12-40.5	GTC-B12	40.5								
	GTC-B15-40.5	GTC-B15	40.5								

TABLE 2 (Con't.)
RESULTS OF TOTAL PETROLEUM HYDROCARBONS, BTEX, AND MTBE ANALYSES ON SOIL SAMPLES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Total Petroleum Hydrocarbons, BTEX, and MTBE (1)							
				TPHs-G	TPHs-D	TPHs-MO	Benzene	Ethyl Benzene	Toluene	Total Xylenes	MTBE
			Unit (2)	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Risk Regulatory Criteria (3)											
			USEPA RSL Industrial	NA (4)	NA	NA	5.1	25	47000	2500	210
			ESL - Commerical (Table B)	500	110	500	1.2	4.7	9.3	11	8.4
			ESL - Construction Workers (K-3)	2700	900	28000	71	490	4300	2500	3800
			CHHSLs - Commercial/Industrial	NA	NA	NA	NA	NA	NA	NA	NA
Hazardous Waste Criteria (5)											
			TTLC	NA	NA	NA	NA	NA	NA	NA	NA
			10 x STLC	NA	NA	NA	NA	NA	NA	NA	NA
			STLC	NA	NA	NA	NA	NA	NA	NA	NA
			20 x TCLP	NA	NA	NA	10	NA	NA	NA	NA
			TCLP	NA	NA	NA	NA	NA	NA	NA	NA
Laboratory ID	**Sample ID**	**Boring ID**	**Depth (Feet bgs)(1)**	**Min: <1 Max: 250 Ave: 9**	**Min: <1 Max: 590 Ave: 21.1**	**Min: <5 Max: 1300 Ave: 60.5**	**Min: <0.005 Max: 0.71 Ave: 0.025**	**Min: <0.005 Max: 0.16 Ave: 0.009**	**Min: <0.005 Max: 1.6 Ave: 0.03**	**Min: <0.005 Max: 0.8 Ave: 0.02**	**Min: <0.05 Max: <1 Ave: 0.08**
Soil Samples (6)											
GTC-B7, B12 & B15 Comp 45 & 50	GTC-B7-45.5	GTC-B7	45.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B12-45.5	GTC-B12	45.5								
	GTC-B15-45.5	GTC-B15	45.5								
	GTC-B7-50.5	GTC-B7	50.5								
	GTC-B12-50.5	GTC-B12	50.5								
	GTC-B15-50.5	GTC-B15	50.5								
GTC-B7 & B15 Comp 55 & 60	GTC-B7-55	GTC-B7	55	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B15-55	GTC-B15	55								
	GTC-B7-60.5	GTC-B7	60.5								
	GTC-B15-60.5	GTC-B15	60.5								
GTC-B7 & B15 Comp 65 & 70	GTC-B7-65.5	GTC-B7	65.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B15-65.5	GTC-B15	65.5								
	GTC-B7-70.5	GTC-B7	70.5								
	GTC-B15-70.5	GTC-B15	70.5								
GTC-B7 & B15 Comp 75 & 80	GTC-B7-75.5	GTC-B7	75.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B15-75.5	GTC-B15	75.5								
	GTC-B7-80.5	GTC-B7	80.5								
	GTC-B15-80.5	GTC-B15	80.5								
GTC-B7 & B15 Comp 85 & 90	GTC-B7-85.5	GTC-B7	85.5	<1	***1.2***	***5.9***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B15-85.5	GTC-B15	85.5								
	GTC-B7-90.5	GTC-B7	90.5								
	GTC-B15-90.5	GTC-B15	90.5								
GTC-B7 & B15 Comp 95 & 100	GTC-B7-95.5	GTC-B7	95.5	<1	***2.1***	***9.6***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B15-95.5	GTC-B15	95.5								
	GTC-B7-100.5	GTC-B7	100.5								
	GTC-B15-100.5	GTC-B15	100.5								
Group 4b: GTC-B13											
GTC-B13-2.5	GTC-B13-2.5	GTC-B13	2.5	<1	***22***	***130***	<0.005	<0.005	<0.005	***0.013***	<0.05
GTC-B13-5	GTC-B13-5	GTC-B13	5	<1	***3.9***	***11***	<0.005	<0.005	<0.005	<0.005	<0.05
GTC-B13-10.5	GTC-B13-10.5	GTC-B13	10.5	<1	***1.6***	***5.7***	<0.005	<0.005	<0.005	***0.014***	<0.05
GTC-B13-15	GTC-B13-15	GTC-B13	15	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
GTC-B13-20.5	GTC-B13-20.5	GTC-B13	20.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
GTC-B13 Comp 25, 30	GTC-B13-24.5	GTC-B13	24.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B13-29	GTC-B13	29								
GTC-B13 Comp 35, 40	GTC-B13-35.5	GTC-B13	35.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B13-40.59	GTC-B13	40.5								
GTC-B13 Comp 45, 50	GTC-B13-45.5	GTC-B13	45.5	<1	***2.3***	***13***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B13-50	GTC-B13	50								
GTC-B13 Comp 55, 60	GTC-B13-55	GTC-B13	55	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B13-60.5	GTC-B13	60.5								
GTC-B13 Comp 65, 70	GTC-B13-65.5	GTC-B13	65.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B13-70.5	GTC-B13	70.5								
GTC-B13 Comp 75, 80	GTC-B13-75	GTC-B13	75	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B13-80.5	GTC-B13	80.5								
GTC-B13 Comp 85, 90	GTC-B13-85	GTC-B13	85	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B13-90.5	GTC-B13	90.5								
GTC-B13 Comp 95, 100	GTC-B13-95	GTC-B13	95	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B13-100	GTC-B13	100								

TABLE 2 (Con't.)
RESULTS OF TOTAL PETROLEUM HYDROCARBONS, BTEX, AND MTBE ANALYSES ON SOIL SAMPLES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Total Petroleum Hydrocarbons, BTEX, and MTBE (1)							
				TPHs-G	TPHs-D	TPHs-MO	Benzene	Ethyl Benzene	Toluene	Total Xylenes	MTBE
			Unit (2)	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Risk Regulatory Criteria (3)											
			USEPA RSL Industrial	NA (4)	NA	NA	5.1	25	47000	2500	210
			ESL - Commerical (Table B)	500	110	500	1.2	4.7	9.3	11	8.4
			ESL - Construction Workers (K-3)	2700	900	28000	71	490	4300	2500	3800
			CHHSLs - Commercial/Industrial	NA	NA	NA	NA	NA	NA	NA	NA
Hazardous Waste Criteria (5)											
			TTLC	NA	NA	NA	NA	NA	NA	NA	NA
			10 x STLC	NA	NA	NA	NA	NA	NA	NA	NA
			STLC	NA	NA	NA	NA	NA	NA	NA	NA
			20 x TCLP	NA	NA	NA	10	NA	NA	NA	NA
			TCLP	NA	NA	NA	NA	NA	NA	NA	NA
Laboratory ID	Sample ID	Boring ID	Depth (Feet bgs)(1)	Min: <1 Max: 250 Ave: 9	Min: <1 Max: 590 Ave: 21.1	Min: <5 Max: 1300 Ave: 60.5	Min: <0.005 Max: 0.71 Ave: 0.025	Min: <0.005 Max: 0.16 Ave: 0.009	Min: <0.005 Max: 1.6 Ave: 0.03	Min: <0.005 Max: 0.8 Ave: 0.02	Min: <0.05 Max: <1 Ave: 0.08
Soil Samples (6)											
Group 5: GTC-B18B GTC-B20											
GTC-B18B & GTC-B20	GTC-B18B-2.5	GTC-B18B	2.5	***8.9***	***98***	***1300***	<0.01	<0.01	<0.01	***0.081***	<0.1
Comp 2.5	GTC-B20-2.5	GTC-B20	2.5								
GTC-B18B & GTC-B20	GTC-B18B-5.5	GTC-B18B	5.5	<1	***11***	***53***	<0.005	<0.005	<0.005	<0.005	<0.05
Comp 5	GTC-B20-5.5	GTC-B20	5.5								
GTC-B18B & GTC-B20	GTC-B18B-10.5	GTC-B18B	10.5	***23***	***140***	***570***	***0.02***	***0.0057***	***0.11***	***0.12***	<0.05
Comp 10	GTC-B20-10.5	GTC-B20	10.5								
GTC-B18B & GTC-B20	GTC-B18B-15.5	GTC-B18B	15.5	***2.2***	***4.7***	***16***	***0.021***	***0.008***	***0.027***	***0.03***	<0.05
Comp 15	GTC-B20-15.5	GTC-B20	15.5								
GTC-B18B & GTC-B20	GTC-B18B-21.5	GTC-B18B	21.5	<1	***1.1***	<5	<0.005	<0.005	<0.005	<0.005	<0.05
Comp 20	GTC-B20-21.5	GTC-B20	21.5								
Group 6: GTC-B21 GTC-B22											
GTC-B21 & GTC-B22	GTC-B-21-2.5	GTC-B21	2.5	<1	***7.1***	***60***	<0.005	<0.005	<0.005	<0.005	<0.05
Comp 2.5	GTC-B22-2.5	GTC-B22	2.5								
GTC-B21 & GTC-B22	GTC-B-21-5.5	GTC-B21	5.5	***14***	***84***	***860***	<0.005	<0.005	***0.044***	<0.005	<0.05
Comp 5	GTC-B22-5.5	GTC-B22	5.5								
GTC-B21 & GTC-B22	GTC-B-21-10.5	GTC-B21	10.5	***250***	***590***	***550***	***0.65***	***0.16***	***1.6***	***0.8***	<1
Comp 10	GTC-B22-10.5	GTC-B22	10.5								
GTC-B21 & GTC-B22	GTC-B-21-15.5	GTC-B21	15.5	***130***	***200***	<5	***0.096***	<0.05	***0.22***	***0.11***	>0.5
Comp 15	GTC-B22-15.5	GTC-B22	15.5								
GTC-B21 & GTC-B22	GTC-B-21-20.5	GTC-B21	20.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
Comp 20	GTC-B22-20.5	GTC-B22	20.5								

Notes :

1. TPHs-G = Total Petroleum Hydrocarbons (TPHs) as Gasoline by United States Environmental Protection Agency (USEPA) Method 8015 modified.
   BTEX/MTBE = Benzene, Toluene, Ethylbenzene and Xylenes; and Methyl tert-Butyl Ether by USEPA Method 8020.
   TPHs-D and TPHs-MO = TPHs as Diesel and TPHs as Motor Oil by USEPA Method 8015 modified with silica gel cleanup.
   bgs=below existing ground surface
2. mg/Kg = milligrams per Kilogram
3. RSL - Industrial = USEPA's Regional Screening Levels under industrial scenario, May 2014.
   ESL = California Regional Water Quality Control Board - San Francisco Region's Environmental Screening Criteria as listed in Table B (ESL for shallow soils and groundwater is a NOT a current or potential source of drinking water) under commercial/residential use scenario, December 2013.
   ESLs - Table K-3 Construction Worker = ESLs for Direct Exposure Soil Screening Levels Construction/Trench Worker Exposure Scenario (Table K-3).
   CHHSLs = California Human Health Screening Levels (CHHSLs) for commercial/industrial scenario, September 2010
4. NA = Not Available; ND = Not detected at concentrations above the respective detection limit(s).
5. STLC = California Souble Threshold Limit Concentration
   TTLC = California Total Threshold Limit Concentration
   TCLP = United States Environmental Protection Agency's Toxicity Characteristic Leaching Procedure
6. ***9.7*** denotes the respective concentration above the detected limit
   120 denotes the respective concentration above the respective ESL - Commercial/Industrial value.
   Min = Minimum Concentration. Max = Maximum Concentration. Ave: Approximate Arithmetic Average Concentration (for concentration reported as below detection limit, the detection limit was employed for the average estimation.

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TABLE 3
RESULTS OF VOC AND SVOC ANALYSES ON SOIL SAMPLES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				VOCs (1																*SVOCs (1)*									
				Acetone	2-Butanone	Benzene	n-Butyl benzene	sec-Butyl benzene	tert-Butyl benzene	Carbon Disulfide	Isopropyl benzene	4-Isopropyl toluene	MTBE	Naphthalene	n-Propyl benzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylenes, Total	Other VOCs	Benzo (a) fluoranthene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (g,h,i) perylene	Benzo (a) pyrene	Chrysene	Fluoranthene	Indeno (1,2,3-cd) pyrene	Pyrene	Other SVOCs
		Unit (2)		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Risk Regulatory Criteria (3)																													
		USEPA RSL Industrial		670000	190000	5.1	58000	120000	120000	3500	9900	NA (4)	210	17	22000	240	12000	2500	NA	2.9	2.9	29	NA	0.29	290	30000	2.9	23000	NA
		ESL - Commerical (Table B)		0.5	NA	1.2	NA	NA	NA	NA	NA	NA	8.4	4.8	NA	NA	NA	11	NA	1.3	1.3	1.3	27	0.13	13	40	1.3	85	NA
		ESL - Construction Workers (K-3)		240000	NA	71	NA	NA	NA	NA	NA	NA	3800	370	NA	NA	NA	2500	NA	8.3	8.3	8.3	NA	0.83	83	5700	8.3	8600	NA
		CHHSLs - Commercial/Industrial		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.13	NA	NA	NA	NA	NA
Hazardous Waste Criteria (5)																													
		TTLC		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		10 x STLC		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		STLC		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		20 x TCLP		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		TCLP		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Laboratory ID	**Sample ID**	**Boring ID**	**Depth (Feet bgs)(1)**	**Min: <0.1 Max: <2 Ave: 0.165**	**Min: <0.02 Max: <0.4 Ave: 0.032**	**Min: <0.005 Max: <0.1 Ave: 0.009**	**Min: <0.005 Max: 0.8 Ave: 0.023**	**Min: <0.005 Max: 0.26 Ave: 0.012**	**Min: <0.005 Max: <0.1 Ave: 0.008**	**Min: <0.005 Max: <0.1 Ave: 0.008**	**Min: <0.005 Max: <0.1 Ave: 0.009**	**Min: <0.005 Max: <0.1 Ave: 0.008**	**Min: <0.005 Max: <0.1 Ave: 0.007**	**Min: <0.005 Max: 0.26 Ave: 0.013**	**Min: <0.005 Max: 0.12 Ave: 0.009**	**Min: <0.005 Max: 0.4 Ave: 0.016**	**Min: <0.005 Max: 0.14 Ave: 0.011**	**Min: <0.005 Max: <0.1 Ave: 0.01**		**Min: <0.25 Max: <10 Ave: 1.774**	**Min: <0.25 Max: <10 Ave: 1.769**	**Min: <0.25 Max: <10 Ave: 1.755**	**Min: <0.25 Max: <10 Ave: 1.759**	**Min: <0.25 Max: <10 Ave: 1.769**	**Min: <0.25 Max: <10 Ave: 1.772**	**Min: <0.25 Max: <10 Ave: 1.76**	**Min: <0.25 Max: <10 Ave: 1.758**	**Min: <0.25 Max: <10 Ave: 1.758**	
Soil Samples (6)																													
Group 1: GTC-B9, GTC-B10, GTC-B16																													
GTC-B9, B10 & B16 Comp 2.5	GTC-B9-2.5	GTC-B9	2.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND(4)	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND(3)
	GTC-B10-2.5	GTC-B10	2.5																										
	GTC-B16-2.5	GTC-B16	2.5																										
GTC-B9, B10 & B16 Comp 5	GTC-B9-5.5	GTC-B9	5.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B10-5.5	GTC-B10	5.5																										
	GTC-B16-5.5	GTC-B16	5.5																										
GTC-B9, B10 & B16 Comp 10	GTC-B9-9.5	GTC-B9	9.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B10-9.5	GTC-B10	9.5																										
	GTC-B16-10.5	GTC-B16	10.5																										
GTC-B9, B10 & B16 Comp 15	GTC-B9-14	GTC-B9	14	<0.1	<0.02	***0.009***	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	***0.013***	<0.005	<0.005	***0.0051***	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B10-16.5	GTC-B10	16.5																										
	GTC-B16-16	GTC-B16	16																										
GTC-B9, B10 & B16 Comp 20	GTC-B9-21.5	GTC-B9	21.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B10-19.5	GTC-B10	19.5																										
	GTC-B16-20.5	GTC-B16	20.5																										
GTC-B9, B10 & B16 Comp 25	GTC-B9-25.5	GTC-B9	25.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B10-25.5	GTC-B10	25.5																										
	GTC-B16-25.5	GTC-B16	25.5																										
GTC-B9, B10 & B16 Comp 30	GTC-B9-30.5	GTC-B9	30.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B10-30.5	GTC-B10	30.5																										
	GTC-B16-30.5	GTC-B16	30.5																										
GTC-B9, B10 & B16 Comp 35	GTC-B9-35.5	GTC-B9	35.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B10-35.5	GTC-B10	35.5																										
	GTC-B16-35.5	GTC-B16	35.5																										
GTC-B9, B10 & B16 Comp 40	GTC-B9-40.5	GTC-B9	40.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B10-40.5	GTC-B10	40.5																										
	GTC-B16-40.5	GTC-B16	40.5																										
Group 1: GTC-B6 GTC-B14 GTC-B17																													
GTC-B6, B14 & B17 Comp 2.5	GTC-B6-2.5	GTC-B6	2.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<10	<10	<10	<10	<10	<10	<10	<10	<10	ND
	GTC-B14-2.5	GTC-B14	2.5																										
	GTC-B17-2.5	GTC-B17	2.5																										
GTC-B6, B14 & B17 Comp 5	GTC-B6-5	GTC-B6	5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<4	<4	<4	<4	<4	<4	<4	<4	<4	ND
	GTC-B14-5.5	GTC-B14	5.5																										
	GTC-B17-5.5	GTC-B17	5.5																										
GTC-B6, B14 & B17 Comp 10	GTC-B6-12	GTC-B6	12	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.25	ND
	GTC-B14-10.5	GTC-B14	10.5																										
	GTC-B17-10.5	GTC-B17	10.5																										
GTC-B6, B14 & B17 Comp 15	GTC-B6-15.5	GTC-B6	15.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B14-15.5	GTC-B14	15.5																										
	GTC-B17-17.5	GTC-B17	17.5																										
GTC-B6, B14 & B17 Comp 20	GTC-B6-20.5	GTC-B6	20.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.25	ND
	GTC-B14-20.5	GTC-B14	20.5																										
	GTC-B17-21.5	GTC-B17	21.5																										
GTC-B6, B14 & B17 Comp 25	GTC-B6-25.5	GTC-B6	25.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B14-25.5	GTC-B14	25.5																										
	GTC-B17-25.5	GTC-B17	25.5																										
GTC-B6, B14 & B17 Comp 30	GTC-B6-30.5	GTC-B6	30.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B14-30.5	GTC-B14	30.5																										
	GTC-B17-30.5	GTC-B17	30.5																										
GTC-B6, B14 & B17 Comp 35	GTC-B6-35.5	GTC-B6	35.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B14-35.5	GTC-B14	35.5																										
	GTC-B17-35.5	GTC-B17	35.5																										
GTC-B6, B14 & B17 Comp 40	GTC-B6-40.5	GTC-B6	40.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B14-40.5	GTC-B14	40.5																										
	GTC-B17-40.5	GTC-B17	40.5																										

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TABLE 3 (Con't.)
RESULTS OF VOC AND SVOC ANALYSES ON SOIL SAMPLES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				VOCs (1															SVOCs (1)									
				Acetone	2-Butanone	Benzene	n-Butyl benzene	sec-Butyl benzene	tert-Butyl benzene	Carbon Disulfide	Isopropyl benzene	4-Isopropyl toluene	MTBE	Naphthalene	n-Propyl benzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylenes, Total	Other VOCs	Benzo (a) fluoranthene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (g,h,i) perylene	Benzo (a) pyrene	Chrysene	Fluoranthene	Indeno (1,2,3-cd) pyrene	Pyrene	Other SVOCs
			Unit (2)	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Risk Regulatory Criteria (3)																													
			USEPA RSL Industrial	670000	190000	5.1	58000	120000	120000	3500	9900	NA (4)	210	17	22000	240	12000	2500	NA	2.9	2.9	29	NA	0.29	290	30000	2.9	23000	NA
			ESL - Commerical (Table B)	0.5	NA	1.2	NA	NA	NA	NA	NA	NA	8.4	4.8	NA	NA	NA	11	NA	1.3	1.3	1.3	27	0.13	13	40	1.3	85	NA
			ESL - Construction Workers (K-3)	240000	NA	71	NA	NA	NA	NA	NA	NA	3800	370	NA	NA	NA	2500	NA	8.3	8.3	8.3	NA	0.83	83	5700	8.3	8600	NA
			CHHSLs - Commercial/Industrial	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.13	NA	NA	NA	NA	NA
Hazardous Waste Criteria (5)																													
			TTLC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			10 x STLC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			STLC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			20 x TCLP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			TCLP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Laboratory ID	Sample ID	Boring ID	Depth (Feet bgs)(1)	Min: <0.1 Max: <2 Ave: 0.165	Min: <0.02 Max: <0.4 Ave: 0.032	Min: <0.005 Max: <0.1 Ave: 0.009	Min: <0.005 Max: 0.8 Ave: 0.023	Min: <0.005 Max: 0.26 Ave: 0.012	Min: <0.005 Max: <0.1 Ave: 0.008	Min: <0.005 Max: <0.1 Ave: 0.008	Min: <0.005 Max: <0.1 Ave: 0.009	Min: <0.005 Max: <0.1 Ave: 0.008	Min: <0.005 Max: <0.1 Ave: 0.007	Min: <0.005 Max: 0.26 Ave: 0.013	Min: <0.005 Max: 0.12 Ave: 0.009	Min: <0.005 Max: 0.4 Ave: 0.016	Min: <0.005 Max: 0.14 Ave: 0.011	Min: <0.005 Max: <0.1 Ave: 0.01		Min: <0.25 Max: <10 Ave: 1.774	Min: <0.25 Max: <10 Ave: 1.769	Min: <0.25 Max: <10 Ave: 1.755	Min: <0.25 Max: <10 Ave: 1.759	Min: <0.25 Max: <10 Ave: 1.769	Min: <0.25 Max: <10 Ave: 1.772	Min: <0.25 Max: <10 Ave: 1.76	Min: <0.25 Max: <10 Ave: 1.758	Min: <0.25 Max: <10 Ave: 1.758	
Soil Samples (6)																													
Group 3: GTC-B8 GTC-B11 GTC-B18																													
GTC-B8, B11 & B18 Comp 2.5	GTC-B8-2.5	GTC-B8	2.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	<1.2	ND
	GTC-B11-2.5	GTC-B11	2.5																										
	GTC-B18-2.5	GTC-B18	2.5																										
GTC-B8, B11 & B18 Comp 5	GTC-B8-5	GTC-B8	5	<0.1	<0.02	<0.005	***0.013***	***0.0077***	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	***0.0073***	***0.040***	***0.017***	***0.036***	ND	***0.73***	***1.1***	***0.54***	***0.71***	0.99	***1.0***	***0.61***	***0.66***	***0.8***	ND
	GTC-B11-5.5	GTC-B11	5.5																										
	GTC-B18-4.5	GTC-B18	4.5																										
GTC-B8 & B11 Comp 10	GTC-B8-10.5	GTC-B8	10.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	GTC-B11-11	GTC-B11	11																										
GTC-B8 & B11 Comp 15	GTC-B8-15.5	GTC-B8	15.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	GTC-B11-15.5	GTC-B11	15.5																										
GTC-B8 & B11 Comp 20	GTC-B8-22.5	GTC-B8	22.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	GTC-B11-20.5	GTC-B11	20.5																										
GTC-B8 & B11 Comp 25	GTC-B8-26.5	GTC-B8	26.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	GTC-B11-25.5	GTC-B11	25.5																										
GTC-B8 & B11 Comp 30	GTC-B8-30.5	GTC-B8	30.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND										ND
	GTC-B11-31	GTC-B11	31																										
GTC-B8 & B11 Comp 35	GTC-B8-35.5	GTC-B8	35.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	GTC-B11-35.5	GTC-B11	35.5																										
GTC-B8 & B11 Comp 40	GTC-B8-40.5	GTC-B8	40.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND										ND
	GTC-B11-40.5	GTC-B11	40.5																										
Group 4a: GTC-B7 GTC-B12 GTC-B15																													
GTC-B7, B12 & B15 Comp 2.5	GTC-B7-2.5	GTC-B7	2.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<4	<4	<4	<4	<4	<4	<4	<4	<4	ND
	GTC-B12-2.5	GTC-B12	2.5																										
	GTC-B15-2.5	GTC-B15	2.5																										
GTC-B7, B12 & B15 Comp 5	GTC-B7-5.5	GTC-B7	5.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<4	<4	<4	<4	<4	<4	<4	<4	<4	ND
	GTC-B12-5.5	GTC-B12	5.5																										
	GTC-B15-5.5	GTC-B15	5.5																										
GTC-B7, B12 & B15 Comp 10	GTC-B7-10.5	GTC-B7	10.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<10	<10	<10	<10	<10	<10	<10	<10	<10	ND
	GTC-B12-10	GTC-B12	10																										
	GTC-B15-11	GTC-B15	11																										
GTC-B7, B12 & B15 Comp 15	GTC-B7-15.5	GTC-B7	15.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B12-15.5	GTC-B12	15.5																										
	GTC-B15-15.5	GTC-B15	15.5																										
GTC-B7, B12 & B15 Comp 20	GTC-B7-20.5	GTC-B7	20.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B12-20.5	GTC-B12	20.5																										
	GTC-B15-20.5	GTC-B15	20.5																										
GTC-B7, B12 & B15 Comp 25	GTC-B7-25.5	GTC-B7	25.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND										ND
	GTC-B12-27.5	GTC-B12	27.5																										
	GTC-B15-25.5	GTC-B15	25.5																										
GTC-B7, B12 & B15 Comp 30	GTC-B7-30.5	GTC-B7	30.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B12-30.5	GTC-B12	30.5																										
	GTC-B15-30.5	GTC-B15	30.5																										
GTC-B7, B12 & B15 Comp 35	GTC-B7-35.5	GTC-B7	35.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND										ND
	GTC-B12-35.5	GTC-B12	35.5																										
	GTC-B15-35.5	GTC-B15	35.5																										
GTC-B7, B12 & B15 Comp 40	GTC-B7-40.5	GTC-B7	40.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND										ND
	GTC-B12-40.5	GTC-B12	40.5																										
	GTC-B15-40.5	GTC-B15	40.5																										
Group 4b: GTC-B13																													
GTC-B13-2.5	GTC-B13-2.5	GTC-B13	2.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<4	<4	<4	<4	<4	<4	<4	<4	<4	ND
GTC-B13-Comp 5, 10	GTC-B13-5	GTC-B13	5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B13-10.5	GTC-B13	10.5																										
GTC-B13-Comp 15, 20	GTC-B13-15	GTC-B13	15	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B13-20.5	GTC-B13	20.5																										
GTC-B13 Comp 25, 30	GTC-B13-24.5	GTC-B13	24.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B13-29	GTC-B13	29																										
GTC-B13 Comp 35, 40	GTC-B13-35.5	GTC-B13	35.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B13-40.59	GTC-B13	40.5																										

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TABLE 3 (Con't.)
RESULTS OF VOC AND SVOC ANALYSES ON SOIL SAMPLES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				VOCs (1															*SVOCs (1)*										
				Acetone	2-Butanone	Benzene	n-Butyl benzene	sec-Butyl benzene	tert-Butyl benzene	Carbon Disulfide	Isopropyl benzene	4-Isopropyl toluene	MTBE	Naphthalene	n-Propyl benzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Xylenes, Total	Other VOCs	Benzo (a) fluoranthene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (g,h,i) perylene	Benzo (a) pyrene	Chrysene	Fluoranthene	Indeno (1,2,3-cd) pyrene	Pyrene	Other SVOCs
		Unit (2)		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Risk Regulatory Criteria (3)																													
USEPA RSL Industrial				670000	190000	5.1	58000	120000	120000	3500	9900	NA (4)	210	17	22000	240	12000	2500	NA	2.9	2.9	29	NA	0.29	290	30000	2.9	23000	NA
ESL - Commerical (Table B)				0.5	NA	1.2	NA	NA	NA	NA	NA	NA	8.4	4.8	NA	NA	NA	11	NA	1.3	1.3	1.3	27	0.13	13	40	1.3	85	NA
ESL - Construction Workers (K-3)				240000	NA	71	NA	NA	NA	NA	NA	NA	3800	370	NA	NA	NA	2500	NA	8.3	8.3	8.3	NA	0.83	83	5700	8.3	8600	NA
CHHSLs - Commercial/Industrial				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.13	NA	NA	NA	NA	NA
Hazardous Waste Criteria (5)																													
TTLC				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10 x STLC				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STLC				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
20 x TCLP				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TCLP				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Laboratory ID	**Sample ID**	**Boring ID**	**Depth (Feet bgs)(1)**	**Min: <0.1 Max: <2 Ave: 0.165**	**Min: <0.02 Max: <0.4 Ave: 0.032**	**Min: <0.005 Max: <0.1 Ave: 0.009**	**Min: <0.005 Max: 0.8 Ave: 0.023**	**Min: <0.005 Max: 0.26 Ave: 0.012**	**Min: <0.005 Max: <0.1 Ave: 0.008**	**Min: <0.005 Max: <0.1 Ave: 0.008**	**Min: <0.005 Max: <0.1 Ave: 0.009**	**Min: <0.005 Max: <0.1 Ave: 0.008**	**Min: <0.005 Max: <0.1 Ave: 0.007**	**Min: <0.005 Max: 0.26 Ave: 0.013**	**Min: <0.005 Max: 0.12 Ave: 0.009**	**Min: <0.005 Max: 0.4 Ave: 0.016**	**Min: <0.005 Max: 0.14 Ave: 0.011**	**Min: <0.005 Max: <0.1 Ave: 0.01**		**Min: <0.25 Max: <10 Ave: 1.774**	**Min: <0.25 Max: <10 Ave: 1.769**	**Min: <0.25 Max: <10 Ave: 1.755**	**Min: <0.25 Max: <10 Ave: 1.759**	**Min: <0.25 Max: <10 Ave: 1.769**	**Min: <0.25 Max: <10 Ave: 1.772**	**Min: <0.25 Max: <10 Ave: 1.76**	**Min: <0.25 Max: <10 Ave: 1.758**	**Min: <0.25 Max: <10 Ave: 1.758**	
Soil Samples (6)																													
Group 5: GTC-B18B GTC-B20																													
GTC-B18B & GTC-B20 Comp 2.5	GTC-B18B-2.5 GTC-B20-2.5	GTC-B18B GTC-B20	2.5 2.5	<0.4	<0.08	***0.088***	<0.02	<0.02	<0.02	<0.02	<0.02	***0.022***	<0.02	***0.26***	***0.021***	***0.40***	***0.14***	***0.071***	ND	<10	<10	<10	<10	<10	<10	<10	<10	<10	ND
GTC-B18B & GTC-B20 Comp 5	GTC-B18B-5.5 GTC-B20-5.5	GTC-B18B GTC-B20	5.5 5.5	***0.21***	***0.028***	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<2	<2	<2	<2	<2	<2	<2	<2	<2	ND
GTC-B18B & GTC-B20 Comp 10	GTC-B18B-10.5 GTC-B20-10.5	GTC-B18B GTC-B20	10.5 10.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	***0.0053***	ND	<10	<10	<10	<10	<10	<10	<10	<10	<10	ND
GTC-B18B & GTC-B20 Comp 15	GTC-B18B-15.5 GTC-B20-15.5	GTC-B18B GTC-B20	15.5 15.5	***0.2***	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
GTC-B18B & GTC-B20 Comp 20	GTC-B18B-21.5 GTC-B20-21.5	GTC-B18B GTC-B20	21.5 21.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND
Group 6: GTC-B21 GTC-B22																													
GTC-B21 & GTC-B22 Comp 2.5	GTC-B-21-2.5 GTC-B22-2.5	GTC-B21 GTC-B22	2.5 2.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<2	<2	<2	<2	<2	<2	<2	<2	<2	ND
GTC-B21 & GTC-B22 Comp 5	GTC-B-21-5.5 GTC-B22-5.5	GTC-B21 GTC-B22	5.5 5.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<10	<10	<10	<10	<10	<10	<10	<10	<10	ND
GTC-B21 & GTC-B22 Comp 10	GTC-B-21-10.5 GTC-B22-10.5	GTC-B21 GTC-B22	10.5 10.5	<2	<0.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	ND	***0.46***	***0.58***	<0.25	***0.26***	0.47	***0.58***	***0.39***	<0.25	***0.62***	ND
GTC-B21 & GTC-B22 Comp 15	GTC-B-21-15.5 GTC-B22-15.5	GTC-B21 GTC-B22	15.5 15.5	<1	<0.2	<0.005	***0.8***	***0.26***	***0.052***	<0.05	***0.098***	<0.05	<0.005	<0.05	***0.12***	<0.05	<0.05	<0.05	ND	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND
GTC-B21 & GTC-B22 Comp 20	GTC-B-21-20.5 GTC-B22-20.5	GTC-B21 GTC-B22	20.5 20.5	<0.1	<0.02	<0.005	<0.005	<0.005	<0.005	***0.0068***	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	ND

Notes :

1. VOCs = Volatile Organic Compounds by USEPA Method 8260.
   SVOCs = Semi-Volatile Organic Compounds by USEPA Method 8270.
   bgs=below existing ground surface
2. mg/Kg = milligrams per Kilogram
3. RSL - Industrial = USEPA's Regional Screening Levels under industrial scenario, May 2014.
   ESL = California Regional Water Quality Control Board - San Francisco Region's Environmental Screening Criteria as listed in Table B (ESL for shallow soils and groundwater is a NOT a current or potential source of drinking water) under commercial/residential use scenario, December 2013.
   ESLs - Table K-3 Construction Worker = ESLs for Direct Exposure Soil Screening Levels Construction/Trench Worker Exposure Scenario (Table K-3).
   CHHSLs = California Human Health Screening Levels (CHHSLs) for commercial/industrial scenario, September 2010
4. NA = Not Available; ND = Not detected at concentrations above the respective detection limit(s).
5. STLC = California Souble Threshold Limit Concentration
   TTLC = California Total Threshold Limit Concentration
   TCLP = United States Environmental Protection Agency's Toxicity Characteristic Leaching Procedure
6. ***9.7*** denotes the respective concentration above the detected limit
   120 denotes the respective concentration above the respective ESL - Commercial/Industrial value.
   Min = Minimum Concentration. Max = Maximum Concentration. Ave: Approximate Arithmetic Average Concentration (for concentration reported as below detection limit, the detection limit was employed for the average estimation).

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TABLE 4
RESULTS OF TITLE 22 METALS AND ASBESTOS ANALYSES ON SOIL SAMPLES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Title 22 17-Metals (1)																										
				Sb	As	WET As	Ba	WET Ba	Be	Cd	Cr	WET Cr	TCLP Cr	Co	Cu	WET Cu	Pb	WET Pb	TCLP Pb	Hg	Mo	Ni	WET Ni	Se	Ag	Tl	V	Zn	WET Zn	Asbestos
			Unit (2)	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/L	%
Risk Regulatory and Reference Criteria (3)																														
			USEPA RSL - Industrial	470	3.0		220000		2300	980	1800000	NA (4)	NA	350	47000	NA	800	NA	NA	40	5800	22000	NA	58000	5800	12	58000	350000		NA
			ESL - Commerical (Table B)	40	1.6	NA	1500	NA	8	12	750	NA	NA	80	230	NA	320	NA	NA	10	40	150	NA	10	40	10	200	600	NA	NA
			ESL - Construction Workers (K-3)	120	10	NA	61000	NA	180	110	460000	NA	NA	49	12000	NA	320	NA	NA	27	1500	6100	NA	1500	1500	3.1	1500	93000	NA	NA
			CHHSLs - Commerical/Industrial	380	0.24	NA	63000	NA	190	7.5	100000	NA	NA	3200	38000	NA	320	NA	NA	180	4300	16000	NA	4800	4800	63	6700	100000	NA	NA
Hazardous Waste Criteria (5)																														
			TTLC	500	500	NA	10000	NA	75	100	2500	NA	NA	8000	2500	NA	1000	NA	NA	20	3500	2000	NA	100	500	700	2400	5000	NA	1
			10 x STLC	150	50	NA	1000	NA	7.5	10	50	NA	NA	800	250	NA	50	NA	NA	2	3500	200	NA	10	50	70	240	2500	NA	NA
			STLC	NA	NA	5	NA	100	NA	NA	NA	5	NA	NA	NA	25	NA	5	NA	NA	NA	NA	20	NA	NA	NA	NA	NA	250	NA
			20 x TCLP	NA	100	NA	2000	NA	NA	20	100	NA	NA	NA	NA	NA	100	NA	NA	4	NA	NA	NA	20	100	NA	NA	NA	NA	NA
			TCLP	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Range of Potential Background Concentration (5)																														
			Shaklette and Boerngen	0.62	7.0	NA	670	NA	0.97	NA	56	NA	NA	9.0	27	NA	20	NA	NA	0.065	1.1	19	NA	0.34	NA	NA	88	65	NA	NA
			LBNL	< 6	24	NA	410	NA	1.0	5.6	120	NA	NA	25	63	NA	43	NA	NA	0.42	4.8	272	NA	4.9	2.9	10	90	140	NA	NA
			Bradford et al.	0.60	3.5	NA	509	NA	1.28	0.36	122	NA	NA	14.9	28.7	NA	23.9	NA	NA	0.26	1.3	57	NA	0.058	0.80	0.56	112	149	NA	NA
Laboratory ID	Sample ID	Boring ID	Depth (Feet bgs)(1)	Min: <0.5 Max: 40 Ave: 2.9	Min: 0.95 Max: 51 Ave: 6	Min: 0.38 Max: 0.38	Min: 15 Max: 1500 Ave: 172	Min: 6.8 Max: 21	Min: <0.5 Max: <5 Ave: 0.6	Min: <0.25 Max: 7.9 Ave: 0.53	Min: 17 Max: 390 Ave: 67	Min: <0.05 Max: 0.86	Min: <0.05 Max: <0.05	Min: 4.2 Max: 85 Ave: 11	Min: 3.9 Max: 3700 Ave: 136	Min: 0.36 Max: 510	Min: 1.2 Max: 39000 Ave: 988	Min: 0.46 Max: 20	Min: <0.2 Max: 92	Min: <0.05 Max: 1.5 Ave: 0.1	Min: <0.5 Max: 16 Ave: 1.3	Min: 16 Max: 1100 Ave: 89	Min: 1.9 Max: 8.7	Min: <0.5 Max: <5 Ave: 0.6	Min: <0.5 Max: <5 Ave: 0.7	Min: <0.5 Max: <5 Ave: 0.6	Min: 26 Max: 110 Ave: 48	Min: 15 Max: 7000 Ave: 264	Min: 67 Max: 160	Min: 0 Max: <1
Soil Samples (6)																														
Group 1: GTC-B9, G GTC-B10, & GTC-B16																														
GTC-B9, B10 & B16 Comp 2.5	GTC-B9-2.5	GTC-B9	2.5	<0.5	*2.6*	NR(3)	*370*	NR	<0.5	<0.25	*30*	NR	NR	*8.7*	*72*	NR	*7.2*	NR	NR	*0.054*	<0.5	*28*	NR	<0.5	<0.5	<0.5	*39*	*26*	NR	ND(4)
	GTC-B10-2.5	GTC-B10	2.5																											
	GTC-B16-2.5	GTC-B16	2.5																											
GTC-B9, B10 & B16 Comp 5	GTC-B9-5.5	GTC-B9	5.5	p	*5.9*	NR	*98*	NR	<0.5	<0.25	*41*	NR	NR	*11*	*39*	NR	*16*	NR	NR	*0.056*	*0.71*	*46*	NR	<0.5	<0.5	<0.5	*52*	*65*	NR	<1
	GTC-B10-5.5	GTC-B10	5.5																											
	GTC-B16-5.5	GTC-B16	5.5																											
GTC-B9, B10 & B16 Comp 10	GTC-B9-9.5	GTC-B9	9.5	<0.5	*4.1*	NR	*72*	NR	<0.5	<0.25	*53*	*0.44*	NR	*16*	*35*	NR	*18*	NR	NR	*0.48*	*0.64*	*49*	NR	<0.5	<0.5	<0.5	*88*	*87*	NR	ND
	GTC-B10-9.5	GTC-B10	9.5																											
	GTC-B16-10.5	GTC-B16	10.5																											
GTC-B9, B10 & B16 Comp 15	GTC-B9-14	GTC-B9	14	*38*	*32*	NR	*370*	NR	<0.5	<0.25	*46*	NR	NR	*6.5*	*270*	*3.5*	*1300*	NR	*0.39*	*0.5*	*2.9*	*62*	NR	<0.5	*1.1*	<0.5	*32*	*490*	NR	ND
	GTC-B10-16.5	GTC-B10	16.5																											
	GTC-B16-16	GTC-B16	16																											
GTC-B9, B10 & B16 Comp 20	GTC-B9-21.5	GTC-B9	21.5	<0.5	*4.4*	NR	*24*	NR	<0.5	<0.25	*50*	*0.23*	NR	*7*	*18*	NR	*5.8*	NR	NR	<0.05	*1.5*	*50*	NR	<0.5	<0.5	<0.5	*40*	*52*	NR	ND
	GTC-B10-19.5	GTC-B10	19.5																											
	GTC-B16-20.5	GTC-B16	20.5																											
GTC-B9, B10 & B16 Comp 25	GTC-B9-25.5	GTC-B9	25.5	<0.5	*5.9*	NR	*21*	NR	<0.5	<0.25	*42*	NR	NR	*7.3*	*17*	NR	*4.9*	NR	NR	<0.05	*1.2*	*45*	NR	<0.5	<0.5	<0.5	*35*	*44*	NR	ND
	GTC-B10-25.5	GTC-B10	25.5																											
	GTC-B16-25.5	GTC-B16	25.5																											
GTC-B9, B10 & B16 Comp 30	GTC-B9-30.5	GTC-B9	30.5	<0.5	*4.1*	NR	*24*	NR	<0.5	<0.25	*42*	NR	NR	*8.5*	*17*	NR	*4.9*	NR	NR	<0.05	*3.7*	*51*	NR	<0.5	<0.5	<0.5	*39*	*43*	NR	N/A
	GTC-B10-30.5	GTC-B10	30.5																											
	GTC-B16-30.5	GTC-B16	30.5																											
GTC-B9, B10 & B16 Comp 35	GTC-B9-35.5	GTC-B9	35.5	<0.5	*2.4*	NR	*27*	NR	<0.5	<0.25	*47*	NR	NR	*6.4*	*13*	NR	*3.2*	NR	NR	<0.05	*0.78*	*39*	NR	<0.5	<0.5	<0.5	*40*	*33*	NR	N/A
	GTC-B10-35.5	GTC-B10	35.5																											
	GTC-B16-35.5	GTC-B16	35.5																											
GTC-B9, B10 & B16 Comp 40	GTC-B9-40.5	GTC-B9	40.5	<0.5	*2.7*	NR	*28*	NR	<0.5	<0.25	*54*	*0.38*	NR	*6.9*	*8.2*	NR	*2.4*	NR	NR	<0.05	<0.5	*42*	NR	<0.5	<0.5	<0.5	*53*	*32*	NR	N/A
	GTC-B10-40.5	GTC-B10	40.5																											
	GTC-B16-40.5	GTC-B16	40.5																											
GTC-B9, B10 & B16 Comp 45 & 50	GTC-B9-45.5	GTC-B9	45.5	<0.5	*2*	NR	*21*	NR	<0.5	<0.25	*120*	*0.092*	<0.050	*7.9*	*7.5*	NR	*2.4*	NR	NR	<0.05	<0.5	*43*	NR	<0.5	<0.5	<0.5	*70*	*28*	NR	N/A
	GTC-B10-45.5	GTC-B10	45.5																											
	GTC-B16-45.5	GTC-B16	45.5																											
	GTC-B9-50.5	GTC-B9	50.5																											
	GTC-B10-50.5	GTC-B10	50.5																											
	GTC-B16-50	GTC-B16	50																											

TABLE 4 (Con't.)
RESULTS OF TITLE 22 METALS AND ASBESTOS ANALYSES ON SOIL SAMPLES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Title 22 17-Metals (1)																										
				Sb	As	WET As	Ba	WET Ba	Be	Cd	Cr	WET Cr	TCLP Cr	Co	Cu	WET Cu	Pb	WET Pb	TCLP Pb	Hg	Mo	Ni	WET Ni	Se	Ag	Tl	V	Zn	WET Zn	Asbestos
			Unit (2)	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/L	%
Risk Regulatory and Reference Criteria (3)																														
			USEPA RSL - Industrial	470	3.0		220000		2300	980	1800000	NA (4)	NA	350	47000	NA	800	NA	NA	40	5800	22000	NA	58000	5800	12	58000	350000		NA
			ESL - Commerical (Table B)	40	1.6	NA	1500	NA	8	12	750	NA	NA	80	230	NA	320	NA	NA	10	40	150	NA	10	40	10	200	600	NA	NA
			ESL - Construction Workers (K-3)	120	10	NA	61000	NA	180	110	460000	NA	NA	49	12000	NA	320	NA	NA	27	1500	6100	NA	1500	1500	3.1	1500	93000	NA	NA
			CHHSLs - Commerical/Industrial	380	0.24	NA	63000	NA	190	7.5	100000	NA	NA	3200	38000	NA	320	NA	NA	180	4300	16000	NA	4800	4800	63	6700	100000	NA	NA
Hazardous Waste Criteria (5)																														
			TTLC	500	500	NA	10000	NA	75	100	2500	NA	NA	8000	2500	NA	1000	NA	NA	20	3500	2000	NA	100	500	700	2400	5000	NA	1
			10 x STLC	150	50	NA	1000	NA	7.5	10	50	NA	NA	800	250	NA	50	NA	NA	2	3500	200	NA	10	50	70	240	2500	NA	NA
			STLC	NA	NA	5	NA	100	NA	NA	NA	5	NA	NA	NA	25	NA	5	NA	NA	NA	NA	20	NA	NA	NA	NA	NA	250	NA
			20 x TCLP	NA	100	NA	2000	NA	NA	20	100	NA	NA	NA	NA	NA	100	NA	NA	4	NA	NA	NA	20	100	NA	NA	NA	NA	NA
			TCLP	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Range of Potential Background Concentration (5)																														
			Shaklette and Boerngen	0.62	7.0	NA	670	NA	0.97	NA	56	NA	NA	9.0	27	NA	20	NA	NA	0.065	1.1	19	NA	0.34	NA	NA	88	65	NA	NA
			LBNL	< 6	24	NA	410	NA	1.0	5.6	120	NA	NA	25	63	NA	43	NA	NA	0.42	4.8	272	NA	4.9	2.9	10	90	140	NA	NA
			Bradford et al.	0.60	3.5	NA	509	NA	1.28	0.36	122	NA	NA	14.9	28.7	NA	23.9	NA	NA	0.26	1.3	57	NA	0.058	0.80	0.56	112	149	NA	NA
Laboratory ID	**Sample ID**	**Boring ID**	**Depth (Feet bgs)(1)**	**Min: <0.5 Max: 40 Ave: 2.9**	**Min: 0.95 Max: 51 Ave: 6**	**Min: 0.38 Max: 0.38**	**Min: 15 Max: 1500 Ave: 172**	**Min: 6.8 Max: 21**	**Min: <0.5 Max: <5 Ave: 0.6**	**Min: <0.25 Max: 7.9 Ave: 0.53**	**Min: 17 Max: 390 Ave: 67**	**Min: <0.05 Max: 0.86**	**Min: <0.05 Max: <0.05**	**Min: 4.2 Max: 85 Ave: 11**	**Min: 3.9 Max: 3700 Ave: 136**	**Min: 0.36 Max: 510**	**Min: 1.2 Max: 39000 Ave: 988**	**Min: 0.46 Max: 20**	**Min: <0.2 Max: 92**	**Min: <0.05 Max: 1.5 Ave: 0.1**	**Min: <0.5 Max: 16 Ave: 1.3**	**Min: 16 Max: 1100 Ave: 89**	**Min: 1.9 Max: 8.7**	**Min: <0.5 Max: <5 Ave: 0.6**	**Min: <0.5 Max: <5 Ave: 0.7**	**Min: <0.5 Max: <5 Ave: 0.6**	**Min: 26 Max: 110 Ave: 48**	**Min: 15 Max: 7000 Ave: 264**	**Min: 67 Max: 160**	**Min: 0 Max: <1**
Soil Samples (6)																														
GTC-B9, B10 & B16 Comp 55 & 60	GTC-B9-55.5	GTC-B9	55.5	<0.5	***1.4***	NR	***21***	NR	<0.5	<0.25	***75***	<0.05	NR	***7.9***	***5.9***	NR	***3.1***	NR	NR	<0.05	<0.5	***30***	NR	<0.5	<0.5	<0.5	***110***	***33***	NR	N/A
	GTC-B10-55.5	GTC-B10	55.5																											
	GTC-B16-55.5	GTC-B16	55.5																											
	GTC-B9-60	GTC-B9	60																											
	GTC-B10-60	GTC-B10	60																											
	GTC-B16-60.5	GTC-B16	60.5																											
GTC-B9, B10 & B16 Comp 65 & 70	GTC-B9-65.5	GTC-B9	65.5	<0.5	***8.8***	NR	***49***	NR	<0.5	<0.25	***67***	<0.05	NR	***7.6***	***18***	NR	***6***	NR	NR	<0.05	<0.5	***41***	NR	<0.5	<0.5	<0.5	***69***	***42***	NR	N/A
	GTC-B10-65.5	GTC-B10	65.5																											
	GTC-B16-65.5	GTC-B16	65.5																											
	GTC-B9-70.5	GTC-B9	70.5																											
	GTC-B10-70.5	GTC-B10	70.5																											
	GTC-B16-70.5	GTC-B16	70.5																											
GTC-B9, B10 & B16 Comp 75 & 80	GTC-B9-75.5	GTC-B9	75.5	<0.5	***3.5***	NR	***53***	NR	<0.5	<0.25	***75***	***0.12***	NR	***9.7***	***16***	NR	***3.4***	NR	NR	***0.064***	<0.5	***61***	NR	<0.5	<0.5	<0.5	***58***	***37***	NR	N/A
	GTC-B10-75.5	GTC-B10	75.5																											
	GTC-B16-75.5	GTC-B16	75.5																											
	GTC-B9-80.5	GTC-B9	80.5																											
	GTC-B10-80.5	GTC-B10	80.5																											
	GTC-B16-80.5	GTC-B16	80.5																											
GTC-B9, B10 & B16 Comp 85 & 90	GTC-B9-85.5	GTC-B9	85.5	<0.5	3.7	NR	39	NR	<0.5	<0.25	55	0.11	NR	7	8.5	NR	3.5	NR	NR	<0.05	<0.5	38	NR	<0.5	<0.5	<0.5	45	28	NR	N/A
	GTC-B10-85	GTC-B10	85																											
	GTC-B16-85.5	GTC-B16	85.5																											
	GTC-B9-90	GTC-B9	90																											
	GTC-B10-90	GTC-B10	90																											
	GTC-B16-90	GTC-B16	90																											
GTC-B9, B10 & B16 Comp 95 & 100	GTC-B9-95.5	GTC-B9	95.5	<0.5	***4.3***	NR	***28***	NR	<0.5	<0.25	***54***	***0.087***	NR	***6.7***	***7.2***	NR	***2.7***	NR	NR	***0.056***	<0.5	***43***	NR	<0.5	<0.5	<0.5	***46***	***27***	NR	N/A
	GTC-B10-95	GTC-B10	95																											
	GTC-B16-95	GTC-B16	95																											
	GTC-B9-100	GTC-B9	100																											
	GTC-B10-100	GTC-B10	100																											
	GTC-B16-100	GTC-B16	100																											

TABLE 4 (Con't.)
RESULTS OF TITLE 22 METALS AND ASBESTOS ANALYSES ON SOIL SAMPLES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Title 22 17-Metals (1)																										
				Sb	As	WET As	Ba	WET Ba	Be	Cd	Cr	WET Cr	TCLP Cr	Co	Cu	WET Cu	Pb	WET Pb	TCLP Pb	Hg	Mo	Ni	WET Ni	Se	Ag	Tl	V	Zn	WET Zn	Asbestos
			Unit (2)	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/L	%
Risk Regulatory and Reference Criteria (3)																														
USEPA RSL - Industrial				470	3.0		220000		2300	980	1800000	NA (4)	NA	350	47000	NA	800	NA	NA	40	5800	22000	NA	58000	5800	12	58000	350000		NA
ESL - Commerical (Table B)				40	1.6	NA	1500	NA	8	12	750	NA	NA	80	230	NA	320	NA	NA	10	40	150	NA	10	40	10	200	600	NA	NA
ESL - Construction Workers (K-3)				120	10	NA	61000	NA	180	110	460000	NA	NA	49	12000	NA	320	NA	NA	27	1500	6100	NA	1500	1500	3.1	1500	93000	NA	NA
CHHSLs - Commerical/Industrial				380	0.24	NA	63000	NA	190	7.5	100000	NA	NA	3200	38000	NA	320	NA	NA	180	4300	16000	NA	4800	4800	63	6700	100000	NA	NA
Hazardous Waste Criteria (5)																														
TTLC				500	500	NA	10000	NA	75	100	2500	NA	NA	8000	2500	NA	1000	NA	NA	20	3500	2000	NA	100	500	700	2400	5000	NA	1
10 x STLC				150	50	NA	1000	NA	7.5	10	50	NA	NA	800	250	NA	50	NA	NA	2	3500	200	NA	10	50	70	240	2500	NA	NA
STLC				NA	NA	5	NA	100	NA	NA	NA	5	NA	NA	NA	25	NA	5	NA	NA	NA	NA	20	NA	NA	NA	NA	NA	250	NA
20 x TCLP				NA	100	NA	2000	NA	NA	20	100	NA	NA	NA	NA	NA	100	NA	NA	4	NA	NA	NA	20	100	NA	NA	NA	NA	NA
TCLP				NA	NA	NA	NA	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Range of Potential Background Concentration (5)																														
Shaklette and Boerngen				0.62	7.0	NA	670	NA	0.97	NA	56	NA	NA	9.0	27	NA	20	NA	NA	0.065	1.1	19	NA	0.34	NA	NA	88	65	NA	NA
LBNL				< 6	24	NA	410	NA	1.0	5.6	120	NA	NA	25	63	NA	43	NA	NA	0.42	4.8	272	NA	4.9	2.9	10	90	140	NA	NA
Bradford et al.				0.60	3.5	NA	509	NA	1.28	0.36	122	NA	NA	14.9	28.7	NA	23.9	NA	NA	0.26	1.3	57	NA	0.058	0.80	0.56	112	149	NA	NA
Laboratory ID	**Sample ID**	**Boring ID**	**Depth (Feet bgs)(1)**	**Min: <0.5 Max: 40 Ave: 2.9**	**Min: 0.95 Max: 51 Ave: 6**	**Min: 0.38 Max: 0.38**	**Min: 15 Max: 1500 Ave: 172**	**Min: 6.8 Max: 21**	**Min: <0.5 Max: <5 Ave: 0.6**	**Min: <0.25 Max: 7.9 Ave: 0.53**	**Min: 17 Max: 390 Ave: 67**	**Min: <0.05 Max: 0.86**	**Min: <0.05 Max: <0.05**	**Min: 4.2 Max: 85 Ave: 11**	**Min: 3.9 Max: 3700 Ave: 136**	**Min: 0.36 Max: 510**	**Min: 1.2 Max: 39000 Ave: 988**	**Min: 0.46 Max: 20**	**Min: <0.2 Max: 92**	**Min: <0.05 Max: 1.5 Ave: 0.1**	**Min: <0.5 Max: 16 Ave: 1.3**	**Min: 16 Max: 1100 Ave: 89**	**Min: 1.9 Max: 8.7**	**Min: <0.5 Max: <5 Ave: 0.6**	**Min: <0.5 Max: <5 Ave: 0.7**	**Min: <0.5 Max: <5 Ave: 0.6**	**Min: 26 Max: 110 Ave: 48**	**Min: 15 Max: 7000 Ave: 264**	**Min: 67 Max: 160**	**Min: 0 Max: <1**
Soil Samples (6)																														
Group 2: GTC-B6, GTC-B14 & GTC-B17																														
GTC-B6, B14 & B17 Comp 2.5	GTC-B6-2.5	GTC-B6	2.5	<0.5	***2.8***	NR	***190***	NR	<0.5	<0.25	***36***	NR	NR	***8.7***	***69***	NR	***5***	NR	NR	***0.086***	<0.5	***41***	NR	<0.5	<0.5	<0.5	***37***	***60***	NR	ND
	GTC-B14-2.5	GTC-B14	2.5																											
	GTC-B17-2.5	GTC-B17	2.5																											
GTC-B6, B14 & B17 Comp 5	GTC-B6-5	GTC-B6	5	***1.5***	***6.5***	NR	***190***	NR	<0.5	***0.65***	***200***	***0.67***	<0.05	***29***	***240***	NR	***770***	***2.5***	<0.2	***1.5***	***7.5***	***530***	***8.3***	<0.5	<0.5	<0.5	***53***	***270***	NR	<1
	GTC-B14-5.5	GTC-B14	5.5																											
	GTC-B17-5.5	GTC-B17	5.5																											
GTC-B6, B14 & B17 Comp 10	GTC-B6-12	GTC-B6	12	***0.78***	***9.7***	NR	***120***	NR	<0.5	<0.25	***240***	***0.73***	<0.05	***37***	***66***	NR	***53***	***1.9***	NR	***0.17***	***1.7***	***510***	***5.3***	<0.5	<0.5	<0.5	***84***	***98***	NR	<1
	GTC-B14-10.5	GTC-B14	10.5																											
	GTC-B17-10.5	GTC-B17	10.5																											
GTC-B6, B14 & B17 Comp 15	GTC-B6-15.5	GTC-B6	15.5	<0.5	***7.6***	NR	***86***	NR	<0.5	<0.25	***52***	***0.21***	NR	***11***	***38***	NR	***100***	***1.6***	***0.27***	***0.068***	***1.4***	***48***	NR	<0.5	<0.5	<0.5	***62***	***79***	NR	ND
	GTC-B14-15.5	GTC-B14	15.5																											
	GTC-B17-17.5	GTC-B17	17.5																											
GTC-B6, B14 & B17 Comp 20	GTC-B6-20.5	GTC-B6	20.5	<0.5	***5***	NR	***26***	NR	<0.5	<0.25	***50***	***0.26***	NR	***8.6***	***19***	NR	***5.7***	NR	NR	<0.05	***0.66***	***52***	NR	<0.5	<0.5	<0.5	***40***	***49***	NR	ND
	GTC-B14-20.5	GTC-B14	20.5																											
	GTC-B17-21.5	GTC-B17	21.5																											
GTC-B6, B14 & B17 Comp 25	GTC-B6-25.5	GTC-B6	25.5	<0.5	***5.6***	NR	***23***	NR	<0.5	<0.25	***47***	NR	NR	***7.8***	***18***	NR	***5.2***	NR	NR	<0.05	***0.87***	***46***	NR	<0.5	<0.5	<0.5	***38***	***45***	NR	ND
	GTC-B14-25.5	GTC-B14	25.5																											
	GTC-B17-25.5	GTC-B17	25.5																											
GTC-B6, B14 & B17 Comp 30	GTC-B6-30.5	GTC-B6	30.5	<0.5	***3.7***	NR	***28***	NR	<0.5	<0.25	***49***	NR	NR	***8.3***	***18***	NR	***7.8***	NR	NR	<0.05	***1.6***	***46***	NR	<0.5	<0.5	<0.5	***43***	***44***	NR	***0***
	GTC-B14-30.5	GTC-B14	30.5																											
	GTC-B17-30.5	GTC-B17	30.5																											
GTC-B6, B14 & B17 Comp 35	GTC-B6-35.5	GTC-B6	35.5	<0.5	***2***	NR	***23***	NR	<0.5	<0.25	***55***	***0.54***	NR	***6***	***15***	NR	***1.9***	NR	NR	<0.05	<0.5	***30***	NR	<0.5	<0.5	<0.5	***41***	***31***	NR	N/A
	GTC-B14-35.5	GTC-B14	35.5																											
	GTC-B17-35.5	GTC-B17	35.5																											
GTC-B6, B14 & B17 Comp 40	GTC-B6-40.5	GTC-B6	40.5	<0.5	***0.99***	NR	***23***	NR	<0.5	<0.25	***44***	NR	NR	***6***	***7.2***	NR	***1.4***	NR	NR	<0.05	<0.5	***29***	NR	<0.5	<0.5	<0.5	***34***	***22***	NR	N/A
	GTC-B14-40.5	GTC-B14	40.5																											
	GTC-B17-40.5	GTC-B17	40.5																											

TABLE 4 (Con't.)
RESULTS OF TITLE 22 METALS AND ASBESTOS ANALYSES ON SOIL SAMPLES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Title 22 17-Metals (1)																										
				Sb	As	WET As	Ba	WET Ba	Be	Cd	Cr	WET Cr	TCLP Cr	Co	Cu	WET Cu	Pb	WET Pb	TCLP Pb	Hg	Mo	Ni	WET Ni	Se	Ag	Tl	V	Zn	WET Zn	Asbestos
			Unit (2)	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/L	%
Risk Regulatory and Reference Criteria (3)																														
			USEPA RSL - Industrial	470	3.0		220000		2300	980	1800000	NA (4)	NA	350	47000	NA	800	NA	NA	40	5800	22000	NA	58000	5800	12	58000	350000		NA
			ESL - Commerical (Table B)	40	1.6	NA	1500	NA	8	12	750	NA	NA	80	230	NA	320	NA	NA	10	40	150	NA	10	40	10	200	600	NA	NA
			ESL - Construction Workers (K-3)	120	10	NA	61000	NA	180	110	460000	NA	NA	49	12000	NA	320	NA	NA	27	1500	6100	NA	1500	1500	3.1	1500	93000	NA	NA
			CHHSLs - Commerical/Industrial	380	0.24	NA	63000	NA	190	7.5	100000	NA	NA	3200	38000	NA	320	NA	NA	180	4300	16000	NA	4800	4800	63	6700	100000	NA	NA
Hazardous Waste Criteria (5)																														
			TTLC	500	500	NA	10000	NA	75	100	2500	NA	NA	8000	2500	NA	1000	NA	NA	20	3500	2000	NA	100	500	700	2400	5000	NA	1
			10 x STLC	150	50	NA	1000	NA	7.5	10	50	NA	NA	800	250	NA	50	NA	NA	2	3500	200	NA	10	50	70	240	2500	NA	NA
			STLC	NA	NA	5	NA	100	NA	NA	NA	5	NA	NA	NA	25	NA	5	NA	NA	NA	NA	20	NA	NA	NA	NA	NA	250	NA
			20 x TCLP	NA	100	NA	2000	NA	NA	20	100	NA	NA	NA	NA	NA	100	NA	NA	4	NA	NA	NA	20	100	NA	NA	NA	NA	NA
			TCLP	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Range of Potential Background Concentration (5)																														
			Shaklette and Boerngen	0.62	7.0	NA	670	NA	0.97	NA	56	NA	NA	9.0	27	NA	20	NA	NA	0.065	1.1	19	NA	0.34	NA	NA	88	65	NA	NA
			LBNL	< 6	24	NA	410	NA	1.0	5.6	120	NA	NA	25	63	NA	43	NA	NA	0.42	4.8	272	NA	4.9	2.9	10	90	140	NA	NA
			Bradford et al.	0.60	3.5	NA	509	NA	1.28	0.36	122	NA	NA	14.9	28.7	NA	23.9	NA	NA	0.26	1.3	57	NA	0.058	0.80	0.56	112	149	NA	NA
Laboratory ID	Sample ID	Boring ID	Depth (Feet bgs)(1)	Min: <0.5 Max: 40 Ave: 2.9	Min: 0.95 Max: 51 Ave: 6	Min: 0.38 Max: 0.38	Min: 15 Max: 1500 Ave: 172	Min: 6.8 Max: 21	Min: <0.5 Max: <5 Ave: 0.6	Min: <0.25 Max: 7.9 Ave: 0.53	Min: 17 Max: 390 Ave: 67	Min: <0.05 Max: 0.86	Min: <0.05 Max: <0.05	Min: 4.2 Max: 85 Ave: 11	Min: 3.9 Max: 3700 Ave: 136	Min: 0.36 Max: 510	Min: 1.2 Max: 39000 Ave: 988	Min: 0.46 Max: 20	Min: <0.2 Max: 92	Min: <0.05 Max: 1.5 Ave: 0.1	Min: <0.5 Max: 16 Ave: 1.3	Min: 16 Max: 1100 Ave: 89	Min: 1.9 Max: 8.7	Min: <0.5 Max: <5 Ave: 0.6	Min: <0.5 Max: <5 Ave: 0.7	Min: <0.5 Max: <5 Ave: 0.6	Min: 26 Max: 110 Ave: 48	Min: 15 Max: 7000 Ave: 264	Min: 67 Max: 160	Min: 0 Max: <1	
Soil Samples (6)																														
GTC-B6, B14 & B17 Comp 45 & 50	GTC-B6-45	GTC-B6	45	<0.5	*1.3*	NR	*15*	NR	<0.5	<0.25	*47*	NR	NR	*5.1*	*5.7*	NR	*1.2*	NR	NR	<0.05	<0.5	*26*	NR	<0.5	<0.5	<0.5	*44*	*19*	NR	N/A
	GTC-B14-45.5	GTC-B14	45.5																											
	GTC-B17-45.5	GTC-B17	45.5																											
	GTC-B6-50.5	GTC-B6	50.5																											
	GTC-B14-50.5	GTC-B14	50.5																											
	GTC-B17-50.5	GTC-B17	50.5																											
GTC-B6, B14 & B17 Comp 55 & 60	GTC-B6-55.5	GTC-B6	55.5	<0.5	*1.6*	NR	*29*	NR	<0.5	<0.25	*62*	*0.072*	NR	*7.9*	*12*	NR	*2.7*	NR	NR	<0.05	<0.5	*33*	NR	<0.5	<0.5	<0.5	*65*	*36*	NR	N/A
	GTC-B14-55.5	GTC-B14	55.5																											
	GTC-B17-55.5	GTC-B17	55.5																											
	GTC-B6-60.5	GTC-B6	60.5																											
	GTC-B14-60.5	GTC-B14	60.5																											
	GTC-B17-60.5	GTC-B17	60.5																											
GTC-B6, B14 & B17 Comp 65 & 70	GTC-B6-65.5	GTC-B6	65.5	<0.5	*4.5*	NR	*45*	NR	<0.5	<0.25	*57*	*0.062*	NR	*10*	*10*	NR	*3*	NR	NR	<0.05	<0.5	*43*	NR	<0.5	<0.5	<0.5	*55*	*28*	NR	N/A
	GTC-B14-65.5	GTC-B14	65.5																											
	GTC-B17-65.5	GTC-B17	65.5																											
	GTC-B6-70.5	GTC-B6	70.5																											
	GTC-B14-70.5	GTC-B14	70.5																											
	GTC-B17-70.5	GTC-B17	70.5																											
GTC-B6, B14 & B17 Comp 75 & 80	GTC-B6-75.5	GTC-B6	75.5	<0.5	*3.2*	NR	*32*	NR	<0.5	<0.25	*42*	NR	NR	*7*	*7.2*	NR	*2.2*	NR	NR	*0.82*	<0.5	*37*	NR	<0.5	<0.5	<0.5	*38*	*25*	NR	N/A
	GTC-B14-76	GTC-B14	76																											
	GTC-B17-75	GTC-B17	75																											
	GTC-B6-80.5	GTC-B6	80.5																											
	GTC-B14-80.5	GTC-B14	80.5																											
	GTC-B17-80.5	GTC-B17	80.5																											
GTC-B6, B14 & B17 Comp 85 & 90	GTC-B6-85	GTC-B6	85	<0.5	*2.5*	NR	*24*	NR	<0.5	<0.25	*54*	<0.05	NR	*7.4*	*6.7*	NR	*2.1*	NR	NR	<0.05	<0.5	*35*	NR	<0.5	<0.5	<0.5	*46*	*25*	NR	N/A
	GTC-B14-85.5	GTC-B14	85.5																											
	GTC-B17-85	GTC-B17	85																											
	GTC-B6-90	GTC-B6	90																											
	GTC-B14-90	GTC-B14	90																											
	GTC-B17-90	GTC-B17	90																											
GTC-B6, B14 & B17 Comp 95 & 100	GTC-B6-95.5	GTC-B6	95.5	<0.5	*2.5*	NR	*18*	NR	<0.5	<0.25	*43*	NR	NR	*5.6*	*6.2*	NR	*2*	NR	NR	<0.05	<0.5	*30*	NR	<0.5	<0.5	<0.5	*30*	*20*	NR	N/A
	GTC-B14-95	GTC-B14	95																											
	GTC-B17-95	GTC-B17	95																											
	GTC-B6-100	GTC-B6	100																											
	GTC-B14-100	GTC-B14	100																											
	GTC-B17-100	GTC-B17	100																											

TABLE 4 (Con't.)
RESULTS OF TITLE 22 METALS AND ASBESTOS ANALYSES ON SOIL SAMPLES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Title 22 17-Metals (1)																										
				Sb	As	WET As	Ba	WET Ba	Be	Cd	Cr	WET Cr	TCLP Cr	Co	Cu	WET Cu	Pb	WET Pb	TCLP Pb	Hg	Mo	Ni	WET Ni	Se	Ag	Tl	V	Zn	WET Zn	Asbestos
			Unit (2)	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/L	%
Risk Regulatory and Reference Criteria (3)																														
			USEPA RSL - Industrial	470	3.0		220000		2300	980	1800000	NA (4)	NA	350	47000	NA	800	NA	NA	40	5800	22000	NA	58000	5800	12	58000	350000		NA
			ESL - Commerical (Table B)	40	1.6	NA	1500	NA	8	12	750	NA	NA	80	230	NA	320	NA	NA	10	40	150	NA	10	40	10	200	600	NA	NA
			ESL - Construction Workers (K-3)	120	10	NA	61000	NA	180	110	460000	NA	NA	49	12000	NA	320	NA	NA	27	1500	6100	NA	1500	1500	3.1	1500	93000	NA	NA
			CHHSLs - Commerical/Industrial	380	0.24	NA	63000	NA	190	7.5	100000	NA	NA	3200	38000	NA	320	NA	NA	180	4300	16000	NA	4800	4800	63	6700	100000	NA	NA
Hazardous Waste Criteria (5)																														
			TTLC	500	500	NA	10000	NA	75	100	2500	NA	NA	8000	2500	NA	1000	NA	NA	20	3500	2000	NA	100	500	700	2400	5000	NA	1
			10 x STLC	150	50	NA	1000	NA	7.5	10	50	NA	NA	800	250	NA	50	NA	NA	2	3500	200	NA	10	50	70	240	2500	NA	NA
			STLC	NA	NA	5	NA	100	NA	NA	NA	5	NA	NA	NA	25	NA	5	NA	NA	NA	NA	20	NA	NA	NA	NA	NA	250	NA
			20 x TCLP	NA	100	NA	2000	NA	NA	20	100	NA	NA	NA	NA	NA	100	NA	NA	4	NA	NA	NA	20	100	NA	NA	NA	NA	NA
			TCLP	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Range of Potential Background Concentration (5)																														
			Shaklette and Boerngen	0.62	7.0	NA	670	NA	0.97	NA	56	NA	NA	9.0	27	NA	20	NA	NA	0.065	1.1	19	NA	0.34	NA	NA	88	65	NA	NA
			LBNL	< 6	24	NA	410	NA	1.0	5.6	120	NA	NA	25	63	NA	43	NA	NA	0.42	4.8	272	NA	4.9	2.9	10	90	140	NA	NA
			Bradford et al.	0.60	3.5	NA	509	NA	1.28	0.36	122	NA	NA	14.9	28.7	NA	23.9	NA	NA	0.26	1.3	57	NA	0.058	0.80	0.56	112	149	NA	NA
Laboratory ID	**Sample ID**	**Boring ID**	**Depth (Feet bgs)(1)**	**Min: <0.5 Max: 40 Ave: 2.9**	**Min: 0.95 Max: 51 Ave: 6**	**Min: 0.38 Max: 0.38**	**Min: 15 Max: 1500 Ave: 172**	**Min: 6.8 Max: 21**	**Min: <0.5 Max: <5 Ave: 0.6**	**Min: <0.25 Max: 7.9 Ave: 0.53**	**Min: 17 Max: 390 Ave: 67**	**Min: <0.05 Max: 0.86**	**Min: <0.05 Max: <0.05**	**Min: 4.2 Max: 85 Ave: 11**	**Min: 3.9 Max: 3700 Ave: 136**	**Min: 0.36 Max: 510**	**Min: 1.2 Max: 39000 Ave: 988**	**Min: 0.46 Max: 20**	**Min: <0.2 Max: 92**	**Min: <0.05 Max: 1.5 Ave: 0.1**	**Min: <0.5 Max: 16 Ave: 1.3**	**Min: 16 Max: 1100 Ave: 89**	**Min: 1.9 Max: 8.7**	**Min: <0.5 Max: <5 Ave: 0.6**	**Min: <0.5 Max: <5 Ave: 0.7**	**Min: <0.5 Max: <5 Ave: 0.6**	**Min: 26 Max: 110 Ave: 48**	**Min: 15 Max: 7000 Ave: 264**	**Min: 67 Max: 160**	**Min: 0 Max: <1**
Soil Samples (6)																														
Group 3: GTC-B8, GTC-B11 & GTC-B18																														
GTC-B8, B11 & B18 Comp 2.5	GTC-B8-2.5	GTC-B8	2.5	***8.4***	***14***	NR	***670***	NR	<0.5	<0.25	***17***	NR	NR	***8.8***	***120***	NR	***370***	***16***	***1.1***	***0.091***	***1.1***	***16***	NR	***0.87***	***1.7***	<0.5	***28***	***78***	NR	ND
	GTC-B11-2.5	GTC-B11	2.5																											
	GTC-B18-2.5	GTC-B18	2.5																											
GTC-B8, B11 & B18 Comp 5	GTC-B8-5	GTC-B8	5	***37***	***51***	***0.38***	***170***	NR	***1.3***	***2.2***	***190***	***0.7***	<0.05	***25***	***3700***	***510***	***230***	***7.1***	***0.54***	***0.13***	***16***	***140***	NR	<0.5	***1.9***	<0.5	***110***	***1100***	NR	ND
	GTC-B11-5.5	GTC-B11	5.5																											
	GTC-B18-4.5	GTC-B18	4.5																											
GTC-B8 & B11 Comp 10	GTC-B8-10.5	GTC-B8	10.5	***4.7***	***11***	NR	***690***	NR	***0.76***	***1.1***	***61***	***0.23***	NR	***19***	***180***	NR	***1100***	NR	***0.43***	***0.16***	***0.81***	***85***	NR	<0.5	***1.1***	<0.5	***65***	***650***	NR	ND
	GTC-B11-11	GTC-B11	11																											
GTC-B8 & B11 Comp 15	GTC-B8-15.5	GTC-B8	15.5	<0.5	***11***	NR	***41***	NR	<0.5	***0.29***	***52***	***0.22***	NR	***7.9***	***36***	NR	***300***	***0.46***	<0.2	<0.05	***7.4***	***52***	NR	<0.5	<0.5	<0.5	***44***	***66***	NR	ND
	GTC-B11-15.5	GTC-B11	15.5																											
GTC-B8 & B11 Comp 20	GTC-B8-22.5	GTC-B8	22.5	<0.5	***4.5***	NR	***31***	NR	<0.5	<0.25	***52***	***0.23***	NR	***7.8***	***18***	NR	***5.3***	NR	NR	<0.05	***0.74***	***48***	NR	<0.5	<0.5	<0.5	***43***	***46***	NR	ND
	GTC-B11-20.5	GTC-B11	20.5																											
GTC-B8 & B11 Comp 25	GTC-B8-26.5	GTC-B8	26.5	<0.5	***3.3***	NR	***22***	NR	<0.5	<0.25	***54***	***0.25***	NR	***6.2***	***19***	NR	***2.7***	NR	NR	<0.05	***0.67***	***29***	NR	***0.72***	<0.5	<0.5	***81***	***31***	NR	ND
	GTC-B11-25.5	GTC-B11	25.5																											
GTC-B8 & B11 Comp 30	GTC-B8-30.5	GTC-B8	30.5	<0.5	***2***	NR	***38***	NR	<0.5	<0.25	***66***	***0.2***	NR	***7.5***	***33***	NR	***4.5***	NR	NR	<0.05	***1.3***	***49***	NR	<0.5	<0.5	<0.5	***44***	***54***	NR	***0***
	GTC-B11-31	GTC-B11	31																											
GTC-B8 & B11 Comp 35	GTC-B8-35.5	GTC-B8	35.5	<0.5	***0.98***	NR	***26***	NR	<0.5	<0.25	***41***	NR	NR	***4.2***	***4.2***	NR	***1.7***	NR	NR	<0.05	<0.5	***30***	NR	<0.5	<0.5	<0.5	***33***	***15***	NR	N/A
	GTC-B11-35.5	GTC-B11	35.5																											
GTC-B8 & B11 Comp 40	GTC-B8-40.5	GTC-B8	40.5	<0.5	***1.4***	NR	***42***	NR	<0.5	<0.25	***84***	<0.05	NR	***11***	***21***	NR	***1.8***	NR	NR	<0.05	<0.5	***73***	NR	<0.5	<0.5	<0.5	***54***	***35***	NR	N/A
	GTC-B11-40.5	GTC-B11	40.5																											
GTC-B8 & B11 Comp 45 & 50	GTC-B8-45.5	GTC-B8	45.5	<0.5	***1.3***	NR	***23***	NR	<0.5	<0.25	***66***	<0.05	NR	***6.5***	***5.2***	NR	***1.5***	NR	NR	<0.05	<0.5	***31***	NR	<0.5	<0.5	<0.5	***68***	***24***	NR	N/A
	GTC-B11-45.5	GTC-B11	45.5																											
	GTC-B8-50.5	GTC-B8	50.5																											
	GTC-B11-50.5	GTC-B11	50.5																											
GTC-B8 & B11 Comp 55 & 60	GTC-B8-55	GTC-B8	55	<0.5	***1.1***	NR	***22***	NR	<0.5	<0.25	***49.6***	NR	NR	***5.7***	***8.9***	NR	***2***	NR	NR	<0.05	<0.5	***28***	NR	<0.5	<0.5	<0.5	***62***	***25***	NR	N/A
	GTC-B11-55	GTC-B11	55																											
	GTC-B8-60.5	GTC-B8	60.5																											
	GTC-B11-60	GTC-B11	60																											
GTC-B8 & B11 Comp 65 & 70	GTC-B8-65.5	GTC-B8	65.5	<0.5	***3.2***	NR	***40***	NR	<0.5	<0.25	***59***	<0.05	NR	***8.2***	***12***	NR	***3.7***	NR	NR	<0.05	<0.5	***45***	NR	<0.5	<0.5	<0.5	***55***	***33***	NR	N/A
	GTC-B11-65.5	GTC-B11	65.5																											
	GTC-B8-70.5	GTC-B8	70.5																											
	GTC-B11-70.5	GTC-B11	70.5																											

TABLE 4 (Con't.)
RESULTS OF TITLE 22 METALS AND ASBESTOS ANALYSES ON SOIL SAMPLES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Title 22 17-Metals (1)																										
				Sb	As	WET As	Ba	WET Ba	Be	Cd	Cr	WET Cr	TCLP Cr	Co	Cu	WET Cu	Pb	WET Pb	TCLP Pb	Hg	Mo	Ni	WET Ni	Se	Ag	Tl	V	Zn	WET Zn	Asbestos
			Unit (2)	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/L	%
Risk Regulatory and Reference Criteria (3)																														
			USEPA RSL - Industrial	470	3.0		220000		2300	980	1800000	NA (4)	NA	350	47000	NA	800	NA	NA	40	5800	22000	NA	58000	5800	12	58000	350000		NA
			ESL - Commerical (Table B)	40	1.6	NA	1500	NA	8	12	750	NA	NA	80	230	NA	320	NA	NA	10	40	150	NA	10	40	10	200	600	NA	NA
			ESL - Construction Workers (K-3)	120	10	NA	61000	NA	180	110	460000	NA	NA	49	12000	NA	320	NA	NA	27	1500	6100	NA	1500	1500	3.1	1500	93000	NA	NA
			CHHSLs - Commerical/Industrial	380	0.24	NA	63000	NA	190	7.5	100000	NA	NA	3200	38000	NA	320	NA	NA	180	4300	16000	NA	4800	4800	63	6700	100000	NA	NA
Hazardous Waste Criteria (5)																														
			TTLC	500	500	NA	10000	NA	75	100	2500	NA	NA	8000	2500	NA	1000	NA	NA	20	3500	2000	NA	100	500	700	2400	5000	NA	1
			10 x STLC	150	50	NA	1000	NA	7.5	10	50	NA	NA	800	250	NA	50	NA	NA	2	3500	200	NA	10	50	70	240	2500	NA	NA
			STLC	NA	NA	5	NA	100	NA	NA	NA	5	NA	NA	NA	25	NA	5	NA	NA	NA	NA	20	NA	NA	NA	NA	NA	250	NA
			20 x TCLP	NA	100	NA	2000	NA	NA	20	100	NA	NA	NA	NA	NA	100	NA	NA	4	NA	NA	NA	20	100	NA	NA	NA	NA	NA
			TCLP	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Range of Potential Background Concentration (5)																														
			Shaklette and Boerngen	0.62	7.0	NA	670	NA	0.97	NA	56	NA	NA	9.0	27	NA	20	NA	NA	0.065	1.1	19	NA	0.34	NA	NA	88	65	NA	NA
			LBNL	< 6	24	NA	410	NA	1.0	5.6	120	NA	NA	25	63	NA	43	NA	NA	0.42	4.8	272	NA	4.9	2.9	10	90	140	NA	NA
			Bradford et al.	0.60	3.5	NA	509	NA	1.28	0.36	122	NA	NA	14.9	28.7	NA	23.9	NA	NA	0.26	1.3	57	NA	0.058	0.80	0.56	112	149	NA	NA
Laboratory ID	Sample ID	Boring ID	Depth (Feet bgs)(1)	Min: <0.5 Max: 40 Ave: 2.9	Min: 0.95 Max: 51 Ave: 6	Min: 0.38 Max: 0.38	Min: 15 Max: 1500 Ave: 172	Min: 6.8 Max: 21	Min: <0.5 Max: <5 Ave: 0.6	Min: <0.25 Max: 7.9 Ave: 0.53	Min: 17 Max: 390 Ave: 67	Min: <0.05 Max: 0.86	Min: <0.05 Max: <0.05	Min: 4.2 Max: 85 Ave: 11	Min: 3.9 Max: 3700 Ave: 136	Min: 0.36 Max: 510	Min: 1.2 Max: 39000 Ave: 988	Min: 0.46 Max: 20	Min: <0.2 Max: 92	Min: <0.05 Max: 1.5 Ave: 0.1	Min: <0.5 Max: 16 Ave: 1.3	Min: 16 Max: 1100 Ave: 89	Min: 1.9 Max: 8.7	Min: <0.5 Max: <5 Ave: 0.6	Min: <0.5 Max: <5 Ave: 0.7	Min: <0.5 Max: <5 Ave: 0.6	Min: 26 Max: 110 Ave: 48	Min: 15 Max: 7000 Ave: 264	Min: 67 Max: 160	Min: 0 Max: <1	
Soil Samples (6)																														
GTC-B8 & B11 Comp 75 & 80	GTC-B8-75.5	GTC-B8	75.5	<0.5	1.8	NR	50	NR	<0.5	<0.25	56	0.25	NR	8.2	7.2	NR	2.7	NR	NR	<0.05	<0.5	46	NR	<0.5	<0.5	<0.5	50	24	NR	N/A
	GTC-B11-75.5	GTC-B11	75.5																											
	GTC-B8-80.5	GTC-B8	80.5																											
	GTC-B11-80.5	GTC-B11	80.5																											
GTC-B8 & B11 Comp 85 & 90	GTC-B8-85	GTC-B8	85	<0.5	2.6	NR	30	NR	<0.5	<0.25	51	0.066	NR	6.3	6.4	NR	2.4	NR	NR	<0.05	<0.5	37	NR	<0.5	<0.5	<0.5	44	23	NR	N/A
	GTC-B11-85.5	GTC-B11	85.5																											
	GTC-B8-90	GTC-B8	90																											
	GTC-B11-90	GTC-B11	90																											
GTC-B8 & B11 Comp 95 & 100	GTC-B8-95.5	GTC-B8	95.5	<0.5	3.7	NR	23	NR	<0.5	<0.25	42	NR	NR	5.4	4.7	NR	1.7	NR	NR	<0.05	<0.5	36	NR	<0.5	<0.5	<0.5	41	18	NR	N/A
	GTC-B11-95.5	GTC-B11	95.5																											
	GTC-B8-100	GTC-B8	100																											
	GTC-B11-100	GTC-B11	100																											
Group 4a: GTC-B7, GTC-B12 & GTC-B15																														
GTC-B7, B12 & B15 Comp 2.5	GTC-B7-2.5	GTC-B7	2.5	4.9	4	NR	250	NR	<0.5	1.5	84	0.099	NR	26	2100	53	250	12	1.5	0.15	0.7	460	1.9	<0.5	<0.5	<0.5	34	1000	NR	<1
	GTC-B12-2.5	GTC-B12	2.5																											
	GTC-B15-2.5	GTC-B15	2.5																											
GTC-B7, B12 & B15 Comp 5	GTC-B7-5.5	GTC-B7	5.5	1.6	5	NR	320	NR	<0.5	0.33	390	0.79	<0.05	56	82	NR	270	6.2	0.45	0.87	<0.5	1100	8.7	<0.5	<0.5	<0.5	40	240	NR	<1
	GTC-B12-5.5	GTC-B12	5.5																											
	GTC-B15-5.5	GTC-B15	5.5																											
GTC-B7, B12 & B15 Comp 10	GTC-B7-10.5	GTC-B7	10.5	20	15	NR	360	NR	<0.5	7.9	310	0.71	<0.05	36	1300	85	39000	NR	92	0.24	1.3	680	3.2	<0.5	1.8	<0.5	30	3800	160	<1
	GTC-B12-10	GTC-B12	10																											
	GTC-B15-11	GTC-B15	11																											
GTC-B7, B12 & B15 Comp 15	GTC-B7-15.5	GTC-B7	15.5	0.51	5.1	NR	33	NR	<0.5	<0.25	53	0.23	NR	6.6	20	NR	98	5.7	NR	<0.05	2.3	46	NR	<0.5	<0.5	<0.5	42	80	NR	ND
	GTC-B12-15.5	GTC-B12	15.5																											
	GTC-B15-15.5	GTC-B15	15.5																											
GTC-B7, B12 & B15 Comp 20	GTC-B7-20.5	GTC-B7	20.5	<0.5	4.6	NR	28	NR	<0.5	<0.25	52	0.21	NR	8.2	20	NR	6.3	NR	NR	<0.05	0.53	54	NR	<0.5	<0.5	<0.5	41	52	NR	ND
	GTC-B12-20.5	GTC-B12	20.5																											
	GTC-B15-20.5	GTC-B15	20.5																											
GTC-B7, B12 & B15 Comp 25	GTC-B7-25.5	GTC-B7	25.5	<0.5	4.1	NR	21	NR	<0.5	<0.25	39	NR	NR	4.8	14	NR	3.4	NR	NR	<0.05	0.92	30	NR	<0.5	<0.5	<0.5	30	29	NR	ND
	GTC-B12-27.5	GTC-B12	27.5																											
	GTC-B15-25.5	GTC-B15	25.5																											
GTC-B7, B12 & B15 Comp 30	GTC-B7-30.5	GTC-B7	30.5	<0.5	1.1	NR	32	NR	<0.5	<0.25	67	0.5	NR	6.7	6	NR	2.3	NR	NR	<0.05	<0.5	32	NR	<0.5	<0.5	<0.5	59	19	NR	0
	GTC-B12-30.5	GTC-B12	30.5																											
	GTC-B15-30.5	GTC-B15	30.5																											

TABLE 4 (Con't.)
RESULTS OF TITLE 22 METALS AND ASBESTOS ANALYSES ON SOIL SAMPLES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Title 22 17-Metals (1)																											
				Sb	As	WET As	Ba	WET Ba	Be	Cd	Cr	WET Cr	TCLP Cr	Co	Cu	WET Cu	Pb	WET Pb	TCLP Pb	Hg	Mo	Ni	WET Ni	Se	Ag	Tl	V	Zn	WET Zn	Asbestos
			Unit (2)	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/L	%
Risk Regulatory and Reference Criteria (3)																															
			USEPA RSL - Industrial	470	3.0		220000		2300	980	1800000	NA (4)	NA	350	47000	NA	800	NA	NA	40	5800	22000	NA	58000	5800	12	58000	350000		NA
			ESL - Commerical (Table B)	40	1.6	NA	1500	NA	8	12	750	NA	NA	80	230	NA	320	NA	NA	10	40	150	NA	10	40	10	200	600	NA	NA
			ESL - Construction Workers (K-3)	120	10	NA	61000	NA	180	110	460000	NA	NA	49	12000	NA	320	NA	NA	27	1500	6100	NA	1500	1500	3.1	1500	93000	NA	NA
			CHHSLs - Commerical/Industrial	380	0.24	NA	63000	NA	190	7.5	100000	NA	NA	3200	38000	NA	320	NA	NA	180	4300	16000	NA	4800	4800	63	6700	100000	NA	NA
Hazardous Waste Criteria (5)																															
			TTLC	500	500	NA	10000	NA	75	100	2500	NA	NA	8000	2500	NA	1000	NA	NA	20	3500	2000	NA	100	500	700	2400	5000	NA	1
			10 x STLC	150	50	NA	1000	NA	7.5	10	50	NA	NA	800	250	NA	50	NA	NA	2	3500	200	NA	10	50	70	240	2500	NA	NA
			STLC	NA	NA	5	NA	100	NA	NA	NA	5	NA	NA	NA	25	NA	5	NA	NA	NA	NA	20	NA	NA	NA	NA	NA	250	NA
			20 x TCLP	NA	100	NA	2000	NA	NA	20	100	NA	NA	NA	NA	NA	100	NA	NA	4	NA	NA	NA	20	100	NA	NA	NA	NA	NA
			TCLP	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Range of Potential Background Concentration (5)																															
			Shaklette and Boerngen	0.62	7.0	NA	670	NA	0.97	NA	56	NA	NA	9.0	27	NA	20	NA	NA	0.065	1.1	19	NA	0.34	NA	NA	88	65	NA	NA
			LBNL	< 6	24	NA	410	NA	1.0	5.6	120	NA	NA	25	63	NA	43	NA	NA	0.42	4.8	272	NA	4.9	2.9	10	90	140	NA	NA
			Bradford et al.	0.60	3.5	NA	509	NA	1.28	0.36	122	NA	NA	14.9	28.7	NA	23.9	NA	NA	0.26	1.3	57	NA	0.058	0.80	0.56	112	149	NA	NA
Laboratory ID	Sample ID	Boring ID	Depth (Feet bgs)(1)	Min: <0.5 Max: 40 Ave: 2.9	Min: 0.95 Max: 51 Ave: 6	Min: 0.38 Max: 0.38	Min: 15 Max: 1500 Ave: 172	Min: 6.8 Max: 21	Min: <0.5 Max: <5 Ave: 0.6	Min: <0.25 Max: 7.9 Ave: 0.53	Min: 17 Max: 390 Ave: 67	Min: <0.05 Max: 0.86	Min: <0.05 Max: <0.05	Min: 4.2 Max: 85 Ave: 11	Min: 3.9 Max: 3700 Ave: 136	Min: 0.36 Max: 510	Min: 1.2 Max: 39000 Ave: 988	Min: 0.46 Max: 20	Min: <0.2 Max: 92	Min: <0.05 Max: 1.5 Ave: 0.1	Min: <0.5 Max: 16 Ave: 1.3	Min: 16 Max: 1100 Ave: 89	Min: 1.9 Max: 8.7	Min: <0.5 Max: <5 Ave: 0.6	Min: <0.5 Max: <5 Ave: 0.7	Min: <0.5 Max: <5 Ave: 0.6	Min: 26 Max: 110 Ave: 48	Min: 15 Max: 7000 Ave: 264	Min: 67 Max: 160	Min: 0 Max: <1
Soil Samples (6)																															
GTC-B7, B12 & B15 Comp 35	GTC-B7-35.5	GTC-B7	35.5	<0.5	*1.5*	NR	*46*	NR	<0.5	<0.25	*66*	*0.14*	NR	*6.1*	*7.8*	NR	*2.1*	NR	NR	<0.05	<0.5	*34*	NR	<0.5	<0.5	<0.5	*33*	*24*	NR	N/A
	GTC-B12-35.5	GTC-B12	35.5																												
	GTC-B15-35.5	GTC-B15	35.5																												
GTC-B7, B12 & B15 Comp 40	GTC-B7-40.5	GTC-B7	40.5	<0.5	*1.4*	NR	*35*	NR	<0.5	<0.25	*54*	<0.05	NR	*6.4*	*17*	NR	*3.3*	NR	NR	<0.05	<0.5	*38*	NR	<0.5	<0.5	<0.5	*45*	*40*	NR	N/A
	GTC-B12-40.5	GTC-B12	40.5																												
	GTC-B15-40.5	GTC-B15	40.5																												
GTC-B7, B12 & B15 Comp 45 & 50	GTC-B7-45.5	GTC-B7	45.5	<0.5	*0.99*	NR	*19*	NR	<0.5	<0.25	*38*	NR	NR	*5.3*	*6.8*	NR	*1.2*	NR	NR	<0.05	<0.5	*24*	NR	<0.5	<0.5	<0.5	*43*	*23*	NR	N/A
	GTC-B12-45.5	GTC-B12	45.5																												
	GTC-B15-45.5	GTC-B15	45.5																												
	GTC-B7-50.5	GTC-B7	50.5																												
	GTC-B12-50.5	GTC-B12	50.5																												
	GTC-B15-50.5	GTC-B15	50.5																												
GTC-B7 & B15 Comp 55 & 60	GTC-B7-55	GTC-B7	55	<0.5	*0.95*	NR	*19*	NR	<0.5	<0.25	*51*	<0.05	NR	*5.3*	*15*	NR	*2.5*	NR	NR	<0.05	<0.5	*24*	NR	<0.5	<0.5	<0.5	*57*	*26*	NR	N/A
	GTC-B15-55	GTC-B15	55																												
	GTC-B7-60.5	GTC-B7	60.5																												
	GTC-B15-60.5	GTC-B15	60.5																												
GTC-B7 & B15 Comp 65 & 70	GTC-B7-65.5	GTC-B7	65.5	<0.5	*4.9*	NR	*55*	NR	<0.5	<0.25	*67*	<0.05	NR	*11*	*12*	NR	*3.9*	NR	NR	<0.05	<0.5	*49*	NR	<0.5	<0.5	<0.5	*74*	*36*	NR	N/A
	GTC-B15-65.5	GTC-B15	65.5																												
	GTC-B7-70.5	GTC-B7	70.5																												
	GTC-B15-70.5	GTC-B15	70.5																												
GTC-B7 & B15 Comp 75 & 80	GTC-B7-75.5	GTC-B7	75.5	<0.5	*3.7*	NR	*35*	NR	<0.5	<0.25	*47*	NR	NR	*7.6*	*13*	NR	*2.1*	NR	NR	<0.05	<0.5	*40*	NR	<0.5	<0.5	<0.5	*39*	*27*	NR	N/A
	GTC-B15-75.5	GTC-B15	75.5																												
	GTC-B7-80.5	GTC-B7	80.5																												
	GTC-B15-80.5	GTC-B15	80.5																												
GTC-B7 & B15 Comp 85 & 90	GTC-B7-85.5	GTC-B7	85.5	<0.5	*1.5*	NR	*18*	NR	<0.5	<0.25	*39*	NR	NR	*5.4*	*7.2*	NR	*1.9*	NR	NR	<0.05	<0.5	*31*	NR	<0.5	<0.5	<0.5	*27*	*20*	NR	N/A
	GTC-B15-85.5	GTC-B15	85.5																												
	GTC-B7-90.5	GTC-B7	90.5																												
	GTC-B15-90.5	GTC-B15	90.5																												
GTC-B7 & B15 Comp 95 & 100	GTC-B7-95.5	GTC-B7	95.5	<0.5	*1.4*	NR	*19*	NR	<0.5	<0.25	*35*	NR	NR	*5.7*	*10*	NR	*2.3*	NR	NR	<0.05	<0.5	*30*	NR	<0.5	<0.5	<0.5	*27*	*28*	NR	N/A
	GTC-B15-95.5	GTC-B15	95.5																												
	GTC-B7-100.5	GTC-B7	100.5																												
	GTC-B15-100.5	GTC-B15	100.5																												

TABLE 4 (Con't.)
RESULTS OF TITLE 22 METALS AND ASBESTOS ANALYSES ON SOIL SAMPLES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Title 22 17-Metals (1)																										
				Sb	As	WET As	Ba	WET Ba	Be	Cd	Cr	WET Cr	TCLP Cr	Co	Cu	WET Cu	Pb	WET Pb	TCLP Pb	Hg	Mo	Ni	WET Ni	Se	Ag	Tl	V	Zn	WET Zn	Asbestos
			Unit (2)	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/L	%
Risk Regulatory and Reference Criteria (3)																														
			USEPA RSL - Industrial	470	3.0		220000		2300	980	1800000	NA (4)	NA	350	47000	NA	800	NA	NA	40	5800	22000	NA	58000	5800	12	58000	350000		NA
			ESL - Commerical (Table B)	40	1.6	NA	1500	NA	8	12	750	NA	NA	80	230	NA	320	NA	NA	10	40	150	NA	10	40	10	200	600	NA	NA
			ESL - Construction Workers (K-3)	120	10	NA	61000	NA	180	110	460000	NA	NA	49	12000	NA	320	NA	NA	27	1500	6100	NA	1500	1500	3.1	1500	93000	NA	NA
			CHHSLs - Commerical/Industrial	380	0.24	NA	63000	NA	190	7.5	100000	NA	NA	3200	38000	NA	320	NA	NA	180	4300	16000	NA	4800	4800	63	6700	100000	NA	NA
Hazardous Waste Criteria (5)																														
			TTLC	500	500	NA	10000	NA	75	100	2500	NA	NA	8000	2500	NA	1000	NA	NA	20	3500	2000	NA	100	500	700	2400	5000	NA	1
			10 x STLC	150	50	NA	1000	NA	7.5	10	50	NA	NA	800	250	NA	50	NA	NA	2	3500	200	NA	10	50	70	240	2500	NA	NA
			STLC	NA	NA	5	NA	100	NA	NA	NA	5	NA	NA	NA	25	NA	5	NA	NA	NA	NA	20	NA	NA	NA	NA	NA	250	NA
			20 x TCLP	NA	100	NA	2000	NA	NA	20	100	NA	NA	NA	NA	NA	100	NA	NA	4	NA	NA	NA	20	100	NA	NA	NA	NA	NA
			TCLP	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Range of Potential Background Concentration (5)																														
			Shaklette and Boerngen	0.62	7.0	NA	670	NA	0.97	NA	56	NA	NA	9.0	27	NA	20	NA	NA	0.065	1.1	19	NA	0.34	NA	NA	88	65	NA	NA
			LBNL	< 6	24	NA	410	NA	1.0	5.6	120	NA	NA	25	63	NA	43	NA	NA	0.42	4.8	272	NA	4.9	2.9	10	90	140	NA	NA
			Bradford et al.	0.60	3.5	NA	509	NA	1.28	0.36	122	NA	NA	14.9	28.7	NA	23.9	NA	NA	0.26	1.3	57	NA	0.058	0.80	0.56	112	149	NA	NA
Laboratory ID	Sample ID	Boring ID	Depth (Feet bgs)(1)	Min: <0.5 Max: 40 Ave: 2.9	Min: 0.95 Max: 51 Ave: 6	Min: 0.38 Max: 0.38	Min: 15 Max: 1500 Ave: 172	Min: 6.8 Max: 21	Min: <0.5 Max: <5 Ave: 0.6	Min: <0.25 Max: 7.9 Ave: 0.53	Min: 17 Max: 390 Ave: 67	Min: <0.05 Max: 0.86	Min: <0.05 Max: <0.05	Min: 4.2 Max: 85 Ave: 11	Min: 3.9 Max: 3700 Ave: 136	Min: 0.36 Max: 510	Min: 1.2 Max: 39000 Ave: 988	Min: 0.46 Max: 20	Min: <0.2 Max: 92	Min: <0.05 Max: 1.5 Ave: 0.1	Min: <0.5 Max: 16 Ave: 1.3	Min: 16 Max: 1100 Ave: 89	Min: 1.9 Max: 8.7	Min: <0.5 Max: <5 Ave: 0.6	Min: <0.5 Max: <5 Ave: 0.7	Min: <0.5 Max: <5 Ave: 0.6	Min: 26 Max: 110 Ave: 48	Min: 15 Max: 7000 Ave: 264	Min: 67 Max: 160	Min: 0 Max: <1
Soil Samples (6)																														
Group 4b: GTC-B13																														
GTC-B13-2.5	GTC-B13-2.5	GTC-B13	2.5	***1.7***	***9.5***	NR	***260***	NR	<0.5	***0.4***	***160***	***0.48***	<0.05	***25***	***61***	NR	***30***	NR	NR	***1.3***	***0.66***	***330***	***3***	<0.5	<0.5	<0.5	***57***	***100***	NR	<1
GTC-B13-5	GTC-B13-5	GTC-B13	5	***27***	***27***	NR	***990***	NR	<5	<2.5	***30***	NR	NR	***21***	***700***	***0.36***	***8200***	NR	<0.2	<0.5	<5	***84***	NR	<5	<5	<5	***26***	***1300***	NR	<1
GTC-B13-10.5	GTC-B13-10.5	GTC-B13	10.5	***40***	***14***	NR	***1500***	***16***	<5	<2.5	***31***	NR	NR	***11***	***570***	***21***	***26000***	NR	***6.4***	<0.5	<5	***50***	NR	<5	<5	<5	***27***	***2600***	***67***	ND
GTC-B13-15	GTC-B13-15	GTC-B13	15	<0.5	***6.4***	NR	***29***	NR	<0.5	<0.25	***52***	***0.18***	NR	***7.6***	***15***	NR	***6.2***	NR	NR	<0.05	***2.3***	***52***	NR	<0.5	<0.5	<0.5	***45***	***52***	NR	ND
GTC-B13-20.5	GTC-B13-20.5	GTC-B13	20.5	<0.5	***3.3***	NR	***28***	NR	<0.5	<0.25	***46***	NR	NR	***7.5***	***17***	NR	***5.1***	NR	NR	<0.05	<0.5	***46***	NR	<0.5	<0.5	<0.5	***38***	***48***	NR	ND
GTC-B13 Comp 25, 30	GTC-B13-24.5	GTC-B13	24.5	<0.5	***4.1***	NR	***30***	NR	<0.5	<0.25	***56***	***0.26***	NR	***7.1***	***13***	NR	***4.1***	NR	NR	<0.05	***0.92***	***41***	NR	<0.5	<0.5	<0.5	***36***	***36***	NR	ND
	GTC-B13-29	GTC-B13	29																											
GTC-B13 Comp 35, 40	GTC-B13-35.5	GTC-B13	35.5	<0.5	***1.7***	NR	***29***	NR	<0.5	<0.25	***40***	NR	NR	***4.7***	***4.2***	NR	***1.5***	NR	NR	<0.05	<0.5	***34***	NR	<0.5	<0.5	<0.5	***31***	***28***	NR	N/A
	GTC-B13-40.59	GTC-B13	40.5																											
GTC-B13 Comp 45, 50	GTC-B13-45.5	GTC-B13	45.5	<0.5	***1.7***	NR	***24***	NR	<0.5	<0.25	***61***	<0.05	NR	***6.6***	***5.2***	NR	***3.6***	NR	NR	<0.05	<0.5	***32***	NR	<0.5	<0.5	<0.5	***59***	***26***	NR	N/A
	GTC-B13-50	GTC-B13	50																											
GTC-B13 Comp 55, 60	GTC-B13-55	GTC-B13	55	<0.5	***1.3***	NR	***19***	NR	<0.5	<0.25	***48***	NR	NR	***5.3***	***3.9***	NR	***2***	NR	NR	<0.05	<0.5	***23***	NR	<0.5	<0.5	<0.5	***57***	***22***	NR	N/A
	GTC-B13-60.5	GTC-B13	60.5																											
GTC-B13 Comp 65, 70	GTC-B13-65.5	GTC-B13	65.5	<0.5	***3.5***	NR	***60***	NR	<0.5	<0.25	***70***	***0.13***	NR	***9.7***	***13***	NR	***5.3***	NR	NR	<0.05	<0.5	***57***	NR	<0.5	<0.5	<0.5	***61***	***44***	NR	N/A
	GTC-B13-70.5	GTC-B13	70.5																											
GTC-B13 Comp 75, 80	GTC-B13-75	GTC-B13	75	<0.5	***2.3***	NR	***46***	NR	<0.5	<0.25	***60***	***0.072***	NR	***7.9***	***8.8***	NR	***3***	NR	NR	<0.05	<0.5	***45***	NR	<0.5	<0.5	<0.5	***47***	***30***	NR	N/A
	GTC-B13-80.5	GTC-B13	80.5																											
GTC-B13 Comp 85, 90	GTC-B13-85	GTC-B13	85	<0.5	***1.9***	NR	***26***	NR	<0.5	<0.25	***44***	NR	NR	***5.6***	***4.8***	NR	***2.4***	NR	NR	<0.05	<0.5	***31***	NR	<0.5	<0.5	<0.5	***34***	***20***	NR	N/A
	GTC-B13-90.5	GTC-B13	90.5																											
GTC-B13 Comp 95, 100	GTC-B13-95	GTC-B13	95	<0.5	***2.6***	NR	***24***	NR	<0.5	<0.25	***75***	<0.05	NR	***8.4***	***5***	NR	***2***	NR	NR	<0.05	<0.5	***41***	NR	<0.5	<0.5	<0.5	***69***	***35***	NR	N/A
	GTC-B13-100	GTC-B13	100																											
Group 5: GTC-B18B & GTC-B20																														
GTC-B18B & GTC-B20 Comp 2.5	GTC-B18B-2.5	GTC-B18B	2.5	<0.5	***1.5***	NR	***1100***	***18***	<0.5	<0.25	***26***	NR	NR	***85***	***130***	NR	***8.2***	NR	NR	***0.12***	<0.5	***31***	NR	<0.5	<0.5	<0.5	***36***	***79***	NR	N/A
	GTC-B20-2.5	GTC-B20	2.5																											
GTC-B18B & GTC-B20 Comp 5	GTC-B18B-5.5	GTC-B18B	5.5	***2.4***	***36***	NR	***1300***	***6.8***	<0.5	<0.25	***55***	***0.21***	NR	***13***	***140***	NR	***43***	NR	NR	***0.14***	***0.97***	***68***	NR	<0.5	<0.5	<0.5	***47***	***130***	NR	N/A
	GTC-B20-5.5	GTC-B20	5.5																											
GTC-B18B & GTC-B20 Comp 10	GTC-B18B-10.5	GTC-B18B	10.5	***2.2***	***5.1***	NR	***100***	NR	<0.5	***0.28***	***140***	***0.71***	<0.05	***24***	***42***	NR	***98***	***7.6***	NR	***0.36***	***2.9***	***500***	***5.1***	<0.5	<0.5	<0.5	***33***	***130***	NR	N/A
	GTC-B20-10.5	GTC-B20	10.5																											
GTC-B18B & GTC-B20 Comp 15	GTC-B18B-15.5	GTC-B18B	15.5	***6***	***14***	NR	***290***	NR	***0.51***	<0.25	***32***	NR	NR	***5.9***	***93***	NR	***420***	***20***	***0.33***	***0.21***	***2***	***53***	NR	<0.5	***0.64***	<0.5	***31***	***300***	NR	N/A
	GTC-B20-15.5	GTC-B20	15.5																											
GTC-B18B & GTC-B20 Comp 20	GTC-B18B-21.5	GTC-B18B	21.5	<0.5	***4.4***	NR	***38***	NR	<0.5	<0.25	***62***	***0.21***	NR	***9.7***	***23***	NR	***7.9***	NR	NR	<0.05	***0.83***	***62***	NR	<0.5	<0.5	<0.5	***51***	***62***	NR	N/A
	GTC-B20-21.5	GTC-B20	21.5																											

TABLE 4 (Con't.)
RESULTS OF TITLE 22 METALS AND ASBESTOS ANALYSES ON SOIL SAMPLES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Title 22 17-Metals (1)																										
				Sb	As	WET As	Ba	WET Ba	Be	Cd	Cr	WET Cr	TCLP Cr	Co	Cu	WET Cu	Pb	WET Pb	TCLP Pb	Hg	Mo	Ni	WET Ni	Se	Ag	Tl	V	Zn	WET Zn	Asbestos
Unit (2)				mg/Kg	mg/Kg	mg/L	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/L	%
Risk Regulatory and Reference Criteria (3)																														
USEPA RSL - Industrial				470	3.0		220000		2300	980	1800000	NA (4)	NA	350	47000	NA	800	NA	NA	40	5800	22000	NA	58000	5800	12	58000	350000		NA
ESL - Commerical (Table B)				40	1.6	NA	1500	NA	8	12	750	NA	NA	80	230	NA	320	NA	NA	10	40	150	NA	10	40	10	200	600	NA	NA
ESL - Construction Workers (K-3)				120	10	NA	61000	NA	180	110	460000	NA	NA	49	12000	NA	320	NA	NA	27	1500	6100	NA	1500	1500	3.1	1500	93000	NA	NA
CHHSLs - Commerical/Industrial				380	0.24	NA	63000	NA	190	7.5	100000	NA	NA	3200	38000	NA	320	NA	NA	180	4300	16000	NA	4800	4800	63	6700	100000	NA	NA
Hazardous Waste Criteria (5)																														
TTLC				500	500	NA	10000	NA	75	100	2500	NA	NA	8000	2500	NA	1000	NA	NA	20	3500	2000	NA	100	500	700	2400	5000	NA	1
10 x STLC				150	50	NA	1000	NA	7.5	10	50	NA	NA	800	250	NA	50	NA	NA	2	3500	200	NA	10	50	70	240	2500	NA	NA
STLC				NA	NA	5	NA	100	NA	NA	NA	5	NA	NA	NA	25	NA	5	NA	NA	NA	NA	20	NA	NA	NA	NA	NA	250	NA
20 x TCLP				NA	100	NA	2000	NA	NA	20	100	NA	NA	NA	NA	NA	100	NA	NA	4	NA	NA	NA	20	100	NA	NA	NA	NA	NA
TCLP				NA	NA	NA	NA	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Range of Potential Background Concentration (5)																														
Shaklette and Boerngen				0.62	7.0	NA	670	NA	0.97	NA	56	NA	NA	9.0	27	NA	20	NA	NA	0.065	1.1	19	NA	0.34	NA	NA	88	65	NA	NA
LBNL				< 6	24	NA	410	NA	1.0	5.6	120	NA	NA	25	63	NA	43	NA	NA	0.42	4.8	272	NA	4.9	2.9	10	90	140	NA	NA
Bradford et al.				0.60	3.5	NA	509	NA	1.28	0.36	122	NA	NA	14.9	28.7	NA	23.9	NA	NA	0.26	1.3	57	NA	0.058	0.80	0.56	112	149	NA	NA
Laboratory ID	**Sample ID**	**Boring ID**	**Depth (Feet bgs)(1)**	**Min: <0.5 Max: 40 Ave: 2.9**	**Min: 0.95 Max: 51 Ave: 6**	**Min: 0.38 Max: 0.38**	**Min: 15 Max: 1500 Ave: 172**	**Min: 6.8 Max: 21**	**Min: <0.5 Max: <5 Ave: 0.6**	**Min: <0.25 Max: 7.9 Ave: 0.53**	**Min: 17 Max: 390 Ave: 67**	**Min: <0.05 Max: 0.86**	**Min: <0.05 Max: <0.05**	**Min: 4.2 Max: 85 Ave: 11**	**Min: 3.9 Max: 3700 Ave: 136**	**Min: 0.36 Max: 510**	**Min: 1.2 Max: 39000 Ave: 988**	**Min: 0.46 Max: 20**	**Min: <0.2 Max: 92**	**Min: <0.05 Max: 1.5 Ave: 0.1**	**Min: <0.5 Max: 16 Ave: 1.3**	**Min: 16 Max: 1100 Ave: 89**	**Min: 1.9 Max: 8.7**	**Min: <0.5 Max: <5 Ave: 0.6**	**Min: <0.5 Max: <5 Ave: 0.7**	**Min: <0.5 Max: <5 Ave: 0.6**	**Min: 26 Max: 110 Ave: 48**	**Min: 15 Max: 7000 Ave: 264**	**Min: 67 Max: 160**	**Min: 0 Max: <1**
Soil Samples (6)																														
Group 6: GTC-B21 & GTC-B22																														
GTC-B21 & GTC-B22 Comp 2.5	GTC-B-21-2.5	GTC-B21	2.5	***0.63***	***1.8***	NR	***1300***	***21***	***0.58***	<0.25	***19***	NR	NR	***22***	***160***	NR	***14***	NR	NR	***0.094***	<0.5	***28***	NR	<0.5	<0.5	<0.5	***50***	***49***	NR	N/A
	GTC-B22-2.5	GTC-B22	2.5																											
GTC-B21 & GTC-B22 Comp 5	GTC-B-21-5.5	GTC-B21	5.5	***0.65***	***3.4***	NR	***110***	NR	<0.5	***0.46***	***50***	***0.38***	NR	***15***	***54***	NR	***74***	***3***	NR	***0.21***	<0.5	***43***	NR	<0.5	<0.5	<0.5	***92***	***130***	NR	N/A
	GTC-B22-5.5	GTC-B22	5.5																											
GTC-B21 & GTC-B22 Comp 10	GTC-B-21-10.5	GTC-B21	10.5	***0.91***	***3.8***	NR	***89***	NR	<0.5	<0.25	***68***	***0.86***	NR	***10***	***16***	NR	***36***	NR	NR	***0.066***	***0.52***	***42***	NR	<0.5	<0.5	<0.5	***56***	***64***	NR	N/A
	GTC-B22-10.5	GTC-B22	10.5																											
GTC-B21 & GTC-B22 Comp 15	GTC-B-21-15.5	GTC-B21	15.5	***11***	***25***	NR	***1500***	***13***	<0.5	***6.2***	***36***	NR	NR	***6.1***	***260***	***0.57***	***3000***	NR	***2.2***	***0.39***	***1***	***42***	NR	<0.5	***2.9***	<0.5	***32***	***7000***	NR	N/A
	GTC-B22-15.5	GTC-B22	15.5																											
GTC-B21 & GTC-B22 Comp 20	GTC-B-21-20.5	GTC-B21	20.5	<0.5	***4.2***	NR	***27***	NR	<0.5	<0.25	***51***	***0.23***	NR	***8.2***	***19***	NR	***6***	NR	NR	<0.05	***0.63***	***54***	NR	<0.5	<0.5	<0.5	***41***	***52***	NR	N/A
	GTC-B22-20.5	GTC-B22	20.5																											

Notes :

1. Sb = Antimony, As = Arsenic, Ba = Barium, Be = Beryllium, Cd = Cadmium, Cr = Chromium, Cr VI = Chromium VI, Co = Cobalt, Cu = Copper, Pb = Lead, Hg = Mercury, Mo = Molybdenum, Ni = Nickel, Se = Selenium, Ag = Silver, Tl = Thallium, V = Vanadium, and Zn = Zinc. WET = California Waste Extraction Test. TCLP = United States Environmental Protection Agency Toxicity Characteristic Leaching Procedure.
2. mg/Kg = milligrams per Kilogram; mg/L = milligrams per Liter; % - percent by volume.
3. RSL - Industrial = USEPA's Regional Screening Levels under industrial scenario, May 2014.
   ESL = California Regional Water Quality Control Board - San Francisco Region's Environmental Screening Criteria as listed in Table B (ESL for shallow soils and groundwater is not a current or potential source of drinking water) under commercial/industrial use scenario, December 2013.
   ESLs - Table K-3 Construction Worker = ESLs for Direct Exposure Soil Screening Levels under Construction/Trench Worker Exposure Scenario (Table K-3).
   CHHSLs = California Human Health Screening Levels (CHHSLs) for commercial/industrial scenario, September 2010
4. NA = Not Available; NR = Not required; ND = Not detected at concentrations above the respective detection limit(s); and - - = Not Analyzed (see Table 1 for explanation).
5. STLC = California Souble Threshold Limit Concentration
   TTLC = California Total Threshold Limit Concentration
   TCLP = United States Environmental Protection Agency's Toxicity Characteristic Leaching Procedure
   Shaklette and Boerngen = The estimated arithmetic mean of Western United States in Table 2 of the "Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States" by Hansord T. Shacklette and Josephine G. Boerngen, U.S. Geological Survey Professional Paper 1270 and dated 1984.
   LBNL = Table 5 of the "Analysis of Background Distributions of Metals in the Soil at Lawrence Berkeley National Laboratory" by Diamond et al. and dated June 2002, Revised April 2009.
   Bradford et al. = Reported mean concentration of the "Background Concentrations of Trace and Major Elements in California Soils" by Bradford etal., Kearney Foundation of Soil Science, March 1996.
6. ***20*** denotes the respective concentration above the detected limit
   4.4 denotes the respective concentration above the respective ESL - Commercial value.
   5.9 denotes the respective concentration above the respective applicable hazardous criteria.
   Min = Minimum Concentration. Max = Maximum Concentration. Ave: Approximate Arithmetic Average Concentration (for concentration reported as below detection limit, the detection limit was employed for the average estimation.

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TABLE 5
RESULTS OF TOTAL PETROLEUM HYDROCARBONS, BTEX, MTBE, VOC, AND SVOC ANALYSES ON GROUNDWATER SAMPLES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

			Total Petroleum Hydrocarbons, BTEX, and MTBE (1)								*VOCs (1)*														*Other Organics*
			TPHs-G	TPHs-D	TPHs-MO	Benzene	Ethyl Benzene	Toluene	Total Xylenes	MTBE	Benzene	t-Butyl alcohol	n-Butyl benzene	sec-Butyl benzene	tert-Butyl benzene	Ethyl benzene	Isopropyl benzene	4-Isopropyl toluene	n-Propyl benzene	MTBE	Toluene	1,2,4-Trimethyl benzene	Xylenes, total	Other VOCs	SVOCs
	Unit (2)		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Risk Regulatory Criteria (3)																									
	ESL (Table F-1b)		500	640	640	27.0	43	130	100	1800	24	18000	NA	NA	NA	43	NA	NA	NA	1800	130	NA	100	NA	NA
San Francisco Wastewater Batch Discharge Limits (3)																									
	SF Batch Discharge Limit		100000	100000	100000	500	NA	NA	NA	NA	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Laboratory ID	**Sample ID**	**Boring ID**	**Min: <50 Max: 110000 Ave: 12110**	**Min: <50 Max: 3200000 Ave: 331959.9**	**Min: <250 Max: 4100000 Ave: 421820**	**Min: <0.5 Max: 53 Ave: 8.03**	**Min: <0.5 Max: <50 Ave: 5.64**	**Min: <0.5 Max: 400 Ave: 43.78**	**Min: <0.5 Max: 94 Ave: 10.52**	**Min: <5 Max: <500 Ave: 59.14**	**Min: <0.5 Max: 4.9 Ave: 1.59**	**Min: <2 Max: 33 Ave: 8**	**Min: <0.5 Max: <0.5 Ave: 0.5**	**Min: <0.5 Max: <0.5 Ave: 0.5**	**Min: <0.5 Max: 480 Ave: 51.5**	**Min: <0.5 Max: <50 Ave: 5.7**	**Min: <0.5 Max: <50 Ave: 6.5**	**Min: <0.5 Max: 170 Ave: 19**	**Min: <0.5 Max: 220 Ave: 23**	**Min: <0.5 Max: <50 Ave: 8**	**Min: <0.5 Max: <50 Ave: 6**	**Min: <0.5 Max: <50 Ave: 6**	**Min: <0.5 Max: <50 Ave: 6**		
Groundwater Samples - 2013 (5)																									
GTC-B6-W	GTC-B6-W	GTC-B6	<50	***89***	***450***	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND	ND
GTC-B8-W	GTC-B8-W	GTC-B8	<50	***700***	***2200***	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND	ND
GTC-B9-W	GTC-B9-W	GTC-B9	<50	***1000***	***3800***	<0.5	<0.5	<0.5	<0.5	***7.4***	<0.5	***13***	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	***7.0***	<0.5	<0.5	<0.5	ND	ND
GTC-B10-W	GTC-B10-W	GTC-B10	***620***	***33000***	***23000***	***4.4***	<0.5	***4.0***	***1.4***	<30	***4.4***	***33***	<0.5	***0.59***	***0.59***	***0.58***	<0.5	***0.82***	<0.5	***17***	***0.51***	***0.52***	***1.3***	ND	ND
GTC-B11-W	GTC-B11-W	GTC-B11	***5200***	***19000***	***20000***	***6.0***	<1.2	***9.0***	<1.2	<12	***4.9***	<10	***4.2***	***3.4***	***4.3***	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	***2.0***	ND	ND
GTC-B15-W	GTC-B15-W	GTC-B15	<50	<50	<250	<0.5	<0.5	<0.5	<0.5	<5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	ND	ND
GTC-B16-W	GTC-B16-W	GTC-B16	***150***	***760***	***2500***	<0.5	<0.5	***5.6***	<0.5	<5	<0.5	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	***1.7***	<0.5	<0.5	ND	ND
GTC-B17-W	GTC-B17-W	GTC-B17	***330***	***45000***	***52000***	***2.4***	<0.5	***3.2***	***1.2***	<5	***1.9***	<2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	***0.75***	***1.2***	***0.78***	ND	ND
GTC-B21-W	GTC-B21-W	GTC-B21	***110000***	***3200000***	***4100000***	***53***	<50	***400***	***94***	<500	***1.7***		***58***	***1100***	***480***	<50	<50	***170***	***220***	<50	<50	<50	<50	ND	ND
GTC-B22-W	GTC-B22-W	GTC-B22	***4600***	***20000***	***14000***	***12***	<1.7	***14***	***4.9***	<17	<0.5	<2	***13***	***45***	***27***	<0.5	***8.7***	***9.5***	***5.1***	<0.5	***2.8***	<0.5	***5.6***	ND	ND

Notes :

1. TPHs-G = Total Petroleum Hydrocarbons (TPHs) as Gasoline by United States Environmental Protection Agency (USEPA) Method 8015 modified.
   BTEX/MTBE = Benzene, Toluene, Ethylbenzene and Xylenes; and Methyl tert-Butyl Ether by USEPA Method 8020.
   TPHs-D and TPHs-MO = TPHs as Diesel and TPHs as Motor Oil by USEPA Method 8015 modified with silica gel cleanup.
   VOCs = Volatile Organic Compounds by USEPA Method 8260.
   SVOCs = Semi-Volatile Organic Compounds by USEPA Method 8270.
   Pesticides = Organochlorine Pesticides by USEPA Method 8080 series.
   PCBs = Polychlorinated Biphenyls by USEPA Method 8080 series.
2. µg/L = micrograms per Liter
3. RSL - Residential = MCL in USEPA's Regional Screening Levels under residential scenario, May 2014.
   ESL = California Regional Water Quality Control Board - San Francisco Region's Environmental Screening Criteria as listed in Table F-1b (ESL for groundwater which is not a current or potential source of drinking water), December 2013.
   SF Batch Discharge Limit = San Francisco Batch Wastewater Discharge Limit, May 18, 2012.
4. NA = Not Available; ND = Not detected at concentrations above the respective detection limit(s).
5. ***9.7*** denotes the respective concentration above the detected limit
   120 denotes the respective concentration above the respective ESL - Residential value.
   Min = Minimum Concentration. Max = Maximum Concentration. Ave: Approximate Arithmetic Average Concentration (for concentration reported as below detection limit, the detection limit was employed for the average estimation.

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TABLE 6
RESULTS OF TITLE 22 METALS ON GROUNDWATER SAMPLES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

			Title 22 17-Metals (1)																
			Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	V	Zn
		Unit (2)	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Risk Regulatory and Reference Criteria (3)																			
		ESL (Table F-1b)	30.0	36	1000	0.53	0.25	180	3.0	3.1	2.5	0.025	240	8.2	5.0	0.19	4.0	1.9	81
San Francisco Wastewater Batch Discharge Limits (3)																			
		SF Batch Discharge Limit	NA	4000	NA	NA	500	5000	NA	4000	1500	50	NA	2000	NA	600	NA	NA	7000
Laboratory ID	Sample ID	Boring ID	Min: 1.1 Max: 810	Min: 4 Max: 1700	Min: 210 Max: 52000	Min: <0.5 Max: <500	Min: <0.25 Max: <250	Min: <0.5 Max: 6800	Min: <0.5 Max: 1100	Min: <0.5 Max: 53000	Min: <0.5 Max: 190000	Min: <0.025 Max: <50	Min: <0.5 Max: <500	Min: 1.6 Max: 6100	Min: <0.5 Max: <500	Min: <0.19 Max: <500	Min: <0.5 Max: <500	Min: <0.5 Max: 2000	Min: <5 Max: 120000
Groundwater Samples - 2013 (5)																			
GTC-B6-W	GTC-B6-W	GTC-B6	***100***	***110***	***9300***	<50	<25	***1600***	***810***	***4800***	***5800***	***6.4***	<50	***2600***	<50	<19	<50	***1700***	***6500***
GTC-B6-W (DISSOLVED)	GTC-B6-W	GTC-B6	***1.1***	***31***	***390***	<0.5	<0.25	<0.5	***9.6***	***1.2***	<0.5	***0.034***	***15***	***12***	<0.5	<0.19	<0.5	***2.6***	***6.2***
GTC-B8-W	GTC-B8-W	GTC-B8	***810***	***1700***	***30000***	<500	<250	***1700***	<500	***18000***	***96000***	<50	<500	***1700***	<500	<500	<500	***940***	***60000***
GTC-B8-W (DISSOLVED)	GTC-B8-W	GTC-B8	***6.5***	***41***	***330***	<0.5	<0.25	<0.5	***5.9***	<0.5	***1.3***	<0.025	***8.9***	***6.8***	***3.8***	<0.19	<0.5	***0.55***	***6.9***
GTC-B9-W	GTC-B9-W	GTC-B9	***96***	***840***	***52000***	***54***	***250***	***1700***	***1100***	***53000***	***190000***	***41***	<50	***4900***	<50	***320***	<50	***1500***	***120000***
GTC-B9-W (DISSOLVED)	GTC-B9-W	GTC-B9	***14***	***14***	***590***	<0.5	<0.25	<0.5	***8.6***	<0.5	***3***	***0.071***	***21***	***16***	<0.5	<0.19	<0.5	<0.5	***36***
GTC-B10-W	GTC-B10-W	GTC-B10	***64***	***930***	***46000***	<50	***160***	***2200***	***1100***	***26000***	***110000***	***40***	***130***	***3300***	<50	***210***	<50	***2000***	***81000***
GTC-B10-W (DISSOLVED)	GTC-B10-W	GTC-B10	***12***	***17***	***1800***	<0.5	<0.25	<0.5	***2.1***	<0.5	***5.1***	***0.063***	***37***	***55***	<0.5	<0.19	<0.5	***1.4***	***16***
GTC-B11-W	GTC-B11-W	GTC-B11	***20***	***110***	***11000***	<10	***19***	***240***	***110***	***5100***	***16000***	***4.4***	<10	***450***	<10	***21***	<10	***260***	***13000***
GTC-B11-W (DISSOLVED)	GTC-B11-W	GTC-B11	***4.5***	***7.2***	***680***	<0.5	<0.25	<0.5	***13***	<0.5	***4***	<0.025	***5.5***	***18***	<0.5	<0.19	<0.5	***0.57***	***46***
GTC-B15-W	GTC-B15-W	GTC-B15	<50	***1300***	***25000***	<50	***170***	***1800***	***570***	***24000***	***110000***	***41***	<50	***3600***	<50	***150***	<50	***910***	***110000***
GTC-B15-W (DISSOLVED)	GTC-B15-W	GTC-B15	***2***	***13***	***590***	<0.5	<0.25	<0.5	***2***	<0.5	<0.5	***0.039***	***5.9***	***4.2***	<0.5	<0.19	<0.5	<0.5	<5
GTC-B16-W	GTC-B16-W	GTC-B16	<25	***140***	***29000***	***63***	***66***	***6800***	***880***	***17000***	***43000***	***30***	<25	***6100***	<25	***100***	<25	***1800***	***3200***
GTC-B16-W (DISSOLVED)	GTC-B16-W	GTC-B16	***1.2***	***19***	***950***	<0.5	<0.25	<0.5	<0.5	<0.5	<0.5	<0.025	***5.6***	***1.6***	<0.5	<0.19	<0.5	***0.57***	<5
GTC-B17-W	GTC-B17-W	GTC-B17	<100	<100	***4200***	<100	<50	<100	***820***	<100	***870***	<5	<100	***1900***	<100	<38	<100	<100	***22000***
GTC-B17-W (DISSOLVED)	GTC-B17-W	GTC-B17	***16***	***18***	***700***	<0.5	<0.25	<0.5	***8.5***	<0.5	***1***	***0.041***	***38***	***28***	***0.76***	<0.19	<0.5	***0.8***	***35***
GTC-B22-W	GTC-B22-W	GTC-B22	***3.7***	***4***	***210***	<0.5	<0.25	***7.5***	***1.1***	***110***	***390***	***0.1***	<0.5	***8.0***	<0.5	***1.5***	<0.5	***4.9***	***370***
GTC-B22-W (DISSOLVED)	BTC-B22-W	GTC-B22	***3.6***	***23***	***2400***	<0.5	<0.25	<0.5	***2.5***	***0.86***	***7.6***	***0.045***	***9.1***	***7.9***	<0.5	<0.19	<0.5	***0.51***	***22***

Notes **:**

1. Sb = Antimony, As = Arsenic, Ba = Barium, Be = Beryllium, Cd = Cadmium, Cr = Chromium, Cr VI = Chromium VI, Co = Cobalt, Cu = Copper, Pb = Lead, Hg = Mercury, Mo = Molybdenum, Ni = Nickel, Se = Selenium, Ag = Silver, Tl = Thallium, V = Vanadium, and Zn = Zinc.
2. µg/L = micrograms per Liter; MFL=Millions Fiber per Liter.
3. ESL = California Regional Water Quality Control Board - San Francisco Region's Environmental Screening Criteria as listed in Table F-1b (ESL for groundwater which is not a current or potential source of drinking water), December 2013.
   SF Batch Discharge Limit = San Francisco Batch Wastewater Discharge Limit, May 18, 2012.
4. NA = Not Available;
5. ***20*** denotes the respective concentration above the detected limit
   4.4 denotes the respective concentration above the respective ESL - Residential value.
   5.9 denotes the respective concentration above the SF Batch Discharge Limit criteria.
   Min = Minimum Concentration. Max = Maximum Concentration. Ave: Approximate Arithmetic Average Concentration (for concentration reported as below detection limit, the detection limit was employed for the average estimation.

TABLE 7
RESULTS OF TSS, TS, O G, AND pH ANALYSES ON GROUNDWATER SAMPLES
1800 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

			Analytes (1)			
			O&G	TSS	TS	pH
		Unit (2)	mg/L	mg/L	mg/L	- -
Risk Regulatory Criteria (3)						
		ESL (Table F-1b)	NA	NA	NA	NA
San Francisco Wastewater Batch Discharge Limits (3)						
		SF Batch Discharge Limit	300	NA	NA	6 to 9.5
Laboratory ID	**Sample ID**	**Boring ID**	**Min: <5 Max: 72**	**Min: 26400 Max: 215000**	**Min: 12000 Max: 237000**	
Groundwater Samples - 2013 (5)						
GTC-B6-W	GTC-B6-W	GTC-B6	<5	***26400***	***24500***	***6.97***
GTC-B8-W	GTC-B8-W	GTC-B8	***20***	***199000***	***132000***	***7.1***
GTC-B9-W	GTC-B9-W	GTC-B9	***16***	***97200***	***105000***	***7.57***
GTC-B10-W	GTC-B10-W	GTC-B10	***72***	***91600***	***142000***	***7.95***
GTC-B11-W	GTC-B11-W	GTC-B11	***44***	***83800***	***12000***	***6.68***
GTC-B15-W	GTC-B15-W	GTC-B15	***20***	***66000***	***130000***	***7.59***
GTC-B16-W	GTC-B16-W	GTC-B16	<8.4	***80100***	***97700***	***7.42***
GTC-B17-W	GTC-B17-W	GTC-B17	<8.4	***215000***	***237000***	***7.28***
GTC-B21-W	GTC-B21-W	GTC-B21	--	--	--	--
GTC-B22-W	GTC-B22-W	GTC-B22	--	--	--	--

Notes :

1. O&G = Oil and Grease by USEPA Method 1664;
   TSS & TS = Total susepended solids and total solids by USEPA Method 2540;
   pH = pH analyses by USEPA Method 9040;
2. mg/L = milligrams per Liter
3. ESL = California Regional Water Quality Control Board - San Francisco Region's Environmental Screening Criteria as listed in Table F-1b (ESL for groundwater which is not a current or potential source of drinking water), December 2013
   SF Batch Discharge Limit = San Francisco Batch Wastewater Discharge Limit, May 18, 2012.
4. NA = Not available/not applicable, -- = Not analyzed
5. ***9.7*** denotes the respective concentration above the detected limit
   detection limit was employed for the average estimation.
   120 denotes the respective concentration above the respective ESL - Residential value.
   Min = Minimum Concentration. Max = Maximum Concentration. Ave: Approximate Arithmetic Average Concentration (for concentration reported as below detection limit, the detection limit was employed for the average estimation.

Attachment D: Tabulated Results of Chemical Analyses, 2013 and 2014 Site Investigations, 1801 Jerrold Avenue Property

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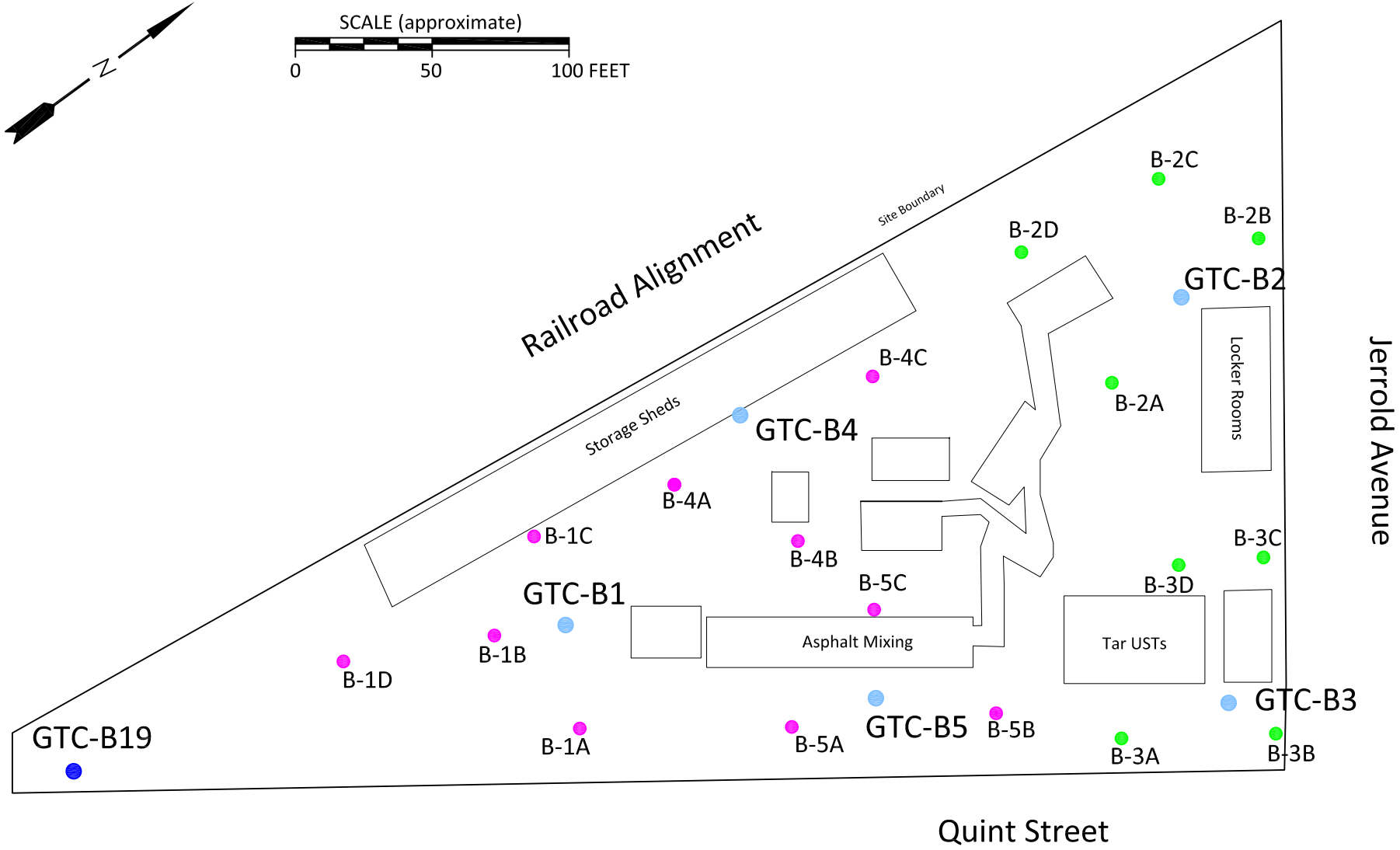

- Geotechnical borings by GTC, 2013
- Additional geotechnical boring by GTC, 2013
- Geoprobe soil borings to approximately 4 feet below ground surface (bgs) by AEW, 2014
- Geoprobe soil borings to approximately 13 feet bgs by AEW, 2014

Figure source: "Exploration Location Map", Geotechnical Consultants, Inc. October 2013

AEW Engineering, Inc.
55 New Montgomery Street
Suite 722
San Francisco, CA 94105

Designed by: RY	*Drawn by: RNM*
Reviewed by: RY	*Approved by: RY*
Date: 8/18/2014	*Project No: 2013-024 Task 3*
Version Number: 0	*File Name: Fig3_addtl boring locations.dwg*

Boring Location Map
1801 Jerrold Ave
San Francisco, CA

Figure 2

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TABLE 1
LIST OF CHEMICAL ANALYSES
1801 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Chemical Analyses (Note 2)															
Laboratory ID	**Sample ID**	**Boring ID**	**Depth (Feet bgs)(1)**	**TPHs-G/ BTEX/ MTBE**	**TPHs-D**	**TPHs-MO**	**VOCs**	**SVOCs**	**Title-22 Metals**	**WET (2) Cr**	**TCLP Cr**	**Pb**	**WET Pb**	**TCLP Pb**	**WET Ni**	**Asbestos**	**pH**	**TSS**	**TS**	**TROG**
Soil Samples - 2013 Investigation																				
Group 1																				
GTC-B1, B4, B5 Comp 2.5	GTC-B1-3	GTC-B1	3	✓	✓	✓	✓	✓	✓	✓	NR (3)	✓	✓	NR	✓	✓	--	--	--	--
	GTC-B4-2.5	GTC-B4	2.5																	
	GTC-B5-2.5	GTC-B5	2.5																	
GTC-B1, B4, B5 Comp 5	GTC-B1-5	GTC-B1	5	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	✓	✓	--	--	--	--
	GTC-B4-5	GTC-B4	5																	
	GTC-B5-5	GTC-B5	5																	
GTC-B1, B4, B5 Comp 10	GTC-B1-10	GTC-B1	10	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	✓	✓	--	--	--	--
	GTC-B4-10	GTC-B4	10																	
	GTC-B5-9	GTC-B5	9																	
GTC-B1, B4, B5 Comp 15	GTC-B1-15	GTC-B1	15	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	NR	NR	✓	--	--	--	--
	GTC-B4-15	GTC-B4	15																	
	GTC-B5-16	GTC-B5	16																	
GTC-B1, B4, B5 Comp 20	GTC-B1-20.5	GTC-B1	20.5	✓	✓	✓	✓	✓	✓	✓	NR	✓	NR	NR	NR	✓	--	--	--	--
	GTC-B4-19.5	GTC-B4	19.5																	
	GTC-B5-19.5	GTC-B5	19.5																	
GTC-B1, B4, B5 Comp 25	GTC-B1-25	GTC-B1	25	✓	✓	✓	✓	✓	✓	✓	NR	✓	NR	NR	NR	--	--	--	--	--
	GTC-B4-24.5	GTC-B4	24.5																	
	GTC-B5-24.5	GTC-B5	24.5																	
GTC-B1, B4, B5 Comp 30	GTC-B1-30.5	GTC-B1	30.5	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	NR	NR	✓	--	--	--	--
	GTC-B4-29.5	GTC-B4	29.5																	
	GTC-B5-29.5	GTC-B5	29.5																	
GTC-B1, B4, B5 Comp 35	GTC-B1-35.5	GTC-B1	35.5	✓	✓	✓	✓	✓	✓	✓	NR	✓	NR	NR	NR	--	--	--	--	--
	GTC-B4-35.5	GTC-B4	35.5																	
	GTC-B5-35.5	GTC-B5	35.5																	
GTC-B1, B4, B5 Comp 40	GTC-B1-40.5	GTC-B1	40.5	✓	✓	✓	✓	✓	✓	✓	✓	✓	NR	NR	NR	--	--	--	--	--
	GTC-B4-40.5	GTC-B4	40.5																	
	GTC-B5-40.5	GTC-B5	40.5																	
GTC-B1, B4, B5 Comp 50	GTC-B1-50	GTC-B1	50	✓	✓	✓	✓	✓	✓	NR	NR	✓	NR	NR	NR	--	--	--	--	--
	GTC-B4-50	GTC-B4	50																	
	GTC-B5-50	GTC-B5	50																	

TABLE 1 (Con't.)
LIST OF CHEMICAL ANALYSES
1801 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

Laboratory ID	Sample ID	Boring ID	Depth (Feet bgs)(1)	TPHs-G/ BTEX/ MTBE	TPHs-D	TPHs-MO	VOCs	SVOCs	Title-22 Metals	WET (2) Cr	TCLP Cr	Pb	WET Pb	TCLP Pb	WET Ni	Asbestos	pH	TSS	TS	TROG
Group 2																				
B2, B3 Comp 2.5	GTC-B2-3	GTC-B2	3	√	√	√	√	√	√	√	√	√	NR	√	√	√	--	--	--	--
	GTC-B3-2.5	GTC-B3	2.5																	
B2, B3 Comp 5	GTC-B2-5	GTC-B2	5	√	√	√	√	√	√	√	NR	√	NR	NR	NR	√	--	--	--	--
	GTC-B3-5.5	GTC-B3	5.5																	
B2, B3 Comp 10	GTC-B2-10	GTC-B2	10	√	√	√	√	√	√	√	NR	√	NR	NR	NR	√	--	--	--	--
	GTC-B3-10.5	GTC-B3	10.5																	
B2, B3 Comp 15	GTC-B2-16.5	GTC-B2	16.5	√	√	√	√	√	√	√	NR	√	NR	NR	NR	√	--	--	--	--
	GTC-B3-14.5	GTC-B3	14.5																	
B2, B3 Comp 20	GTC-B2-20	GTC-B2	20	√	√	√	√	√	√	√	NR	√	NR	NR	NR	√	--	--	--	--
	GTC-B3-19.5	GTC-B3	19.5																	
B2, B3 Comp 25	GTC-B2-25	GTC-B2	25	√	√	√	√	√	√	√	NR	√	NR	NR	NR	--	--	--	--	--
	GTC-B3-24.5	GTC-B3	24.5																	
B2, B3 Comp 30	GTC-B2-30	GTC-B2	30	√	√	√	√	√	√	√	NR	√	NR	NR	NR	√	--	--	--	--
	GTC-B3-29.5	GTC-B3	29.5																	
B2, B3 Comp 35	GTC-B2-35	GTC-B2	35	√	√	√	√	√	√	√	NR	√	NR	NR	NR	--	--	--	--	--
	GTC-B3-35.5	GTC-B3	35.5																	
B2, B3 Comp 40	GTC-B2-40	GTC-B2	40	√	√	√	√	√	√	√	NR	√	NR	NR	NR	--	--	--	--	--
	GTC-B3-40	GTC-B3	40																	
B2, B3 Comp 50	GTC-B2-50	GTC-B2	50	√	√	√	√	√	√	√	NR	√	NR	NR	NR	--	--	--	--	--
	GTC-B3-50	GTC-B3	50																	
GTC-B19																				
GTC-B19-2.5, 5.5, 10.5	GTC-B19-2.5	GTC-B19	2.5	√	√	√	--	--	--	--	--	√	√	NR	--	--	--	--	--	--
	GTC-B19-5.5	GTC-B19	5.5									√	NR	NR						
	GTC-B19-10.5	GTC-B19	10.5									√	NR	NR						
GTC-B19-15.5, 20.5	GTC-19-15.5	GTC-B19	15.5	√	√	√	--	--	--	--	--	√	NR	NR	--	--	--	--	--	--
	GTC-20.5	GTC-B19	20.5									√	NR	NR						
Groundwater Samples - 2013																				
GTC-B3-W	GTC-B3-W	GTC-B3	--	√	√	√	√	√	√	NR	NR	√	NR	NR	NR	--	√	√	√	√
GTC-B4-W	GTC-B4-W	GTC-B4	--	√	√	√	√	√	√	NR	NR	√	NR	NR	NR	--	√	√	√	√

TABLE 1 (Con't.)
LIST OF CHEMICAL ANALYSES
1801 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

Laboratory ID	Sample ID	Boring ID	Depth (Feet bgs)(1)	TPHs-G/ BTEX/ MTBE	TPHs-D	TPHs-MO	VOCs	SVOCs	Title-22 Metals	WET (2) Cr	TCLP Cr	Pb	WET Pb	TCLP Pb	WET Ni	Asbestos	pH	TSS	TS	TROG
Soil Samples - 2014 Supplemental Lead Analysis																				
B-1A-7.5	B-1A-7.5	B-1A	7.5									✓	✓	NR						
B-1A-10	B-1A-10	B-1A	10									✓	✓	✓						
B-1A-12.5	B-1A-12.5	B-1A	12.5									✓	✓	NR						
B-1B-10	B-1B-10	B-1B	10									✓	NR	NR						
B-1C-10	B-1C-10	B-1C	10									✓	NR	NR						
B-1D-10	B-1D-10	B-1D	10									✓	NR	NR						
B-4A-10	B-4A-10	B-4A	10									✓	NR	NR						
B-4B-10	B-4B-10	B-4B	10									✓	NR	NR						
B-4C-10	B-4C-10	B-4C	10									✓	NR	NR						
B-5A-7.5	B-5A-7.5	B-5A	7.5									✓	NR	✓						
B-5A-10	B-5A-10	B-5A	10									✓	✓	NR						
B-5A-12.5	B-5A-12.5	B-5A	12.5									✓	NR	NR						
B-5B-10	B-5B-10	B-5B	10									✓	✓	NR						
B-5C-10	B-5C-10	B-5C	10									✓	NR	NR						
B-2A-2.5	B-2A-2.5	B-2A	2.5									✓	NR	NR						
B-2B-2.5	B-2B-2.5	B-2B	2.5									✓	NR	NR						
B-2C-2.5	B-2C-2.5	B-2C	2.5									✓	NR	NR						
B-2D-2.5	B-2D-2.5	B-2D	2.5									✓	NR	NR						
B-3A-2.5	B-3A-2.5	B-3A	2.5									✓	✓	NR						
B-3B-2.5	B-3B-2.5	B-3B	2.5									✓	NR	NR						
B-3C-2.5	B-3C-2.5	B-3C	2.5									✓	✓	NR						
B-3D-2.5	B-3D-2.5	B-3D	2.5									✓	NR	NR						

Notes :

1. bgs = below existing ground surface.
2. TPHs-G = Total Petroleum Hydrocarbons (TPHs) as Gasoline by United States Environmental Protection Agency (USEPA) Method 8015 modified.
   BTEX/MTBE = Benzene, Toluene, Ethylbenzene and Xylenes; and Methyl tert-Butyl Ether by USEPA Method 8020.
   TPHs-D and TPHs-MO = TPHs as Diesel and TPHs as Motor Oil by USEPA Method 8015 modified with silica gel cleanup.
   VOCs = Volatile Organic Compounds by USEPA Method 8260.
   SVOCs = Semi-Volatile Organic Compounds by USEPA Method 8270.
   Title-22 Metals = 17 Metals as listed in Title 22 of the California Code of Regulations by USEPA Methods 6000/7000 series.
   Cr=Chromium, Pb=Lead, and Ni=Nickel
   WET = California Waste Extraction Test.
   TCLP = United States Environmental Protection Agency's Toxicity Characteristic Leaching Procedure.
   Asbestos = Asbestos analyses by Air Resources Board's Method 435.
   pH = pH analyses by USEPA Method 9040.
   TSS & TS = Total susepended solids and total solids by USEPA Method 2540.
   TROG = Total Recoverable Oil and Grease by USEPA Method 1664.
3. - - = Not Analyzed, NR = Not Required.

TABLE 2
RESULTS OF TOTAL PETROLEUM HYDROCARBONS, BTEX, AND MTBE ANALYSES ON SOIL SAMPLES
1801 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Total Petroleum Hydrocarbons, BTEX, and MTBE (1)							
				TPHs-G	TPHs-D	TPHs-MO	Benzene	Ethyl Benzene	Toluene	Total Xylenes	MTBE
			Unit (2)	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Risk Regulatory Criteria (3)											
			USEPA RSL Industrial	NA (4)	NA	NA	5.1	25	47000	2500	210
			ESL - Commerical (Table B)	500	110	500	1.2	4.7	9.3	11	8.4
			ESL - Construction Workers (K-3)	2700	900	28000	71	490	4300	2500	3800
			CHHSLs - Commercial/Industrial	NA	NA	NA	NA	NA	NA	NA	NA
			CHHSLs - Commerical	NA	NA	NA	NA	NA	NA	NA	NA
Hazardous Waste Criteria (5)											
			TTLC	NA	NA	NA	NA	NA	NA	NA	NA
			10 x STLC	NA	NA	NA	NA	NA	NA	NA	NA
			STLC	NA	NA	NA	NA	NA	NA	NA	NA
			20 x TCLP	NA	NA	NA	10	NA	NA	NA	NA
			TCLP	NA	NA	NA	NA	NA	NA	NA	NA
Laboratory ID	**Sample ID**	**Boring ID**	**Depth (Feet bgs)(1)**	**Min: <1 Max: 18 Ave: 2**	**Min: <1 Max: 890 Ave: 72.9**	**Min: <5 Max: 1700 Ave: 155.3**	**Min: <0.005 Max: 0.035 Ave: 0.006**	**Min: <0.005 Max: 0.015 Ave: 0.006**	**Min: <0.005 Max: 0.017 Ave: 0.01**	**Min: <0.005 Max: 0.083 Ave: 0.01**	**Min: <0.005 Max: <0.05 Ave: 0.05**
Soil Samples - 2013 Investigation (6)											
Group 1											
GTC-B1, B4, B5 Comp 2.5	GTC-B1-3	GTC-B1	3	<1	***9.5***	***63***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B4-2.5	GTC-B4	2.5								
	GTC-B5-2.5	GTC-B5	2.5								
GTC-B1, B4, B5 Comp 5	GTC-B1-5	GTC-B1	5	<1	***4.7***	***8.7***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B4-5	GTC-B4	5								
	GTC-B5-5	GTC-B5	5								
GTC-B1, B4, B5 Comp 10	GTC-B1-10	GTC-B1	10	<1	***14***	***75***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B4-10	GTC-B4	10								
	GTC-B5-9	GTC-B5	9								
GTC-B1, B4, B5 Comp 15	GTC-B1-15	GTC-B1	15	<1	***2.2***	***26***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B4-15	GTC-B4	15								
	GTC-B5-16	GTC-B5	16								
GTC-B1, B4, B5 Comp 20	GTC-B1-20.5	GTC-B1	20.5	<1	***2.4***	***32***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B4-19.5	GTC-B4	19.5								
	GTC-B5-19.5	GTC-B5	19.5								
GTC-B1, B4, B5 Comp 25	GTC-B1-25	GTC-B1	25	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B4-24.5	GTC-B4	24.5								
	GTC-B5-24.5	GTC-B5	24.5								
GTC-B1, B4, B5 Comp 30	GTC-B1-30.5	GTC-B1	30.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B4-29.5	GTC-B4	29.5								
	GTC-B5-29.5	GTC-B5	29.5								
GTC-B1, B4, B5 Comp 35	GTC-B1-35.5	GTC-B1	35.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B4-35.5	GTC-B4	35.5								
	GTC-B5-35.5	GTC-B5	35.5								
GTC-B1, B4, B5 Comp 40	GTC-B1-40.5	GTC-B1	40.5	<1	***3.2***	***14***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B4-40.5	GTC-B4	40.5								
	GTC-B5-40.5	GTC-B5	40.5								
GTC-B1, B4, B5 Comp 50	GTC-B1-50	GTC-B1	50	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B4-50	GTC-B4	50								
	GTC-B5-50	GTC-B5	50								
Group 2											
B2, B3 Comp 2.5	GTC-B2-3	GTC-B2	3	<1	***14***	***110***	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B3-2.5	GTC-B3	2.5								
B2, B3 Comp 5	GTC-B2-5	GTC-B2	5	***18***	***650***	***1700***	***0.035***	***0.015***	***0.017***	***0.025***	<0.05
	GTC-B3-5.5	GTC-B3	5.5								
B2, B3 Comp 10	GTC-B2-10	GTC-B2	10	***10***	***890***	***1300***	***0.0058***	***0.011***	***0.016***	***0.083***	<0.05
	GTC-B3-10.5	GTC-B3	10.5								
B2, B3 Comp 15	GTC-B2-16.5	GTC-B2	16.5	<1	***1.1***	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B3-14.5	GTC-B3	14.5								
B2, B3 Comp 20	GTC-B2-20	GTC-B2	20	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B3-19.5	GTC-B3	19.5								

TABLE 2 (Con't.)
RESULTS OF TOTAL PETROLEUM HYDROCARBONS, BTEX, AND MTBE ANALYSES ON SOIL SAMPLES
1801 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Total Petroleum Hydrocarbons, BTEX, and MTBE (1)							
				TPHs-G	TPHs-D	TPHs-MO	Benzene	Ethyl Benzene	Toluene	Total Xylenes	MTBE
			Unit (2)	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Risk Regulatory Criteria (3)											
			USEPA RSL Industrial	NA (4)	NA	NA	5.1	25	47000	2500	210
			ESL - Commerical (Table B)	500	110	500	1.2	4.7	9.3	11	8.4
			ESL - Construction Workers (K-3)	2700	900	28000	71	490	4300	2500	3800
			CHHSLs - Commercial/Industrial	NA	NA	NA	NA	NA	NA	NA	NA
			CHHSLs - Commerical	NA	NA	NA	NA	NA	NA	NA	NA
Hazardous Waste Criteria (5)											
			TTLC	NA	NA	NA	NA	NA	NA	NA	NA
			10 x STLC	NA	NA	NA	NA	NA	NA	NA	NA
			STLC	NA	NA	NA	NA	NA	NA	NA	NA
			20 x TCLP	NA	NA	NA	10	NA	NA	NA	NA
			TCLP	NA	NA	NA	NA	NA	NA	NA	NA
Laboratory ID	**Sample ID**	**Boring ID**	**Depth (Feet bgs)(1)**	**Min: <1 Max: 18 Ave: 2**	**Min: <1 Max: 890 Ave: 72.9**	**Min: <5 Max: 1700 Ave: 155.3**	**Min: <0.005 Max: 0.035 Ave: 0.006**	**Min: <0.005 Max: 0.015 Ave: 0.006**	**Min: <0.005 Max: 0.017 Ave: 0.01**	**Min: <0.005 Max: 0.083 Ave: 0.01**	**Min: <0.005 Max: <0.05 Ave: 0.05**
B2, B3 Comp 25	GTC-B2-25	GTC-B2	25	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B3-24.5	GTC-B3	24.5								
B2, B3 Comp 30	GTC-B2-30	GTC-B2	30	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B3-29.5	GTC-B3	29.5								
B2, B3 Comp 35	GTC-B2-35	GTC-B2	35	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B3-35.5	GTC-B3	35.5								
B2, B3 Comp 40	GTC-B2-40	GTC-B2	40	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B3-40	GTC-B3	40								
B2, B3 Comp 50	GTC-B2-50	GTC-B2	50	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.05
	GTC-B3-50	GTC-B3	50								
GTC-B19											
GTC-B19-2.5, 5.5, 10.5	GTC-B19-2.5	GTC-B19	2.5	<1	***1.8***	***28***	<0.005	<0.005	<0.005	<0.005	<0.005
	GTC-B19-5.5	GTC-B19	5.5								
	GTC-B19-10.5	GTC-B19	10.5								
GTC-B19-15.5, 20.5	GTC-19-15.5	GTC-B19	15.5	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	<0.005
	GTC-20.5	GTC-B19	20.5								

Notes :

1. TPHs-G = Total Petroleum Hydrocarbons (TPHs) as Gasoline by United States Environmental Protection Agency (USEPA) Method 8015 modified.
   BTEX/MTBE = Benzene, Toluene, Ethylbenzene and Xylenes; and Methyl tert-Butyl Ether by USEPA Method 8020.
   TPHs-D and TPHs-MO = TPHs as Diesel and TPHs as Motor Oil by USEPA Method 8015 modified with silica gel cleanup.
   bgs=below existing ground surface
2. mg/Kg = milligrams per Kilogram
3. RSL - Industrial = USEPA's Regional Screening Levels under industrial scenario, May 2014.
   ESL = California Regional Water Quality Control Board - San Francisco Region's Environmental Screening Criteria as listed in Table B (ESL for shallow soils and groundwater is a NOT a current or potential source of drinking water) under commercial/residential use scenario, December 2013.
   ESLs - Table K-3 Construction Worker = ESLs for Direct Exposure Soil Screening Levels Construction/Trench Worker Exposure Scenario (Table K-3).
   CHHSLs = California Human Health Screening Levels (CHHSLs) for commercial/industrial scenario, September 2010
4. NA = Not Available.
5. STLC = California Souble Threshold Limit Concentration
   TTLC = California Total Threshold Limit Concentration
   TCLP = United States Environmental Protection Agency's Toxicity Characteristic Leaching Procedure
6. ***9.7*** denotes the respective concentration above the detected limit
   120 denotes the respective concentration above the respective ESL - Commercial/Industrial value.
   Min = Minimum Concentration. Max = Maximum Concentration. Ave: Approximate Arithmetic Average Concentration (for concentration reported as below detection limit, the detection limit was employed for the average estimation.

TABLE 3
RESULTS OF VOC AND SVOC ANALYSES ON SOIL SAMPLES
1801 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				VOCs (1)									*SVOCs (1)*					
				Acetone	n-Butyl benzene	sec-Butyl benzene	Naphthalene	n-Propyl benzene	1,2,4-Trimethyl benzene	1,3,5-Trimethylbenzene	Xylenes, Total	Other VOCs	Benzo (b) fluoranthene	Benzo (g,h,i) perylene	Benzo (a) pyrene	Fluoranthene	Pyrene	Other SVOCs
			Unit (2)	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Risk Regulatory Criteria (3)																		
			USEPA RSL Industrial	670000	58000	120000	17	22000	240	12000	2500	NA	2.9	NA	0.29	30000	23000	NA
			ESL - Commerical (Table B)	0.5	NA	NA	4.8	NA	NA	NA	11	NA	1.3	27	0.13	40	85	NA
			ESL - Construction Workers (K-3)	240000	NA	NA	NA	NA	NA	NA	2500	NA	8.3	NA	0.83	5700	8600	NA
			CHHSLs - Commercial/Industrial	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.13	NA	NA	NA
Hazardous Waste Criteria (5)																		
			TTLC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			10 x STLC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			STLC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			20 x TCLP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			TCLP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Laboratory ID	**Sample ID**	**Boring ID**	**Depth (Feet bgs)(1)**	**Min: <0.05 Max: 0.1 Ave: 0.05**	**Min: <0.005 Max: 0.018 Ave: 0.01**	**Min: <0.005 Max: 0.014 Ave: 0.01**	**Min: <0.005 Max: 0.15 Ave: 0.01**	**Min: <0.005 Max: 0.063 Ave: 0.01**	**Min: <0.005 Max: 0.021 Ave: 0.01**	**Min: <0.005 Max: 0.014 Ave: 0.01**	**Min: 0.005 Max: 0.024 Ave: 0.01**		**Min: <0.25 Max: 110 Ave: 9.7**	**Min: <0.25 Max: 120 Ave: 10.2**	**Min: <0.25 Max: 120 Ave: 10**	**Min: <0.25 Max: 280 Ave: 18**	**Min: <0.25 Max: 310 Ave: 19.7**	
Soil Samples (6)																		
Group 1																		
GTC-B1, B4, B5 Comp 2.5	GTC-B1-3	GTC-B1	3	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<10	<10	<10	<10	<10	ND
	GTC-B4-2.5	GTC-B4	2.5															
	GTC-B5-2.5	GTC-B5	2.5															
GTC-B1, B4, B5 Comp 5	GTC-B1-5	GTC-B1	5	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B4-5	GTC-B4	5															
	GTC-B5-5	GTC-B5	5															
GTC-B1, B4, B5 Comp 10	GTC-B1-10	GTC-B1	10	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<10	<10	<10	<10	<10	ND
	GTC-B4-10	GTC-B4	10															
	GTC-B5-9	GTC-B5	9															
GTC-B1, B4, B5 Comp 15	GTC-B1-15	GTC-B1	15	***0.1***	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.5	<0.5	<0.5	<0.5	<0.5	ND
	GTC-B4-15	GTC-B4	15															
	GTC-B5-16	GTC-B5	16															
GTC-B1, B4, B5 Comp 20	GTC-B1-20.5	GTC-B1	20.5	***0.063***	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B4-19.5	GTC-B4	19.5															
	GTC-B5-19.5	GTC-B5	19.5															
GTC-B1, B4, B5 Comp 25	GTC-B1-25	GTC-B1	25	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B4-24.5	GTC-B4	24.5															
	GTC-B5-24.5	GTC-B5	24.5															
GTC-B1, B4, B5 Comp 30	GTC-B1-30.5	GTC-B1	30.5	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B4-29.5	GTC-B4	29.5															
	GTC-B5-29.5	GTC-B5	29.5															
GTC-B1, B4, B5 Comp 35	GTC-B1-35.5	GTC-B1	35.5	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B4-35.5	GTC-B4	35.5															
	GTC-B5-35.5	GTC-B5	35.5															
GTC-B1, B4, B5 Comp 40	GTC-B1-40.5	GTC-B1	40.5	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B4-40.5	GTC-B4	40.5															
	GTC-B5-40.5	GTC-B5	40.5															

TABLE 3 (Con't.)
RESULTS OF VOC AND SVOC ANALYSES ON SOIL SAMPLES
1801 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				VOCs (1)									*SVOCs (1)*					
				Acetone	n-Butyl benzene	sec-Butyl benzene	Naphthalene	n-Propyl benzene	1,2,4-Trimethyl benzene	1,3,5-Trimethylbenzene	Xylenes, Total	Other VOCs	Benzo (b) fluoranthene	Benzo (g,h,i) perylene	Benzo (a) pyrene	Fluoranthene	Pyrene	Other SVOCs
			Unit (2)	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Risk Regulatory Criteria (3)																		
			USEPA RSL Industrial	670000	58000	120000	17	22000	240	12000	2500	NA	2.9	NA	0.29	30000	23000	NA
			ESL - Commerical (Table B)	0.5	NA	NA	4.8	NA	NA	NA	11	NA	1.3	27	0.13	40	85	NA
			ESL - Construction Workers (K-3)	240000	NA	NA	NA	NA	NA	NA	2500	NA	8.3	NA	0.83	5700	8600	NA
			CHHSLs - Commercial/Industrial	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.13	NA	NA	NA
Hazardous Waste Criteria (5)																		
			TTLC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			10 x STLC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			STLC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			20 x TCLP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			TCLP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Laboratory ID	**Sample ID**	**Boring ID**	**Depth (Feet bgs)(1)**	**Min: <0.05 Max: 0.1 Ave: 0.05**	**Min: <0.005 Max: 0.018 Ave: 0.01**	**Min: <0.005 Max: 0.014 Ave: 0.01**	**Min: <0.005 Max: 0.15 Ave: 0.01**	**Min: <0.005 Max: 0.063 Ave: 0.01**	**Min: <0.005 Max: 0.021 Ave: 0.01**	**Min: <0.005 Max: 0.014 Ave: 0.01**	**Min: 0.005 Max: 0.024 Ave: 0.01**		**Min: <0.25 Max: 110 Ave: 9.7**	**Min: <0.25 Max: 120 Ave: 10.2**	**Min: <0.25 Max: 120 Ave: 10**	**Min: <0.25 Max: 280 Ave: 18**	**Min: <0.25 Max: 310 Ave: 19.7**	
Soil Samples (6)																		
GTC-B1, B4, B5 Comp 50	GTC-B1-50	GTC-B1	50	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B4-50	GTC-B4	50															
	GTC-B5-50	GTC-B5	50															
Group 2																		
B2, B3 Comp 2.5	GTC-B2-3	GTC-B2	3	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<20	<20	<20	<20	<20	ND
	GTC-B3-2.5	GTC-B3	2.5															
B2, B3 Comp 5	GTC-B2-5	GTC-B2	5	<0.05	<0.005	<0.005	***0.15***	<0.005	***0.0086***	<0.005	<0.005	ND	***110***	***120***	***120***	***280***	***310***	ND
	GTC-B3-5.5	GTC-B3	5.5															
B2, B3 Comp 10	GTC-B2-10	GTC-B2	10	<0.05	***0.018***	***0.014***	<0.005	***0.063***	***0.021***	***0.014***	***0.024***	ND	<40	<40	<40	<40	<40	ND
	GTC-B3-10.5	GTC-B3	10.5															
B2, B3 Comp 15	GTC-B2-16.5	GTC-B2	16.5	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B3-14.5	GTC-B3	14.5															
B2, B3 Comp 20	GTC-B2-20	GTC-B2	20	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B3-19.5	GTC-B3	19.5															
B2, B3 Comp 25	GTC-B2-25	GTC-B2	25	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B3-24.5	GTC-B3	24.5															
B2, B3 Comp 30	GTC-B2-30	GTC-B2	30	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B3-29.5	GTC-B3	29.5															
B2, B3 Comp 35	GTC-B2-35	GTC-B2	35	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B3-35.5	GTC-B3	35.5															
B2, B3 Comp 40	GTC-B2-40	GTC-B2	40	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B3-40	GTC-B3	40															

TABLE 3 (Con't.)
RESULTS OF VOC AND SVOC ANALYSES ON SOIL SAMPLES
1801 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				VOCs (1)									*SVOCs (1)*					
				Acetone	n-Butyl benzene	sec-Butyl benzene	Naphthalene	n-Propyl benzene	1,2,4-Trimethyl benzene	1,3,5-Trimethylbenzene	Xylenes, Total	Other VOCs	Benzo (b) fluoranthene	Benzo (g,h,i) perylene	Benzo (a) pyrene	Fluoranthene	Pyrene	Other SVOCs
			Unit (2)	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Risk Regulatory Criteria (3)																		
USEPA RSL Industrial				670000	58000	120000	17	22000	240	12000	2500	NA	2.9	NA	0.29	30000	23000	NA
ESL - Commerical (Table B)				0.5	NA	NA	4.8	NA	NA	NA	11	NA	1.3	27	0.13	40	85	NA
ESL - Construction Workers (K-3)				240000	NA	NA	NA	NA	NA	NA	2500	NA	8.3	NA	0.83	5700	8600	NA
CHHSLs - Commercial/Industrial				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.13	NA	NA	NA
Hazardous Waste Criteria (5)																		
TTLC				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10 x STLC				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
STLC				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
20 x TCLP				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TCLP				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Laboratory ID	**Sample ID**	**Boring ID**	**Depth (Feet bgs)(1)**	**Min: <0.05 Max: 0.1 Ave: 0.05**	**Min: <0.005 Max: 0.018 Ave: 0.01**	**Min: <0.005 Max: 0.014 Ave: 0.01**	**Min: <0.005 Max: 0.15 Ave: 0.01**	**Min: <0.005 Max: 0.063 Ave: 0.01**	**Min: <0.005 Max: 0.021 Ave: 0.01**	**Min: <0.005 Max: 0.014 Ave: 0.01**	**Min: 0.005 Max: 0.024 Ave: 0.01**		**Min: <0.25 Max: 110 Ave: 9.7**	**Min: <0.25 Max: 120 Ave: 10.2**	**Min: <0.25 Max: 120 Ave: 10**	**Min: <0.25 Max: 280 Ave: 18**	**Min: <0.25 Max: 310 Ave: 19.7**	
Soil Samples (6)																		
B2, B3 Comp 50	GTC-B2-50	GTC-B2	50	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	ND	<0.25	<0.25	<0.25	<0.25	<0.25	ND
	GTC-B3-50	GTC-B3	50															

Notes :

1. VOCs = Volatile Organic Compounds by USEPA Method 8260.
   SVOCs = Semi-Volatile Organic Compounds by USEPA Method 8270.
   bgs=below existing ground surface
2. mg/Kg = milligrams per Kilogram
3. RSL - Industrial = USEPA's Regional Screening Levels under industrial scenario, May 2014.
   ESL = California Regional Water Quality Control Board - San Francisco Region's Environmental Screening Criteria as listed in Table B (ESL for shallow soils and groundwater is a NOT a current or potential source of drinking water) under commercial/residential use scenario, December 2013.
   ESLs - Table K-3 Construction Worker = ESLs for Direct Exposure Soil Screening Levels Construction/Trench Worker Exposure Scenario (Table K-3).
   CHHSLs = California Human Health Screening Levels (CHHSLs) for commercial/industrial scenario, September 2010
4. NA = Not Available; ND = Not detected at concentrations above the respective detection limit(s).
5. STLC = California Souble Threshold Limit Concentration
   TTLC = California Total Threshold Limit Concentration
   TCLP = United States Environmental Protection Agency's Toxicity Characteristic Leaching Procedure
6. ***9.7*** denotes the respective concentration above the detected limit
   120 denotes the respective concentration above the respective ESL - Commercial/Industrial value.
   Min = Minimum Concentration. Max = Maximum Concentration. Ave: Approximate Arithmetic Average Concentration (for concentration reported as below detection limit, the detection limit was employed for the average estimation.

TABLE 4
RESULTS OF TITLE 22 METALS AND ASBESTOS ANALYSES ON SOIL SAMPLES
1801 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Title 22 17-Metals (1)																					
				Sb	As	Ba	Be	Cd	Cr	WET Cr	TCLP Cr	Co	Cu	WET Cu	Pb	WET Pb	TCLP Pb	Hg	Mo	Ni	WET Ni	Se	Ag	Tl	V	Zn	Asbestos
Unit (2)				mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	%
Risk Regulatory and Reference Criteria (3)																											
USEPA RSL - Industrial				470	3.0	220000	2300	980	1800000	NA (4)	NA	350	47000	NA	800	NA	NA	40	5800	22000	NA	58000	5800	12	58000	350000	NA
ESL - Commerical (Table B)				40	1.6	1500	8	12	750	NA	NA	80	230	NA	320	NA	NA	10	40	150	NA	10	40	10	200	600	NA
ESL - Construction Workers (K-3)				120	10	61000	180	110	460000	NA	NA	49	12000	NA	320	NA	NA	27	1500	6100	NA	1500	1500	3.1	1500	93000	NA
CHHSLs - Commerical/Industrial				380	0.24	63000	190	7.5	100000	NA	NA	3200	38000	NA	320	NA	NA	180	4300	16000	NA	4800	4800	63	6700	100000	NA
Hazardous Waste Criteria (5)																											
TTLC				500	500	10000	75	100	2500	NA	NA	8000	2500	NA	1000	NA	NA	20	3500	2000	NA	100	500	700	2400	5000	1
10 x STLC				150	50	1000	7.5	10	50	NA	NA	800	250	NA	50	NA	NA	2	3500	200	NA	10	50	70	240	2500	NA
STLC				NA	NA	NA	NA	NA	NA	5	NA	NA	NA	25	NA	5	NA	NA	NA	NA	20	NA	NA	NA	NA	NA	NA
20 x TCLP				NA	100	2000	NA	20	100	NA	NA	NA	NA	NA	100	NA	NA	4	NA	NA	NA	20	100	NA	NA	NA	NA
TCLP				NA	NA	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Range of Potential Background Concentration (5)																											
Shaklette and Boerngen				0.62	7.0	670	0.97	NA	56	NA	NA	9.0	27	NA	20	NA	NA	0.065	1.1	19	NA	0.34	NA	NA	88	65	NA
LBNL				< 6	24	410	1.0	5.6	120	NA	NA	25	63	NA	43	NA	NA	0.42	4.8	272	NA	4.9	2.9	10	90	140	NA
Bradford et al.				0.60	3.5	509	1.28	0.36	122	NA	NA	14.9	28.7	NA	53	NA	NA	0.26	1.3	57	NA	0.058	0.80	0.56	112	149	NA
Laboratory ID	**Sample ID**	**Boring ID**	**Depth (Feet bgs)(1)**	**Min: <0.5 Max: 11 Ave: 1.3**	**Min: 1 Max: 22 Ave: 4.5**	**Min: 25 Max: 330 Ave: 72**	**Min: <0.5 Max: 0.78 Ave: 0.5**	**Min: <0.25 Max: 0.31 Ave: 0.25**	**Min: 30 Max: 180 Ave: 77**	**Min: <0.05 Max: 1.1**	**Min: <0.05 Max: <0.05**	**Min: 4.1 Max: 68 Ave: 16**	**Min: 4.5 Max: 260 Ave: 27**	**Min: 4.5 Max: 4.5**	**Min: 1.6 Max: 2600 Ave: 77**	**Min: 1.8 Max: 10**	**Min: <0.2 Max: 0.59**	**Min: <0.05 Max: 0.63 Ave: 0.1**	**Min: <0.5 Max: 4.4 Ave: 0.8**	**Min: 24 Max: 1800 Ave: 238**	**Min: 2.9 Max: 11**	**Min: <0.5 Max: <0.5 Ave: 0.5**	**Min: <0.5 Max: <0.5 Ave: 0.5**	**Min: <0.5 Max: <0.5 Ave: 0.5**	**Min: 21 Max: 100 Ave: 49**	**Min: 19 Max: 250 Ave: 67**	**Min: <1 Max: <1**
Soil Samples - 2013 Investigation (6)																											
Group 1																											
GTC-B1, B4, B5 Comp 2.5	GTC-B1-3	GTC-B1	3	***1.2***	***4.6***	***160***	<0.5	<0.25	***95***	***0.30***	NR	***68***	***43***	NR	***68***	***1.9***	NR	***0.54***	<0.5	***1000***	***10***	<0.5	<0.5	<0.5	***43***	***100***	<1
	GTC-B4-2.5	GTC-B4	2.5																								
	GTC-B5-2.5	GTC-B5	2.5																								
GTC-B1, B4, B5 Comp 5	GTC-B1-5	GTC-B1	5	<0.5	***4.3***	***180***	<0.5	<0.25	***170***	***0.37***	<0.05	***46***	***26***	NR	***24***	NR	NR	***0.16***	<0.5	***910***	***11***	<0.5	<0.5	<0.5	***42***	***59***	ND
	GTC-B4-5	GTC-B4	5																								
	GTC-B5-5	GTC-B5	5																								
GTC-B1, B4, B5 Comp 10	GTC-B1-10	GTC-B1	10	***11***	***6.6***	***73***	<0.5	***0.31***	***120***	***0.46***	<0.05	***55***	***28***	NR	***83***	***9.0***	NR	***0.55***	***0.75***	***1800***	***9.2***	<0.5	<0.5	<0.5	***21***	***180***	<1
	GTC-B4-10	GTC-B4	10																								
	GTC-B5-9	GTC-B5	9																								
GTC-B1, B4, B5 Comp 15	GTC-B1-15	GTC-B1	15	***0.91***	***22***	***56***	<0.5	<0.25	***30***	NR	NR	***7.1***	***20***	NR	***29***	NR	NR	***0.14***	***4.4***	***38***	NR	<0.5	<0.5	<0.5	***31***	***51***	ND
	GTC-B4-15	GTC-B4	15																								
	GTC-B5-16	GTC-B5	16																								
GTC-B1, B4, B5 Comp 20	GTC-B1-20.5	GTC-B1	20.5	<0.5	***4.8***	***26***	<0.5	<0.25	***56***	***0.46***	NR	***4.1***	***6.2***	NR	***3.8***	NR	NR	<0.05	<0.5	***24***	NR	<0.5	<0.5	<0.5	***31***	***19***	ND
	GTC-B4-19.5	GTC-B4	19.5																								
	GTC-B5-19.5	GTC-B5	19.5																								
GTC-B1, B4, B5 Comp 25	GTC-B1-25	GTC-B1	25	<0.5	***1.5***	***55***	<0.5	<0.25	***50***	***0.17***	NR	***5.0***	***5.0***	NR	***1.8***	NR	NR	<0.05	<0.5	***30***	NR	<0.5	<0.5	<0.5	***38***	***19***	--
	GTC-B4-24.5	GTC-B4	24.5																								
	GTC-B5-24.5	GTC-B5	24.5																								
GTC-B1, B4, B5 Comp 30	GTC-B1-30.5	GTC-B1	30.5	<0.5	***2.4***	***36***	<0.5	<0.25	***43***	NR	NR	***5.5***	***5.0***	NR	***1.8***	NR	NR	<0.05	<0.5	***30***	NR	<0.5	<0.5	<0.5	***32***	***20***	ND
	GTC-B4-29.5	GTC-B4	29.5																								
	GTC-B5-29.5	GTC-B5	29.5																								
GTC-B1, B4, B5 Comp 35	GTC-B1-35.5	GTC-B1	35.5	<0.5	***1.3***	***39***	<0.5	<0.25	***60***	<0.05	NR	***8.3***	***5.3***	NR	***1.8***	NR	NR	<0.05	<0.5	***43***	NR	<0.5	<0.5	<0.5	***42***	***25***	--
	GTC-B4-35.5	GTC-B4	35.5																								
	GTC-B5-35.5	GTC-B5	35.5																								
GTC-B1, B4, B5 Comp 40	GTC-B1-40.5	GTC-B1	40.5	<0.5	***3.8***	***55***	<0.5	<0.25	***110***	<0.05	<0.05	***12***	***8.0***	NR	***2.7***	NR	NR	<0.05	<0.5	***66***	NR	<0.5	<0.5	<0.5	***100***	***44***	--
	GTC-B4-40.5	GTC-B4	40.5																								
	GTC-B5-40.5	GTC-B5	40.5																								

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TABLE 4 (Con't.)
RESULTS OF TITLE 22 METALS AND ASBESTOS ANALYSES ON SOIL SAMPLES
1801 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Title 22 17-Metals (1)																					
				Sb	As	Ba	Be	Cd	Cr	WET Cr	TCLP Cr	Co	Cu	WET Cu	Pb	WET Pb	TCLP Pb	Hg	Mo	Ni	WET Ni	Se	Ag	Tl	V	Zn	Asbestos
Unit (2)				mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	%
Risk Regulatory and Reference Criteria (3)																											
USEPA RSL - Industrial				470	3.0	220000	2300	980	1800000	NA (4)	NA	350	47000	NA	800	NA	NA	40	5800	22000	NA	58000	5800	12	58000	350000	NA
ESL - Commerical (Table B)				40	1.6	1500	8	12	750	NA	NA	80	230	NA	320	NA	NA	10	40	150	NA	10	40	10	200	600	NA
ESL - Construction Workers (K-3)				120	10	61000	180	110	460000	NA	NA	49	12000	NA	320	NA	NA	27	1500	6100	NA	1500	1500	3.1	1500	93000	NA
CHHSLs - Commerical/Industrial				380	0.24	63000	190	7.5	100000	NA	NA	3200	38000	NA	320	NA	NA	180	4300	16000	NA	4800	4800	63	6700	100000	NA
Hazardous Waste Criteria (5)																											
TTLC				500	500	10000	75	100	2500	NA	NA	8000	2500	NA	1000	NA	NA	20	3500	2000	NA	100	500	700	2400	5000	1
10 x STLC				150	50	1000	7.5	10	50	NA	NA	800	250	NA	50	NA	NA	2	3500	200	NA	10	50	70	240	2500	NA
STLC				NA	NA	NA	NA	NA	NA	5	NA	NA	NA	25	NA	5	NA	NA	NA	NA	20	NA	NA	NA	NA	NA	NA
20 x TCLP				NA	100	2000	NA	20	100	NA	NA	NA	NA	NA	100	NA	NA	4	NA	NA	NA	20	100	NA	NA	NA	NA
TCLP				NA	NA	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Range of Potential Background Concentration (5)																											
Shaklette and Boerngen				0.62	7.0	670	0.97	NA	56	NA	NA	9.0	27	NA	20	NA	NA	0.065	1.1	19	NA	0.34	NA	NA	88	65	NA
LBNL				< 6	24	410	1.0	5.6	120	NA	NA	25	63	NA	43	NA	NA	0.42	4.8	272	NA	4.9	2.9	10	90	140	NA
Bradford et al.				0.60	3.5	509	1.28	0.36	122	NA	NA	14.9	28.7	NA	53	NA	NA	0.26	1.3	57	NA	0.058	0.80	0.56	112	149	NA
Laboratory ID	**Sample ID**	**Boring ID**	**Depth (Feet bgs)(1)**	**Min: <0.5 Max: 11 Ave: 1.3**	**Min: 1 Max: 22 Ave: 4.5**	**Min: 25 Max: 330 Ave: 72**	**Min: <0.5 Max: 0.78 Ave: 0.5**	**Min: <0.25 Max: 0.31 Ave: 0.25**	**Min: 30 Max: 180 Ave: 77**	**Min: <0.05 Max: 1.1**	**Min: <0.05 Max: <0.05**	**Min: 4.1 Max: 68 Ave: 16**	**Min: 4.5 Max: 260 Ave: 27**	**Min: 4.5 Max: 4.5**	**Min: 1.6 Max: 2600 Ave: 77**	**Min: 1.8 Max: 10**	**Min: <0.2 Max: 0.59**	**Min: <0.05 Max: 0.63 Ave: 0.1**	**Min: <0.5 Max: 4.4 Ave: 0.8**	**Min: 24 Max: 1800 Ave: 238**	**Min: 2.9 Max: 11**	**Min: <0.5 Max: <0.5 Ave: 0.5**	**Min: <0.5 Max: <0.5 Ave: 0.5**	**Min: <0.5 Max: <0.5 Ave: 0.5**	**Min: 21 Max: 100 Ave: 49**	**Min: 19 Max: 250 Ave: 67**	**Min: <1 Max: <1**
GTC-B1, B4, B5 Comp 50	GTC-B1-50	GTC-B1	50	<0.5	***1.6***	***31***	<0.5	<0.25	***53***	<0.05	NR	***6.7***	***4.9***	NR	***2.5***	NR	NR	<0.05	<0.5	***29***	NR	<0.5	<0.5	<0.5	***64***	***25***	--
	GTC-B4-50	GTC-B4	50																								
	GTC-B5-50	GTC-B5	50																								
Group 2																											
B2, B3 Comp 2.5	GTC-B2-3	GTC-B2	3	***3.4***	***7***	***330***	<0.5	<0.25	***180***	***0.65***	<0.05	***15***	***38***	NR	***1500***	NR	<0.2	***0.13***	***0.87***	***230***	***2.9***	<0.5	<0.5	<0.5	***31***	***240***	<1
	GTC-B3-2.5	GTC-B3	2.5																								
B2, B3 Comp 5	GTC-B2-5	GTC-B2	5	<0.5	***2***	***42***	<0.5	<0.25	***60***	***0.38***	NR	***9***	***36***	NR	***18***	NR	NR	***0.14***	<0.5	***150***	NR	<0.5	<0.5	<0.5	***52***	***74***	ND
	GTC-B3-5.5	GTC-B3	5.5																								
B2, B3 Comp 10	GTC-B2-10	GTC-B2	10	***1***	***9.1***	***130***	***0.78***	<0.25	***87***	***1.1***	NR	***25***	***260***	***4.5***	***20***	NR	NR	***0.63***	***0.86***	***130***	NR	<0.5	<0.5	<0.5	***85***	***250***	ND
	GTC-B3-10.5	GTC-B3	10.5																								
B2, B3 Comp 15	GTC-B2-16.5	GTC-B2	16.5	<0.5	***5.5***	***33***	<0.5	<0.25	***54***	***0.16***	NR	***8.4***	***16***	NR	***5.7***	NR	NR	<0.05	***2.4***	***53***	NR	<0.5	<0.5	<0.5	***49***	***50***	ND
	GTC-B3-14.5	GTC-B3	14.5																								
B2, B3 Comp 20	GTC-B2-20	GTC-B2	20	<0.5	***5.7***	***37***	<0.5	<0.25	***55***	***0.16***	NR	***8.4***	***17***	NR	***5.3***	NR	NR	<0.05	***0.64***	***50***	NR	<0.5	<0.5	<0.5	***46***	***48***	ND
	GTC-B3-19.5	GTC-B3	19.5																								
B2, B3 Comp 25	GTC-B2-25	GTC-B2	25	<0.5	***2.2***	***25***	<0.5	<0.25	***62***	***0.48***	NR	***6***	***7.5***	NR	***2.2***	NR	NR	<0.05	***0.52***	***28***	NR	<0.5	<0.5	<0.5	***39***	***22***	--
	GTC-B3-24.5	GTC-B3	24.5																								
B2, B3 Comp 30	GTC-B2-30	GTC-B2	30	<0.5	***2***	***38***	<0.5	<0.25	***65***	***0.23***	NR	***5.2***	***4.5***	NR	***2.1***	NR	NR	<0.05	<0.5	***36***	NR	<0.5	<0.5	<0.5	***36***	***20***	ND
	GTC-B3-29.5	GTC-B3	29.5																								
B2, B3 Comp 35	GTC-B2-35	GTC-B2	35	<0.5	***1***	***31***	<0.5	<0.25	***55***	<0.05	NR	***8***	***4.6***	NR	***1.6***	NR	NR	<0.05	<0.5	***39***	NR	<0.5	<0.5	<0.5	***65***	***28***	--
	GTC-B3-35.5	GTC-B3	35.5																								
B2, B3 Comp 40	GTC-B2-40	GTC-B2	40	<0.5	***1.3***	***32***	<0.5	<0.25	***78***	<0.05	NR	***7.6***	***4.9***	NR	***1.6***	NR	NR	<0.05	<0.5	***40***	NR	<0.5	<0.5	<0.5	***70***	***28***	--
	GTC-B3-40	GTC-B3	40																								
B2, B3 Comp 50	GTC-B2-50	GTC-B2	50	<0.5	***2.2***	***37***	<0.5	<0.25	***59***	<0.05	NR	***8.6***	***7.2***	NR	***2.5***	NR	NR	<0.05	<0.5	***39***	NR	<0.5	<0.5	<0.5	***55***	***28***	--
	GTC-B3-50	GTC-B3	50																								
GTC-B19																											
GTC-B19-2.5, 5.5, 10.5	GTC-B19-2.5	GTC-B19	2.5	--	--	--	--	--	--	--	--	--	--	--	***71***	***1.8***	NR	--	--	--	--	--	--	--	--	--	--
	GTC-B19-5.5	GTC-B19	5.5	--	--	--	--	--	--	--	--	--	--	--	***5.8***	NR	NR	--	--	--	--	--	--	--	--	--	--
	GTC-B19-10.5	GTC-B19	10.5	--	--	--	--	--	--	--	--	--	--	--	***18***	NR	NR	--	--	--	--	--	--	--	--	--	--
GTC-B19-15.5, 20.5	GTC-19-15.5	GTC-B19	15.5	--	--	--	--	--	--	--	--	--	--	--	<5.0	NR	NR	--	--	--	--	--	--	--	--	--	--
	GTC-20.5	GTC-B19	20.5	--	--	--	--	--	--	--	--	--	--	--	<5.0	NR	NR	--	--	--	--	--	--	--	--	--	--

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TABLE 4 (Con't.)
RESULTS OF TITLE 22 METALS AND ASBESTOS ANALYSES ON SOIL SAMPLES
1801 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Title 22 17-Metals (1)																					
				Sb	As	Ba	Be	Cd	Cr	WET Cr	TCLP Cr	Co	Cu	WET Cu	Pb	WET Pb	TCLP Pb	Hg	Mo	Ni	WET Ni	Se	Ag	Tl	V	Zn	Asbestos
Unit (2)				mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	%
Risk Regulatory and Reference Criteria (3)																											
USEPA RSL - Industrial				470	3.0	220000	2300	980	1800000	NA (4)	NA	350	47000	NA	800	NA	NA	40	5800	22000	NA	58000	5800	12	58000	350000	NA
ESL - Commerical (Table B)				40	1.6	1500	8	12	750	NA	NA	80	230	NA	320	NA	NA	10	40	150	NA	10	40	10	200	600	NA
ESL - Construction Workers (K-3)				120	10	61000	180	110	460000	NA	NA	49	12000	NA	320	NA	NA	27	1500	6100	NA	1500	1500	3.1	1500	93000	NA
CHHSLs - Commerical/Industrial				380	0.24	63000	190	7.5	100000	NA	NA	3200	38000	NA	320	NA	NA	180	4300	16000	NA	4800	4800	63	6700	100000	NA
Hazardous Waste Criteria (5)																											
TTLC				500	500	10000	75	100	2500	NA	NA	8000	2500	NA	1000	NA	NA	20	3500	2000	NA	100	500	700	2400	5000	1
10 x STLC				150	50	1000	7.5	10	50	NA	NA	800	250	NA	50	NA	NA	2	3500	200	NA	10	50	70	240	2500	NA
STLC				NA	NA	NA	NA	NA	NA	5	NA	NA	NA	25	NA	5	NA	NA	NA	NA	20	NA	NA	NA	NA	NA	NA
20 x TCLP				NA	100	2000	NA	20	100	NA	NA	NA	NA	NA	100	NA	NA	4	NA	NA	NA	20	100	NA	NA	NA	NA
TCLP				NA	NA	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Range of Potential Background Concentration (5)																											
Shaklette and Boerngen				0.62	7.0	670	0.97	NA	56	NA	NA	9.0	27	NA	20	NA	NA	0.065	1.1	19	NA	0.34	NA	NA	88	65	NA
LBNL				< 6	24	410	1.0	5.6	120	NA	NA	25	63	NA	43	NA	NA	0.42	4.8	272	NA	4.9	2.9	10	90	140	NA
Bradford et al.				0.60	3.5	509	1.28	0.36	122	NA	NA	14.9	28.7	NA	53	NA	NA	0.26	1.3	57	NA	0.058	0.80	0.56	112	149	NA
Laboratory ID	Sample ID	Boring ID	Depth (Feet bgs)(1)	Min: <0.5 Max: 11 Ave: 1.3	Min: 1 Max: 22 Ave: 4.5	Min: 25 Max: 330 Ave: 72	Min: <0.5 Max: 0.78 Ave: 0.5	Min: <0.25 Max: 0.31 Ave: 0.25	Min: 30 Max: 180 Ave: 77	Min: <0.05 Max: 1.1	Min: <0.05 Max: <0.05	Min: 4.1 Max: 68 Ave: 16	Min: 4.5 Max: 260 Ave: 27	Min: 4.5 Max: 4.5	Min: 1.6 Max: 2600 Ave: 77	Min: 1.8 Max: 10	Min: <0.2 Max: 0.59	Min: <0.05 Max: 0.63 Ave: 0.1	Min: <0.5 Max: 4.4 Ave: 0.8	Min: 24 Max: 1800 Ave: 238	Min: 2.9 Max: 11	Min: <0.5 Max: <0.5 Ave: 0.5	Min: <0.5 Max: <0.5 Ave: 0.5	Min: <0.5 Max: <0.5 Ave: 0.5	Min: 21 Max: 100 Ave: 49	Min: 19 Max: 250 Ave: 67	Min: <1 Max: <1
2014 Supplemental Lead Analysis																											
B-1A-7.5	B-1A-7.5	B-1A	7.5												***57***	***7.1***	NR										
B-1A-10	B-1A-10	B-1A	10												***110***	***6.7***	<0.20										
B-1A-12.5	B-1A-12.5	B-1A	12.5												***97***	***7.2***	NR										
B-1B-10	B-1B-10	B-1B	10												<5.0	NR	NR										
B-1C-10	B-1C-10	B-1C	10												<5.0	NR	NR										
B-1D-10	B-1D-10	B-1D	10												<5.0	NR	NR										
B-4A-10	B-4A-10	B-4A	10												***25***	NR	NR										
B-4B-10	B-4B-10	B-4B	10												***48***	NR	NR										
B-4C-10	B-4C-10	B-4C	10												***41***	NR	NR										
B-5A-7.5	B-5A-7.5	B-5A	7.5												***2600***	NR	***0.59***										
B-5A-10	B-5A-10	B-5A	10												***88***	***10.0***	NR										
B-5A-12.5	B-5A-12.5	B-5A	12.5												***9.2***	NR	NR										
B-5B-10	B-5B-10	B-5B	10												***69***	***2.3***	NR										
B-5C-10	B-5C-10	B-5C	10												***21***	NR	NR										
B-2A-2.5	B-2A-2.5	B-2A	2.5												***15***	NR	NR										
B-2B-2.5	B-2B-2.5	B-2B	2.5												***12***	NR	NR										
B-2C-2.5	B-2C-2.5	B-2C	2.5												<5.0	NR	NR										
B-2D-2.5	B-2D-2.5	B-2D	2.5												***28***	NR	NR										
B-3A-2.5	B-3A-2.5	B-3A	2.5												***71***	***2.3***	NR										
B-3B-2.5	B-3B-2.5	B-3B	2.5												***45***	NR	NR										

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TABLE 4 (Con't.)
RESULTS OF TITLE 22 METALS AND ASBESTOS ANALYSES ON SOIL SAMPLES
1801 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

				Title 22 17-Metals (1)																					
				Sb	As	Ba	Be	Cd	Cr	WET Cr	TCLP Cr	Co	Cu	WET Cu	Pb	WET Pb	TCLP Pb	Hg	Mo	Ni	WET Ni	Se	Ag	Tl	V	Zn	Asbestos
Unit (2)				mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/L	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	%
Risk Regulatory and Reference Criteria (3)																											
USEPA RSL - Industrial				470	3.0	220000	2300	980	1800000	NA (4)	NA	350	47000	NA	800	NA	NA	40	5800	22000	NA	58000	5800	12	58000	350000	NA
ESL - Commerical (Table B)				40	1.6	1500	8	12	750	NA	NA	80	230	NA	320	NA	NA	10	40	150	NA	10	40	10	200	600	NA
ESL - Construction Workers (K-3)				120	10	61000	180	110	460000	NA	NA	49	12000	NA	320	NA	NA	27	1500	6100	NA	1500	1500	3.1	1500	93000	NA
CHHSLs - Commerical/Industrial				380	0.24	63000	190	7.5	100000	NA	NA	3200	38000	NA	320	NA	NA	180	4300	16000	NA	4800	4800	63	6700	100000	NA
Hazardous Waste Criteria (5)																											
TTLC				500	500	10000	75	100	2500	NA	NA	8000	2500	NA	1000	NA	NA	20	3500	2000	NA	100	500	700	2400	5000	1
10 x STLC				150	50	1000	7.5	10	50	NA	NA	800	250	NA	50	NA	NA	2	3500	200	NA	10	50	70	240	2500	NA
STLC				NA	NA	NA	NA	NA	NA	5	NA	NA	NA	25	NA	5	NA	NA	NA	NA	20	NA	NA	NA	NA	NA	NA
20 x TCLP				NA	100	2000	NA	20	100	NA	NA	NA	NA	NA	100	NA	NA	4	NA	NA	NA	20	100	NA	NA	NA	NA
TCLP				NA	NA	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Range of Potential Background Concentration (5)																											
Shaklette and Boerngen				0.62	7.0	670	0.97	NA	56	NA	NA	9.0	27	NA	20	NA	NA	0.065	1.1	19	NA	0.34	NA	NA	88	65	NA
LBNL				< 6	24	410	1.0	5.6	120	NA	NA	25	63	NA	43	NA	NA	0.42	4.8	272	NA	4.9	2.9	10	90	140	NA
Bradford et al.				0.60	3.5	509	1.28	0.36	122	NA	NA	14.9	28.7	NA	53	NA	NA	0.26	1.3	57	NA	0.058	0.80	0.56	112	149	NA
Laboratory ID	**Sample ID**	**Boring ID**	**Depth (Feet bgs)(1)**	**Min: <0.5 Max: 11 Ave: 1.3**	**Min: 1 Max: 22 Ave: 4.5**	**Min: 25 Max: 330 Ave: 72**	**Min: <0.5 Max: 0.78 Ave: 0.5**	**Min: <0.25 Max: 0.31 Ave: 0.25**	**Min: 30 Max: 180 Ave: 77**	**Min: <0.05 Max: 1.1**	**Min: <0.05 Max: <0.05**	**Min: 4.1 Max: 68 Ave: 16**	**Min: 4.5 Max: 260 Ave: 27**	**Min: 4.5 Max: 4.5**	**Min: 1.6 Max: 2600 Ave: 77**	**Min: 1.8 Max: 10**	**Min: <0.2 Max: 0.59**	**Min: <0.05 Max: 0.63 Ave: 0.1**	**Min: <0.5 Max: 4.4 Ave: 0.8**	**Min: 24 Max: 1800 Ave: 238**	**Min: 2.9 Max: 11**	**Min: <0.5 Max: <0.5 Ave: 0.5**	**Min: <0.5 Max: <0.5 Ave: 0.5**	**Min: <0.5 Max: <0.5 Ave: 0.5**	**Min: 21 Max: 100 Ave: 49**	**Min: 19 Max: 250 Ave: 67**	**Min: <1 Max: <1**
B-3C-2.5	B-3C-2.5	B-3C	2.5												***53***	***2.3***	NR										
B-3D-2.5	B-3D-2.5	B-3D	2.5												***11***	NR	NR										

Notes :

1. Sb = Antimony, As = Arsenic, Ba = Barium, Be = Beryllium, Cd = Cadmium, Cr = Chromium, Cr VI = Chromium VI, Co = Cobalt, Cu = Copper, Pb = Lead, Hg = Mercury, Mo = Molybdenum, Ni = Nickel, Se = Selenium, Ag = Silver, Tl = Thallium, V = Vanadium, and Zn = Zinc. WET = California Waste Extraction Test. TCLP = United States Environmental Protection Agency Toxicity Characteristic Leaching Procedure.
2. mg/Kg = milligrams per Kilogram; mg/L = milligrams per Liter; % - percent by volume.
3. RSL - Industrial = USEPA's Regional Screening Levels under industrial scenario, May 2014.
   ESL = California Regional Water Quality Control Board - San Francisco Region's Environmental Screening Criteria as listed in Table B (ESL for shallow soils and groundwater is not a current or potential source of drinking water) under commercial/industrial use scenario, December 2013.
   ESLs - Table K-3 Construction Worker = ESLs for Direct Exposure Soil Screening Levels under Construction/Trench Worker Exposure Scenario (Table K-3).
   CHHSLs = California Human Health Screening Levels (CHHSLs) for commercial/industrial scenario, September 2010
4. NA = Not Available; NR = Not required; ND = Not detected at concentrations above the respective detection limit(s); and - - = Not Analyzed (see Table 1 for explanation).
5. STLC = California Souble Threshold Limit Concentration
   TTLC = California Total Threshold Limit Concentration
   TCLP = United States Environmental Protection Agency's Toxicity Characteristic Leaching Procedure
   Shaklette and Boerngen = The estimated arithmetic mean of Western United States in Table 2 of the "Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States" by Hansord T. Shacklette and Josephine G. Boerngen, U.S. Geological Survey Professional Paper 1270 and dated 1984.
   LBNL = Table 5 of the "Analysis of Background Distributions of Metals in the Soil at Lawrence Berkeley National Laboratory" by Diamond et al. and dated June 2002, Revised April 2009.
   Bradford et al. = Reported mean concentration of the "Background Concentrations of Trace and Major Elements in California Soils" by Bradford etal., Kearney Foundation of Soil Science, March 1996.
6. ***20*** denotes the respective concentration above the detected limit
   4.4 denotes the respective concentration above the respective ESL - Commercial value.
   5.9 denotes the respective concentration above the respective applicable hazardous criteria.
   Min = Minimum Concentration. Max = Maximum Concentration. Ave: Approximate Arithmetic Average Concentration (for concentration reported as below detection limit, the detection limit was employed for the average estimation.

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TABLE 5
RESULTS OF TOTAL PETROLEUM HYDROCARBONS, BTEX, MTBE, VOC, AND SVOC ANALYSES ON GROUNDWATER SAMPLES
1801 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

			Total Petroleum Hydrocarbons, BTEX, and MTBE (1)								*VOCs (1)*		*Other Organics (1)*
			TPHs-G	TPHs-D	TPHs-MO	Benzene	Ethyl Benzene	Toluene	Total Xylenes	MTBE	Napthalene	Other VOCs	SVOCs
Unit (2)			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Risk Regulatory Criteria (3)													
ESL (Table F-1b)			500	640	640	27.0	43	130	100	1800	24	NA	NA
San Francisco Wastewater Batch Discharge Limits (3)													
SF Batch Discharge Limit			100000	100000	100000	500	NA (4)	NA	NA	NA	NA	NA	NA
Laboratory ID	**Sample ID**	**Boring ID**	**Min: <50 Max: <50 Ave: 50**	**Min: <50 Max: 12000 Ave: 6025**	**Min: <250 Max: 13000 Ave: 6625**	**Min: <0.5 Max: <0.5 Ave: 0.5**	**Min: <0.5 Max: <0.5 Ave: 0.5**	**Min: <0.5 Max: <0.5 Ave: 0.5**	**Min: <0.5 Max: <0.5 Ave: 0.5**	**Min: <5 Max: <5 Ave: 5**	**Min: <0.5 Max: 1.7 Ave: 1.1**		
Groundwater Samples - 2013 (5)													
GTC-B3-W	GTC-B3-W	GTC-B3	<50	***12000***	***13000***	<0.5	<0.5	<0.5	<0.5	<5	***1.7***	ND (4)	ND
GTC-B4-W	GTC-B4-W	GTC-B4	<50	<50	<250	<0.5	<0.5	<0.5	<0.5	<5	<0.5	ND	ND

Notes :

1. TPHs-G = Total Petroleum Hydrocarbons (TPHs) as Gasoline by United States Environmental Protection Agency (USEPA) Method 8015 modified.
   BTEX/MTBE = Benzene, Toluene, Ethylbenzene and Xylenes; and Methyl tert-Butyl Ether by USEPA Method 8020.
   TPHs-D and TPHs-MO = TPHs as Diesel and TPHs as Motor Oil by USEPA Method 8015 modified with silica gel cleanup.
   VOCs = Volatile Organic Compounds by USEPA Method 8260.
   SVOCs = Semi-Volatile Organic Compounds by USEPA Method 8270.
2. µg/L = micrograms per Liter
3. ESL = California Regional Water Quality Control Board - San Francisco Region's Environmental Screening Criteria as listed in Table F-1b (ESL for groundwater which is not a current or potential source of drinking water), December 2013.
   SF Batch Discharge Limit = San Francisco Batch Wastewater Discharge Limit, May 18, 2012.
4. NA = Not Available; ND = Not detected at concentrations above the respective detection limit(s).
5. ***9.7*** denotes the respective concentration above the detected limit
   120 denotes the respective concentration above the respective ESL.
   Min = Minimum Concentration. Max = Maximum Concentration. Ave: Approximate Arithmetic Average Concentration (for concentration reported as below detection limit, the detection limit was employed for the average estimation.

TABLE 6
RESULTS OF TITLE 22 METALS ON GROUNDWATER SAMPLES
1801 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

			Title 22 17-Metals (1)															
			Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Tl	V	Zn
		Unit (2)	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Risk Regulatory and Reference Criteria (3)																			
		ESL (Table F-1b)	30.0	36	1000	0.53	0.25	180	3.0	3.1	2.5	0.025	240	8.2	5.0	0.19	4.0	1.9	81
San Francisco Wastewater Batch Discharge Limits (3)																			
		SF Batch Discharge Limit	NA (4)	4000	NA	NA	500	5000	NA	4000	1500	50	NA	2000	NA	600	NA	NA	7000
Laboratory ID	**Sample ID**	**Boring ID**	**Min: 4 Max: <25**	**Min: 13 Max: 370**	**Min: 820 Max: 5000**	**Min: <0.5 Max: <25**	**Min: <0.25 Max: 390**	**Min: 0.88 Max: 1700**	**Min: 12 Max: 1300**	**Min: <0.5 Max: 1500**	**Min: 0.72 Max: 6300**	**Min: <0.025 Max: 8**	**Min: 2.9 Max: <25**	**Min: 39 Max: 18000**	**Min: 1.7 Max: <25**	**Min: <0.19 Max: 11**	**Min: <0.5 Max: <25**	**Min: 1.6 Max: 640**	**Min: 14 Max: 67000**
Groundwater Samples - 2013 (5)																			
GTC-B3-W	GTC-B3-W	GTC-B3	<5	***300***	***2300***	<5	<2.5	***310***	***150***	***1500***	***1600***	***1.9***	<5	***560***	<5	***2.66***	<5	***430***	***2700***
GTC-B3-W (DISSOLVED)	GTC-B3-W	GTC-B3	***4.8***	***25***	***540***	<0.5	<0.25	***0.62***	***16***	***3.2***	***0.93***	***0.12***	***2.4***	***40***	***2.3***	<0.19	<0.5	***7.2***	***64***
GTC-B4-W	GTC-B4-W	GTC-B4	<25	***370***	***5000***	<25	***390***	***1700***	***1300***	***1400***	***6300***	***8.0***	<25	***18000***	<25	***11***	<25	***640***	***67000***
GTC-B4-W (DISSOLVED)	BTC-B4-W	GTC-B4	***4.0***	***13***	***820***	<0.5	<0.25	***0.88***	***12***	<0.5	***0.72***	<0.025	***2.9***	***39***	***1.7***	<0.19	<0.5	***1.6***	***14***

Notes **:**

1. Sb = Antimony, As = Arsenic, Ba = Barium, Be = Beryllium, Cd = Cadmium, Cr = Chromium, Cr VI = Chromium VI, Co = Cobalt, Cu = Copper, Pb = Lead, Hg = Mercury, Mo = Molybdenum, Ni = Nickel, Se = Selenium, Ag = Silver, Tl = Thallium, V = Vanadium, and Zn = Zinc.
2. µg/L = micrograms per Liter; MFL=Millions Fiber per Liter.
3. ESL = California Regional Water Quality Control Board - San Francisco Region's Environmental Screening Criteria as listed in Table F-1b (ESL for groundwater which is not a current or potential source of drinking water), December 2013.
   SF Batch Discharge Limit = San Francisco Batch Wastewater Discharge Limit, May 18, 2012.
4. NA = Not Available;
5. ***20*** denotes the respective concentration above the detected limit
   4.4 denotes the respective concentration above the respective ESL .
   5.9 denotes the respective concentration above the SF Batch Discharge Limit criteria.
   Min = Minimum Concentration. Max = Maximum Concentration.

TABLE 7
RESULTS OF TSS, TS, O G, AND pH ANALYSES ON GROUNDWATER SAMPLES
1801 JERROLD AVENUE
SAN FRANISCO, CALIFORNIA

			Analytes (1)			
			O&G	TSS	TS	pH
		Unit (2)	mg/L	mg/L	mg/L	- -
Risk Regulatory Criteria (3)						
		ESL (Table F-1b)	NA (4)	NA	NA	NA
San Francisco Wastewater Batch Discharge Limits (3)						
		SF Batch Discharge Limit	300	NA	NA	6 to 9.5
Laboratory ID	**Sample ID**	**Boring ID**	**Min: 12 Max: 160**	**Min: 4560 Max: 28100**	**Min: 2610 Max: 7430**	
Groundwater Samples - 2013 (5)						
GTC-B3-W	GTC-B3-W	GTC-B3	***160***	***4560***	***7430***	***7.09***
GTC-B4-W	GTC-B4-W	GTC-B4	***12***	***28100***	***2610***	***7.10***

Notes :

1. O&G = Oil and Grease by USEPA Method 1664;
   TSS & TS = Total susepended solids and total solids by USEPA Method 2540;
   pH = pH analyses by USEPA Method 9040;
2. mg/L = milligrams per Liter
3. ESL = California Regional Water Quality Control Board - San Francisco Region's Environmental Screening Criteria as listed in Table F-1b (ESL for groundwater which is not a current or potential source of drinking water), December 2013
   SF Batch Discharge Limit = San Francisco Batch Wastewater Discharge Limit, May 18, 2012.
4. NA = Not available/not applicable.
5. ***9.7*** denotes the respective concentration above the detected limit detection limit was employed for the average estimation.
   120 denotes the respective concentration above the respective ESL .
   Min = Minimum Concentration. Max = Maximum Concentration.

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APPENDIX HYD

Water Quality Analysis for the SEP Biosolids Digester Facilities Project

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Technical Memorandum

SEP Biosolids Digester Facilities Project

Subject: Water Quality Analysis for the SEP Biosolids Digester Facilities Project

Prepared For: City and County of San Francisco Planning Department, Environmental Planning Division and San Francisco Public Utilities Commission (SFPUC)

Prepared by: Jennie Pang, Robin Cort, and Lauren Salberg, RMC Water and Environment

Reviewed by: Dave Richardson and Mary Cousins, RMC Water and Environment

Date: March 24, 2016

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Appendix A – Projected SEP Nitrogen Concentration and Loads
Appendix B – BioWin Model Simulation Results, December 2, 2015

List of Terms and Acronyms

AMEL	Average monthly effluent limit
Basin Plan	San Francisco Bay Basin (Region 2) Water Quality Control Plan
BACWA	Bay Area Clean Water Agencies
BDFP	Biosolids Digester Facilities Project, project
BOD	Biochemical oxygen demand
Cd	Cadmium
CEQA	California Environmental Quality Act
CIWQS	California Integrated Water Quality System
CTR	California Toxics Rules
Cu	Copper
EIR	Environmental Impact Report
MDEL	Maximum daily effluent limit
mg/L	Milligrams per liter
MGD	Million gallons per day
NPDES	National Pollutant Discharge Elimination System
NTR	National Toxics Rule
PCBs	Polychlorinated biphenyls
Regional Water Board	San Francisco Bay Regional Water Quality Control Board
RMC	RMC Water and Environment
RWP	Eastside Recycled Water Project
SEP	Southeast Water Pollution Control Plant
SF Planning	San Francisco Planning Department
SFBRWQCB	San Francisco Bay Regional Water Quality Control Board
SFPUC	San Francisco Public Utilities Commission
SWRCB	California State Water Resources Control Board
TM	Technical memorandum
TSS	Total suspended solids
USEPA	United States Environmental Protection Agency
WQOs	Water quality objectives

1 Introduction

The San Francisco Public Utilities Commission (SFPUC) is proposing to construct new solids treatment, odor control, energy recovery, and associated facilities as part of the Biosolids Digester Facilities Project (BDFP or project) at the Southeast Water Pollution Control Plant (SEP) in the Bayview District of San Francisco[1]. The San Francisco Planning Department (SF Planning) is the lead agency preparing the Environmental Impact Report (EIR) in accordance with the California Environmental Quality Act (CEQA) for the SEP BDFP.

This technical memorandum (TM) was prepared for the SF Planning in support of the BDFP EIR water quality analysis. The purpose of this memorandum is to summarize RMC Water and Environment's (RMC) investigation of the potential effects of the BDFP on the water quality of the effluent discharged through the SEP outfall to San Francisco Bay. The water quality analysis discussed in this TM will evaluate how the new facilities may affect SFPUC's ability to maintain regulatory compliance with its NPDES permit (also known as Waste Discharge Requirements for SEP) (NPDES No. CA0037664, Order No. R2-2013-0029).

1.1 Project Background

The SFPUC operates and maintains the City's combined sewer system, which collects and treats the majority of San Francisco's wastewater and stormwater. Since the existing solids treatment facilities at the SEP are operating well beyond their useful life, SFPUC is proposing to construct new facilities as part of the SFPUC's Sewer System Improvement Program. The BDFP would replace the outdated existing solids treatment facilities with more reliable, efficient, modern technologies and facilities. The project would replace the existing digesters with new, state-of-the art digesters and other new facilities that produce a higher quality biosolids, capture and treat odors more effectively and maximize biogas utilization and energy recovery for the production of heat and energy.

Undigested wastewater solids, under the proposed BDFP, would be heated with steam under pressure and when the pressure is rapidly reduced, microbial cells would be ruptured and the material would disintegrate. This process would make the solids more biodegradable and when the digested sludge is dewatered, the liquid removed from the biosolids dewatering process is expected to contain higher levels of nitrogen (predominantly ammonia) compared to current 2015 concentrations for the existing processes. The liquid removed from the dewatering process would be returned to the liquid processing facilities (hereinafter known as "dewatering return stream"), hence potentially resulting in higher effluent ammonia and nitrogen levels. The new facilities are anticipated to go online in 2023 and are designed to provide solids treatment through the projected year 2045[1].

1.2 Approach

This TM provides an analysis of effects based on two criteria specified in Appendix G, Environmental Checklist of the CEQA Guidelines. The approach includes scenarios that focus on future conditions with the BDFP and without the project ("no project") to distinguish between future changes occurring due to the project and future changes that may occur without the project (e.g., changes related to population growth and water conservation). The approach to evaluating the criteria in the CEQA checklist is shown in **Table 1.**

[1] SF Planning, 2015.

Table 1: CEQA Approach Strategy

Would the Project:	Approach:
CEQA checklist item IX.a) Violate (exceed) any water quality standards or waste discharge requirements?	Determine if the following could be exceeded: 1. Basin Plan Water Quality Objectives (WQOs) 2. NPDES Permit Limitations
CEQA checklist item IX.f) Otherwise substantially degrade water quality?	Quantify the percent change (increase) in constituents of concern due to the BDFP

This approach is similar to the approach taken in environmental documentation for four other projects throughout California:

- West County Wastewater District Recycled Water Reliability Upgrade Project,
- City of Carlsbad Precise Development Plan and Desalination Plant,
- City of Pinole Water Pollution Control Plant Improvement Project, and
- City and County of San Francisco Westside Recycled Water Project.

The projects examined were selected for their similarity in projected long-term operational impacts to those projected from the BDFP, such as changes in effluent volumes, increased constituent loading, and potential effects on their facilities' ability to meet water quality standards. The analyses evaluated the changes to the water quality of the effluent discharge from existing/ambient conditions and compared it to the applicable WQOs set in the Water Quality Control Plan for Ocean Waters of California (Ocean Plan) or San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan), March 2015 Basin Plan and NPDES permit limitations. If the project would not exceed these limitations and would not adversely affect beneficial uses of the receiving waters, then the impacts were considered less than significant. The results and environmental documentation for the four case studies are summarized in the Technical Memorandum *CEQA Water Quality Analysis Approaches*[2].

1.3 Constituents of Concern

The BDFP would replace the existing digesters with new, state-of-the art digesters and other new facilities, including a thermal hydrolysis process (THP) pretreatment step prior to digestion. In thermal hydrolysis, a high temperature and pressure treatment step is followed by rapid depressurization. This process increases the breakdown of cellular material and macromolecules, thereby increasing the rate of biodegradation during the subsequent digestion step and increasing the solubilization of some constituents. After digestion the biosolids are dewatered. This dewatering return stream (liquid removed during the dewatering process) is returned to the beginning of the wastewater treatment plant where it passes through primary and secondary wastewater treatment processes. The changes in THP/digestion performance may increase the concentrations of certain constituents in the dewatering stream, which may also result in concentration increases in the final effluent if those constituents are not otherwise removed by primary and/or secondary treatment.

Consequently, the constituents of concern for this analysis must be identified to assess the potential effects the BDFP may have on water quality. The discharge from SEP is regulated by the San Francisco

[2] RMC, 2015.

Bay Regional Water Quality Control Board (Regional Water Board) through the NPDES permit process. The SEP effluent, which receives dilution when discharged to Lower San Francisco Bay, is regulated for many pollutants, and there are effluent limitations for several pollutants to confirm adequate overall wastewater treatment. In addition, there are numerous parameters with applicable water quality criteria and objectives established in the Basin Plan or California Toxics Rule (CTR) to protect beneficial uses of the receiving water body (shown below in *italics*). (Some of the Basin Plan and CTR parameters also have effluent limitations based on reasonable potential.) A list of all the parameters is provided below:

- *Total Ammonia, as N*
- *126 CTR priority pollutants (metals, cyanide, organic compounds)*
- Biochemical Oxygen Demand (BOD)
- Total Suspended Solids (TSS)
- Oil and Grease
- pH
- Total Residual Chlorine
- *Acute Toxicity*
- *Chronic Toxicity*

Substantial increases in the final effluent concentrations of the above listed parameters are not expected due to the nature of both the thermal hydrolysis and SEP liquid treatment processes, and the fact that the dewatering return stream comprises a relatively small proportion of the final effluent discharge. Information on the changes to the final effluent as a result of thermal hydrolysis/digestion process, however, is limited, so some parameter investigations were performed. The following subsections discuss the process for determining which of the above water quality parameters are relevant for this water quality analysis (i.e., the constituents with concentrations that may increase in the final effluent due to the BDFP).

Ammonia and Total Nitrogen. Ammonia has been identified as a constituent with the potential to increase in the dewatering return stream because biological matter in wastewater contains substantial amounts of total nitrogen (of which ammonia is a component) and the THP pretreatment process may result in higher ammonia concentrations in the dewatering return stream than the current digestion process. Because SEP liquid treatment processes are not designed to remove or transform ammonia, any concentration increase in the dewatering return stream (which, based on existing SEP flow data, is typically less than one percent of raw plant flow) could result in a change in the concentration in the final effluent, depending on changes in the flow rate and mass loading of the dewatering stream.

Although there are neither effluent limitations nor applicable WQOs for total nitrogen, it is also of interest to evaluate total nitrogen levels because ammonia is a major component of total nitrogen in the SEP effluent. Nitrogen and ammonia are of emerging concern for the San Francisco Bay as indicated in the 2014 watershed permit[3], which requires monitoring for nutrient parameters (including ammonia and nitrogen) as well as nutrient studies.

Literature Investigation. A literature search was conducted by the SFPUC BDFP team to investigate the potential effects of THP/digestion on the water quality of the final effluent. Literature searches returned limited information. There are numerous studies dealing with the performance of thermal hydrolysis and effects on total nitrogen and biogas production, but very limited data regarding the effects on heavy metal partitioning to dewatered digested solids, and none found regarding the effects on other priority

[3] SFRWQCB, 2014b.

pollutants. In fact, only one piece of scientific literature returned relevant information, which focuses on heavy metal uptake by activated sludge[4].

The fate of heavy metals in solids processes is the result of complex interactions between metal cations and the surrounding medium. The thermal hydrolysis process has been used to improve anaerobic digestion performance and biogas production and reduce solids production. However, reducing solids production leads either to (1) an increase in the discharge of heavy metals in the environment through wastewater treatment plant effluent or (2) an increase in heavy metals concentration in the solids.

Laurent et al. studied solids characteristic modifications and their potential effects on cadmium (Cd) and copper (Cu) metal sorption by activated sludge using batch isotherms. The authors concluded that the concentrations of some heavy metals may increase in the reduced amount of residual solids whereas other heavy metals may be released in the liquid fraction of digested solids and reintroduced to the wastewater treatment process. The fate of heavy metals such as Cd and Cu should be greatly affected by solids pretreatment – Cd might be concentrated in a lower amount of waste-activated sludge whereas Cu might leak through treated effluent. It is important to note that only two metals were studied and other metals may behave differently according to their chemical properties. In this study, Cu uptake mechanisms at pH 7 were governed by precipitation whereas Cd uptake was more dependent on ion exchange interactions at the floc surface.

Because of the lack of information in the literature, a THP/digestion pilot study was performed to evaluate the effect of THP/digestion on priority pollutants.

THP/Digestion Pilot Project Assessment of Priority Pollutants. A wastewater treatment plant simulator, BioWin, has been used to predict the concentrations of ammonia and total nitrogen in SEP's final effluent (see Section 3.2). However, this process model cannot be used to accurately estimate fate and transport of priority pollutants like metals and cyanide in the final effluent. To support this water quality analysis, data from SEP's THP/digestion pilot project were used to evaluate the effect of THP/digestion on other constituents of concern. In October and November 2015, SFPUC staff collected data on metal and cyanide concentrations in the pilot dewatering return stream. Pilot concentrations and BDFP projected dewatering return stream flow rates were used to generate a conservative estimate of the anticipated project effects on the final effluent concentrations and compared to NPDES permit effluent limitations.

Organic compounds were not measured in pilot samples due to analytical limitations. The dewatering return stream contains an abundance of background organic interferences generated in the anaerobic digestion process. The high concentrations of these background interferences complicate or render infeasible the analytical methods used to analyze organic wastewater pollutants of concern, many of which are at the parts per billion (ppb, or µg/L) or lower levels. For example, organic compounds such as dioxins and furans and polychlorinated biphenyls [PCBs] are analyzed using gas chromatography with mass spectrometer and/or other detectors. Due to the heterogeneous and concentrated nature of the dewatering return stream, samples must be diluted prior to analysis to prevent the analytical instrument from being overwhelmed and damaged, but the large dilution results in an increased method detection limit above informative levels. Therefore, the data generated is of little value.

An SFPUC technical memorandum[5] summarizes the pilot THP/digestion data, including the estimated projected change in metal and cyanide concentrations for the BDFP. The estimated changes were added

[4] Laurent et al., 2011.

[5] SFPUC, 2016.

to the maximum effluent concentrations observed for the last six years to estimate whether future final effluent (i.e., with BDFP) would exceed the applicable NPDES permit effluent limitations or WQOs for Lower San Francisco Bay specified in the Basin Plan. These estimates are provided below in **Table 2.**

Table 2: Estimated Future Metal and Cyanide Concentrations due to BDFP (µg/L)

Parameter	MEC	Estimated Incremental Change from THP/digestion Pilot		Expected Final Effluent Concentration		Most Stringent NPDES Permit Limit and Most Stringent Applicable WQO		Expected Concentration Exceeds NPDES Permit Limit / WQO?	
		2022	2045	2022	2045	Limit	WQO	2022	2045
Antimony	2.94	0.000522	0.000452	2.94	2.94	--	4300	No	No
Arsenic	3.7	0.17	0.192	3.9	3.9	--	36	No	No
Beryllium	0.29	-0.0055	-0.00648	0.28	0.28	--	None	No	No
Cadmium	1.3	0.0009	0.000992	1.3	1.3	--	9.36	No	No
Chromium	3.7	0.734	0.834	4.4	4.5	--	50	No	No
Copper	13	0.757	0.856	13.8	13.9	53	(Limit applies)	No	No
Lead	1.6	0.0814	0.0918	1.7	1.7	--	8.5	No	No
Mercury	0.0235	-0.00179	-0.00208	0.0217	0.0214	0.066	(Limit applies)	No	No
Nickel	6.5	0.364	0.412	6.9	6.9	--	13	No	No
Selenium	1.2	0.00357	0.0038	1.2	1.2	--	5	No	No
Silver	2.6	-0.00302	-0.00361	2.6	2.6	--	2.9	No	No
Thallium	0.18	-0.00138	-0.00162	0.18	0.18	--	6.3	No	No
Zinc	55	1.67	1.88	56.7	56.9	-	86	No	No
Cyanide	9.5	-0.0653	-0.0756	9.4	9.4	20	(Limit applies)	No	No

Acronyms:
MEC = Maximum Effluent Concentration observed in the SEP final effluent from October 2009 through November 2015.
µg/L = microgram per liter
WQO = Water Quality Objective

As shown in **Table 2**, the applicable limits and Basin Plan WQOs for metals and cyanide are not expected to be exceeded. Concentrations of beryllium, mercury, silver, thallium and cyanide are actually projected to be somewhat lower with implementation of the BDFP. Slight increases in other metals are not expected to result in any exceedance of effluent limits or WQOs. Because there is no evidence that the nature of the organics stream will change with the BDFP and because there is no practical method available to estimate future concentrations, these constituents were not further studied in the water quality analysis.

Conventional pollutants. The NPDES permit has effluent limitations for the following conventional pollutants: BOD, TSS, oil and grease, pH, and total residual chlorine. The thermal hydrolysis process is not expected to affect final effluent concentrations of BOD, TSS, or oil and grease because these

constituents are removed by the liquid treatment processes (e.g., primary and secondary treatment), which are expected to remain unchanged after implementation of the BDFP. Similarly, pH and residual chlorine are controlled by the liquid treatment processes, and therefore any changes in the dewatering return stream are not expected to affect these final effluent characteristics.

Toxicity. In addition to chemical constituents, the NPDES permit for the SEP establishes effluent limitations and triggers for toxicity. Compliance is determined by conducting bioassays, which measure effects on test organisms exposed to SEP effluent. The methodology for conducting the bioassays is specified in the Monitoring and Reporting Program for the NPDES permit. Ammonia is the only toxic constituent expected to potentially impact toxicity as a result of the BDFP. Even at low concentrations, ammonia can be toxic to aquatic organisms. Because the existing liquid treatment process does not remove ammonia, effects of BDFP on final effluent ammonia concentrations could also impact toxicity.

The NPDES permit for the SEP also establishes effluent limitations, which implement narrative water quality standards for toxicity. For acute toxicity, the NPDES permit specifies (page F-37) that observed acute toxicity does not constitute a violation if SFPUC demonstrates that the two following conditions apply: (1) ammonia causes acute toxicity in excess of the acute toxicity limits, and (2) ammonia in the discharge complies with the ammonia effluent limits. For chronic toxicity, the permit includes a somewhat similar statement (page E-9) noting that compliance with the chronic toxicity limit may be determined after test samples are adjusted to remove substances if SFPUC demonstrates that the substances are rapidly rendered harmless upon discharge to the receiving water.

The NPDES permit indicates that the ammonia numeric effluent limitations in the permit are based on WQOs necessary to protect aquatic life against the toxic effects of ammonia so that compliance with that effluent limitation would provide protection against toxicity in the environment. Additionally, the permit recognizes that concentrations of the toxic form of ammonia – unionized ammonia (NH_3) – in laboratory toxicity tests can be elevated due to the pH in the test and that it is rapidly converted to the relatively non-toxic ammonium ion (NH_4^+) upon discharge. For acute toxicity, ammonia is specifically identified. For chronic toxicity, the Regional Water Board recently provided flexibility for SFPUC to perform ammonia removal during chronic toxicity testing[6] based on this rationale. So, if ammonia (which is rapidly rendered harmless upon discharge to the receiving water as assured by the effluent limits) causes a failure of SEP effluent toxicity tests and the ammonia concentrations comply with the ammonia effluent limits, SFPUC would not violate the toxicity limitations in the permit and thereby would not cause an exceedance in the toxicity water quality standards.

It is not expected that total nitrogen would cause toxicity because the other components of the total nitrogen parameter (i.e., components other than ammonia, such as nitrates, nitrites, and organically-bound nitrogen) are not recognized as parameters that cause toxicity to aquatic life. Moreover, ammonia is a major component of total nitrogen in SEP effluent so if toxicity occurred due to total nitrogen, the source of toxicity is likely ammonia.

Thus, as ammonia and nitrogen have been identified as the chemical water quality constituents of concern and the permit states that toxicity caused by ammonia and/or nitrogen would not result in an exceedance of water quality standards, acute and chronic toxicity were not studied for this analysis.

Identified Constituents for Analysis. For this analysis, ammonia and total nitrogen were selected as the two constituents of concern.

[6] SFBRWQCB, 2014a.

2 Existing Conditions

2.1 NPDES Permit Requirements

To address CEQA checklist item IX.a, current applicable water quality standards (most in the form of WQOs) were identified. Three regulatory documents contain applicable water quality standards:

- **San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan), March 2015.** The Basin Plan designates beneficial uses for water bodies in the Bay Area and their associated WQOs. The Basin Plan specifies numeric WQOs for 10 priority pollutants (including un-ionized ammonia) and narrative WQOs for toxicity and bioaccumulation.
- **California Toxics Rule (CTR) and National Toxics Rule (NTR).** The CTR and NTR specifies numeric aquatic life and human health criteria for numerous priority pollutants, including some metals and semivolatile organic compounds.

For this water quality analysis, the Basin Plan's WQO for un-ionized ammonia are pertinent because total nitrogen and total ammonia have been identified as the two main constituents of concern and no currently applicable water quality standards have been established for total nitrogen. The Basin Plan's WQO for un-ionized ammonia are as follows: an annual median of 0.025 milligram per liter (mg/L) as N and a maximum of 0.4 mg/L as N. The Regional Water Board implements this WQO to protect beneficial uses by issuing total ammonia effluent limitations in the NPDES permit. The NPDES permit specifies an average monthly effluent limit (AMEL) of 190 mg/L and a maximum daily effluent limit (MDEL) of 290 mg/L, as shown below in **Figure 1**. These limits are calculated with recognition given to the significant amount of dilution that the effluent receives in San Francisco Bay under dry weather conditions; ammonia limits only apply in dry weather conditions.

Basin Plan Water Quality Objective

Un-Ionized Ammonia WQO (mg/L as N):

Annual Median (AMEL)	0.025
Maximum, Lower San Francisco Bay (MDEL)	0.4

Implementation

NPDES Permit Limits

Total Ammonia Effluent Limitations (mg/L as N):

Average Monthly Effluent Limitation (AMEL)	190
Maximum Daily Effluent Limitation (MDEL)	290

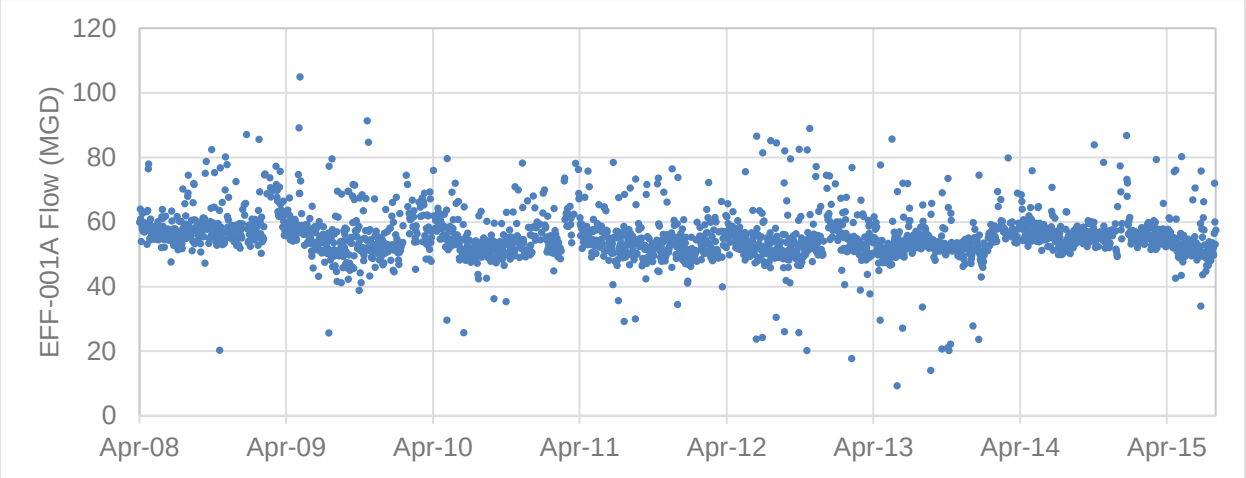
(Source: SFBRWQCB, 2013)

Figure 1: Effluent Limits in the SEP NPDES Permit as calculated based on the Basin Plan WQO for Un-Ionized Ammonia

2.2 Existing SEP Effluent Water Quality

Water quality data for the SEP effluent at monitoring location EFF-001A (effluent monitoring location as defined in NPDES permit[7]) were evaluated to identify water quality trends. From April 2008 to June 2015, the SEP effluent flow rate exhibited a somewhat variable, but fairly consistent trend with an average dry weather effluent flow of about 55 million gallons per day (MGD), as shown on **Figure 2**.

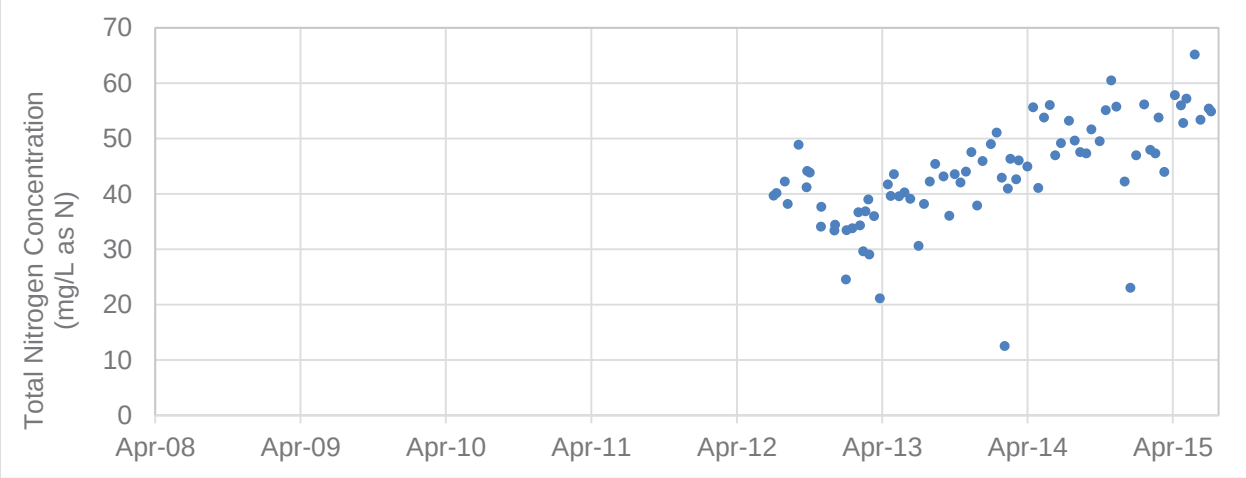
[7] EFF-001A is defined as any point at the SEP between the point at which all wastes have gone through complete secondary treatment including disinfection, and the deep water outfall.



(Source: CIWQS, 2015)

Figure 2: SEP Effluent Data for EFF-001A - Flow Rate (April 2008 – July 2015)

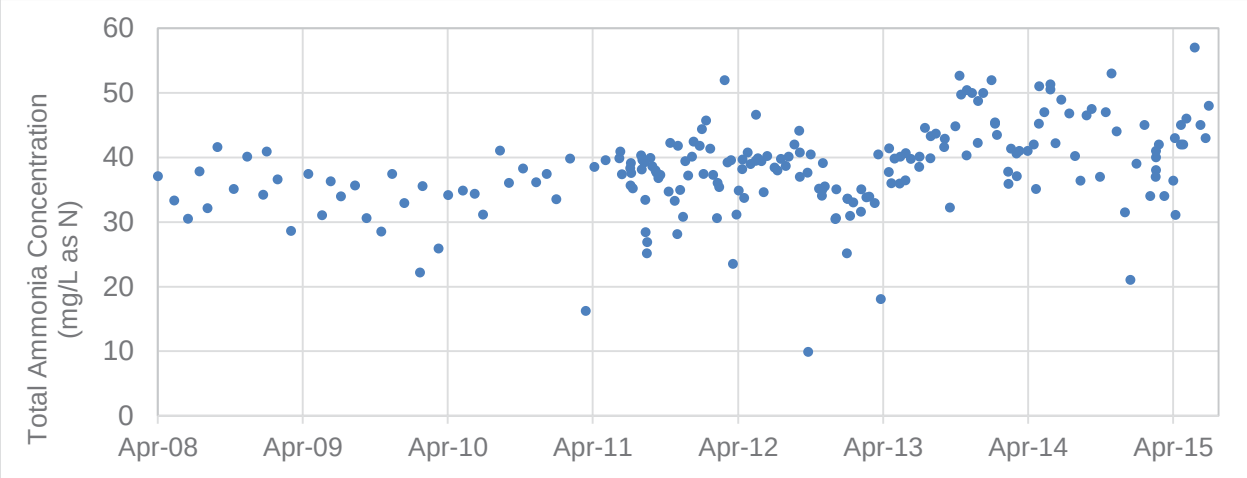
Monthly monitoring for total nitrogen concentration in the SEP effluent began in July 2012. From July 2012 to present, total nitrogen concentration in the SEP effluent appears to increase over time, as shown in **Figure 3**. (Although nitrogen data for April 2008 through June 2012 are not available, the figure uses the same time scale as shown above to provide a consistent time frame.)



(Source: CIWQS, 2015)

Figure 3: SEP Effluent Data for EFF-001A - Total Nitrogen Concentration (July 2012 – July 2015)

From April 2008 through July 2015, the SEP effluent data for the concentration of total ammonia demonstrates a slight upward trend with a fairly variable spread, as shown in **Figure 4.**



(Source: CIWQS, 2015)

Figure 4: SEP Effluent Data for EFF-001A - Total Ammonia Concentration (April 2008 – July 2015)

As shown in **Figure 3** and **Figure 4**, both total nitrogen and total ammonia concentrations have been increasing over the past few years. It is likely that this trend is occurring due to a combination of recent population increase and water conservation[8].

As both total nitrogen and total ammonia concentrations have been exhibiting upward trends, current water quality was investigated for this analysis. Calculations for the period July 2014 through June 2015 (2014/15) show an average total nitrogen concentration of 51.0 mg/L and a 95th percentile concentration of total nitrogen of 65.1 mg/L and an average total ammonia (as N) concentration of 41.3 mg/L and a 95th percentile concentration[9] of total ammonia (as N) of 53.7 mg/L. These data are summarized in **Table 3.**

Table 3: Average and 95th Percentile Concentration Data for SEP Effluent, July 2014 – June 2015

Constituent	Average Concentration (mg/L)	95th Percentile Concentration (mg/L)
Total Nitrogen (as N)	51	65
Total Ammonia (as N)	41	54

[8] SFPUC, 2014b.

[9] The 95th percentile value is the concentration that is above 95 percent of the estimated values based on a particular distribution.

3 Water Quality Analysis Approach

3.1 Scenarios Considered

To assess potential changes in water quality from the implementation of the BDFP, existing and future scenarios were identified; the current (no project, 2015) scenario and five future scenarios were identified, as summarized in **Table 4.**

Table 4: Scenarios Considered in BDFP Water Quality Analysis

Project Condition	2015 (Baseline)	2022	2045
No Project	⊗	⊗	⊗
With BDFP		⊗	⊗
With BDFP and Eastside Recycled Water Project (RWP)			⊗

The 2015 "Baseline" scenario reflects current conditions (flow rates, concentrations, and loads) based on data available as of the publication date of the Notice of Preparation for the EIR. The baseline analysis considers one year of data spanning July 2014 through June 2015 to reflect current trends (population growth and water conservation).

The 2022 scenarios reflect anticipated conditions for the year 2022 when the BDFP is complete and online. Two scenarios are modeled to determine the water quality contribution from the BDFP. These scenarios are:

- *No Project*: this scenario accounts for anticipated population growth and water conservation through 2022.
- *With BDFP*: this scenario accounts for implementation of the BDFP and anticipated population growth and water conservation through 2022.

The 2045 scenarios represent anticipated conditions for the year 2045, the year for which project design is based. Three scenarios are included:

- *No Project*: this scenario accounts for anticipated population growth and water conservation through 2045.
- *With BDFP:* this scenario accounts for implementation of the BDFP and anticipated population growth and water conservation through 2045.
- *With BDFP and Eastside RWP*: In 2045, another potential project – the Eastside Recycled Water Project (RWP)[10] – may also affect effluent water quality. This project is currently expected to

[10] The proposed Eastside RWP may deliver high quality recycled water to a variety of customers on the east side of the City for non-drinking uses such as irrigation and toilet flushing. The Eastside RWP may produce up to 2 MGD of recycled water using a reverse osmosis process. Reverse osmosis is a physical separation process that uses a membrane to separate the solvent portion of a solution from the solute portion by applying hydrostatic pressure.

come online in the year 2030. Consequently, the Eastside RWP is considered as a project that could contribute to cumulative water quality effects as both the BDFP and Eastside RWP have the potential to increase nitrogen and ammonia in lower San Francisco Bay. To be conservative, all total nitrogen and total ammonia resulting from the Eastside RWP were assumed to be rejected in the hypothetical reverse osmosis process. That is, for the average estimated 2045 SEP effluent flow of 69.2 MGD (calculated value from the BioWin modeling input, discussed below and included as Appendix B) and a 2 MGD production of recycled water from the Eastside RWP, this analysis assumes the SEP effluent is reduced by 2 MGD, which would increase concentration of these constituents. Thus, the SEP effluent concentrations were estimated to increase by 3.0% [Calculated as (69.1 MGD-67.1 MGD)/67.1 MGD × 100%].

3.2 BioWin Modeling Data (With and Without Project)

SFPUC developed and calibrated a BioWin model for SEP. BioWin is a wastewater treatment process simulator that ties together biological, chemical, and physical process models. The BDFP Consultant Team performed minor modifications to SFPUC's model to simulate the effect of the new BDFP facilities weith THP. The model inputs are based on SEP's projected flows and loads[11], (which are based on estimated population growth and per capita loading rates calculated using 2010-2012 SEP data for the model simulation year 2010, and more recent 2014-15 SEP data for the future year scenarios of 2022, 2033, and 2045).

Modeling was conducted separately from this water quality analysis to estimate the change in effluent water quality that would be expected with implementation of the BDFP. The modeling results (included as Appendix B) comprise both projected loadings and projected concentrations (which were calculated based on these projected loadings and the projected average dry weather flow rate for a given year). As discussed in Section 1.3, the modeling has demonstrated that the only constituents with a potential to exceed NPDES permit limitations, WQOs, or otherwise degrade water quality are ammonia and nitrogen. Projected average ammonia and nitrogen concentrations in 2015, 2022, 2033, and 2045, both with and without the project, are included in **Table 5.**

[11] The SSIP Wastewater Flow and Load Projections TM (SFPUC, 2014a) summarizes wastewater projected flows which were calculated by converting projected potable water demands into wastewater generation. Projected water demands account for future water conservation, resulting in decreasing per capita flows in the future; Appendix A.

Table 5: BioWin Modeling Influent Flow Rate Input and Average Concentration Results for No Project and With BDFP Scenarios

Parameter	Unit	2010	2015 (linearly interpolated)	2022	2033	2045
No Project Scenario						
Influent Average Dry Weather Flow Rate	MGD	60.6	----	63.6	66.4	69.4
Effluent Total Nitrogen	mg/L as N	37.5	41.3	46.6	49.6	52.6
Effluent Total Ammonia	mg/L as N	34.2	37.7	42.7	45.4	48.2
With BDFP Scenario						
Influent Average Dry Weather Flow Rate	MGD	--	----	63.6	66.4	69.4
Effluent Total Nitrogen	mg/L as N	--	----	47.5	50.8	54.1
Effluent Total Ammonia	mg/L as N	--	----	43.0	46.0	49.0

3.3 Conservative Assumptions for Concentrations

As stated in the previous section, the BioWin model results were based on average data. To contrast, in the water quality analysis described in this TM, 95th percentile concentration values (lognormal distribution) were compared to the most stringent ammonia effluent limit in the permit: the AMEL of 190 mg/L. As stated in the USEPA's *Technical Support Document For Water Quality-based Toxics Control*, the 95th percentile is used because the water quality-based AMELs in the NPDES permit are calculated based on the 95th percentile of the distribution of values, and have historically been used to determine whether compliance with an AMEL would be feasible. This approach is more conservative compared to using the average values; due to the variable concentrations of total ammonia and total nitrogen observed in the 2008-2015 SEP effluent data (shown in **Figure 3** and **Figure 4**), it is necessary to take a conservative approach. The lognormal distribution is used because of its practicality. Often, environmental data sets (such as effluent concentration data) possess basic lognormal characteristics. Additionally, a lognormal approach was used in this case because using the 95th percentile values based on the lognormal distribution is more conservative than a normal distribution.

3.4 Analysis Methodology

Information regarding the future scenarios to study, modeling results, and historic effluent data were gathered to develop a strategy to evaluate the two CEQA checklist items discussed in Section 1.1. This strategy is provided above in **Table 1.**

For each of the five future scenarios described in Section 3.1, both checklist items were evaluated. To address CEQA checklist item IX.a, future 95th percentile concentrations of both total nitrogen and total ammonia were estimated to compare with the Basin Plan WQOs and NPDES permit limitations. As stated in Section 2.1, the Regional Water Boards implement the numeric un-ionized ammonia WQO by issuing effluent limits for total ammonia in the NPDES permit. Thus, future total ammonia concentrations were estimated to make this comparison. Although there are currently no defined WQOs

for nitrogen, ammonia is a major component of total nitrogen in SEP effluent, so future nitrogen concentrations were also estimated.

Two analyses were performed: one analysis (Analysis A) was based on the modeling results, and another (Analysis B) was based on both the modeling results and actual, drought-influenced data.

Analysis A. To estimate "no project" and "with BDFP" concentrations for 2022 and 2045, the ratio between the 95th percentile and average concentrations was first calculated based on the 2015 actual values (see **Table 3**). This ratio was the same for both total nitrogen and total ammonia: 1.3 (95th percentile to average value). Then the 2022 and 2045 average values from the modeling (see **Table 5**) were multiplied by this ratio to estimate corresponding 95th percentile concentrations. For the 2045 "with BDFP and Eastside RWP" scenario, the 2045 "with BDFP" scenario concentration was increased by 3.0% (as described in Section 3.1).

Analysis B. Furthermore, an additional analysis (**Analysis B**) was done to consider current drought conditions. In recent years, significant water conservation in San Francisco has been observed due to the California drought. In early 2014, the governor of California declared a drought State of Emergency and called for Californians to reduce their water usage by 20 percent[12]. In April 2015, the governor of California signed Executive Order B-29-15 requiring the State Water Resources Control Board to impose statewide restrictions to achieve 25% reduction in potable urban water usage through February 28, 2016. From June through November 2015, the City of San Francisco achieved a 15.1% water savings, almost twice SFPUC's 8% conservation requirement[13]. Significant water conservation in San Francisco has effectively caused concentrations of pollutants in the SEP influent to increase (i.e., less water is entering the wastewater collection system to dilute pollutants, resulting in increased concentrations). As stated, the SEP liquid treatment processes are not designed to remove or transform nitrogen and ammonia so a concentration increase in the influent will likely result in a concentration increase in the effluent. Accordingly, the observed 2015 SEP effluent concentrations for nitrogen and ammonia are somewhat greater than expected.

Because the SEP-observed nitrogen and ammonia concentrations in 2015 were greater than predicted from the BioWin model due to the exceptional drought, an additional analysis was performed to be even more conservative; this analysis was conducted to estimate future concentrations based on the 2015 SEP data ("actual data"), rather than the model results. In this analysis, the modeling results were first linearly interpolated to obtain 2015 concentrations (see **Table 5**). Then the percent change values between 2015 and 2022 model concentrations, and the percent change values between 2022 and 2045 model concentrations were calculated from the modeling results. Finally, the 95th percentile 2015 actual concentration data (**Table 3**) and percent change values were multiplied to estimate future 95th percentile concentrations based on actual data. As with the other analysis, for the 2045 "with BDFP and Eastside RWP" scenario, the 2045 "with BDFP" scenario concentration was increased by 3.0%.

To address CEQA checklist item IX.f, the percent change values were analyzed to determine whether the BDFP – cumulatively with the Eastside RWP – would substantially degrade water quality. As stated previously, the percent change values were estimated from the BioWin modeling results with an assumed conservative 3.0% increase in concentration for the 2045 "with BDFP and Eastside RWP" scenario.

[12] State of California, 2014.

[13] SWRCB, 2015.

4 Results & Discussion

As discussed in Section 3.4, two analyses were performed to address the two CEQA checklist items.

Using the modeling results and the calculated ratio between the 95th percentile and average concentrations (Analysis A), future concentrations for nitrogen and total ammonia were estimated for the six scenarios described in **Table 4.** As shown in the figures below, total nitrogen and total ammonia concentrations are estimated to increase regardless of whether the BDFP occurs.

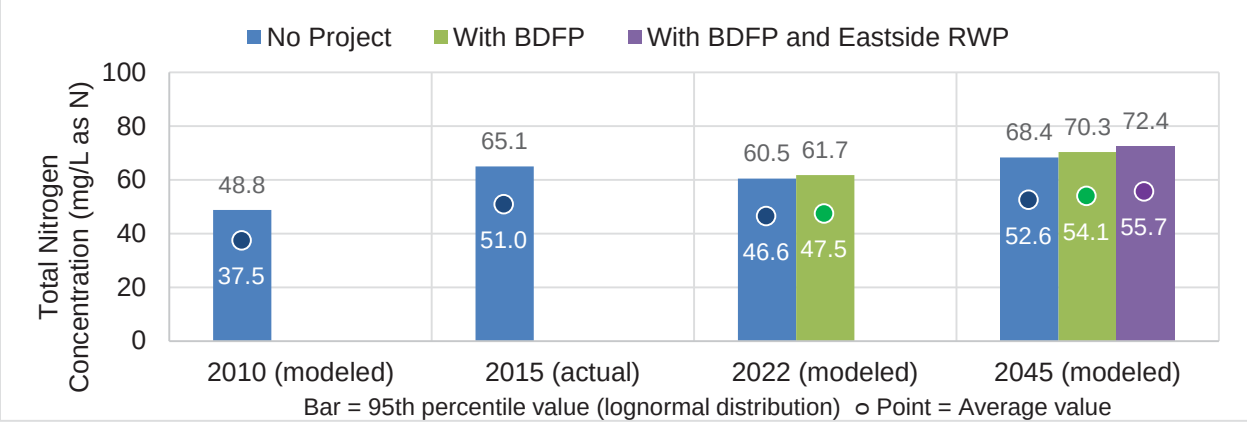


Figure 5: Current (2014/15) and Model-Estimated Total Nitrogen Effluent Concentrations, SEP (Analysis A)

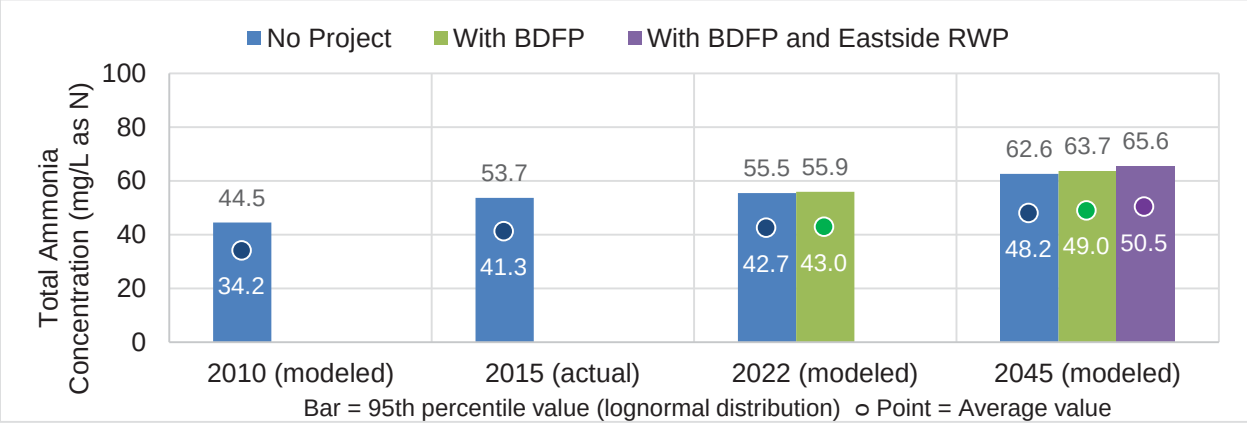


Figure 6: Current (2014/15) and Model-Estimated Total Ammonia Effluent Concentrations, SEP (Analysis A)

As part of the additional more conservative analysis (Analysis B), future concentrations for nitrogen and total ammonia were estimated for the six scenarios using the relative percent change information from the BioWin model results and 2014/15 SEP effluent data. Similar to the results shown for Analysis A, total nitrogen and ammonia concentrations would increase with or without the BDFP due to population growth as shown in **Figure 7** and **Figure 8**.

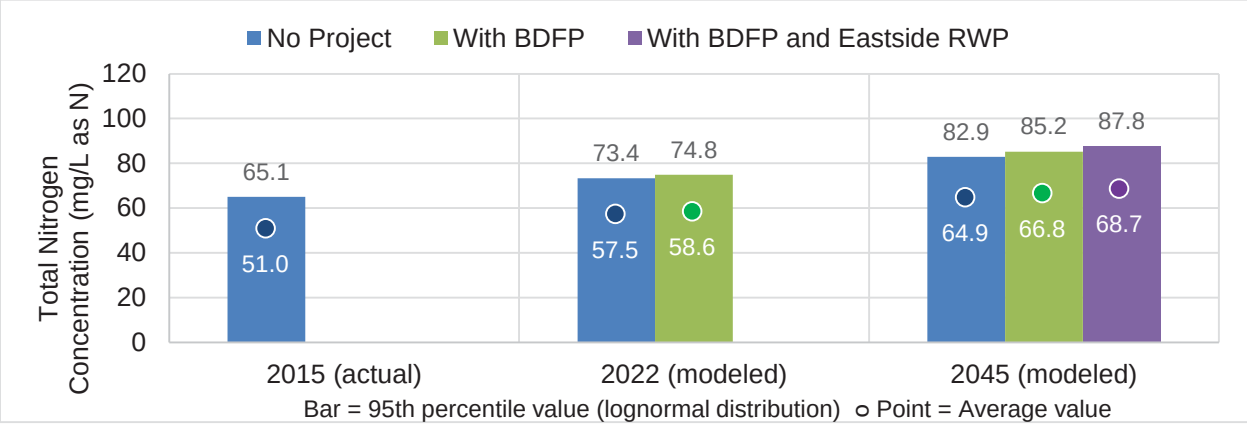


Figure 7: Current (2014/15) and Estimated Future Total Nitrogen Effluent Concentrations, SEP (Analysis B)

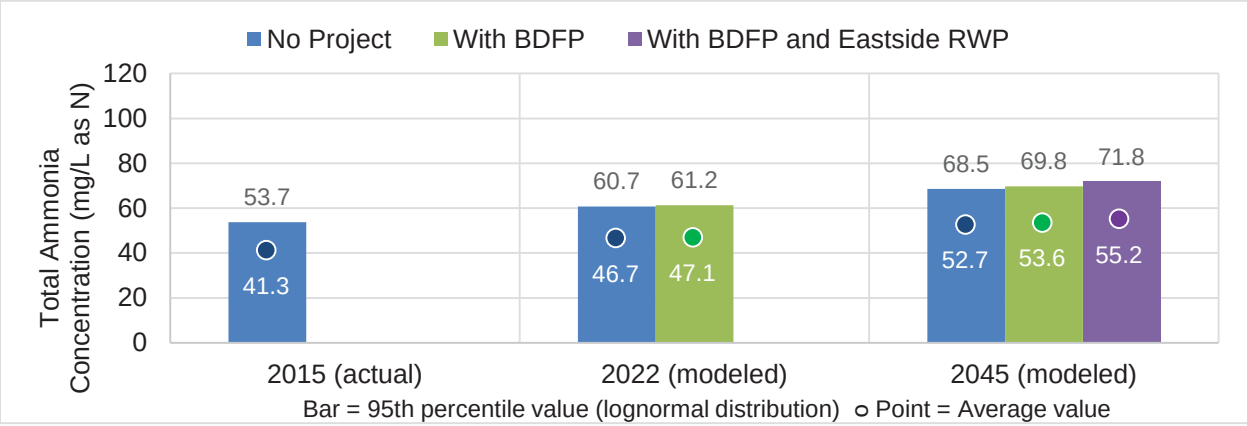


Figure 8: Current (2014/15) and Estimated Future Total Ammonia Effluent Concentrations, SEP (Analysis B)

The four figures above for both analyses indicate a slight increase between the "No Project" and "BDFP" cases for the years 2022 and 2045. For the 2045 case that includes both the BDFP and the Eastside RWP, another slight increase is estimated. Overall, results show that greater increases would occur regardless of the BDFP ("No Project" scenario), due to population growth and water conservation.

To determine whether current water quality standards may be exceeded, the total ammonia concentrations were compared to the effluent limits (as discussed in Section 2.1). As shown in both **Figure 6** and **Figure 8**, the conservatively predicted 95th percentile future values (including cumulative impacts from the Eastside RWP) are well below the NPDES permit's currently most stringent effluent limitation for total ammonia: 190 mg/L as N (AMEL). Thus, the BDFP is not expected to cause an exceedance of water quality standards or NPDES permit effluent limitations.

For the five scenarios and baseline, the estimated average concentrations as well as the percent change values discussed above are summarized in **Table 6**.

For the two 2022 scenarios -- no project and with BDFP -- it is estimated that total nitrogen concentrations may increase above the 2015 levels by about 12.8% and 15.0%, respectively. Similarly, it is estimated that ammonia concentrations may increase about 13.1% and 14.0%, respectively.

For the three 2045 scenarios -- no project, with BDFP, and with BDFP and the Eastside RWP -- it is estimated that total nitrogen concentrations may increase above the 2015 levels by about 27.4%, 31.0%, and 34.9%, respectively. Similarly, it is estimated that ammonia concentrations may increase about 27.6%, 29.9%, and 33.8%, respectively. The percent change in nitrogen and ammonia concentrations attributable to the BDFP is 3.6% and 2.3%, respectively.

The modeling indicates that the BDFP may cause a small increase in total nitrogen and ammonia concentrations. This increase, however, is small when compared to the increase projected from population increases and water conservation. Thus, the increase in concentrations of total nitrogen and total ammonia in the effluent that would be attributable to the BDFP is expected to be minor, and the BDFP would not otherwise substantially degrade water quality.

Table 6: Percent Change of Total Nitrogen and Total Ammonia Effluent Concentrations

Scenario	Total Nitrogen		Total Ammonia	
	Average (mg/L as N)	*% Change from 2015*	Average (mg/L as N)	*% Change from 2015*
2015 Linearly Interpolated from Table 5 Values				
No Project (Existing Plant)	41.3	--	37.7	--
2022 Modeled Estimate (Analysis A)				
No Project	46.6	*12.8%*	42.7	*13.1%*
With BDFP	47.5	*15.0%*	43.0	*14.0%*
Increment due to BDFP	*0.9*	***2.2%***	*0.4*	***1.0%***
2045 Modeled Estimate (Analysis A)				
No Project	52.6	*27.4%*	48.2	*27.6%*
With BDFP	54.1	*31.0%*	49.0	*29.9%*
With BDFP and Eastside RWP	55.7	*34.9%*	50.5	*33.8%*
Increment due to BDFP	*1.5*	***3.6%***	*0.9*	***2.3%***
Increment due to Eastside RWP	*1.6*	***3.9%***	*1.5*	***3.9%***
SEP NPDES Permit Effluent Limit	***N/A***	*--*	***190***	*--*

As shown, total nitrogen and ammonia effluent concentrations are expected to increase for all future cases due to decreases in per capita wastewater volumes discharged to the wastewater collection system as a result of future water conservation efforts. In addition, total nitrogen and ammonia loads would increase in the SEP influent and effluent for all future cases because of increased wastewater discharged to the collection system as a result of population growth and because SEP liquid treatment processes are not designed to remove or transform total nitrogen and ammonia. However, it is noted that these increases would occur with or without the BDFP; only slight increases in effluent mass loading and concentration are anticipated due to the BDFP. These increases would occur as a result of the slight process-related increases in ammonia and total nitrogen concentrations discussed above.

5 Conclusions

Total ammonia and total nitrogen have been identified as the two main water quality constituents of concerns for the BDFP. Modeling was conducted to estimate the quality of effluent that would be expected with implementation of the BDFP. The water quality of the effluent was projected using BioWin, a wastewater treatment process simulator that ties together biological, chemical, and physical process models. New processes that would be constructed as part of the BDFP were modeled to predict future plant performance. The model inputs accounted for population increases and water conservation in determining projected levels of constituents in effluent. Both total ammonia and total nitrogen were projected. Although the NPDES permit does not establish effluent limitations for nitrogen, since ammonia is one component of total nitrogen, it is of interest to evaluate total nitrogen levels in addition to total ammonia.

Two analyses were conducted to evaluate the changes to the water quality of the effluent discharge from existing baseline conditions compared to the applicable NPDES permit limitations. Using conservative assumptions (95th percentile values) to estimate future effluent concentrations, the concentration increases for total nitrogen and total ammonia are expected to be minimal due to the BDFP, as shown in **Table 7** below. Estimated effluent changes due to the BDFP and the Eastside RWP are comparatively less than the estimated contribution from other factors, such as population increase and water conservation (shown in **Table 7** below).

Table 7: Percent Increase in Constituents due to BDFP and Other Factors

Constituent	Projected Effluent Concentration % Increase from 2015				
	2022 Scenarios		2045 Scenario		
	No Project (Increase due to Population Increase & Water Conservation)	Increment due to BDFP	No Project (Increase due to Population Increase & Water Conservation)	Increment due to BDFP	Increment due to BDFP and Eastside RWP
Total Nitrogen	12.8%	2.2%	27.4%	3.6%	3.9%
Total Ammonia	13.1%	1.0%	27.6%	2.3%	3.9%

Even with the contribution of 1) the BDFP, 2) population increase and water conservation, and 3) a cumulative project (Eastside RWP), effluent limitations for total ammonia in the NPDES permit are not expected to be exceeded (190 mg/L) (shown in **Table 8**).

Table 8: Comparison of Estimated Future Ammonia Concentrations with Effluent Limitations

Total Ammonia Effluent Limitations (mg/L as N)		Estimated 95th Percentile Ammonia Concentration (mg/L as N)	
		2045 Case with BDFP	2045 Case with BDFP and Eastside RWP
Average Monthly Effluent Limitation (AMEL)	190	63.7 (Analysis A)	65.6 (Analysis A)
		69.8 (Analysis B)	71.8 (Analysis B)

Therefore, based on the above analysis, the BDFP would comply with the existing NPDES permit limitations and would not result in substantial changes to receiving water quality.

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Appendix A – Projected SEP Nitrogen Concentration and Loads

Projected SEP Nitrogen Concentration and Loads

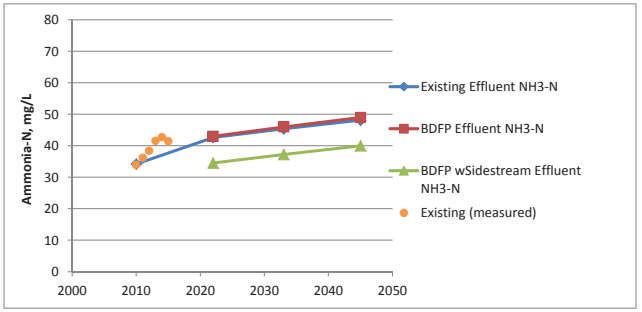
	2015 (existing condition)		2022		2033		2045	
Influent	**Conc. mg/L**	**Load lbs/day**	**Conc. mg/L**	**Load lbs/day**	**Conc. mg/L**	**Load lbs/day**	**Conc. mg/L**	**Load lbs/day**
Annual Average Flow (AAF, mgd)	64.3		73.5		76.3		79.3	
Average Dry Weather Flow (ADWF, mgd)	56.2		63.6		66.4		69.4	
COD	786	368,100	754	399,700	811	449,200	869	503,200
TKN	60.6	28,400	57.9	30,700	61.9	34,300	66.2	38,300
NH_3	47.6	22,300						
Alkalinity	210	98,400						
Effluent								
Total N	ND	ND						
TKN	48.2	22,600						
NH3	43.5	20,400						
NO2	0.2	100						
NO3	3.0	1,400						
pH	6.66							
Alkalinity	218	102,000						
Sidestream								
Flow	0.40							
TKN	1,595	5320						
NH3	1,520	5070						

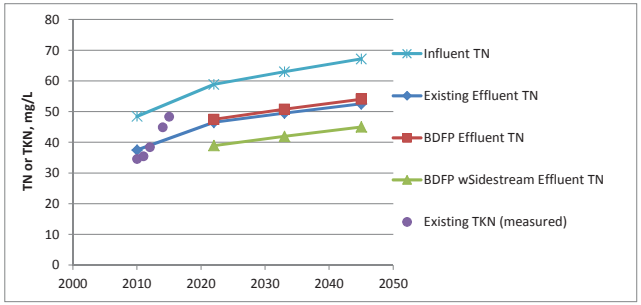
1. All pollutant loads are Annual Average Loads (AAL) only, no peaking has been applied.
2. Concentrations are calculated from the AAL and ADWF for a given year.
3. 2015 flows and loads (except influent COD) are calculated from StarLIMS and DCS data from January 1, 2014 to June 30th, 2015. All 2015 influent values include the contribution of plant recycle (PR) flow.
4. Because there are far fewer sidestream TKN data than NH3, 2015 sidestream TKN load and concentration are calculated using a TKN/NH3 ratio (1.049 TKN:NH3) established from 2014 sidestream data.
5. 2022 - 2045 flows and 2015 - 2045 COD loads are projected based on *WASTEWATER FLOW AND LOAD PROJECTIONS TECHNICAL MEMORANDUM, February 2014.* 2022 - 2045 TKN loads are projected based on 2014 - 2015 data described above. 2022 - 2045 projected flows and loads do not include contribution of PR.

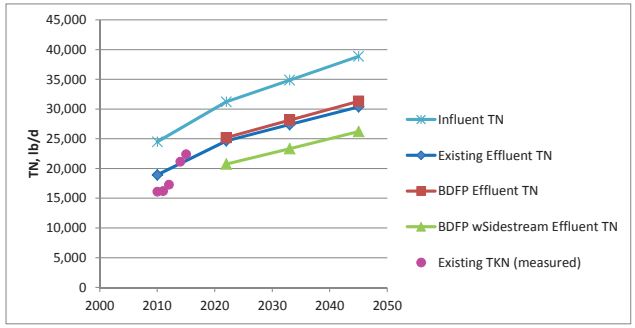
Appendix B – BioWin Model Simulation Results, December 2, 2015

Note: 2022 - 2045 BioWin model simulations use a revised N per capita assumption based on trend observed in measured planta data

		Existing Plant-BioWin				THP			THP with Sidestream		
		2010	2022	2033	2045	2022	2033	2045	2022	2033	2045
Population											
Equivalent Population	(-)	639,100	738,300	829,800	930,500	738,300	829,800	930,500	738,300	829,800	930,500
Influent from BioWin Model											
Annual Average Flow	(mgd)	-	-	-	-	-	-	-	-	-	-
Average Dry Weather Flow	(mgd)	60.6	63.6	66.4	69.4	63.6	66.4	69.4	63.6	66.4	69.4
COD (Annual Average)	(lb/d)	346,000	399,390	448,952	503,176	399,390	448,952	503,176	399,673.7	449,216.3	503,502.0
COD		685	753	811	870	753	811	870	753.2	811.2	869.6
TN (Annual Average)	(lb/d)	24,507	31,232	34,867	38,884	31,232	34,867	38,884	31,254.4	34,887.4	38,909.1
TN	(mg/L)	48.5	58.9	63.0	67.2	58.9	63.0	67.2	58.9	63.0	67.2
TKN (Annual Average)	(lb/d)	24,002	30,702	34,313	38,305	30,702	34,313	38,305	30,724	34,334	38,330
TKN	(mg/L)	47.5	57.9	62.0	66.2	57.9	62.0	66.2	57.9	62.0	66.2
NH3-N	(mg/L)	34.2	41.7	44.6	47.7	41.7	44.6	47.7	41.7	44.6	47.7
Alkalinity	(mg/L as CaCO3)	186	210	210	210	210	210	210	210	210	210
Effluent											
TN (Annual Average)	(lb/d)	18,939	24,667	27,401	30,391	25,206	28,135	31,334	20,776	23,345	26,219
TN	(mg/L)	37.51	46.57	49.57	52.59	47.49	50.79	54.09	38.98	41.95	45.05
TKN (Annual Average)	(lb/d)	18,924	24,593	27,324	30,310	25,131	28,057	31,253	20,714	23,279	26,149
TKN	(mg/L)	37.5	46.4	49.4	52.5	47.4	50.7	54.0	38.9	41.8	44.9
NH3-N	(lb/d)	17,273	22,596	25,096	27,825	22,833	25,492	28,391	18,418	20,716	23,287
NH3-N	(mg/L)	34.21	42.66	45.4	48.15	43.02	46.02	49.01	34.55	37.23	40.01
NO2-N	(lb/d)	50	58	61	64	58	61	64	49	52	55
NO2-N	(mg/L)	0.1	0.11	0.11	0.11	0.11	0.11	0.11	0.09	0.09	0.09
NO3-N	(lb/d)	15	16	17	17	16	17	17	13	14	15
NO3-N	(mg/L)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.03	0.03
Alkalinity	(lb/d)	95,679	115,204	120,505	125,689	119,686	125,191	131,211	105,736	110,110	115,180
Alkalinity	(mg/L as CaCO3)	190	218	218	218	226	226	227	199	198	198
Sidestream											
Flow	(mgd)	0.38	0.47	0.52	0.59	0.23	0.26	0.29	0.46	0.52	0.58
TN	(lb/d)	4,827	5,612	6,102	6,690	6236	7060	7760	2179	2590	3049
TN	(mg/L)	1523	1432	1407	1360	3251	3256	3208	568	600	629
TKN	(lb/d)	4,827	5,612	6,102	6,690	6,236	7,060	7,760	1729	2103	2526
TKN	(mg/L)	1,523	1,432	1,407	1,360	3,251	3,256	3,208	451	487	521
NH3-N	(lb/d)	4,776	5,549	6,030	6,607	5,647	6,390	7,014	1137	1436	1776
NH3-N	(mg/L)	1,507	1,416	1,390	1,343	2,944	2,947	2,900	296	332	367
Alkalinity	(lb/d)	12,239	14,748	16,252	18,014	18,350	20,753	22,771	2634	3372	4223
Alkalinity	(mg/L as CaCO3)	3,862	3,763	3,748	3,661	9,566	9,571	9,415	687	778	873







APPENDIX NOI

Noise Supporting Information

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TABLE 1
ESTIMATED COMBINED DAYTIME CONSTRUCTION-RELATED NOISE LEVELS AT NEARBY SENSITIVE RECEPTORS

Project Component/ Receptor Location	Construction Schedule	Reference Hourly L_{eq} in dBA @ 50 feet[a]	Minimum Distance between Receptors and Project Site Boundary	Distance Adjustment	Noise Level (L_{eq}) Adjusted for Distance	Does Combined Project Noise Exceed 90 dBA FTA Threshold at Closest Residential Receptors?	Does Combined Project Noise Exceed 100 dBA FTA Threshold at Closest Com/Indus Receptor?	Leq Day Ambient Noise Level at Receptor (7 a.m. to 8 p.m.)	Ambient+10 dBA Threshold at Closest Sensitive Receptor	Does Project Noise Increase Ambient by More than 10 dB?
Location 1. Residential receptors on east side of Phelps Street (as represented by noise levels measured at 1796 La Salle Avenue and distances measured from 1700 Kirkwood)										
1. Demolition, Site Offices Setup, Utilities Relocation Work	2018	85	750	-24	62	No	-	67	77	No
2. Piles (Drilled) and Excavation	2018-2020	85	575	-21	63	No	-	67	77	No
3. Galleries and Pipe Chases	2018, 2020	88	900	-25	63	No	-	67	77	No
4. Digesters, Pre-THP, and GBT	2018-2022	82	925	-25	57	No	-	67	77	No
5. Utilities and Roads	2020-2022	84	165	-10	74	No	-	67	77	No
6. Construction Staging Areas	2018-2023	81	70	-3	79	No	-	67	77	**Yes**
Location 1. Commercial receptors on east side of Phelps Street (as represented by noise measurements collected at 1796 La Salle Avenue)										
1. Demolition, Site Offices Setup, Utilities Relocation Work	2018	85	700	-23	62	-	No	-	-	-
2. Piles (Drilled) and Excavation	2018-2020	85	450	-19	65	-	No	-	-	-
3. Galleries and Pipe Chases	2018, 2020	88	700	-23	65	-	No	-	-	-
4. Digesters, Pre-THP, and GBT	2018-2022	82	875	-25	58	-	No	-	-	-
5. Utilities and Roads	2020-2022	84	70	-3	81	-	No	-	-	-
6. Construction Staging Areas	2018-2023	81	125	-8	74	-	No	-	-	-
Location 2. Residential receptors to the east, mid-block east of Phelps Street (1663 Kirkwood Avenue is representative receptor with possible direct lines-of-sight from upper floors)										
1. Demolition, Site Offices Setup, Utilities Relocation Work	2018	85	950	-26	60	No	-	61	71	No
2. Piles (Drilled) and Excavation	2018-2020	85	825	-24	60	No	-	61	71	No
3. Galleries and Pipe Chases	2018, 2020	88	1,150	-27	61	No	-	61	71	No
4. Digesters, Pre-THP, and GBT	2018-2022	82	1,200	-28	55	No	-	61	71	No
5. Utilities and Roads	2020-2022	84	400	-18	66	No	-	61	71	No
6. Construction Staging Areas	2018-2023	81	500	-20	61	No	-	61	71	No
Location 3. 1200 Phelps Street (Southeast Community Facility includes City College of San Francisco Training/Education Center and San Francisco State University Head Start daycare facility with playground)										
1. Demolition, Site Offices Setup, Utilities Relocation Work	2018	85	850	-25	61	No	-	60	70	No
2. Piles (Drilled) and Excavation	2018-2020	85	975	-26	59	No	-	60	70	No
3. Galleries and Pipe Chases	2018, 2020	88	1,050	-26	62	No	-	60	70	No
4. Digesters, Pre-THP, and GBT	2018-2022	82	1,500	-30	53	No	-	60	70	No
5. Utilities and Roads	2020-2022	84	700	-23	61	No	-	60	70	No
6. Construction Staging Areas	2018-2023	81	70	-3	79	No	-	60	70	**Yes**

TABLE 1 (Continued)
ESTIMATED COMBINED DAYTIME CONSTRUCTION-RELATED NOISE LEVELS AT NEARBY SENSITIVE RECEPTORS

Project Component/ Receptor Location	Construction Schedule	Reference Hourly L_{eq} in dBA @ 50 feet[a]	Minimum Distance between Receptors and Project Site Boundary	Distance Adjustment	Noise Level (L_{eq}) Adjusted for Distance	Does Combined Project Noise Exceed 90 dBA FTA Threshold at Closest Residential Receptors?	Does Combined Project Noise Exceed 100 dBA FTA Threshold at Closest Com/Indus Receptor?	Leq Day Ambient Noise Level at Receptor (7 a.m. to 8 p.m.)	Ambient+10 dBA Threshold at Closest Sensitive Receptor	Does Project Noise Increase Ambient by More than 10 dB?
Location 4. Residential receptors to the south, south of Oakdale Avenue (1901 Palou Avenue is a representative receptor, no direct line-of-sight)										
1. Demolition, Site Offices Setup, Utilities Relocation Work	2018	85	1,275	-28	57	No	-	65	75	No
2. Piles (Drilled) and Excavation	2018-2020	85	1,450	-29	55	No	-	65	75	No
3. Galleries and Pipe Chases	2018, 2020	88	1,525	-30	59	No	-	65	75	No
4. Digesters, Pre-THP, and GBT	2018-2022	82	1,975	-32	51	No	-	65	75	No
5. Utilities and Roads	2020-2022	84	1,175	-27	57	No	-	65	75	No
6. Construction Staging Areas	2018-2023	81	800	-24	57	No	-	65	75	No
Location 5. Residential receptors to the south, mid elevations to the south (2000 Revere Avenue is a representative receptor with direct line-of-sight)										
1. Demolition, Site Offices Setup, Utilities Relocation Work	2018	85	1,850	-31	54	No	-	63	73	No
2. Piles (Drilled) and Excavation	2018-2020	85	2,000	-32	53	No	-	63	73	No
3. Galleries and Pipe Chases	2018, 2020	88	2,100	-32	56	No	-	63	73	No
4. Digesters, Pre-THP, and GBT	2018-2022	82	2,250	-33	49	No	-	63	73	No
5. Utilities and Roads	2020-2022	84	1,775	-31	53	No	-	63	73	No
6. Construction Staging Areas	2018-2023	81	1,375	-29	53	No	-	63	73	No
Location 6. Residential receptors to the south, higher elevations to the south (296 Bayview Circle is a representative receptor with direct line-of-sight)										
1. Demolition, Site Offices Setup, Utilities Relocation Work	2018	85	2,150	-33	52	No	-	58	68	No
2. Piles (Drilled) and Excavation	2018-2020	85	2,200	-33	52	No	-	58	68	No
3. Galleries and Pipe Chases	2018, 2020	88	2,300	-33	55	No	-	58	68	No
4. Digesters, Pre-THP, and GBT	2018-2022	82	2,775	-35	48	No	-	58	68	No
5. Utilities and Roads	2020-2022	84	1,950	-32	52	No	-	58	68	No
6. Construction Staging Areas	2018-2023	81	1,450	-29	52	No	-	58	68	No

NOTES: dBA = A-weighted decibel; THP = Thermal Hydrolysis Process; GBT = Gravity Belt Thickener; n/a = not applicable threshold to receptor.

[a] See Table 4.7-6 for derivation of combined noise levels by construction activity, which are applied in this table to residential receptor locations.

SOURCE: Orion Environmental Associates, 2016.

TABLE 2
OPERATIONAL NOISE LEVELS FROM PROPOSED PROCESS FACILITIES

Equipment Name	Unit Process/Facility	Location	Noise Level (dBA)	Specified Distance (feet)	Reference (L_{eq}) Noise Level at 50 feet
Glycol Chiller/Chilled Water Pumps	Digester Gas (Biogas) Treatment	Outdoor	85	3	61
Multi-Stage Centrifugal Gas Blowers	Digester Gas (Biogas) Treatment	Outdoor	88	3	64
		(Motor)	92	3	68
Combined Noise Level	Digester Gas (Biogas) Treatment	Outdoor			**70**
Waste Gas Burner (Emergency Flare)	Waste Gas Burner (Emergency Flare)	Outdoor, Enclosed	85	3	61
Combined Noise Level	Waste Gas Burner (Emergency Flare)	Outdoor		(Two Flares)	**64**
Packaged AHU	Energy Recovery	Indoor	67	25	61
Packaged AHU	Energy Recovery	Indoor	67	25	61
Packaged AHU	Energy Recovery	Indoor	57	25	51
Standby Diesel Generator	Energy Recovery	Outdoor	85	25	79
Combined Noise Level at Vent Openings	Energy Recovery	Building Enclosure	70	25	64
Combined Noise Level	Energy Recovery	Vent Openings with All AHUS on Roof	**67**	AHUs Only	64
Digestion Cooling Tower	THS Cooling (Cooling Water System)	Outdoor	74	50	74
Digestion Cooling Water Recirc Pumps	THS Cooling (Cooling Water System)	Outdoor	65	50	65
Combined Noise Level	THS Cooling (Cooling Water System)	Outdoor			**77**
Packaged AHUs	Anaerobic Digestion	On Roof	67	25	61
Packaged AHUs	Anaerobic Digestion	On Roof	61	25	55
Packaged AHUs	Anaerobic Digestion	On Roof	57	25	51
Ventilation AHU	Anaerobic Digestion	On Roof	57	25	51
Ventilation AHU	Anaerobic Digestion	On Roof	57	25	51
Ventilation AHU	Anaerobic Digestion	On Roof	57	25	51
Combined Noise Level at Vent Openings	Anaerobic Digestion	Building Enclosure	70	25	64
Combined Noise Level	Anaerobic Digestion	Vent Openings with All AHUS on Roof	**68**	AHUs Only	67
Packaged AHU	Biosolids Dewatering	On Roof	61	25	55
Packaged AHU	Biosolids Dewatering	On Roof	57	25	51
Packaged AHU	Biosolids Dewatering	On Roof	57	25	51
Packaged AHU	Biosolids Dewatering	On Roof	57	25	51
Ventilation AHU	Biosolids Dewatering	On Roof	57	25	51
Ventilation AHU	Biosolids Dewatering	On Roof	67	25	61
Ventilation AHU	Biosolids Dewatering	On Roof	57	25	51
Combined Noise Level at Vent Openings	Biosolids Dewatering	Building Enclosure	70	25	64
Combined Noise Level	Biosolids Dewatering	Vent Openings with All AHUS on Roof	**68**	AHUs Only	66
Ventilation AHU	Pipe Galleries	On Roof	67	25	61
Ventilation AHU	Pipe Galleries	On Roof	67	25	61
Combined Noise Level at Vent Openings	Pipe Galleries	Indoor	70	25	64
Combined Noise Level	Pipe Galleries	Vent Openings with All AHUS on Roof	**69**	AHUs Only	67

TABLE 2 (Continued)
OPERATIONAL NOISE LEVELS FROM PROPOSED PROCESS FACILITIES

Equipment Name	Unit Process/Facility	Location	Noise Level (dBA)	Specified Distance (feet)	Reference (L_{eq}) Noise Level at 50 feet
Biofilter Cells	Solids Odor Control				
Biofilter Sump Pump	Solids Odor Control	Underground			
Carbon Vessels	Solids Odor Control				
Dewatered Cake Truck Loadout Fan	Solids Odor Control	Enclosed	88	25	82
Exhaust Fan	Solids Odor Control	Outdoor	76	25	70
Humidifier/Ammonia Scrubber Recirc Pump	Solids Odor Control	Outdoor			
Humidifier/Ammonia Scrubber Recirc Pump	Solids Odor Control	Outdoor	56	50	56
Odor Control Exhaust Fan	Solids Odor Control	Outdoor	95	1	61
Packaged AHU	Solids Odor Control	On Roof	57	25	51
Ventilation AHU	Solids Odor Control	On Roof	61	25	55
Ventilation AHU	Solids Odor Control	On Roof	57	25	51
Packaged AHU	Solids Odor Control	On Roof	57	25	51
Ventilation AHU	Solids Odor Control	On Roof	57	25	51
Ventilation AHU	Solids Odor Control	On Roof	61	25	55
Combined Noise Level at Vent Openings	Solids Odor Control	Indoor	70	25	**64**
Combined Noise Level	Solids Odor Control	Vent Openings with All AHUS on Roof	**85**	AHUs Only	**85**
Packaged AHU	Pre-Digestion Solids Processing - Pre-THP Dewatering	On Roof	57	25	51
Packaged AHU	Pre-Digestion Solids Processing - Pre-THP Dewatering	On Roof	61	25	55
Combined Noise Level at Vent Openings	Pre-Digestion Solids Processing - Pre-THP Dewatering	Indoor	70	25	64
Combined Noise Level	Pre-Digestion Solids Processing - Pre-THP Dewatering	Vent Openings with All AHUS on Roof	**65**	AHUs Only	59
Heated Ventilation AHU	Pre-Digestion Solids Processing - Sludge Screening	On Roof	61	25	55
Combined Noise Level at Vent Openings	Pre-Digestion Solids Processing - Sludge Screening	Indoor	70	25	64
Combined Noise Level	Pre-Digestion Solids Processing - Sludge Screening	Vent Openings with All AHUS on Roof	**66**	AHUs Only	63
Combined Noise Level	Pumped Plant Recycled Water Pumping	Indoor	70	25	**64**
Combined Noise Level	Pre-Digestion Solids Processing - Thickening	Indoor	70	25	**64**
THP Compact System B6 x 4 Reactor (includes pulper, reactors, flash tank, pulper recirculation & reactor feed pump, digester feed pumps, control panel)	THP	Packaged Product	80	3	56
Combined Noise Level	Pre-Digestion Soilds Processing - THP	Outdoor		(2 Duty Units)	**59**

NOTES: The above listed equipment only includes the equipment that those with contribute substantially to each process facility's combined noise levels. Process facilities that would be located indoors are assigned one combined noise level at vent openings. This level is based on a maximum design interior level of 85 dBA (Leq) which meets OSHA requirements and the building/enclosure reducing interior noise levels by at least 15 dBA at vent openings (a conservative assumption since most enclosures can provide at least 25 dB reductions). In addition, noise levels are only estimated for the total number of duty units that could operate simultaneously (standby units are not included). The number of duty units is accounted for in the combined noise level.

SOURCES: Biosolids Digester Facilities Project Consultant Team, *Contract CS-235 Biosolids Digester Facilities Project, CER Phase, Equipment List and Manufacturer's Specifications, Appendix G and Noise Info Package*, December 14, 2015; Orion Environmental Associates, 2016.

TABLE 3
ESTIMATED OPERATIONAL NOISE LEVELS AT NEARBY SENSITIVE RECEPTORS

Project Component/ Receptor Location	Outdoor or Enclosed	Reference Hourly L_{eq} or L_{90} in dBA @ 50 feet[a]	Minimum Distance between Receptor and Specified Project Component	Distance Adjustment	Adjusted Noise Level (L_{eq})	Section 2909(d) Review[b]: Lowest Applicable Ordinance Exterior Noise Limit in dBA (10 p.m. to 7 a.m.)	Section 2909(d) Review[b]: Does Project Noise Exceed Limit at Receptor?	Exceedance (dBA)
2. Residential receptors to the east, mid-block east of Phelps Street (1663 Kirkwood Avenue is representative receptor with possible direct lines-of-sight from upper floors)								
Energy Recovery - Digester Gas Treatment	Outdoor	70	950	-26	45	60	No	
Energy Recovery - Waste Gas Burners[c]	Outdoor	64	900	-25	39	60	No	
OR					OR			
Energy Recovery - Energy Recovery Facility[c]	Enclosed	67	950	-26	42	60	No	
THS Cooling	Outdoor	77	1,250	-28	49	60	No	
Anaerobic Digestion	Enclosed	68	1,350	-29	40	60	No	
Biosolids Dewatering	Enclosed	68	1,850	-31	37	60	No	
Pipe Galleries	Enclosed	69	1,275	-28	41	60	No	
Solids Odor Control	Mostly Outdoor	85	1,350	-29	57	60	No	
Pre-Digestion Solids Processing								
- Pre-THP Dewatering[d]	Enclosed	65	1,200	-28	38	60	No	
- Sludge Screening[d]	Enclosed	66	1,200	-28	39	60	No	
- Pumped Plant Recycled Water Pumping	Enclosed	64	1,325	-28	36	60	No	
- Thickening[d]	Enclosed	64	1,200	-28	36	60	No	
- THP	Outdoor	59	1,300	-28	31	60	No	
Combined Noise Level at this Receptor					**58**	60	No	**-2**

TABLE 3 (Continued)
ESTIMATED OPERATIONAL NOISE LEVELS AT NEARBY SENSITIVE RECEPTORS

Project Component/ Receptor Location	Outdoor or Enclosed	Reference Hourly L_{eq} or L_{90} in dBA at 50 feet[a]	Minimum Distance between Receptor and Specified Project Component	Distance Adjustment	Adjusted Noise Level (L_{eq})	Section 2909(d) Review[b]: Lowest Applicable Ordinance Exterior Noise Limit in dBA (7 a.m. to 10 p.m.)[g]	Section 2909(d) Review[b]: Does Project Noise Exceed Limit at Receptor?	Exceedance (dBA)
3. 1200 Phelps Street (Southeast Community Facility with City College of San Francisco Training/Education Center and San Francisco State University Head Start daycare facility with playground)								
Energy Recovery - Digester Gas Treatment	Outdoor	70	1,000	-26	44	70	No	
Energy Recovery - Waste Gas Burners[c]	Outdoor	64	750	-24	41	70	No	
OR					OR			
Energy Recovery - Energy Recovery Facility[c]	Enclosed	67	900	-25	42	70	No	
THS Cooling	Outdoor	77	1,450	-29	48	70	No	
Anaerobic Digestion	Enclosed	68	1,500	-30	39	70	No	
Biosolids Dewatering	Enclosed	68	2,125	-33	36	70	No	
Pipe Galleries	Enclosed	69	1,600	-30	39	70	No	
Solids Odor Control	Mostly Outdoor	85	1,650	-30	55	70	No	
Pre-Digestion Solids Processing								
- Pre-THP Dewatering[d]	Enclosed	65	1,525	-30	36	70	No	
- Sludge Screening[d]	Enclosed	66	1,525	-30	37	70	No	
- Pumped Plant Recycled Water Pumping	Enclosed	64	1,625	-30	34	70	No	
- Thickening[d]	Enclosed	64	1,525	-30	34	70	No	
- THP	Outdoor	59	1,525	-30	30	70	No	
Combined Noise Level at this Receptor					**57**	70	No	**-13**

TABLE 3 (Continued)
ESTIMATED OPERATIONAL NOISE LEVELS AT NEARBY SENSITIVE RECEPTORS

Project Component/ Receptor Location	Outdoor or Enclosed	Reference Hourly L_{eq} or L_{90} in dBA at 50 feet[a]	Minimum Distance between Receptor and Specified Project Component	Distance Adjustment	Adjusted Noise Level (L_{eq})	Section 2909(d) Review[b]: Lowest Applicable Ordinance Exterior Noise Limit in dBA (10 p.m. to 7 a.m.)	Section 2909(d) Review[b]: Does Project Noise Exceed Limit at Receptor?	Exceedance (dBA)
4. Residential receptors to the south, south of Oakdale Avenue (1901 Palou Avenue is a representative receptor, no direct line-of-sight)								
Energy Recovery - Digester Gas Treatment	Outdoor	70	1,550	-30	41	60	No	
Energy Recovery - Waste Gas Burners[c]	Outdoor	64	1,200	-28	37	60	No	
OR					OR			
Energy Recovery - Energy Recovery Facility[c]	Enclosed	67	1,400	-29	38	60	No	
THS Cooling	Outdoor	77	1,975	-32	45	60	No	
Anaerobic Digestion	Enclosed	68	1,975	-32	37	60	No	
Biosolids Dewatering	Enclosed	68	1,800	-31	37	60	No	
Pipe Galleries	Enclosed	69	2,050	-32	36	60	No	
Solids Odor Control	Mostly Outdoor	85	2,200	-33	53	60	No	
Pre-Digestion Solids Processing								
- Pre-THP Dewatering[d]	Enclosed	65	2,125	-33	33	60	No	
- Sludge Screening[d]	Enclosed	66	2,125	-33	34	60	No	
- Pumped Plant Recycled Water Pumping	Enclosed	64	2,175	-33	31	60	No	
- Thickening[d]	Enclosed	64	2,125	-33	31	60	No	
- THP	Outdoor	59	2,050	-32	27	60	No	
Combined Noise Level at this Receptor					**54**	60	No	**-6**

TABLE 3 (Continued)
ESTIMATED OPERATIONAL NOISE LEVELS AT NEARBY SENSITIVE RECEPTORS

Project Component/ Receptor Location	Outdoor or Enclosed	Reference Hourly L_{eq} or L_{90} in dBA at 50 feet[a]	Minimum Distance between Receptor and Specified Project Component	Distance Adjustment	Adjusted Noise Level (L_{eq})	Section 2909(d) Review[b]: Lowest Applicable Ordinance Exterior Noise Limit in dBA (10 p.m. to 7 a.m.)	Section 2909(d) Review[b]: Does Project Noise Exceed Limit at Receptor?	Exceedance (dBA)
5. Residential receptors to the south, areas midway up the hill to the south (2000 Revere Avenue is a representative receptor with direct line-of-sight)								
Energy Recovery - Digester Gas Treatment	Outdoor	70	2,100	-32	38	60	No	
Energy Recovery - Waste Gas Burners[c]	Outdoor	64	1,775	-31	33	60	No	
OR					OR			
Energy Recovery - Energy Recovery Facility[c]	Enclosed	67	1,950	-32	35	60	No	
THS Cooling	Outdoor	77	2,525	-34	43	60	No	
Anaerobic Digestion	Enclosed	68	2,525	-34	34	60	No	
Biosolids Dewatering	Enclosed	68	3,225	-36	32	60	No	
Pipe Galleries	Enclosed	69	2,625	-34	34	60	No	
Solids Odor Control	Mostly Outdoor	85	2,750	-35	51	60	No	
Pre-Digestion Solids Processing								
- Pre-THP Dewatering[d]	Enclosed	65	2,700	-35	31	60	No	
- Sludge Screening[d]	Enclosed	66	2,700	-35	32	60	No	
- Pumped Plant Recycled Water Pumping	Enclosed	64	2,750	-35	29	60	No	
- Thickening[d]	Enclosed	64	2,700	-35	29	60	No	
- THP	Outdoor	59	2,600	-34	25	60	No	
Combined Noise Level at this Receptor					**52**	60	No	**-8**

TABLE 3 (Continued)
ESTIMATED OPERATIONAL NOISE LEVELS AT NEARBY SENSITIVE RECEPTORS

						Section 2909(d) Review[b]		
Project Component/ Receptor Location	**Outdoor or Enclosed**	**Reference Hourly L_{eq} or L_{90} in dBA at 50 feet[a]**	**Minimum Distance between Receptor and Specified Project Component**	**Distance Adjustment**	**Adjusted Noise Level (L_{eq})**	**Lowest Applicable Ordinance Exterior Noise Limit in dBA (10 p.m. to 7 a.m.)**	**Does Project Noise Exceed Limit at Receptor?**	**Exceedance (dBA)**
6. Residential receptors to the south, highest areas on the hill to the south (296 Bayview Circle is a representative receptor with direct line-of-sight)								
Energy Recovery - Digester Gas Treatment	Outdoor	70	2,300	-33	37	60	No	
Energy Recovery - Waste Gas Burners[c]	Outdoor	64	1,950	-32	33	60	No	
OR					OR			
Energy Recovery - Energy Recovery Facility[c]	Enclosed	67	2,175	-33	34	60	No	
THS Cooling	Outdoor	77	2,750	-35	42	60	No	
Anaerobic Digestion	Enclosed	68	2,775	-35	34	60	No	
Biosolids Dewatering	Enclosed	68	3,475	-37	32	60	No	
Pipe Galleries	Enclosed	69	2,825	-35	34	60	No	
Solids Odor Control	Mostly Outdoor	85	3,200	-36	49	60	No	
Pre-Digestion Solids Processing								
- Pre-THP Dewatering[d]	Enclosed	65	2,875	-35	30	60	No	
- Sludge Screening[d]	Enclosed	66	2,875	-35	31	60	No	
- Pumped Plant Recycled Water Pumping	Enclosed	64	2,950	-35	29	60	No	
- Thickening[d]	Enclosed	64	2,875	-35	29	60	No	
- THP	Outdoor	59	2,825	-35	24	60	No	
Combined Noise Level at this Receptor					**51**	60	No	**-9**

TABLE 3 (Continued)
ESTIMATED OPERATIONAL NOISE LEVELS AT NEARBY SENSITIVE RECEPTORS

NOTES: The combined noise levels that exceed threshold levels, may not occur because this model applies very conservative assumptions. The model does not account for noise reductions from intervening buildings or topographic changes, and it assumes all noise sources for each project component are located at the closest distance between source and receptor. Noise sources within each component will actually be distributed over the entire footprint of that component and there are intervening structures that will partially or completely shield some receptors. Therefore, the combined noise level at each project facility will likely be lower than estimated. The "Exceedance" column indicates the number of decibels (dBA) by which the ordinance limit would either be exceeded or not exceeded.

[a] See Table 2 for derivation of reference noise levels.

[b] The San Francisco Noise Ordinance (Police Code Section 2909[d]) interior noise limits from fixed noise sources are 45 dBA between 10:00 p.m. and 7:00 a.m. and 55 dBA between 7:00 a.m. and 10:00 p.m. with windows open. Assuming the building would attenuate exterior noise levels by 15 dBA with the windows open (World Health Organization (WHO), *Guidelines for Community Noise, Section 4.3.1. Dwellings*, page 61, 1999. Available online at http://www.who.int/docstore/peh/noise/guidelines2.html), these interior noise limits are equivalent to exterior noise limits of 60 dBA between 10:00 p.m. and 7:00 a.m. and 70 dBA between 7:00 a.m. and 10:00 p.m. at the closest residential receptors (windows open). However, for the Southeast Community Facility (Receptor 3), there is a training/education center and Head Start daycare facility and therefore, the ordinance's 70-dBA exterior daytime limit is applied at this receptor.

[c] Noise generated by the Energy Recovery Facility and waste gas burners are both listed in Table 2. However, they would not operate simultaneously so that only the highest noise level is added into the combined noise level at specified receptor locations.

[d] The same distance is applied to all of these facilities and based on the closest location of the Pre-THP facility and receptor.

SOURCE: Orion Environmental Associates, 2017.

APPENDIX NOP
Notice of Preparation

This appendix includes:

- Notice of Preparation
- Written responses to the Notice of Preparation
- Transcripts of comments received during scoping meeting held on July 23, 2015

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PLANNING DEPARTMENT

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Notice of Preparation of an Environmental Impact Report and Notice of Public Scoping Meeting

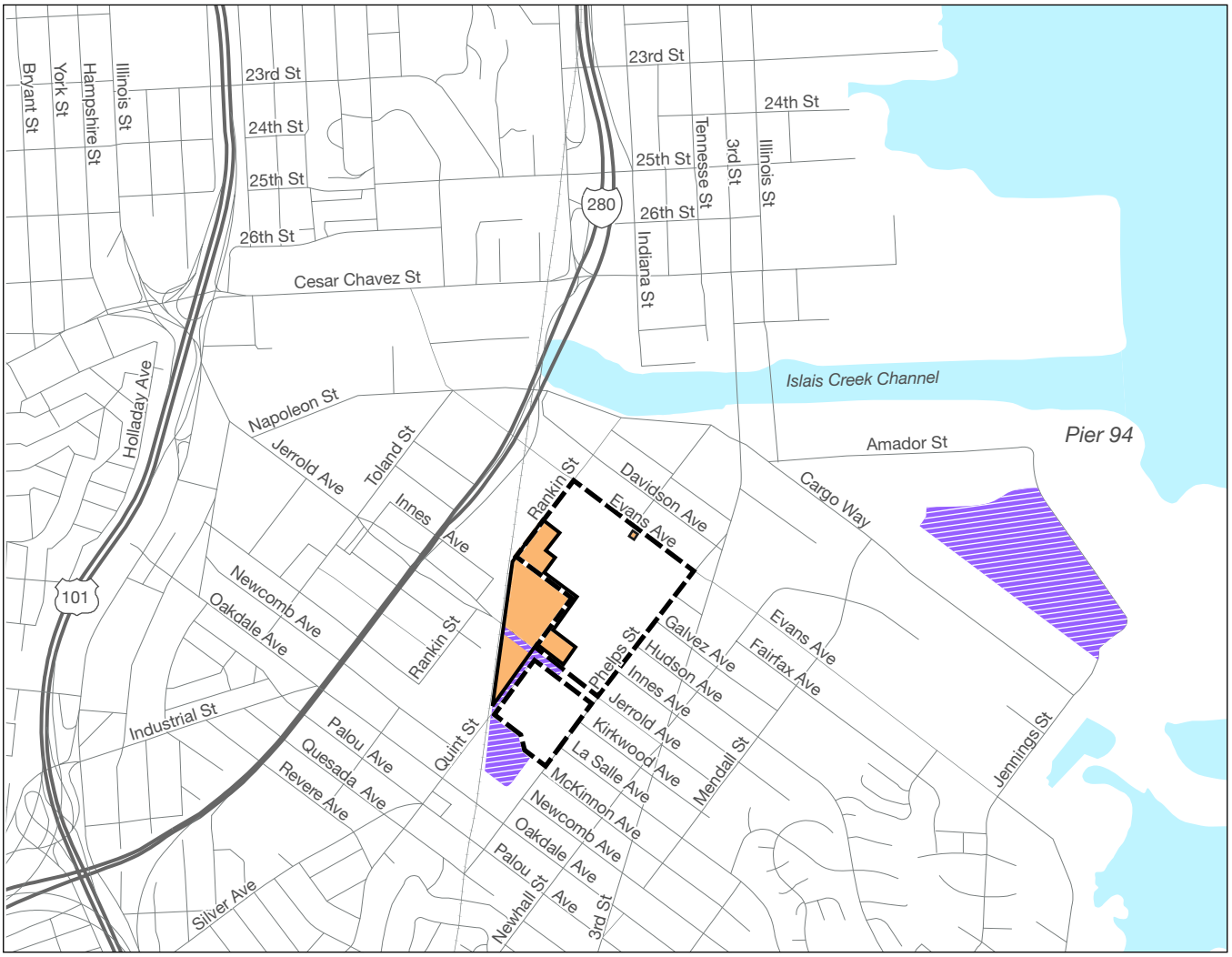
Date:	June 24, 2015
Case No.:	**2015-000644ENV**
Project Title:	**Biosolids Digester Facilities Project**
Location:	750 Phelps Street, 1700 Jerrold Avenue, 1800 Jerrold Avenue and 1801 Jerrold Avenue, San Francisco
BPA Nos.:	N/A
Zoning:	P (Public Facilities); M-1 (Light Industrial); and M-2 (Industrial) 65-J Height and Bulk District
Block/Lot:	5262/009; 5281/001
Lot Size:	1,607,292 square feet; 64,394 square feet
Project Sponsor:	San Francisco Public Utilities Commission Karen Frye (415) 554-1652
Lead Agency:	San Francisco Planning Department
Staff Contact:	Steven Smith – (415) 558-6373 Steve.smith@sfgov.org

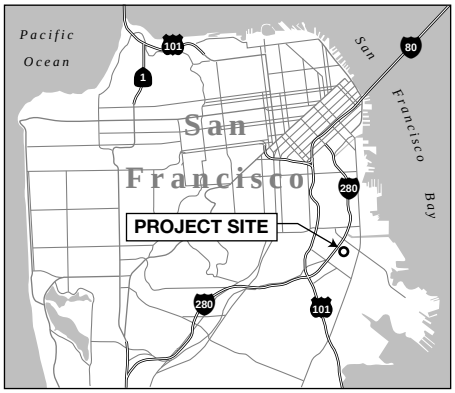
This Notice of Preparation (NOP) of an Environmental Impact Report (EIR) has been prepared by the San Francisco Planning Department in connection with the project listed above. The purpose of the EIR is to provide information about potential significant physical environmental effects of the proposed project, to identify possible ways to minimize the significant effects, and to describe and analyze possible alternatives to the proposed project in compliance with the California Environmental Quality Act (CEQA). The San Francisco Planning Department is issuing this NOP to inform the public, responsible agencies, and interested parties about the proposed project and the intent to prepare an EIR. This NOP is also available online at: http://www.sf-planning.org/puccases.

PROJECT SUMMARY

The Biosolids[1] Digester Facilities Project (the "project" or BDFP) would construct new solids treatment, odor control, energy recovery, and associated facilities at the San Francisco Public Utilities Commission's (SFPUC) Southeast Water Pollution Control Plant (SEP) located in the Bayview District of San Francisco (**Figure 1**). **Table 1** presents key features of the proposed project. The SFPUC is proposing new facilities to provide a modern and efficient solids treatment system to ensure treatment reliability, maintain regulatory compliance, protect public health and safety, meet current seismic standards, and provide advanced odor control. The BDFP would involve construction of new structures totaling approximately 200,000 square feet. To accommodate the proposed facilities, approximately 110,000 square feet of existing structures would be demolished.

[1] Biosolids are the recyclable organic product from the bacterial digestion of solids removed from wastewater.





SFPUC Southeast Plant (SEP) Boundary
(Staging areas may be located within the SEP)

Project Site

Potential Off-Site Construction
Staging Areas

0 2000
Feet

SOURCE: ESA+Orion

SFPUC Biosolids Digester Facilities

Figure 1
Project Location

TABLE 1
KEY FEATURES OF BIOSOLIDS DIGESTER FACILITIES PROJECT

Feature	Existing Conditions	Future with Project
SEP Size	~40 acres	~47 acres
Digesters	10 digesters – 2 million gallons each[a] Distance to Closest Residence: <100 feet	6 digesters – 1.33 million gallons each Distance to Closest Residence: ~1,000 feet
SEP Design Flow	250 million gallons per day (mgd) (wet weather)[b] 85 mgd (dry weather design average)[b]	No Change
Solids Load	182,700 lbs/day (2010); 280,000 lbs/day (2045)	No Change
Solids Treatment Process	Thickening Dewatering Anaerobic Digestion[c]	Screening Thickening Dewatering Thermal Hydrolysis[d] Anaerobic Digestion[c]
Biogas[e]	Production: ~1.3 million cubic feet per day Flaring: Routine	Production: ~2.0 million cubic feet per day Flaring: Emergency Only
Electricity Generated	2 Mega watts	5 Mega watts
Biosolids	Production: 16,360 dry tons (2010)[f] Classification: Class B[g]	Production: 24,000 dry tons (2045) Classification: Class A[g]
Daily Biosolids Haul trips (Annual Average)	7-9 per day	8-10 per day (2022-2045)[f]
Odor Control	Existing odor control does not contain odors from existing biosolids facilities to within the SEP property	Designed to limit odors from BDFP within SEP fenceline
SEP Staffing Levels (plant wide including biosolids)	280 staff	No Change

NOTES:

[a] The SEP has 10 digesters: 7 are active, 2 are used for storage, and one has been converted to a biogas storage facility.

[b] Flows at wastewater treatment plants are often expressed in terms of dry weather and wet weather since rainfall can substantially increase flows. At the SEP, during dry weather the combined sewer system flow is essentially domestic wastewater, with small contributions from industrial wastewater and urban runoff. During wet weather, the combined flow of wastewater and stormwater is governed by storm patterns and intensity.

[c] Anaerobic digestion is a method of treating wastewater solids using biological processes to inactivate bacteria and pathogens (a biological agent that causes disease or illness) and produce stabilized organic biosolids, biogas, and water.

[d] Thermal hydrolysis process (THP) provides sludge pretreatment prior to anaerobic digestion. Essentially, the sludge is heated with steam under pressure, held for a specified time in order to destroy pathogens, and then pressure is rapidly reduced to rupture microbial cells.

[e] Biogas is a byproduct of the bacterial digestion process and comprised mostly of methane and carbon dioxide.

[f] In the "no project" scenario, the production of biosolids would increase from existing conditions (2010) to 2045 due to projected future increases in wastewater flows and loads; however, production of biosolids without the project would result in approximately 27,700 dry tons compared to 24,000 dry tons with the project. Associated with the expected increase in biosolids under the "no project" scenario, the SEP daily biosolids truck trips would also increase from existing conditions (2010) to 2045, but the proposed processes under the BDFP would enable the SEP to reduce the number of biosolids truck trips compared to the projected future growth baseline.

[g] The Standards for the Use or Disposal of Sewage Sludge (Title 40 of the Code of Federal Regulations [CFR], Part 503), also known as the Part 503 rule, establish rules for biosolids application to land for different classes of biosolids. Class A biosolids contain no detectible levels of pathogens, low levels of metals, and do not attract vectors. According to the US Environmental Protection Agency Guide to Part 503 Rule, Class A biosolids are considered exceptional quality and have the fewest restrictions for land applications such as soil conditioning and fertilizer. Class B biosolids are treated but still contain detectible levels of pathogens. There are buffer requirements, public access, and crop harvesting restrictions for virtually all forms of Class B biosolids. Anticipated regulations may further restrict Class B biosolids use.

PUBLIC SCOPING PROCESS

Pursuant to the State of California Public Resources Code Section 21083.9 and CEQA Guidelines Section 15206, a public scoping meeting will be held to receive oral comments concerning the scope of the EIR. The meeting will be held on **Thursday, July 16, 2015 at 6:30 p.m.** in the Alex Pitcher Room at the **Southeast Community Facility, 1800 Oakdale Avenue, San Francisco**. The SFPUC will provide an informational open house from **5:30 to 6:30 p.m.** prior to the formal scoping meeting. To request a language interpreter or to accommodate persons with disabilities at the scoping meeting, please email or call the staff contact, Steven Smith, listed above at least 72 hours in advance of the meeting. Written comments will also be accepted at this meeting and until 5:00 p.m. on **Monday, July 27, 2015**. Written comments should be sent to Sarah B. Jones, San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103; by fax to (415) 558-6409 (Attn: Sarah Jones); or by email to Sarah.B.Jones@sfgov.org.

If you work for a Responsible or Trustee agency, we need to know the views of your agency regarding the scope and content of the environmental information that are germane to your agency's statutory responsibilities in connection with the proposed project. Your agency may need the certified EIR when considering a permit or other approval for this project. Please include the name of a contact person in your agency.

Members of the public are not required to provide personal identifying information when they communicate with the Planning Commission or Department. All written or oral communications, including submitted personal contact information, may be made available to the public for inspection and copying upon request and may appear on the Department's website or in other public documents.

PROJECT BACKGROUND

The SFPUC operates and maintains the City's combined sewer system, which collects and treats wastewater and stormwater at one of three San Francisco treatment facilities: the Southeast Water Pollution Control Plant (SEP), the Oceanside Water Pollution Control Plant, or the North Point Wet-Weather Facility.[2] The system is called a "combined system" because it conveys both wastewater and stormwater in the same network of pipes. The broad components of wastewater treatment include:

- Liquid treatment processes
- Solids treatment processes
- Discharge of treated water through deepwater outfalls

The wastewater treatment operation at SEP consists of a number of sequential processes to separate and treat liquid and solids in the wastewater in compliance with all dry- and wet-weather[3] regulatory discharge requirements (see below, under "Existing Southeast Water Pollution Control Plant" for further description of the SEP). The focus of the BDFP is on the solids treatment facilities at the SEP.

[2] The North Point plant operates only during wet weather (rainstorms).

[3] Flows at wastewater treatment plants are often expressed in terms of dry weather and wet weather since rainfall can substantially increase flows. At the SEP, during dry weather the combined sewer system flow is essentially domestic wastewater, with small contributions from industrial wastewater and urban runoff. During wet weather, the combined flow of wastewater and stormwater is governed by storm patterns and intensity.

The existing solids treatment facilities at the SEP are over 60 years old and are operating well beyond their useful life. Since the SEP facilities were constructed, newer and more efficient wastewater treatment technologies have been developed. These technologies produce a higher quality and reduced volume of biosolids, capture and treat odors more effectively, and maximize biogas[4] use for production of heat and energy. Because the aging solids treatment system is prone to wear and the existing system requires significant maintenance, the SFPUC is proposing the BDFP. The proposed project is identified in the SFPUC's Sewer System Improvement Program (SSIP), a 20-year, $6.9-billion dollar citywide investment to upgrade the aging sewer infrastructure to ensure a reliable and seismically safe system.

PROJECT DESCRIPTION

Project Location

The SEP is located at 750 Phelps Street and occupies approximately 40 acres bounded by Evans Avenue to the northeast; Quint and Rankin Streets to the northwest; Phelps Street to the southeast; and the Caltrain railroad tracks and other City-owned properties to the southwest. Figure 1 shows the location of the proposed project site, including potential off-site construction staging areas. **Figure 2** shows the project site and existing SEP facilities. The SEP is located in San Francisco's Bayview-Hunters Point community (Supervisor District 10), in an area with a mix of residential and light/heavy industrial zones. Residential land uses are located directly across Phelps Street along the southeast boundary of the SEP.

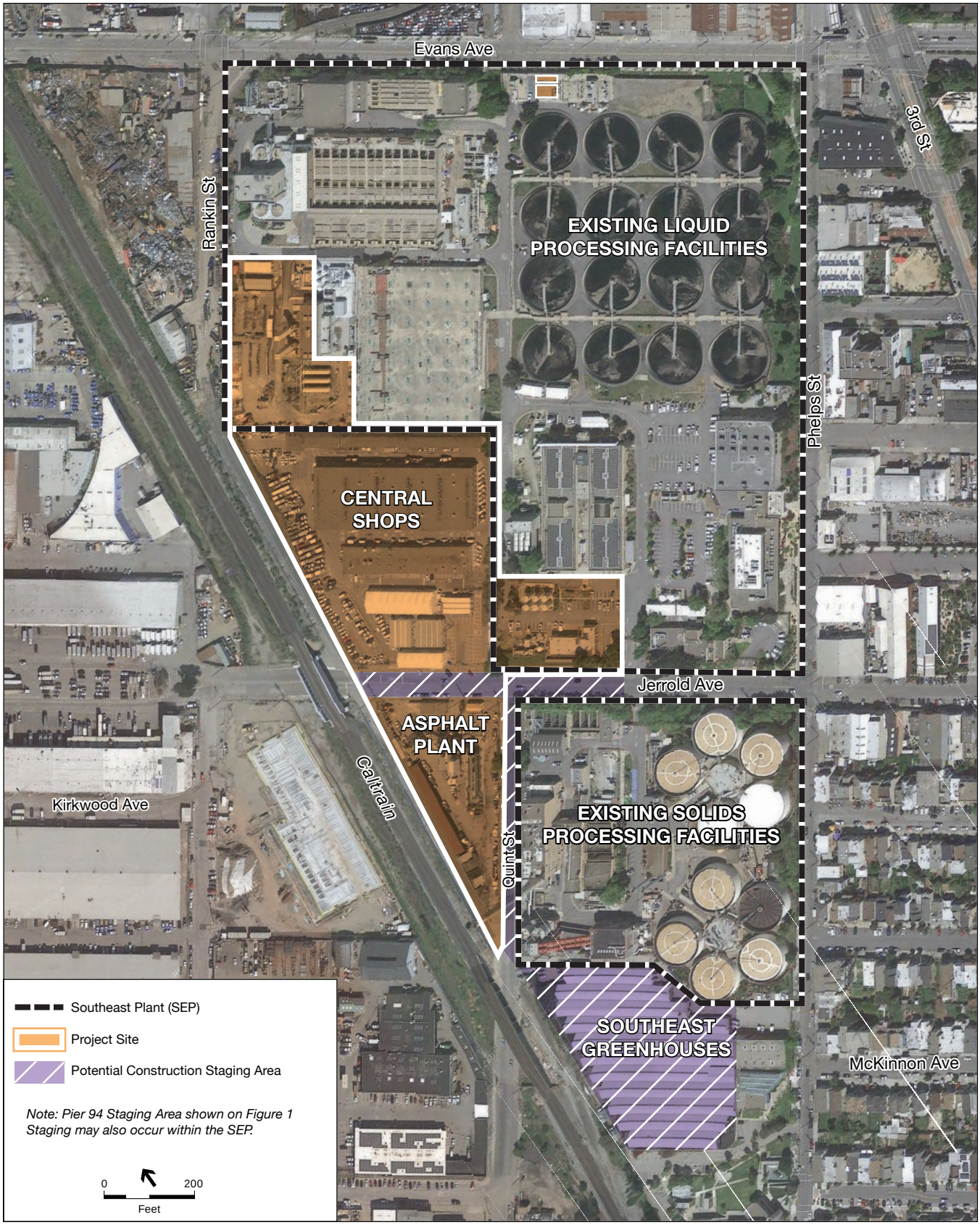
Project Site

Proposed facilities would be constructed on portions of the existing SEP property and on adjacent properties at 1800 Jerrold Avenue (the Central Shops facility) and 1801 Jerrold Avenue (the decommissioned Asphalt Plant facility). These sites total approximately 415,000 square feet. The Central Shops facility site is currently owned and operated by the City of San Francisco's General Services Agency (GSA), which provides vehicle and equipment maintenance services for multiple City agencies through the Fleet Management Department. Prior to BDFP construction, Central Shops would relocate and the existing site would be transferred to SFPUC; the location of the new Central Shops site has not yet been determined. The asphalt plant site, owned by the City of San Francisco's Department of Public Works, is non-operational and will also be transferred to SFPUC prior to project construction.

As shown on Figure 2, Jerrold Avenue bisects the SEP and the project site. During the project's five-year construction period, the SFPUC would temporarily close Jerrold Avenue to public through-traffic between the existing entrance to the SEP on Jerrold Avenue between Quint Street and Phelps Street and the Caltrain right-of-way to promote a safe construction work area. Truck deliveries needed for plant operations may be permitted access to the SEP via Jerrold Avenue.

In addition, the proposed project would require temporary use of other sites during the construction period. The BDFP will require up to 12 acres of construction staging area. The SFPUC is considering use of two off-site properties, shown on Figure 1, for a majority of the construction staging. In addition, several additional staging areas within and immediately adjacent to the SEP boundary have been identified as shown on Figure 2.

[4] Biogas is a byproduct of the bacterial digestion process and comprised mostly of methane and carbon dioxide.



SFPUC Biosolids Digester Facilities

SOURCE: ESA+Orion; Google Maps

Figure 2
Biosolids Digester Facilities Project Site

Description of Project Facilities

The new facilities would be designed to provide solids treatment for projected year 2045 wastewater flows and solids loads (the project's planning horizon) in accordance with the SSIP goals (see SSIP Goals and Levels of Service in Table 3 below). The project involves the replacement and relocation of the solids treatment facilities with more efficient, modern technologies and facilities designed to produce Class A biosolids[5], which have no detectable levels of pathogens[6] and expands options for beneficial reuse of these materials. The BDFP would require construction of new structures totaling approximately 200,000 square feet. To accommodate the proposed facilities, approximately 110,000 square feet of existing structures would be demolished. There would be a transition period of two to three years during which both old and new biosolids treatment systems would operate concurrently.

Figure 3 shows the sequence of individual processes (called "unit processes"), each of which accomplishes a specific function to prepare the solids for the next step. **Figure 4** shows the location of facilities that would house these processes within the project site, and **Table 2** shows the approximate size and height of each of the buildings or structures. The BDFP includes the following processes and associated facilities for handling and treatment of solids:

- ***Predigestion Solids Processing.*** Prior to digestion, solids would be mechanically screened, dewatered and sterilized. Processes used include screening, gravity belt thickening,[7] dewatering centrifuges, and thermal hydrolysis pretreatment (THP)[8] to sterilize the sludge and help produce Class A biosolids. The solids emerging from the THP would be cooled in a heat exchanger.

- ***Digestion and Biosolids Storage.*** In the digesters, anaerobic digestion[9] would occur, producing stabilized biosolids, biogas, and water. The digesters (a total of six tanks each 65 feet in diameter, positioned 65 feet above grade and 45 feet below grade) would be constructed in a linear layout parallel to the Caltrain right-of-way. This location is approximately 1,000 feet from the nearest residences.

- ***Final Dewatering, Storage and Load-out.*** Following digestion, digested sludge would be dewatered to produce Class A biosolids "cake" that would be trucked off-site. The final dewatering and associated Class A biosolids storage and loadout facilities would be located north of the proposed digesters, adjacent to Rankin Street.

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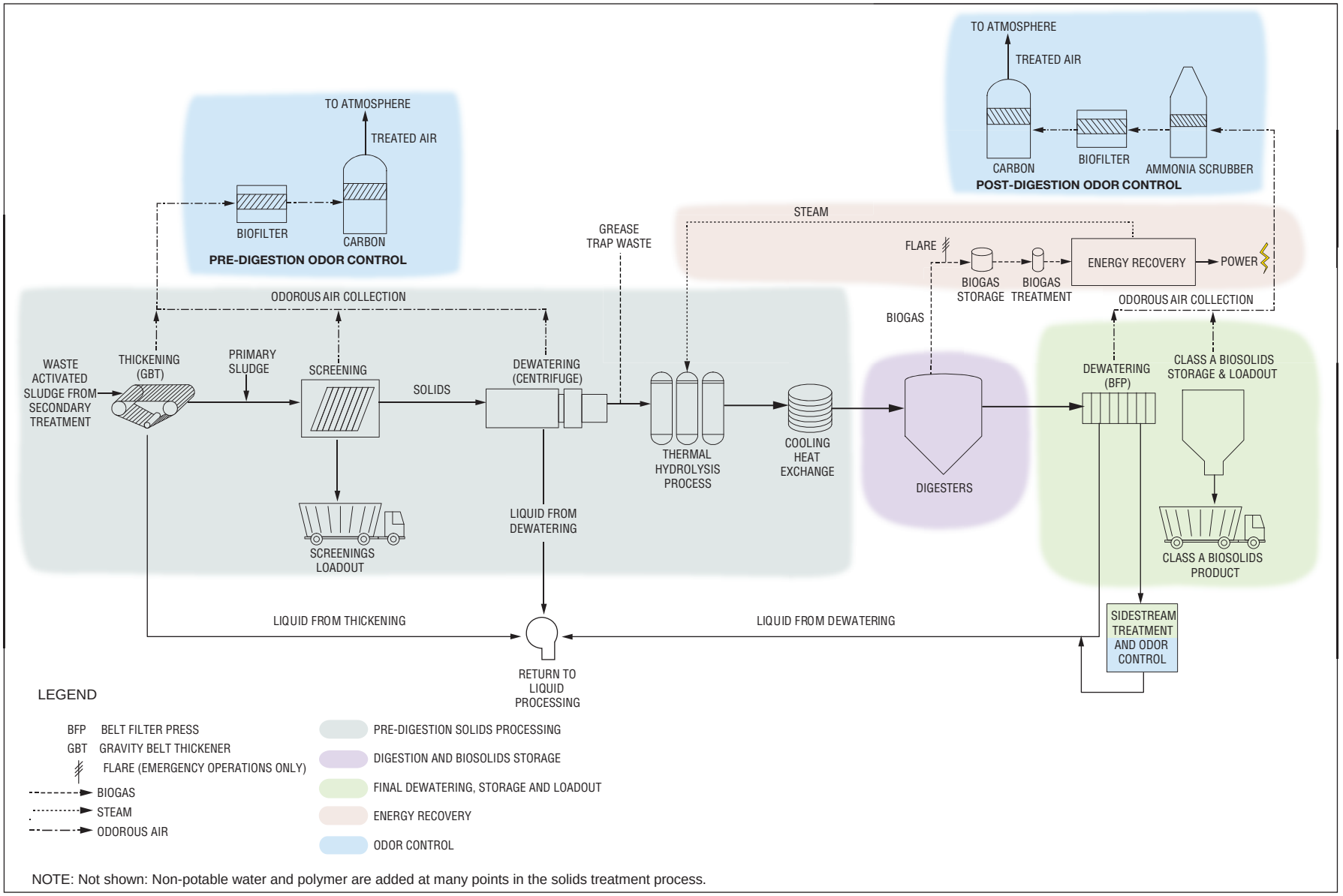
5 The Standards for the Use or Disposal of Sewage Sludge (Title 40 of the Code of Federal Regulations [CFR], Part 503), also known as the Part 503 rule, establish rules for biosolids application to land for different classes of biosolids. Class A biosolids contain no detectible levels of pathogens, low levels of metals, and do not attract vectors. According to the US Environmental Protection Agency Guide to Part 503 Rule, Class A biosolids are considered exceptional quality and have the fewest restrictions for land applications such as soil conditioning and fertilizer. Class B biosolids are treated but still contain detectible levels of pathogens. There are buffer requirements, public access, and crop harvesting restrictions for virtually all forms of Class B biosolids. Anticipated regulations may further restrict Class B biosolids use.

6 A pathogen is a biological agent that causes disease or illness.

7 Gravity Belt Thickeners are a method of condensing wastewater solids using gravity drainage of liquid through filter belt.

8 Thermal hydrolysis process (THP) provides sludge pretreatment prior to anaerobic digestion. Essentially, the sludge is heated with steam under pressure, held for a specified time in order to destroy pathogens, and then pressure is rapidly reduced to rupture microbial cells, prior to anaerobic digestion.

9 Anaerobic digestion is a method of treating wastewater solids using biological processes to inactivate bacteria and pathogens and produce stabilized organic biosolids, biogas and water.



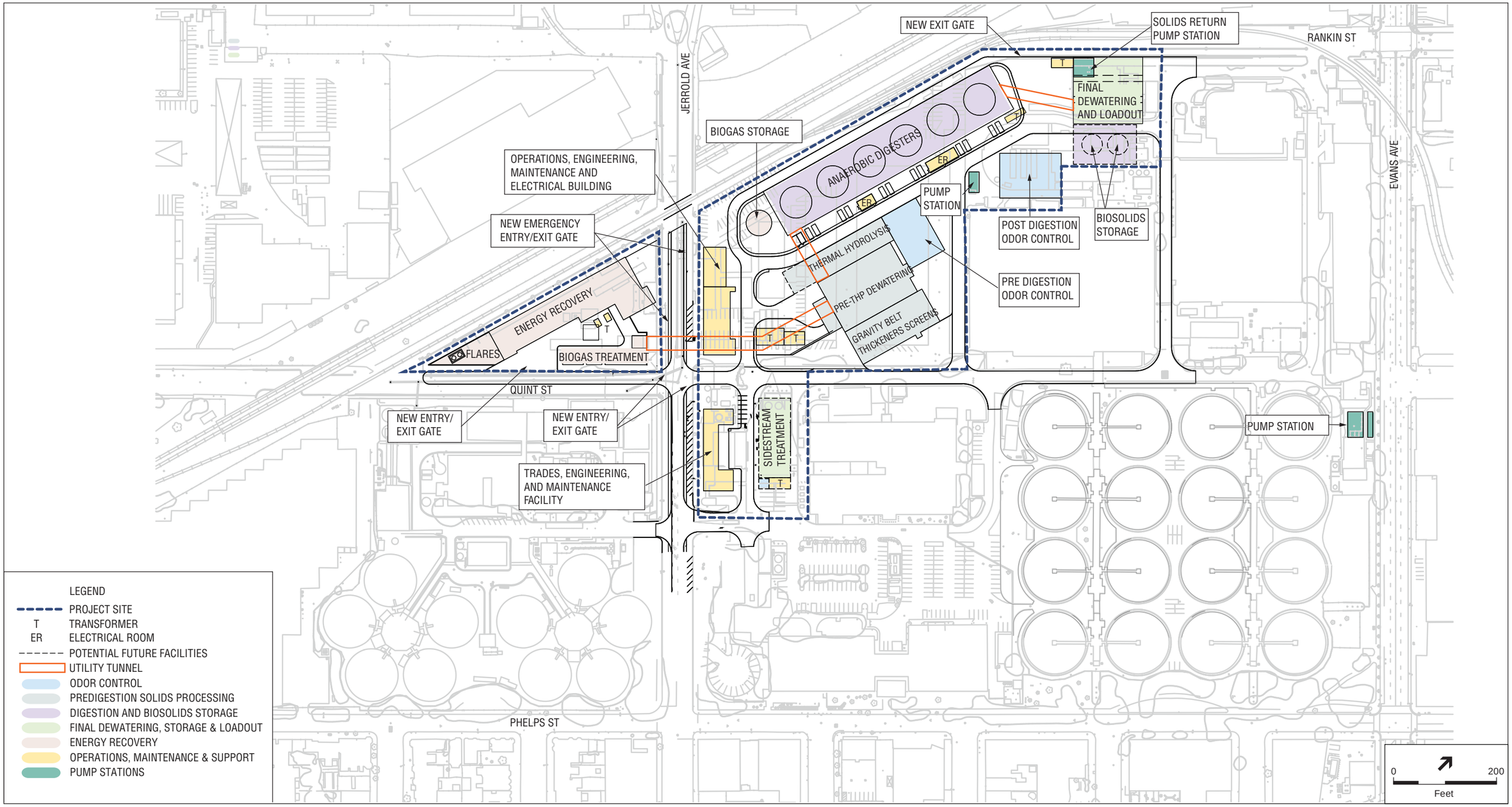
NOTE: Not shown: Non-potable water and polymer are added at many points in the solids treatment process.

SOURCE: Brown and Caldwell, CH2M, Black & Veatch; adapted by ESA + Orion

Biosolids Digester Facilities Project

Figure 3

Process Flow Diagram



SOURCE: Brown and Caldwell, CH2M, Black & Veatch; adapted by ESA + Orion

Biosolids Digester Facilities Project

Figure 4

Preliminary Site Plan

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TABLE 2
PROPOSED BIOSOLIDS DIGESTER FACILITIES

Purpose	Facility	Approximate Size (Square Ft; Diameter)	Maximum Height Above Grade (feet)[f]
Pre-digestion Solids Processing	Gravity Belt Thickeners/Screens[a]	12,500	Up to 65 feet
	Pre-Thermal Hydrolysis Dewatering	20,000	Up to 65 feet
	Thermal Hydrolysis Process (THP)[b]	8,700	25
Digestion and Biosolids Storage	Anaerobic Digesters (6)	Pad: 49,800 Diameter (each): 65 feet	65
	Potential Future Biosolids Storage (2)	Pad: 9,500 Diameter (each): 45 feet	45
Final Dewatering, Storage and Loadout	Final Dewatering and Loadout	17,600	65
	Potential Future Sidestream Treatment[c]	11,200	Up to 15
Energy Recovery	Energy Recovery	22,200	45
	Biogas Treatment	4,400	At Grade
	Biogas Storage	50 feet diameter	50
	Flares (2 units)	500	20
Odor Control	Pre-digestion Odor Control	8,900	25
	Post-digestion Odor Control	10,500	25
	Sidestream Odor Control	400	15
Operations, Maintenance, and Support	Operations, Engineering, Maintenance, and Electrical Building	10,700	Up to 45
	Trades, Engineering, and Maintenance Facility	6,700	Up to 45
	Digester Electric Rooms (2 units)	2,100	10
	Transformers (6 units)	5,400	10
Water Systems and Pumping	Plant Water System[d] Pump Stations	1,500	At Grade
	Pathogen-free Water System[e]	800	At Grade
	Solids Return Pump Station	1,500	At Grade

NOTES:

[a] Gravity Belt Thickeners are a method of condensing wastewater solids using gravity drainage of liquid through filter belt.

[b] THP is a pre-treatment of solids used in combination with anaerobic digestion to produce Class A biosolids. THP processes preheat, hydrolyze, and sterilize solids. Essentially, the solids are heated with steam under pressure, held for a specified time in order to destroy pathogens, and then pressure is rapidly reduced to rupture microbial cells and allow for better methane production during anaerobic digestion.

[c] Sludge dewatering can produce "sidestream" (reject) water, which contains elevated levels of nitrogen. The proposed process would remove nitrogen from the sidestream liquid through biological processes.

[d] The "W3" system would provide W3 water, defined as non-potable chlorinated plant effluent.

[e] The "W2" system would produce W2 water, defined as non-potable chlorinated plant effluent that is also filtered.

[f] Height exemptions permitted under Planning Code Section 260(b) may exceed the 65 foot height limit.

- ***Sidestream Treatment.***[10] The final dewatering process would produce a "sidestream" (reject) liquid stream, which would contain elevated levels of ammonia. Sidestream treatment, which may be included in the project, would remove nitrogen (the primary nutrient in ammonia) from the dewatering reject stream through biological processes, and the resultant effluent would be returned to the existing SEP facilities for liquid treatment.

- ***Energy Recovery.*** One hundred percent of the biogas generated by the digesters would be used to produce both heat and power. New cogeneration facilities proposed as part of the project include low emission gas turbines that would generate up to 5.3 megawatts of electricity from the biogas produced by the digesters. The project would also include enclosed combustion flares for safe disposal of biogas in an emergency situation. Gas treatment systems would remove hydrogen sulfide, siloxanes,[11] moisture, and other volatile organic compounds from the biogas. The proposed turbines would meet or exceed Best Available Control Technology emissions standards of the San Francisco Bay Area Air Quality Management District. A heat recovery system would capture excess heat from the gas turbines and supply process steam that would be used to heat the thermal hydrolysis and digestion processes.

- ***Odor Control.*** The project includes pre-digestion and post-digestion odor control systems to collect and treat odors. Proposed odor control processes include carbon biofilters and ammonia scrubbers.[12] Odor control facilities would be designed with the goal of limiting odors to within the SEP property. A separate odor control system would be provided for the sidestream treatment process.

- ***Operations and Maintenance, Support Facilities***. The project would include structures to house operations and maintenance staff, who will manage and maintain the existing and new treatment processes. In addition, miscellaneous support facilities (e.g., electrical buildings, transformers, yard piping) would be constructed, including a utility tunnel beneath Jerrold Avenue just west of Quint Street.

- ***Water Systems and Pump Stations.*** The project would construct two water systems for use in the biosolids treatment processes that would treat SEP plant effluent. One system ("W3") would provide non-potable water for predigestion dilution and washwater requirements, and the other system ("W2") would provide pathogen-free[13] water for all processes after THP to ensure Class A biosolids requirements are met. Excess water from solids treatment processes would be returned to the existing liquid processing facilities in the SEP via a new pump station.

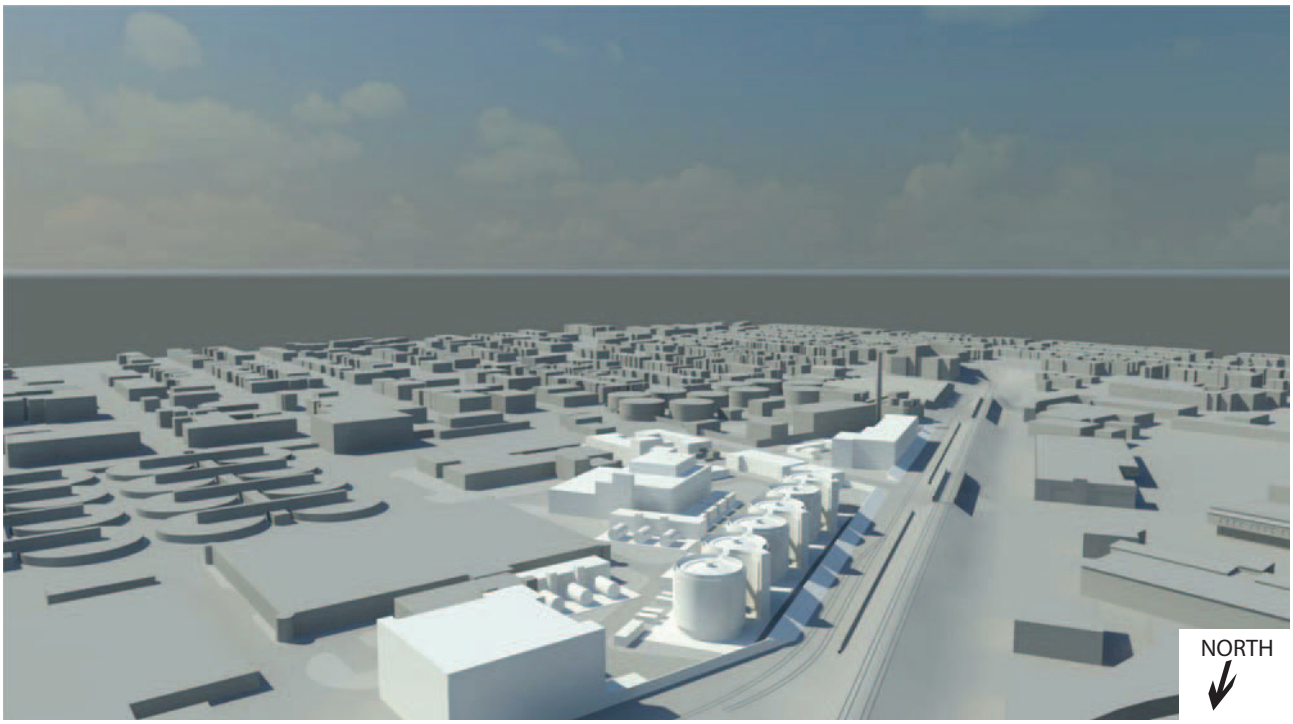
Figure 5 presents a conceptual visual representation of the general massing of the proposed project structures. Although project design is still in progress and many aspects of the project have not been finalized (e.g., the shape of the digesters), this figure provides an indication of the general physical characteristics of the BDFP.

[10] The timing of implementing sidestream treatment could change. The BDFP would preserve space for a sidestream treatment facility.

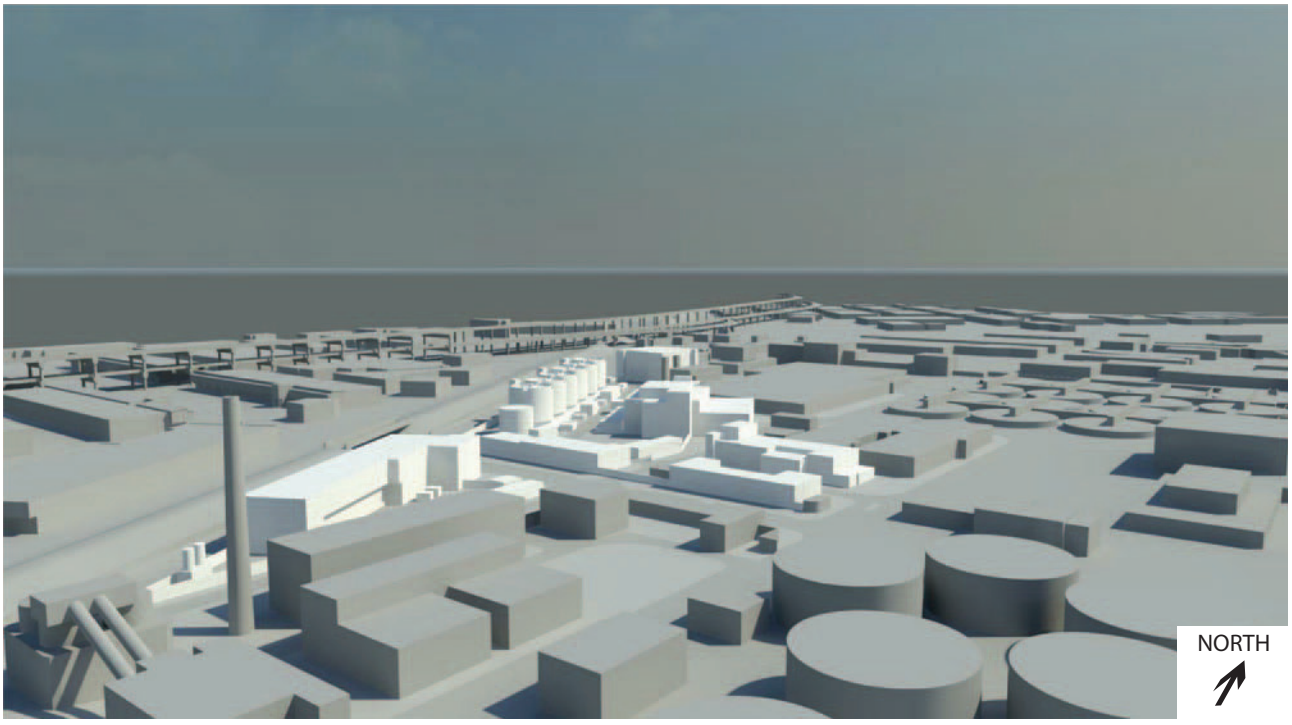
[11] Siloxanes are man-made organic compounds containing silicon, oxygen and methyl groups that are commonly used in personal hygiene, health care and industrial products, and consequently are found in wastewater. Removal of siloxanes from the biogas prior to combustion extends the life of the power generating equipment and reduces maintenance requirements.

[12] Biofilters and scrubbers are pollution control devices often used to remove odors from wastewater treatment plant operations.

[13] Because the thermal hydrolysis process kills pathogens, the water used in subsequent processes must be pathogen free in order to produce Class A (i.e., pathogen free) biosolids.



Oblique View, Northwest Perspective



Oblique View, Southeast Perspective

SOURCE: Brown and Caldwell, CH2M, Black & Veatch, Michael Willis Architects; adapted by ESA + Orion

Biosolids Digester Facilities Project

Figure 5

Preliminary Massing Diagrams

Other Project Features

The project would include development of a new vehicular entrance and exit from the SEP onto Rankin Street to facilitate truck deliveries and biosolids loadout, thereby relocating some truck trips away from Phelps Street and Jerrold Avenue, and shifting truck traffic away from nearby residences. Two new entrances on Jerrold Avenue (as well as emergency access gates) and one on Quint Street are also proposed (Figure 4). The project would include redesign of on-site vehicular circulation to accommodate the new entrances and exits, and the new facility layout.

Architecture and landscaping would be designed consistent with the San Francisco Planning Code, the San Francisco Arts Commission Civic Design Review process and the Public Art Program, and the Planning Department Better Streets Plan. The project would include landscaping and street improvements. Proposed improvements to Jerrold Avenue would occur in accordance with Better Street Plan guidelines, and could include traffic calming, curb extensions (road narrowing), sidewalk improvements, lighting, street trees, and safer pedestrian/worker crossings.

Street trees at the project site would be removed during construction. A tree survey would be conducted to determine the species, number, and size of trees to be removed. Preliminary estimates are that up to 50 trees would be removed. Trees removed would be replaced pursuant to Article 16 of the San Francisco Public Works Code Section 806(a) and other City requirements as applicable. Trees adjacent to construction areas that are not proposed for removal would be protected by establishing a Tree Protection Zone around any tree or group of trees to be retained.

EXISTING SOUTHEAST WATER POLLUTION CONTROL PLANT

SEP Service Area, Plant Capacity, and Existing Flows

Built originally in 1952, the SEP is the City's largest wastewater treatment facility, treating 80 percent of San Francisco's sewage and stormwater flows. In order to meet the mandates of the Federal Clean Water Act, SEP was expanded in the early 1980s to provide secondary treatment of all dry weather flows from the Bayside Watershed (generally the east side of the City), with an average design capacity of approximately 85 million gallons per day (mgd) and peak-hour design flow of 142 mgd. In 1996, the plant's wet weather capacity was increased to 250 mgd. During wet weather, the SEP provides secondary treatment to up to 150 mgd of combined sewage and stormwater, and an additional 100 mgd receives primary treatment prior to disinfection and discharge. The SEP operates 7 days a week, 24 hours a day and treats wastewater from the Bayside Watershed as well as flows from a limited area of Daly City and Brisbane (about 2.5 percent of the total flow currently treated at SEP). In 2014 the SEP produced a total of 58,100 wet tons of biosolids; the average dry weather flow for that year was approximately 58 mgd.

Existing SEP Facilities and Operations

The existing 40-acre SEP site is bisected by Jerrold Avenue, dividing it into SEP North (i.e., facilities north of Jerrold Avenue) and SEP South (facilities south of Jerrold Avenue). Facilities on SEP North are associated with processing the liquids portion of the wastewater. Facilities on SEP South (i.e., south of Jerrold Avenue) are associated with processing the solids portion of the wastewater, including the existing digesters and energy recovery facilities.

SEP provides secondary treatment using a pure oxygen activated sludge process prior to effluent disinfection. Treated plant effluent of up to 110 mgd is discharged into the San Francisco Bay through the

Pier 80 deepwater outfall. During wet weather, secondary effluent of up to 140 mgd also is discharged to the Bay through an additional outfall at the shoreline of Islais Creek (Quint Street Outfall).

The existing solids treatment process consists of: thickening to remove excess liquid; anaerobic digestion to stabilize the solids; production of biogas and biosolids; chemical conditioning and dewatering to produce a drier material; and off-hauling of the biosolids. The process produces Class B biosolids that are beneficially reused. Class B biosolids are currently trucked from the SEP to Sonoma County and Solano County during the dry season (May to October) for land application and to Hay Road Landfill (outside of Vacaville) during the wet season for beneficial reuse, including a small percentage that is composted. The digester biogas is captured on site and used to produce heat and power and/or combusted via flares. The biogas fuels a cogeneration engine that produces about 2 megawatts of electricity for on-site use. In addition, SEP also includes odor control facilities for select process areas.

PROGRAM GOALS AND PROJECT NEED

Sewer System Improvement Program Goals and Levels of Service

The BDFP is the largest and most critical project in the SFPUC's SSIP, which is a 20-year, 6.9 billion dollar citywide program to upgrade the aging sewer infrastructure to ensure a reliable and seismically safe system. Endorsed by the SFPUC Commission in August 2012, the SSIP goals and levels of service shown in **Table 3** were established to facilitate technical analysis, planning, design, and environmental review for all SSIP projects, including the BDFP.

TABLE 3
SEWER SYSTEM IMPROVEMENT PROGRAM GOALS AND LEVELS OF SERVICE

Goals	Levels of Service
Provide a compliant, reliable, resilient, and flexible system that can respond to catastrophic events	• Full compliance with state and federal regulatory requirements applicable to the treatment and disposal of sewage and stormwater. • Critical functions are built with redundant infrastructure. • Primary Treatment, with disinfection, must be online within 72 hours of a major earthquake.
Integrate green and grey infrastructure to manage stormwater and minimize flooding	• Control and manage flows from a storm of a three hour duration that delivers 1.3 inches of rain.
Provide benefits to impacted communities	• Limit odors to within the treatment facility's fence line. • Be a good neighbor. All projects will adhere to the Environmental Justice and Community Benefits policies.
Modify the system to adapt to climate change	• New infrastructure must accommodate expected sea level rise within the service life of the asset. • Existing infrastructure will be modified based on actual sea level rise.
Achieve economic and environmental sustainability	• Beneficial reuse of 100% biosolids. • Use nonpotable water sources to meet 100% of nonpotable water demands. • Beneficially use 100% of biogas generated by treatment facilities. • Stabilize lifecycle costs to achieve future economic stability.
Maintain ratepayer affordability	• Combined sewer and water bill will be less than 2.5% of average household income for a single family residence.

SOURCE: SFPUC. 2012. Sewer System Improvement Program Report, Table 9. Adopted August 28, 2012.

Project Need

The SEP digesters are over 60 years old and are operating well beyond their useful life. As indicated above, since the SEP facilities were constructed, newer and more efficient wastewater treatment technologies have emerged. Because the existing solids treatment system is prone to wear and requires significant maintenance, the SFPUC is proposing the BDFP to ensure treatment reliability, regulatory compliance and protect public health and safety.

The existing SEP appearance, odors and noise have a negative effect on the adjacent residential community. The digesters and other solids handling components are not built to current seismic standards and would not withstand the maximum credible earthquake. Furthermore, regulations are expected to become increasingly restrictive with regard to the use and land application of Class B biosolids currently generated at the SEP (Class B biosolids contain detectable levels of pathogens). For this reason, the SFPUC has proactively adopted a goal to produce Class A biosolids for additional beneficial reuse options,[14], which is an additional need for the project.

PROJECT CONSTRUCTION

Demolition, Earthwork, and Facility Construction

Overall, construction of the BDFP is anticipated to require five years (60 months). Site preparation for the BDFP would require the demolition of various structures within the project site to accommodate the proposed project facilities and associated operations. Existing structures to be demolished, including buildings at the Central Shops property, total about 110,000 square feet. Concrete, asphalt, and other demolition debris would be hauled off site for recycling or disposal as required by the San Francisco Construction and Demolition Debris Ordinance.

Following site clearing, secant retaining walls[15] would be installed to prevent groundwater intrusion and to provide a dry work area during construction. The project site would be excavated to a depth of 20 feet, and up to 48 feet at the location of the proposed digester tank structures. During the peak excavation period (roughly six months), up to 200 to 250 truck trips per day would be needed for hauling of debris, excavated soil, and backfill.

During the other four and a half years of construction, approximately 50 truck trips per day are anticipated for deliveries of equipment and materials. Construction of new project facilities would generally include: installation of foundations (using pile driving) and subsurface utility conduits, building construction, concrete placement, and interior work such as mechanical and electrical equipment installation.

Initial performance testing of the new biosolids digester facilities would be conducted for approximately six months to one year following construction completion and prior to full operation. Operation of the existing digesters would be phased out over a period of one to two years while the new facilities are brought on line and the new system is stabilized.

[14] Class A biosolids beneficial reuses include horticultural uses for products such as compost and blended soil used by landscapers, golf courses and nurseries, as well as agricultural uses as fertilizer or a fertilizer ingredient for crops that are not for human consumption.

[15] Secant pile walls are formed by constructing a series of overlapping concrete-filled drill holes surrounding the area to be excavated to avoid the intrusion of groundwater into the excavated pit.

Construction Staging

Construction staging areas would be used for construction office trailers, construction equipment and materials, and parking for construction worker vehicles. Staging areas could also be used for temporary stockpiling of demolition debris and excavated soil prior to reuse or off-site disposal. Potential construction staging areas that have been identified include the following:

- ***Within SEP.*** Various available areas within the SEP may be used during construction for laydown of equipment and materials.

- ***Within Quint Street.*** Starting in October 2015, a Caltrain project[16] will construct a berm under the Quint Street overcrossing that will result in the permanent closure of through traffic on Quint Street. This will result in a dead-end segment of Quint Street adjacent to the project site between the Caltrain railroad tracks and Jerrold Avenue. This segment of Quint Street is proposed as a staging/parking area during construction.

- ***Within Jerrold Avenue.*** The SFPUC proposes a temporary closure of approximately 1.5 blocks of Jerrold Avenue to public through-traffic (between the entrance to the SEP west of Phelps Street and the Caltrain right-of-way) during the five-year project construction period, to promote a safe construction work area. During this time, the closed segment of Jerrold Avenue may be used as a staging/parking area. Truck deliveries needed for plant operations may be permitted access to the SEP via Jerrold Avenue.

- ***Offsite location at Pier 94 Backlands*** (refer to Figure 1). Another potential offsite staging area would include a portion of the Pier 94 Backlands property owned by the Port of San Francisco located approximately 0.75 mile northeast of the SEP. This larger staging area would be used for construction office trailers, construction equipment and materials, and parking for construction worker vehicles. If selected, a shuttle service would be provided to transport construction workers between Pier 94 and the project site.

  Offsite location adjacent to SEP at the Southeast Greenhouses (refer to Figure 2). A potential offsite staging area is the 4-acre site owned by the SFPUC and currently occupied by the Southeast Greenhouses (greenhouses), located southwest of the existing digester structures.[17] The SFPUC has not yet determined potential future uses of the greenhouses site. However, if the area becomes available, the greenhouses would first be demolished and the area would be used for materials staging, parking and/or office trailers.

Existing Digesters Decommissioning

Following the successful operational performance of the new digester facilities, the existing digester tanks and solids handling facilities at SEP, located south of Quint Street and Jerrold Avenue, would be decommissioned, cleaned, and sealed. Demolition and future use of these areas would be determined in the future Phase II of the SSIP (when authorized) and are not part of the proposed project.

[16] The Caltrain Quint Street Project will permanently close Quint Street between Oakdale Avenue and the Caltrain tracks, starting in October 2015, for replacement of the existing Quint Street Bridge. http://www.caltrain.com/projectsplans/Projects/Caltrain_Capital_Program/Quint_Street_Project.html, access May 29, 2015.

[17] As part of a previously planned renovation process for the greenhouses, the SFPUC commissioned a due diligence study that recommended significant reconfiguration or demolition of the structures.

Construction Schedule

Table 4 provides the general duration of work for overall project construction. Project construction would occur for five years, from approximately summer of 2017 through summer of 2022. For most of the project construction period, construction is expected to occur Monday through Friday from 7:00 a.m. to 3:00 p.m. and Saturdays as needed, with work on Sundays and holidays and 24-hour work occurring only if needed for critical facility connections. The peak construction period in terms of vehicular traffic, when over 500 workers would be on-site, would last approximately 17 months and would be conducted in two work shifts Monday through Saturday from 7:00 a.m. to 11:00 p.m. The most intensive construction activities would occur at the Central Shops site for construction of the six digester tanks, which are the largest individual BDFP structures and require the deepest excavation (to 48 feet below ground surface); construction of ancillary facilities on other portions of the project site would be more limited in duration and intensity.

TABLE 4
CONSTRUCTION SCHEDULE AND DURATION BY ACTIVITY TYPE

Construction Activity	Expected Duration	Estimated Schedule
Site Preparation (e.g., demolition, excavation, utility relocation)	6 months	July 2017 – Jan 2018
Construction	54 months	Jan 2018 – Jun 2022
Total Biosolids Digester Facilities Construction	***60 months***	***July 2017 – Jun 2022***
Startup and Testing	12 months	Dec 2021 – Dec 2022
Process Stabilization Period (no construction)	24 months	Jun 2022 – Jun 2024
Existing Digester Decommissioning	6 months	After 2024[a]

NOTE:

[a] Potential demolition of the existing digesters and solids handling facilities to be determined in Phase II of the SSIP.

OPERATIONS

Similar to current conditions, the new facilities constructed under the BDFP would operate 24 hours per day, seven days per week. No increase in existing operations staff levels (currently about 280 staff) is anticipated. The proposed project would not increase the wastewater treatment capacity of the SEP because the existing SEP design capacity is able to handle projected loads through 2045.

Proposed changes in entrances/exit locations and to on-site circulation would alter traffic patterns associated with the SEP's operations, shifting some truck traffic off of Jerrold Avenue and onto Rankin Street. The number of daily truck trips required for biosolids processing and disposal would remain substantially similar to existing conditions.

PERMITS AND APPROVALS REQUIRED

The permits and approvals needed for the project will be confirmed during EIR preparation. Below is a preliminary identification of potential approvals needed for project construction and operation. This list is not intended to be inclusive of all permits required.

- Bay Area Air Quality Management District – Authority to Construct and Permit to Operate

- State Water Resources Control Board:
  - Construction General Permit and Stormwater Pollution Prevention Plan, if more than one acre of land were disturbed[18]
  - State Revolving Fund (SRF) Loan Program requirements (e.g., consultation regarding Section 106 of the National Historic Preservation Act)
- San Francisco Port Commission – Approval of use of Pier 94 Backlands for construction staging
- San Francisco Bay Conservation and Development Commission – Potential approval of Pier 94 Backlands for construction staging if property is within 100 feet of the Bay shoreline (most of the Port Pier 94 property is not within BCDC jurisdiction)

ENVIRONMENTAL REVIEW PROCESS

The San Francisco Planning Department is preparing an EIR to evaluate the environmental effects of the proposed project on the environment. The EIR will be prepared in compliance with CEQA (California Public Resources Code, Sections 21000 *et seq.*), the *CEQA Guidelines*, and Chapter 31 of the San Francisco Administrative Code, and will address project-specific construction and operational impacts of the BDFP. The EIR is an informational document for use by governmental agencies and the public to aid in the planning and decision-making process. The EIR will disclose the physical environmental effects of the project and identify possible ways of reducing or avoiding potentially significant impacts.

Summary of Potential Environmental Issues

The proposed project could result in potentially significant environmental effects. The Planning Department will prepare an EIR to evaluate the physical environmental effects of the proposed project. As required by CEQA, the EIR will examine potentially significant effects, identify mitigation measures, and analyze whether the proposed mitigation measures would reduce the environmental effects to a less than significant level.

The EIR will address various environmental topics, each briefly summarized below.

Land Use and Land Use Planning

The topic of Land Use and Land Use Planning will describe existing land uses on and near the project site and analyze whether the proposed project would physically divide an established community or result in land use conflicts or with land use plans adopted in the project vicinity.

Aesthetics

Project construction and operation could affect aesthetics at the project site and surrounding areas. Potential impacts to be evaluated include impacts on scenic vistas or visual character.

Population and Housing

The topic of Population and Housing will include analysis of the proposed project's potential impact related to population, employment, and housing.

[18] Applicable to areas that do not drain to the City's combined sewer system; therefore not applicable to the project site but potentially applicable to the Pier 94 Backlands staging area.

Cultural and Paleontological Resources

The EIR will assess the potential for the project to result in significant impacts to paleontological, archeological, and historical resources, including historic and prehistoric archeological deposits and historic buildings or structures ("historical resources"). The EIR will describe the historical resources and potential historical resources on the project site, assess the potential for subsurface archaeological resources to be present, and identify potential impacts of the project on these resources.

There are no known archaeological resources on the site surface. The three Central Shops buildings at 1800 Jerrold Avenue have been evaluated and two are considered historical resources under CEQA. The proposed project would demolish these buildings. The EIR will include an assessment of the significance of this impact.

The potential for effects of project-related excavation on subsurface paleontological resources (fossil plant or animal remains) also will be analyzed.

Transportation and Circulation

Once the proposed BDFP is in full operation, employee and truck trips associated with biosolids processing and disposal are expected to be substantially similar to existing conditions. During project construction, SFPUC would temporarily close Jerrold Avenue adjacent to the SEP, and also occupy a segment of Quint Street that is expected to be permanently closed to through traffic in October 2015. Project construction would generate new traffic to and from the project site, including off-site construction staging areas, and would increase transit ridership and parking and loading demand. A Transportation Impact Study will be prepared for the proposed project in accordance with the Planning Department's Transportation Guidelines for Environmental Review (October 2002). The study will include an analysis of specific transportation impacts and mitigation measures associated with the proposed facility's operations and construction-period impacts. The study will also analyze transit conditions, pedestrian and bicycle conditions, loading, and emergency access, and evaluate cumulative effects of anticipated development and changes in traffic circulation in the vicinity of the SEP. The EIR will summarize the findings of the transportation study.

Noise

The EIR will include analysis of noise compatibility standards for residential and other land uses, and discuss the long-term impacts of noise and groundborne vibration that could result from the proposed project. Short-term construction-related noise impacts also will be described, and the analysis will evaluate the potential for noise from the project to adversely affect nearby sensitive land uses.

Air Quality/Odor

The EIR will include analysis of consistency of the proposed project with applicable air quality plans and standards, the potential for the proposed project to result in emissions of criteria air pollutants and toxic air contaminants (TACs) at levels that may affect sensitive populations, as well as the potential for the project to result in sources of odors affecting a substantial number of people. The air quality analysis will include quantification of both construction-related and operational air pollutant emissions, and will evaluate potential health risk effects from emissions of TACs, including effects on residents near the project site. The air quality analysis will also include a discussion of the existing conditions at the project site, including the Air Pollutant Exposure Zone, and compliance with the Clean Construction Ordinance.

Greenhouse Gas Emissions

The topic of Greenhouse Gas Emissions will include an analysis of the proposed project's consistency with the City's Greenhouse Gas Reduction Strategy and the degree to which the proposed project's greenhouse gas emissions could result in a significant effect on the environment.

Wind and Shadow

Construction of aboveground project facilities could result in wind and shadow effects. Potential effects to be evaluated include alteration of wind in a manner that substantially affects public areas, and creation of new shadow in a manner that substantially affects outdoor recreation facilities or other public areas.

Recreation

The topic of Recreation will include an analysis of whether the proposed project could adversely affect existing parks and open spaces such that substantial physical deterioration of recreational facilities would occur or require the construction or expansion of recreational facilities.

Utilities and Service Systems

The proposed project involves improvements to the wastewater treatment system. The topic of Utilities and Service Systems will include an assessment of whether the proposed project would require the construction of new water supply and/or stormwater drainage facilities, and if so, whether that construction could result in adverse environmental effects. The analysis will also identify the potential for utility disruptions during construction. The topic will also discuss disposal of solid waste generated by the proposed project and potential effects on landfill capacity.

Public Services

The topic of Public Services will include analysis of whether existing public services (e.g., schools, police and fire protection, etc.) would be adversely affected by the proposed project during construction or operation. The analysis will determine whether project implementation would result in an inability of service providers to maintain adequate levels of service and/or a need for new or expanded facilities, the construction of which could result in adverse environmental effects.

Biological Resources

The topic of Biological Resources will include analysis of potential project effects on important biological resources or habitats, including tree removal, or the movement of any native resident or migratory bird species.

Geology, Soils, and Seismicity

The topic of Geology and Soils will include an analysis related to the susceptibility of the project site to seismic activity, liquefaction, landslides, erosion, soil stability, and consequent risks to life or property.

Hydrology and Water Quality

The topic of Hydrology and Water Quality will assess the potential for the proposed project to impact water quality standards or waste discharge requirements or result in adverse effects on groundwater. The analysis will also consider the degree to which the proposed project could affect drainage patterns or create water runoff that could affect stormwater drainage systems. Finally, the analysis will consider the potential of the project to expose people or structures to a significant risk of loss, injury or death involving flooding, including potential effects of sea level rise.

Hazards and Hazardous Materials

Studies prepared for the project site indicate the presence of contamination, including the potential for contaminated soils and groundwater. Project construction (mainly excavation) would result in the removal and cleanup of existing hazardous materials at the project site, but could temporarily expose people to those existing hazardous materials. Construction and operation of the proposed project would require the use of hazardous material, including fuels. Potential effects to be evaluated in the EIR include: creation of a significant hazard through the routine transport, use, or disposal of hazardous materials; creation of a significant hazard through upset or accident conditions involving the release of hazardous materials; emission of hazardous materials within the vicinity of a school; creation of a significant hazard associated with existing hazardous materials sites; conflict with adopted emergency response plan or evacuation plan; and exposure of people or structures to fires.

Mineral/Energy Resources

The EIR will include analysis of potential project impacts on existing mineral and energy resources.

Agriculture and Forestry Resources

The EIR will address the potential for the project to affect existing agricultural and forest resources.

Alternatives

Pursuant to CEQA, the EIR also will analyze a range of alternatives that would reduce or avoid significant environmental impacts identified in the EIR, including a No Project Alternative, as described in CEQA Guidelines Section 15126.6.

Other CEQA Considerations

The EIR will address other topics required by CEQA, including growth-inducing impacts. The EIR will also analyze significant unavoidable impacts; significant irreversible impacts; any known controversy associated with environmental effects; issues to be resolved by the decision-makers; and the potential for the project to contribute to significant cumulative effects.

FINDING

This project may have a significant effect on the environment and an Environmental Impact Report is required. This determination is based upon the criteria of the State of California Environmental Quality Act (CEQA) Guidelines, Sections 15063 (Initial Study), 15064 (Determining Significant Effect), and 15065 (Mandatory Findings of Significance), and for the reasons documented in the above project description and description of potential environmental effects.

June 24, 2015
Date

Sarah B. Jones
Environmental Review Officer

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board

JUL 2 3 2015

Mr. Steve Smith
City and County of San Francisco
1650 Mission Street, Suite 400
San Francisco, CA 94103-2479

Dear Mr. Smith:

NOTICE OF PREPARATION (NOP) FOR THE CITY AND COUNTY OF SAN FRANCISCO (CITY AND COUNTY); BIOSOLIDS DIGESTER FACILITIES PROJECT (PROJECT); SAN FRANCISCO COUNTY; STATE CLEARINGHOUSE NO. 2015062073

We understand that the City and County are pursuing Clean Water State Revolving Fund (CWSRF) financing for this Project. As a funding agency and a state agency with jurisdiction by law to preserve, enhance, and restore the quality of California's water resources, the State Water Resources Control Board (State Water Board) is providing the following information on the NOP to be prepared for the Project.

The State Water Board, Division of Financial Assistance, is responsible for administering the CWSRF Program. The primary purpose for the CWSRF Program is to implement the Clean Water Act and various state laws by providing financial assistance for wastewater treatment facilities necessary to prevent water pollution, recycle water, correct nonpoint source and storm drainage pollution problems, provide for estuary enhancement, and thereby protect and promote health, safety and welfare of the inhabitants of the state. The CWSRF Program provides low-interest funding equal to one-half of the most recent State General Obligation Bond Rates with a 30-year term. Applications are accepted and processed continuously. Please refer to the State Water Board's CWSRF website at:
www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/index.shtml.

The CWSRF Program is partially funded by the United States Environmental Protection Agency and requires additional "CEQA-Plus" environmental documentation and review. Three enclosures are included that further explain the CWSRF Program environmental review process and the additional federal requirements. For the complete environmental application package, please visit:
http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/srf_forms.shtml. The State Water Board is required to consult directly with agencies responsible for implementing federal environmental laws and regulations. Any environmental issues raised by federal agencies or their representatives will need to be resolved prior to State Water Board approval of a CWSRF financing commitment for the proposed Project. For further information on the CWSRF Program, please contact Mr. Ahmad Kashkoli, at (916) 341-5855.

It is important to note that prior to a CWSRF financing commitment, projects are subject to provisions of the Federal Endangered Species Act (ESA), and must obtain Section 7 clearance from the United States Department of the Interior, Fish and Wildlife Service (USFWS), and/or the United States Department of Commerce National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) for any potential effects to special-status species.

Please be advised that the State Water Board will consult with the USFWS, and/or the NMFS regarding all federal special-status species that the Project has the potential to impact if the Project is to be financed by the CWSRF Program. The City and County will need to identify whether the Project will involve any direct effects from construction activities, or indirect effects such as growth inducement, that may affect federally listed threatened, endangered, or candidate species that are known, or have a potential to occur in the Project site, in the surrounding areas, or in the service area, and to identify applicable conservation measures to reduce such effects.

In addition, CWSRF projects must comply with federal laws pertaining to cultural resources, specifically Section 106 of the National Historic Preservation Act (Section 106). The State Water Board has responsibility for ensuring compliance with Section 106, and must consult directly with the California State Historic Preservation Officer (SHPO). SHPO consultation is initiated when sufficient information is provided by the CWSRF applicant. If the City and County decides to pursue CWSRF financing, please retain a consultant that meets the Secretary of the Interior's Professional Qualifications Standards (http://www.nps.gov/history/local-law/arch_stnds_9.htm) to prepare a Section 106 compliance report.

Note that the City and County will need to identify the Area of Potential Effects (APE), including construction and staging areas, and the depth of any excavation. The APE is three-dimensional and includes all areas that may be affected by the Project. The APE includes the surface area and extends below ground to the depth of any Project excavations. The records search request should extend to a ½-mile beyond Project APE. The appropriate area varies for different projects but should be drawn large enough to provide information on what types of sites may exist in the vicinity.

Other federal environmental requirements pertinent to the Project under the CWSRF Program include the following (for a complete list of all federal requirements please visit: http://www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/docs/forms/application_environmental_package.pdf):

A. Compliance with the Federal Clean Air Act: (a) Provide air quality studies that may have been done for the Project; and (b) if the Project is in a nonattainment area or attainment area subject to a maintenance plan; (i) provide a summary of the estimated emissions (in tons per year) that are expected from both the construction and operation of the Project for each federal criteria pollutant in a nonattainment or maintenance area, and indicate if the nonattainment designation is moderate, serious, or severe (if applicable); (ii) if emissions are above the federal de minimis levels, but the Project is sized to meet only the needs of current population projections that are used in the approved State Implementation Plan for air quality, quantitatively indicate how the proposed capacity increase was calculated using population projections.

B. Compliance with the Coastal Zone Management Act: Identify whether the Project is within a coastal zone and the status of any coordination with the California Coastal Commission.

C. Protection of Wetlands: Identify any portion of the proposed Project area that should be evaluated for wetlands or United States waters delineation by the United States Army Corps of Engineers (USACE), or requires a permit from the USACE, and identify the status of coordination with the USACE.

D. Compliance with the Farmland Protection Policy Act: Identify whether the Project will result in the conversion of farmland. State the status of farmland (Prime, Unique, or Local and Statewide Importance) in the Project area and determine if this area is under a Williamson Act Contract.

E. Compliance with the Migratory Bird Treaty Act: List any birds protected under this act that may be impacted by the Project and identify conservation measures to minimize impacts.

F. Compliance with the Flood Plain Management Act: Identify whether or not the Project is in a Flood Management Zone and include a copy of the Federal Emergency Management Agency flood zone maps for the area.

G. Compliance with the Wild and Scenic Rivers Act: Identify whether or not any Wild and Scenic Rivers would be potentially impacted by the Project and include conservation measures to minimize such impacts.

Following are specific comments on the City and County's NOP:

1. In Table 2 on page 11, in addition to a column indicating Maximum Height above Grade (feet), please provide an indication of the maximum depth below grade for excavations where applicable.
2. Information presented on the depth below grade for the digester tanks is not consistent. On page 7 under Digestion and Biosolids Storage 45 feet below grade is indicated, and structures in the fourth paragraph on page 16 up to 48 foot depth is indicated at the location of the proposed digester tank; please clarify which is correct, and provide an estimate of the cubic yards of soil to be removed.
3. On page 12 regarding Figure 5, please indicate an estimated percent design in reference to the figure illustrations.
4. On page 14 regarding removal and replacement of street trees in the EIR, please discuss the types of trees that will be used in the re-vegetation effort and a timetable for re-vegetation activities. Please provide a brief description of the Tree Protection Zone and how the trees that are adjacent to construction will be protected if they are not proposed for removal. Please address compliance measures to the Migratory Bird Treaty Act in removal of tree from the project area.

Please provide us with the following documents applicable to the proposed Project following the City and County's California Environmental Quality Act (CEQA) process: (1) one copy of the draft and final EIR, (2) the resolution adopting/certifying the EIR and making CEQA findings, (3) all comments received during the review period and the City and County's response to those comments, (4) the adopted Mitigation Monitoring and Reporting Program (MMRP), and (5) the Notice of Determination filed with the San Francisco County Clerk and the Governor's Office of Planning and Research, State Clearinghouse. In addition, we would appreciate notices of any hearings or meetings held regarding environmental review of any projects to be funded by the State Water Board.

Thank you for the opportunity to review the City and County's NOP. If you have any questions or concerns, please feel free to contact me at (916) 341-5879, or by email at Susan.Stewart@waterboards.ca.gov, or contact Ahmad Kashkoli at (916) 341-5855, or by email at AKashkoli@waterboards.ca.gov.

Sincerely,

Susan L. Stewart

Susan L. Stewart
Environmental Scientist

Enclosures (3)

1. Clean Water State Revolving Fund Environmental Review Requirements
2. Quick Reference Guide to CEQA Requirements for State Revolving Fund Loans
3. Basic Criteria for Cultural Resources Reports

cc: State Clearinghouse
(Re: SCH# 2015062073)
P.O. Box 3044
Sacramento, CA 95812-3044

DEPARTMENT OF TRANSPORTATION
DISTRICT 4
P.O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 286-5528
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TTY 711
www.dot.ca.gov

Serious Drought.
Help save water!

July 23, 2015

SFVAR018
SCH# 2015062073

Mr. Steve Smith
Planning Division
City and County of San Francisco
1650 Mission Street, Suite 400
San Francisco, CA 94103

SFPUC Biosolids Digester Facilities Project – Notice of Preparation

Dear Mr. Smith:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the project referenced above. The proposed Project would construct new solids treatment, odor control, energy recovery, and associated facilities at the San Francisco Public Utilities Commission's (SFPUC's) Southeast Water Pollution Control Plant located in the Bayview District. Regional access from Interstate 280 (I-280) and U.S. Highway 101 (U.S. 101) is provided approximately one mile northeast via Cesar Chavez Street. Our comments seek to promote the State's new mission, vision, and smart mobility goals for sustainability, livability, economy, safety and health. We have reviewed the Notice of Preparation and have the following comments to offer.

Transportation Impact Study
A Transportation Impact Study, as cited in the Notice of Preparation, should provide a thorough analysis of multi-modal travel demand generated by the proposed development. We are in the process of updating our *Guide for the Preparation of Traffic Impact Studies* (TIS Guide) for consistency with SB 743, but meanwhile recommend using the Caltrans TIS Guide for determining which scenarios and methodologies to use in the analysis, available at: http://dot.ca.gov/hq/tpp/offices/ocp/igr_ceqa_files/tisguide.pdf. We encourage early collaboration, such as submitting the traffic study prior to the environmental document, to provide Caltrans an opportunity to discuss appropriate methodology and lead to better outcomes for all stakeholders.

The Transportation Impact Study should include:

1. Vicinity map, regional location map, and a site plan clearly showing project access in relation to nearby State roadways. Ingress and egress for all project components on State right-of-way

(ROW) should be clearly identified. Project driveways, construction staging, local roads and intersections, car/bike parking, and transit facilities should be mapped.

2. Project-related trip generation, distribution, and assignment including per capita use of transit, rideshare or active transportation modes and VMT reduction factors. An assessment of 2035 Cumulative and 2035 Cumulative Plus Project conditions. Calculation of cumulative traffic volumes should consider all traffic-generating developments, both existing and future that would affect study area roadways and intersections. Potential safety issues for all road users during operation and construction-periods should be identified and fully mitigated. The assumptions and methodologies used to develop this information should be detailed in the study, utilize the latest place-based research, and be supported with appropriate documentation.

3. Schematic illustration of walking, biking and auto conditions at nearby State facilities and study area roadways, trip distribution percentages and volumes as well as intersection geometrics, i.e., lane configurations, for AM and PM peak periods.

4. The project site building potential as identified in the General Plan. The project's consistency with both the Circulation Element of the General Plan and the Congestion Management Agency's Congestion Management Plan should be evaluated.

Transportation Management Plan
A Transportation Management Plan (TMP) or construction TIS may be required of the City for approval by Caltrans prior to construction where traffic restrictions and detours affect State highways. TMPs must be prepared in accordance with California *Manual on Uniform Traffic Control Devices.* Please ensure that such plans are also prepared in accordance with the transportation management plan requirements of the corresponding jurisdictions. For further TMP assistance, please contact the Office of Traffic Management Plans/Operations Strategies at 510-286-4579. TMP Information is also available at the following web address: http://www.dot.ca.gov/hq/traffops/engineering/mutcd/pdf/camutcd2014/Part6.pdf.

Transportation Permit
Project work that requires movement of oversized or excessive load vehicles on State roadways requires a transportation permit that is issued by Caltrans. To apply, a completed transportation permit application with the determined specific route(s) for the shipper to follow from origin to destination must be submitted to: Caltrans Transportation Permits Office, 1823 14th Street, Sacramento, CA 95811-7119. See the following website for more information: http://www.dot.ca.gov/hq/traffops/permits.

Hazardous Materials
All motor carriers and drivers involved in transportation of hazardous materials must comply with the requirements contained in federal and State regulations, and must apply for and obtain a

hazardous materials transportation license from the California Highway Patrol (CHP). When transporting certain types of hazardous materials including inhalation hazards, safe routing and safe stopping places are required. A route map must be carried in the vehicle. More information is available on the following CHP website: http://www.chp.ca.gov/publications/#hazmat.

Mitigation Responsibility
As the lead agency, the City and County of San Francisco is responsible for identifying and ensuring the coordinated implementation of all project mitigations. The project's fair share contribution, financing, scheduling, implementation responsibilities associated with planned improvements on Caltrans ROW should be listed, in addition to identifying viable funding sources per General Plan Guidelines.

Should you have any questions regarding this letter or require additional information, please contact Sherie George at (510) 286-5535 or by email at: sherie.george@dot.ca.gov.

Sincerely,

PATRICIA MAURICE
District Branch Chief
Local Development - Intergovernmental Review

c: State Clearinghouse

From:	Jones, Sarah (CPC)
To:	Smith, Steve (CWP)
Subject:	FW: Biosolids Digester Facilities Project
Date:	Wednesday, July 22, 2015 3:47:19 PM
Attachments:	image005.png

Sarah Bernstein Jones
Environmental Review Officer
Director of Environmental Planning

Planning Department | City and County of San Francisco
1650 Mission Street, Suite 400, San Francisco, CA 94103
Direct: 415-575-9034 | Fax: 415-558-6409
Email: sarah.b.jones@sfgov.org
Web: www.sfplanning.org

From: Mark Klaiman [mailto:Mark@petcamp.com]
Sent: Wednesday, July 22, 2015 3:46 PM
To: Jones, Sarah (CPC)
Subject: Biosolids Digester Facilities Project

Ms. Jones:

I am submitting comments on the Notice of Preparation of an Environmental Impact Report and Notice of Public Scoping Meeting for the Biolsolids Digester Facilities Project. Unfortunately I was unable to attend the Scoping Meeting on July 16, 2015.

For the past 18 years I have run Pet Camp, an overnight and day care facility for dogs and cats, at 525 Phelps Street. We are located directly across the street from the Southeast Treatment Facility. I am very concerned about the potential impact of massive increase in truck and other traffic associated with construction of the new digesters will have on my and other small business on Phelps Street as well as on the safety of my customers.

Pet Camp is a destination location for San Francisco's families with dogs and cats. Every day of the week, we are open 7 days a week, our customers arrive in their cars, often with children in tow, to pick up and drop off their pets. Phelps Street is a narrow street already designated as a bicycle route and is in no condition to safely handle an increase in traffic. There is no traffic calming on Phelps Street and not even a stop sign between Evans and Jerrold which results in traffic traveling at too high a rate of speed for our narrow street.

I highly encourage you to evaluate and select a route for trucks and other vehicles needed for this project that does not include the use of Phelps Street.

Respectfully,

Mark

San Francisco's Most Award Winning Pet Care Facility

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2012 San Francisco Small Business Advocate of the Year
2015, 2014, 2013, 2012, 2011, 2010, 2008, 2007 & 2006 San Francisco's Best Overnight and Day Care Facility (no voting in 2009)
2008 San Francisco Green Business of the Year
2007 San Francisco Chamber of Commerce Excellence in Business Winner
2005 San Francisco Small Business of the Year

Mark Klaiman
Senior Counselor
Pet Camp
www.petcamp.com

Main Campground
525 Phelps Street
San Francisco, CA 94124
(415) 282-0700

Cat Safari
3233 Sacramento Street
San Francisco, CA 94115
(415) 567-0700

Mitigation by San Francisco Foliage makes a difference

CREATING JOBS FOR THE COMMUNITY

- Over 50% of employees are from Bayview-Hunter's Point (zip code 94124)
- Over 80% are people of color
- San Francisco Foliage has paid over $4 million in wages to resident employees

CREATING OPPORTUNITIES FOR YOUTH

- San Francisco Foliage funds an internship program for at risk youth
- SFF hosts a Five Keys Charter School on-site in the community greenhouse
- SFF pays intern wages 100%, and all program costs
- Interns work part-time while earning credit toward a diploma or GED
- Over 30 young people interned at San Francisco Foliage since 2009
- 9 interns earned high school diplomas or GED
- Currently, 10% of SFF employees are graduates of the internship program

THE FRONT LINES OF MITIGATION

- Over 28% of San Francisco Foliage employee are student interns
- 80% of interns were from Bayview-Hunter's Point (94124)
- 40% of employees are women
- 20% of employees are LGBT

THE COMMUNITY GREENHOUSES ARE A STAGING SITE FOR LIFE

- Three different languages are spoken at SF Foliage
- On-site ESL classes are free
- We offer on-site GED prep for all employees without a HS diploma
- 25% of full time employees are enrolled in onsite educational services

A RECORD OF MITIGATION ACHIEVEMENT AND AWARDS

San Francisco Foliage is:

- A certified Local Business Entity with the City of San Francisco
- Certified by the San Francisco Human Rights Commission
- A proud recipient of the 2015 Local Business Pioneer Award from the San Francisco Housing Development Corporation

IN CONCLUSION:

- **I SEE THE GREENHOUSE AS A SITE FOR LIFE WHERE PEOPLE AND FAUNA FLOURISH. IF THE GREENHOUSE IS DEMOLISHED, the continuity of a solemn accord with the people of Bayview will be broken. I ask is this necessary?**

san francisco foliage
Experienced Nursery Professionals Dedicated to Quality Products and Exceptional Service.
1150 Phelps Street
San Francisco, CA 94124
agreenplanet.com
(T) 415-648-4406
(F) 415-648-4428
Sales@agreenplanet.com

SAN FRANCISCO PLANNING DEPARTMENT

PUBLIC SCOPING MEETING

ENVIRONMENTAL IMPACT REPORT

SOUTHEAST PLANT

BIOSOLIDS DIGESTER FACILITIES PROJECT

---o0o---

Thursday, July 16, 2015

Alex Pitcher Room

Southeast Community Facility

1800 Oakdale Avenue

San Francisco, California

REPORTED BY: DEBORAH FUQUA, CSR #12948

A P P E A R A N C E S

SAN FRANCISCO PLANNING COMMISSION:

Steven Smith, EIR Coordinator

SAN FRANCISCO PUBLIC UTILITIES

Carolyn Chiu, Project Engineer

Rosanna Tse, Project Manager

ESA

Leslie Moulton

Jill Hamilton

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Thursday, July 16, 2015 6:30 o'clock p.m.

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P R O C E E D I N G S

STEVEN SMITH: Testing, testing.

Welcome, everybody, to tonight's scoping meeting for the San Francisco PUC's Biosolids Digester Facilities Project. My name is Steven Smith. I'm with the San Francisco Planning Department, and I'm the environmental coordinator for this project. And I'll also be the moderator for tonight's scoping meeting.

Just a couple reminders, if you haven't, we would love it if you would sign in at the table by the entrance there. There are some meeting materials that you might find helpful. The Notice of Preparation has a good project description, for example.

Uhmm, and if anybody would like to speak tonight, we'd ask you fill out a speaker card. And if you don't want to speak tonight, you can of course make written comments either tonight or by July 27th is the deadline when scoping period ends.

I also want to let people know that there's a court reporter here tonight that's transcribing everything I say and anything anybody else might say for public input. And that will become part of the administrative record for the project. And I would ask

that, if people have comments, they hold off until the end of this presentation.

So after the introductions, I'll do a brief overview of the environmental review process, which hopefully will help inform your scoping comments tonight. Some staff from PUC will then present on the project description.

And then the reason why we're here is to take public comments. So that's the main portion of tonight. And then, following that, I'll have a few closing remarks to finish things up.

So, again, my name is Steven Smith. I'm with the San Francisco Planning Department. I'm the environmental review coordinator for the project. We have our consultants here tonight from ESA -- Jill Hamilton in the back there; Leslie Moulton is sitting at the table there. They're our -- we consider them an extension of our staff at the Planning Department and play a key role in the project as well.

From PUC Carolyn Chiu is the project manager. Rosanna Tse is here somewhere -- there she is. She's the project engineer.

Karen Frye is my counterpart at the PUC. She's actually not here tonight, but I did want to make note of her name. And then also Maureen Barry is the

PUC communication staff.

So I'll just talk a little bit about the environmental review process in these next few slides. And, again, my intention is to help kind of focus your comments tonight in terms of the scope of the environmental review process and explain the background of why we're here.

So the California Environmental Quality Act, or CEQA as it's usually referred to, is a state law, essentially requires the disclosure of environmental impacts prior to a public agency approving a project.

And in the City of San Francisco, the Planning Department is the lead agency for all CEQA projects. So we have the lead role in the environmental analysis required by CEQA. And in this case, the PUC is the project sponsor. So the Planning Department handles CEQA and the PUC is the sponsor of the project.

So essentially what CEQA's trying to achieve, as I mentioned, is a disclosure of environmental impacts. That's really kind of a primary objective of CEQA. Typically, in so doing, when we -- as we disclose environmental impacts and analyze them, we often find ways to avoid or reduce those impacts.

As well, the CEQA process is a good mechanism for promoting public participation, for example,

tonight and also provides a good way to communicate and cooperate with the various agencies that might be involved with the project and might have, for example, a permit that needs to be issued for the project to proceed. They rely on our analysis, and also other agencies will provide input about our analysis.

So for this project, we will be preparing an environmental impact report or an EIR. And the EIR will provide a very detailed project description of the project, a thorough analysis of all the environmental effects. We'll identify ways to reduce or avoid the significant effects that are identified. And we'll also formulate a range of alternatives that could meet most or all of the project objectives but could also potentially reduce or avoid some of the significant effects associated with the proposed project.

So as you can see, this environmental impact report will cover pretty much the full gamut of issues that are included in the CEQA guidelines. So in that regard, any input you have in terms of the scoping meeting tonight, any environmental topic that might be of concern to you, each of these issue areas will be addressed in some fashion in the EIR that will be published.

So the schedule. The notice of preparation

was issued on June 24th. So we're really just now at the beginning of the environmental review process. We're here tonight, of course, for the public scoping meeting. And I do want to note that July 27th is when the scoping period ends. So if you do decide to submit written comments, please keep that in mind. Close of business Monday, July 27th is our deadline.

Then following that, next summer we expect a Draft EIR to be published. And I would note also that's an additional opportunity for public comments. We'll circulate that Draft EIR for 45 days and solicit comments from the public and agencies.

We'll then create a responses to comments document and respond to all comments that we received, package that together with the Draft EIR, and then present that to the Planning Commission for final certification, we expect, in summer of 2017 is the current schedule.

So why we're here tonight really is to hear from you all. It's specifically on the scope of environmental review. And when I refer to the scope of environmental review, to be a little bit more clear what I'm referring to, for example, is environmental effects, you know, concerns you may have about noise, air quality, traffic, that kind of thing. You may have

ideas or thoughts about the types of alternatives to the proposed project, the way we go about analyzing the impacts, mitigation measures that could be helpful to reduce or avoid some of the impacts. So these are the general categories that are most pertinent to tonight's scoping meeting. So keep that in mind when you're making your comments.

With that, I want to turn it over to Carolyn Chiu. She's going to provide an overview of the proposed project. And then I'll come back, and we can open things up for scoping comments.

CAROLYN CHIU: Thanks, Steve.

As we mentioned at the beginning, I'm Carolyn Chiu, and I'm the project manager for the biosolids digester facility project. So this project is one of the projects in the PUC Sewer System Improvement Program, also known as the SSIP.

This is a multi-billion, 20-year program to address wastewater infrastructure -- the aging infrastructure in our wastewater system and ensure a reliable and seismically safe infrastructure from now and going forward in the future.

So here is just a map of the project location, right here. So the orange represents the proposed project site, kind of in and adjacent to the existing

southeast plant, which is outlined here in black. And the purple shaded areas is proposed staging areas at the SFPUC greenhouses and this Pier 94 backlands.

I also wanted to note, you know, at this backlands area, we are proposing off-site parking for, like, the construction worker personal vehicles, with the plan to shuttle them here, a little less than a mile to the plant during the construction phase.

So here's a kind of a closer look of that -- the project site. Once again, the orange represents the project site. This is 1800 Jerrold; this is 1801 and then obviously the parcels within the southeast plant. The purple again is the staging area. But I'd also want to point out this staging area along the -- that's also purple, the Jerrold Street, because we're proposing to temporarily close that portion of Jerrold during the construction to promote construction safety as well as public safety during the construction phase.

Also, you know, looking kind of -- this is a good place to actually talk about the southeast treatment plant. This kind of large, outlined in black, that is the existing southeast treatment plant. I think some of you know this is one of the two full-time facilities we have to treat the city's wastewater and storm water. But this treats 80 percent

of the city's -- and meets 80 percent of the city's needs. So you can see that it's really essential to our system and pretty much the backbone of our wastewater infrastructure.

So the purpose of this biosolids project we're here to talk about tonight is to basically address the existing solids processing facility, which is what is outlined here in yellow. So basically that is the half of the plant that treats the wastewater solids, meaning the solids removed from the wastewater drain.

Through this process, we break down and neutralize the solids, thus producing biosolids. So basically, biosolids is treated wastewater solids.

So why do we need this project? Why are we doing this? The existing digesters are over 60 years old. They were built in 1952. So we need this project to ensure that we have a biosolids treatment facility that's operational and reliable, seismically robust to address city future needs, regulatory requirements, and obviously we want to utilize modern efficient technologies going forward.

We also want to promote sustainability by reusing resources wherever we can, ensuring 100 percent beneficial use of biosolids and then the biogas we produce at the southeast plant. You know, the

biosolids, once treated, is a very nutrient-rich soil product, so very useful in agricultural and horticultural applications, soil amendments, compost, fertilizer.

Similarly biogas, which is a byproduct of the digestion process, is very energy rich. So it can be converted to energy or other heat sources. So it would really be a shame to waste it.

And then lastly, you know, we need to improve the odor and visual and noise quality, you know, as a part of this project, something -- at least improvements over what's there now.

So key features. You know, I talked about modern and efficient improvement technologies. Well, part of this project will include those types of technologies for screening, thickening, thermal hydrolysis, digestion, and dewatering.

Also, I mean, here's just a kind of a snapshot of some other features. There will be six digesters at 1.3 million gallons. I want you to understand that, right now, we have ten digesters at 2 million gallons each. So you can see with the technology that we're proposing, you get more -- better breakdown of the solids so that the digestion itself requires less volume.

Similarly, biosolids trucks are eight to ten per day in the new project. I want to remind people that currently we do seven to nine trucks per day. So it's not that much of a difference in the new facility.

Electricity, you know, through the biogas, we will generate five megawatts. Right now, we generate two.

And then odor control, you know, we had a goal to have no noticeable odors from this project at the fence line.

And then included were also architectural improvements within the southeast treatment plant at the new facility. And also we're looking at landscape and street improvements along Jerrold Avenue. And then we're also -- you know, a key note I also wanted to leave with is that we anticipate no change in the staffing levels at the treatment plant.

So this is a preliminary site plan. I won't go through all of it here, but I did want to point out a couple key features.

So right here at 1801 Jerrold, this is where -- at this triangle is where we're going to locate that energy recovery, where we're going to take biogas and make it into electricity for our use on the site.

Also this here is the location -- you'll see the digesters is proposed to line them up linearly, parallel to the railroad track. I want to note this is the farthest away you can get from the neighbors, probably over 1,000 feet. I think, right now, the current digesters are kind of down here, off the map; they are less than 100 feet away from the closest neighbors.

The other thing was, you know, I also wanted to point out, I talked about odors in the last slide. Here, you can't tell, but these are light blue, these two squares here. We have two distinct odor control systems to support this new facility to basically capture and treat the processed air.

One other thing, as part of our planning, we also looked at how vehicular traffic moves in and out of the plant. And one of the things we're proposing is to shift it where, you know, the main gate goes out of Rankin through Evans away from where it currently is, which is more along Jerrold and Phelps. So basically moving it away from the residents and directing it towards Evans Street, which is probably a better place to accommodate because it's more of an industrial street.

And here what I'm showing you is a kind of a

preliminary aerial layout. Once again, here are those digesters parallel to the railroad track. And just to kind of orient you, you're standing with your back to Evans Street in this picture. Although, you know, these are shown as cylindrical now, right now we have not made a decision on digester shape. And height, as shown here, are all within the zoning limits within this area at 65 feet.

And project construction. The construction duration will take five years. And we anticipate starting in July 2017. We see that there's going -- we estimate about 200,000 square feet of new construction with 100,000 square feet of demolition.

I already mentioned that we are looking at having off-site parking of personal vehicles from the construction workers be at Pier 94. But just to kind of -- but on a typical, you know, construction day, we're looking at about 50 truck trips per day for deliveries of equipment and materials to support the construction. But during peak construction, meaning during when we're hauling debris, excavated soil, there could be up to 200 to 250 trucks per day from -- for probably about six months out of that five-year period.

Construction times, work periods, typically, we're looking at Monday through Friday, 7:00 a.m. to

3:00 with an occasional Saturday. And if we had to do any kind of Sunday or holiday or 24-hour work, it would be because we had critical facility connections. And we would notify neighbors if that did happen.

And then during -- then also -- oh, and then also during peak construction, you know, when we have very intense limited-duration-type work to do, we could have two work shifts going. And that would be Monday through Saturday, 7:00 to 11:00 p.m. And it would -- and that is obviously for a short duration out of that five years.

And here is just a brief summary of the construction schedule. I mentioned that we hope to start construction in 2017. Understanding that it's a five-year period but even after construction completion is done, there is a significant period where we need to start up and test the equipment. And then, you know, two months -- or, you know, up to two years with that to have that opportunity to stabilize the new treatment process and optimize it as well. And that takes us through 2024.

STEVEN SMITH: Thank you very much, Carolyn.

So we'll open for public comments now.

Again, if anybody's interested in speaking, we do ask you submit a speaker card. A couple ground

rules here. Just, if you could state your name clearly, again, we have someone transcribing tonight, so it's good to know who's saying what. We want to be sure we're being accurate in terms of what we're noting from tonight's meeting.

UNIDENTIFIED SPEAKER: Are we able to ask questions as well?

STEVEN SMITH: Sorry, it's a one-way communication process.

Now, the comments you have and the questions you ask will be addressed in some fashion in the EIR. So that's the only question I'm going to answer tonight.

UNIDENTIFIED SPEAKER: Will they be inside the transcript?

STEVEN SMITH: Absolutely. So that I do want -- oh, I just want to note, too, of course you can submit written comments tonight and, again, up until July 27. And the last two slides I show after our public comments tonight will give the specifics regarding that. And also that information is available up at the table by the entrance there.

And two minutes is that what this slide says. We're going to say three minutes for tonight. We're not expecting a lot of speakers. So -- we're going to

give a little reorientation so we can make sure that your comments are accurately --

LESLIE MOULTON: And we'll ask that you come up to the podium. And we have a few speaker cards. You're welcome to fill them out at any time, add any comment. Okay. So Jill is in the back. If you've filled out a speaker card, we've got Jill, we've got others who will pick them up and take them forward.

Our first speaker is going to be Siri Datta Khalsa. And second one up is Ace. So if you could be getting ready to make your comments. And then Karen Pierce, in that order. Take your time. If you feel that you want to fill out a speaker card, come forward. And it's also not required that you fill out speaker card. If you feel like you want to speak, then just raise your hand, and...

Go ahead. Thank you. State your name again when you come to the podium, and then we'll take your card.

SIRI DATTA KHALSA: Hello. My name is Siri Datta Khalsa. I'm the owner of San Francisco Foliage. For the last many years, since 1989, I have been a tenant at the greenhouses here.

The greenhouses were a part of the mitigation measures that were negotiated with the community when

the facility was placed in the community.

We have tried quite diligently and persistently during that time to understand the needs of the community and to apply our efforts to a substantive mitigation. We are a small business. I would like to just read to you some of the factors that characterize our business.

Over 50 percent of our employees are from Bayview-Hunters Point; over 80 percent are people of color. We're a small business, but we have paid over $4 million in wages to residents.

I was aware -- made aware that in Bayview-Hunters Point there are some neighborhoods where youth unemployment is more than 75 percent. So we started to focus on youth employment. We offer an internship program for at-risk youth, and we partner with Five Keys Charter School. Five Keys Charter School was started -- is actually present now in the facility here.

It was started in the jails to provide educational opportunities for youth.

LESLIE MOULTON: You've got one minute.

SIRI DATTA KHALSA: We host a charter school inside the green house. We pay 100 percent of intern's wages and all program costs. Interns work part-time

while earning credit towards their diploma. Over 30 young people have interned at San Francisco Foliage since 2009. Nine interns earned their high school diplomas. Currently, 10 percent of my full-time staff were former interns.

40 percent of our employees are women. 20 percent are LGBT. Three different languages are spoken at the greenhouse: Chinese, Spanish, and English. On-site ESL classes are offered free. We offer on-site GED prep for all employees without a high school diploma. 25 percent of our full-time employees are enrolled in the educational services.

We are a certified local business entity with San Francisco. We're certified by the San Francisco Human Rights Commission. And we are a proud recipient of the 2015 Local Business Pioneer award from the San Francisco Housing Development Corporation.

In conclusion, I see the greenhouse as a site for life where people and fauna flourish. If the greenhouse is to be demolished -- and that decision has been made -- and not replaced for the duration of construction -- five to 20 years, as I understand -- the continuity of a solemn promise, a solemn accord made with the people of Bayview when the facility was first placed here will be broken.

And I simply ask is this necessary? Thank you.

LESLIE MOULTON: Thank you. Ace is next; Karen Pierce, and then Steven Tiell will be after that.

ACE WASHINGTON: Good evening, members of the audience and the City and County. My name is Ace -- better known around here as Ace on the Case.

I'm not new to this. I'm -- truth is I'm just happy to be here because I read an article in my paper of Harlan Kelly and this wastewater issue. And I come in, as soon as I walk in the door, one of your handlers -- I'm asking them is this with the City Planning Department, and they're telling me no, it's something else.

And so right then, I'm all -- I'm insulted because I ain't new to this; I'm true to this. I've been coming to these community meetings over 20-something years. So after saying that, let me say this: We here for -- on an EIR. My name is A-C-E. I'm totally shocked and saddened as an African American black Negro, however you want to clarify me, that the things that's going to be affecting and impacting our community for the next ten years, I don't see them in account here, representing or being part of these procedures. So I'm really looking for people that I

can recognize. I don't see that.

So after saying that, let me say this. Planning Commission -- this is the Planning Department, right? Is that what this department's about? Well, let me say on another parallel situation, on the planning. Because of the Planning Department is one of the issues I'm here. It goes back. It's a mystery to history on which me, as an African-American, may not even be around in the next five, ten years.

So that's why I am here and been having a platform at City Hall for a number of years since I've been involved with the outreach which has a lot to do with the Planning Department, which has a lot to do with each and every department in this city going forward on whatever five- or ten-year plan.

So I get emotional. I'm not up here because I'm -- I'm morally obligated. See, ladies and gentlemen, I'll finish with this. I represent three Cs, my children's children's childrens. So therefore, ladies and gentlemen, my name is Ace. I'm on the case. And I'm here because I am some way involved with this covering. I just thought I'd be here. And I'm just here for the procedures. Thank you much.

LESLIE MOULTON: Next up, Karen Pierce, and then

Steven Tiell, Anders & Anders.

KAREN PIERCE: Good evening. I'm Karen Pierce. I'm a native San Franciscan. I live in the 1700 block of Newcomb, which, when you drive out of the parking lot here, is right down the street.

I've lived in my house -- I bought my house 35, almost 36 years ago. So when I bought my house, this site was a wrecking yard. They were dismantling autos.

I saw -- I fought, before I moved here, with residents of this neighborhood to not allow this expansion to occur here because Bayview had more than enough burden, environmental burden already. And I didn't think that it was equitable that the expansion would occur.

There had been lots of discussion to move to the old American Can site in Potrero but Potrero Hill had more political clout than this neighborhood did. So we wound up with this, and we wound up with a benefits package that people were not completely happy with but it was something.

We have not yet received the benefit of that benefits package. This building was built with the promise that all of the space would be made available to the nonprofit organizations in the neighborhood at

either free rent or very reduced rent in acknowledgement of the needs of the neighborhood.

And thank you, sir, for your talk about the greenhouses. The greenhouses were built with the promise that an extensive training program would be developed for community residents. And that would feed those residents into jobs that included gardening jobs, which at the time were -- there were a lot of City gardeners, and they were well-paid jobs.

As soon as the building was completed, we were told the City couldn't afford it, and so we had the choice. We could allow City College to come in and rent most of the space, or they didn't know what, but they were going to have to lease it.

And we lost the Skill Center, which was in an old school building at the top of the hill, which was a facility that was serving as the one and only educational opportunity for non-skilled workers. We were promised that, if the City College moved in, the kind of programs they were going to have would take the place of the Skill Center. Okay.

So we lost the building; we lost training. We got City College to come in. The programs that they offered -- that they said they were going to offer were never offered. We did not get the training. And now

we understand that the activities that go on in this building are going to be moved down to Evans Street. And we understand that the -- the demolition of the greenhouses may mean the complete end of that. Okay.

So now we're talking about a new project. We're doing scoping. I have a list that I can read very quickly of the kinds of things that I want to be sure are looked at. But I also want to say that, in this discussion, there will be a discussion about mitigation and community benefits.

Community benefits package must acknowledge that we haven't been paid the first community benefits. We need to have PUC and the City acknowledge that and determine how we are going to get the neighborhood benefits from the first go round as well as take a look at what are the benefits that we should be getting from this because, frankly, no neighborhood wants a sewage plant. Okay?

My list: Transit. Okay? During the construction, they're going to close down Evans Street. What's going to happen to the 19 Polk? Air quality, not only the odor -- complete abatement of the odor is what we're looking for -- but dust mitigation during construction. Coordination with other construction projects because there are a number of large projects

that are not just proposed, that are moving forward, that are all right in this area that are going to impact us.

The height of the digesters is a concern. And the aesthetics of the whole place is a concern. If we have to have a sewage plant, we don't have to have it pretend to be something else, but it also should not be such an eyesore that, when we look at it, it's just one more insult. Thank you.

LESLIE MOULTON: Steven Tiell. And then we have Terry Anders and David Pilpel.

STEVEN TIELL: Good evening. Thank you, SFPUC and fellow community members. My wife and I moved here after being no-fault evicted for our third time elsewhere in San Francisco. And we were finally able to buy a home here about a month and a half ago.

A week after that, our oldest son, who's four years old, told me, "Daddy, I don't like our new home because it smells like a potty." Imagine how heartbreaking that is. And I can't really argue with him. So I'm getting engaged.

And really, you know, I hear this idea that, you know, your goal is to make the odors end at the fence line. I've had great engagement with people at the PUC -- Maureen, Rosanna, Katie, George at the

plant, Al at the PUC as well. And I'm really encouraged by the capabilities of the people that are at the table. But I really encourage you, please, don't lose sight of the community that's here.

I've lived in San Francisco for 12 years. I've consulted in cities all over the world. You know, and the social and economic justice issues that I see here have really opened my eyes to what's possible in a world class city. And I had no idea it was in my own backyard before I moved to the Bayview. And it's really astounding to me.

So the concerns that the community members are raising here today, really take to heart. You know, they're impassioned. You know, the first week we moved in, we met more neighbors than we met in four years in Bernal Heights, in five years next to Dolores Park.

The diversity is why we moved to the city to begin with. And the diversity that we saw leaving other parts of the city and why we discussed leaving the city ourselves is alive and well in Bayview. It's a community to really be cherished.

And the fact that we have this -- this -- you know, necessary piece of infrastructure for a city but really a blight on the neighborhood isn't just one item, but it's one on a whole list of things of the

social and economic justice issues that this neighborhood is enduring. And I just ask that you be cognizant of that. You really focus on this idea that, you know, people in any neighborhood in any city in any part of the world should not be subject to things like your child telling you their new neighborhood smells like a potty. It's really a horrible thing.

So thank you. And I have a lot of confidence that the PUC will rectify this issue as you move forward with the project. Thanks.

LESLIE MOULTON: Thank you.

Terry Anders. And next David Pilpel.

TERRY ANDERS: Welcome. Glad to be here. I'm Terry Anders of Anders & Anders Foundation.

When the sewage plant was built, I was part of it. It was a four-year project. Men and women in this area had first priority to jobs, the opportunity to work.

I was a steward out there with the iron workers. We had over 50 iron workers. So when we talk about the economics and what this city is about, we still need to be talking about jobs. Regardless of what and how it smells, how many people are going to be put to work?

We have the highest crime rate, and that's no

accident. So when we talk about who's going to work, every union is going to be part of this project. Historically, there's a lot of unions that keep people that look like me out of the trade.

So that's one of the benefits that we can get is an economic benefit. Every trade that's going to be part of this project should have X number of people from this neighborhood that's going to be part of the trade.

So the killings that's going on is economics. So you talking about how something smells; tell me how something looks; tell me how something feels. That people don't have the opportunity to get into a job. People don't have the opportunity to get into a trade, and they working all over this city.

How many people are in prison, stacked up like sardines? Tell me how that look. Tell me how that feels.

So when the opportunity and the economics is part of this neighborhood, we should be working. Doors open. No hesitation.

Tell me how many people is going to be making money off of this project? I want to be one of the monitors to see how many people that look like me are in these trades. That's how and why Anders & Anders

was created. I work with ex-offenders to keep them out of prison. That's what I want to hear about. What kind of financial benefits is going to happen to this neighborhood? Let me see and be part of that process.

LESLIE MOULTON: Thank you. David Pilpel. After that, we have Tracy Zhu and Andrea Tacdol.

DAVID PILPEL: Good evening. I tried to be in costume tonight.

David Pilpel, former member of the PUC Citizens Advisory Committee and 10-year member of the Wastewater Subcommittee, longtime supporter of the project.

So my concerns for purpose of scoping are as follows. The project description and setting I think should include some black cart residual material from Recology. I was formerly a supporter of -- including food waste digestion here. I understand that's now better done at their Tunnel Road site, but they are looking at capturing some of the compostable material out of the black cart. And I think the project should consider some amount of that. I think -- are we calling that high-strength waste?

Anyway. Also, on the setting, I think the EIR needs to clearly identify other PUC and in particular southeast plant projects that are happening, the

headworks and various other projects, so that a full understanding of all the related projects is included in the document.

In terms of impacts, the relocation of central shops is critical for real estate purposes. That may create its own secondary impact. Those should be identified and potentially mitigated. And, again, other southeast plant projects and potentially reorganizing certain functions on the site.

The cumulative impacts need to clearly define the area for purpose of cumulative impacts, both City and non-City projects. I suspect that will depend on the nature of the impacts but may go as far as Dog Patch, Cesar Chavez, probably over towards Bayshore and farther south.

In terms of mitigation, I understand from a meeting last week that the Palou Phelps open space area to the south of here the City could acquire. But that will cost some money. I think that's a potential mitigation, to acquire the rest of that private site for open space. I think the PUC should go back to free compost give-aways for residents, particularly those around the southeast site, probably Oceanside as well.

The PUC looked at a Cayuga diversion project several years ago to take the effluent from the Cayuga

neighborhood. I'll wrap up.

Somebody's calling me here.

(Cell phone interruption)

DAVID PILPEL: I apologize.

Anyway, the Cayuga diversion I think should be looked at again to potentially shift some flow from southeast to Oceanside. That may or may not happen within this project time span, but it should be looked at for potential mitigation.

And finally rail haul options for sludge load-out and potentially other materials, particularly outbound but also potentially inbound to the plant, since we're right contiguous with the rail line.

Finally, as to alternative locations, some of the functions could be located at 1550 Evans, already owned by the PUC, and certainly the Pier 94 backlands, which was looked at by the Digester Task Force.

I don't know that those are the best alternatives, but I think they should be looked at to some degree in this study for purpose of screening alternatives.

Thanks for your time. Look forward to the document.

LESLIE MOULTON: Tracy, followed by Andrea.

That's all the speaker cards. Anybody else?

TRACY ZHU: Hi, my name is Tracy Zhu. I'm a longtime resident of the neighborhood. I sit in the Environmental Justice seat at the SFPUC Citizen Advisory Committee.

I'm here today for a couple of reasons. This location in Bayview has a significant impact as, you know, not just having negative impacts on the neighborhood but a hub for the neighborhood as well. And so I think there's a lot to be said on how this can be -- be designed to continue attracting people from the neighborhood as well as be a destination for folks outside the neighborhood for positive uses, such as City College, other training programs.

You know, this has a huge potential for being a great engine for the city in terms of, you know, what fleshes out as being the businesses that are in the greenhouses or the types of training that we could have here in this community facility.

So in the meantime, during the construction process, there's a lot of concerns that I'd like to make sure that the EIR addresses. And I think the traffic impact is going to be significant.

And potentially shutting down Evans Street where the 19 bus runs, it's one of the only buses that takes folks from Hunters Point and out of the

neighborhood. And so that's a huge lifeline for the neighborhood. So definitely encourage some coordination with Muni in order to reduce the traffic impacts.

Second, along with traffic, the use of trucks to truck materials in and out, given the long-term operations of the biosolids, as I understand it, the Pier 94 is going to be the staging area. And so I'd really encourage you to make sure you define truck routes that minimize health impacts on the neighborhood.

And there's, you know, residential area right adjacent to this facility. So even if the trucks have to go along a route to avoid driving through the neighborhood, would be great. And as you know, going on this side of the campus on Oakdale -- yeah, Oakdale, also more residences. So any way it can go out the backside of the -- when I say "backside," I guess on the rail side of the footprint of the campus, on to Evans towards Pier 94 would be -- you know, for example. But definitely want to see some of those traffic alternatives for trucks as well as the public transportation.

And lastly, I think that -- yeah, the aesthetics can't be understated or overstated. There's

a lot of eyesore in the neighborhood that has socioeconomic impacts on the neighborhood. And so definitely encourage early and often -- early feedback from the community by going out to meeting groups to gather that information on what aesthetics is culturally appropriate for this neighborhood. Thank you.

LESLIE MOULTON: Thank you. Andrea? And after Andrea, we have Diego Sanchez and Mindy Kener.

ANDREA TACDOL: Good evening. My name is Andrea Tacdol, and I'm a resident here in the Bayview. I'm raising my two children here in the community. So the environmental and health impacts of this project are really important to me.

I know that the community faces tremendous health and environmental disparities. And so similar to Tracy, I'm very interested in these trucks that are coming into our neighborhood and the increase, especially considering there's multiple projects, huge projects here in the community.

I'd like to know what truck routes will be used to minimize their impact.

I'd also like to know what -- what considerations have been made to ensure that the construction will minimize kind of the impacts on the

community. I'm particularly interested in the lay down space for the greenhouses being so close to the community center right here and also a childcare center. Thank you.

I also would very much like to see, because there are so many EIRs happening in the community and multiple projects, what the impacts are cumulatively in our community. Two hundred trucks for one project might be -- might seem okay. But with so many other trucks or other construction happening, I want to know what those impacts are for the whole community during this time. Thank you.

LESLIE MOULTON: Thank you.

DIEGO SANCHEZ: I'm Diego Sanchez. I'm a neighbor of this facility, actually live almost immediately across the street.

I don't know if this pertains to the EIR or not, but I'm quite interested in what the process is and what the plans are for the existing biodigesters once they're undergoing the decommissioning phase. I think it was mentioned earlier by a speaker that the aesthetics are very important.

I think that in a community that's struggled with so many social justice issues over so many years that it's very important that you reach out to not only

existing community groups but to actually the neighbors across the street.

I've lived there now seven years almost across the street, and I don't think I've been reached out to directly through a flyer or any other means, except for e-mail. But it would be nice to see a flyer about how to get involved in this process and what's happening, to be kept up to date.

There are a lot of folks here that may not be connected to the Internet or e-mail or whatnot. There are some immigrant populations here who may be on the other side of that digital divide.

Also concerned about truck traffic. These trucks, I will presume, are diesel trucks. And with the particulate that they emit, it's quite concerning. I mean, we're already suffering from the odors from the plant as well as just the dust when you burn off all that gas. It does collect on our homes. So if you could be sensitive to that.

Again, I thank you for your efforts here.

LESLIE MOULTON: Thank you.

Mindy Kener.

MINDY KENER: Good evening, Planning Commission. My name is Mindy Kener. I'm a senior job developer in the Bayview for Anders & Anders Foundation.

I hear a lot about the construction jobs, and that's great. I'm hoping that you will reach out to the small community-based organizations in Bayview, not just the big boxes. We are in the trenches. We have been here for many, many years. And Downtown forgets the small folks who help people in the Bayview with their GEDs and getting into the construction union trades, which is a great idea since we have so many people without GEDs.

However, my main point this evening is, once the digesters are built, community should have those jobs. They should be first in line if they have the correct specifications, skills. We should train them in those skills.

We need them to work when they're done with the construction and have full-time benefits. I guess they're union for the digesters. So these are excellent jobs for the community. It could be from clerical to learning how to work the chemicals.

We have many training facilities. And we have many young men and women who are willing to do it.

I thank you for your time.

LESLIE MOULTON: Thank you.

Would anyone else like to speak or make comments this evening?

(No response)

STEVEN SMITH: Thank you, everybody. Very much appreciate the comments.

I want to point out up here and also as well at the table there, there's information about how to submit your written comments, whether by e-mail or in writing. So you have until July 27th close of business is the deadline to submit written comments. So -- and then a few of us will be around after I close the hearing. If there's any follow-up questions, we may be able to answer those for you tonight.

So here's my contact information. I mentioned Karen Frye is my counterpart at PUC. Again, she's not here tonight, but she can help in terms of project-description type questions. Feel free to contact me. I'm mainly the contact in terms of the CEQA process and questions you have about CEQA.

But that's it. I'm going to close the hearing. Thank everybody for coming tonight and taking your comments. Thanks.

(Whereupon, the proceedings adjourned at 7:23 o'clock p.m.)

STATE OF CALIFORNIA)
) ss.
COUNTY OF MARIN)

I, DEBORAH FUQUA, a Certified Shorthand Reporter of the State of California, do hereby certify that the foregoing proceedings were reported by me, a disinterested person, and thereafter transcribed under my direction into typewriting and is a true and correct transcription of said proceedings.

I further certify that I am not of counsel or attorney for either or any of the parties in the foregoing proceeding and caption named, nor in any way interested in the outcome of the cause named in said caption.

Dated the 6th day of November, 2015.

DEBORAH FUQUA

CSR NO. 12948

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APPENDIX SCM

Standard Construction Measures

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SFPUC Standard Construction Measures

1. SEISMIC AND GEOTECHNICAL STUDIES: All projects will prepare a characterization of the soil types and potential for liquefaction, subsidence, landslide, fault displacement, and other geological hazards at the project site and will be engineered and designed as necessary to minimize risks to safety and reliability due to such hazards. As necessary, geotechnical investigations will be performed.

2. AIR QUALITY: All projects within San Francisco City (the City) limits will comply with the Construction Dust Control Ordinance. All projects outside the City will comply with applicable local and State dust control regulations. All projects within City limits will comply with the Clean Construction Ordinance. Projects outside City limits will comply with San Francisco or other applicable thresholds for health risks. All projects, both within and outside of City limits, will comply with either San Francisco or other applicable thresholds for construction criteria air pollutants.

To meet air quality thresholds, all projects (as necessary) will implement air quality controls to be tailored to the project, such as using high tier engines, Verified Diesel Emissions Control Strategies (VDECS) such as diesel particulate filters, customized construction schedules and procedures, and low emissions fuel.

3. WATER QUALITY: All projects will implement erosion and sedimentation controls to be tailored to the project site such as, fiber rolls and/or gravel bags around stormdrain inlets, installation of silt fences, and other such measures sufficient to prevent discharges of sediment and other pollutants to storm drains and all surface waterways, such as San Francisco Bay, the Pacific Ocean, water supply reservoirs, wetlands, swales, and streams. As required based on project location and size, a Stormwater Control Plan (in most areas of San Francisco) or a Stormwater Pollution Prevention Plan (SWPPP) (outside of San Francisco and in certain areas of San Francisco) will be prepared. If uncontaminated groundwater is encountered during excavation activities, it will be discharged in compliance with applicable water quality standards and discharge permit requirements.

4. TRAFFIC: All projects will implement traffic control measures sufficient to maintain traffic and pedestrian circulation on streets affected by construction of the project. Traffic control measures may include, but not be limited to, flaggers and/or construction warning signage of work ahead; scheduling truck trips during non-peak hours to the extent feasible; maintaining access to driveways, private roads, and off-street commercial loading facilities by using steel trench plates or other such method; and coordination with local emergency responders to maintain emergency access. For projects in San Francisco, the measures will also, at a minimum, be consistent with the requirements of San Francisco Municipal Transportation Agency (SFMTA)'s Blue Book. Any temporary rerouting of transit vehicles or relocation of transit facilities would be coordinated with the applicable transit agency, such as SFMTA Muni Operations in San Francisco. All Projects will obtain encroachment permits from the applicable jurisdiction for work in public roadways.

5. NOISE: All projects will comply with local noise ordinances regulating construction noise. The SFPUC shall undertake measures to minimize noise disruption to nearby neighbors and sensitive receptors during construction. These efforts could include using best available noise control technologies on equipment (i.e., mufflers, ducts, and acoustically attenuating shields),

locating stationary noise sources (i.e., pumps and generators) away from sensitive receptors, erecting temporary noise barriers, and other such measures.

6. HAZARDOUS MATERIALS: Where there is reason to believe that site soil or groundwater that will be disturbed may contain hazardous materials, the SFPUC shall undertake an assessment of the site in accordance with any applicable local requirements (e.g., Maher Ordinance) or using reasonable commercial standards (e.g., Phase I and Phase II assessments, as needed). If hazardous materials will be disturbed, the SFPUC shall prepare a plan and implement the plan for treating, containing or removing the hazardous materials in accordance with any applicable local, State and federal regulations so as to avoid any adverse exposure to the material during and after construction. In addition, any unidentified hazardous materials encountered during construction likewise will be characterized and appropriately treated, contained or removed to avoid any adverse exposure. Measures will also be implemented to prevent the release of hazardous materials used during construction, such as storing them pursuant to manufacturer recommendation, maintaining spill kits onsite, and containing any spills that occur to the extent safe and feasible followed by collection and disposal in accordance with applicable laws. SFPUC will report spills of reportable quantity to applicable agencies (e.g., the Governor's Office of Emergency Services).

7. BIOLOGICAL RESOURCES: All project sites and the immediately surrounding area will be screened to determine whether biological resources may be affected by construction. A qualified biologist will also carry out a survey of the project site, as appropriate, to note the general resources and identify whether habitat for special-status species and/or migratory birds, are present. In the event further investigation is necessary, the SFPUC will comply with all local, State, and federal requirements for surveys, analysis, and protection of biological resources (e.g., Migratory Bird Treaty Act, federal and State Endangered Species Acts, etc.). If necessary, measures will be implemented to protect biological resources, such as installing wildlife exclusion fencing, establishing work buffer zones, installing bird deterrents, monitoring by a qualified biologist, and other such measures. If tree removal is required, the SFPUC would comply with any applicable tree protection ordinance.

8. VISUAL AND AESTHETIC CONSIDERATIONS, PROJECT SITE: All project sites will be maintained in a clean and orderly state. Construction staging areas will be sited away from public view where possible. Nighttime lighting will be directed away from residential areas and have shields to prevent light spillover effects. Upon project completion, project sites on SFPUC-owned lands will be returned to their general pre-project condition, including re-grading of the site and re-vegetation or re-paving of disturbed areas to the extent this is consistent with SFPUC's Integrated Vegetation Management Policy. However, where encroachment has occurred on SFPUC-owned lands, the encroaching features may not be restored if inconsistent with the SFPUC policies applicable to management of its property. Project sites on non-SFPUC land will be restored to their general pre-project condition so that the owner may return them to their prior use, unless otherwise arranged with the property owner.

9. CULTURAL RESOURCES: All projects that will alter a building or structure, produce vibrations, or include soil disturbance will be screened to assess whether cultural resources are or may be present and could be affected, as detailed below.

Archeological Resources. No archeological review is required for a project that will not entail ground disturbance. Projects involving ground disturbance will undergo screening for

archeological sensitivity as described below and implement, as applicable, SFPUC's Standard Archeological Measures I (Discovery), II (Monitoring) and III (Testing/Data Recovery) per the Cultural Resources Attachments. Standard Construction Measure I will be implemented on all projects involving ground disturbance and Standard Archeological Measures II and III will be implemented based on the screening process described below for projects assessed as having the potential to encounter archeological sites and/or if an archeological discovery occurs during construction.

Projects involving ground disturbance will initially be screened to identify whether there is demonstrable evidence of prior ground disturbance in the project site to the maximum vertical and horizontal extent of the current project's planned disturbance. For projects where prior complete ground disturbance has occurred throughout areas of planned work, SFPUC will provide evidence of the previous disturbance in the Categorical Exemption application and no further archeological screening will be required.

For projects that are on previously undisturbed sites or where the depth/extent of prior ground disturbance cannot be documented, or where the planned project-related ground disturbance will extend beyond the depth/extent of prior ground disturbance, additional screening will be carried out as detailed below and shown on the attached flow chart titled "SFPUC Standard Construction Measure #9 Archeological Assessment Process". The additional screening will be conducted by the SFPUC's qualified archeologist (defined as meeting the Secretary of the Interior's Professional Qualifications Standards [36 CFR 61]) and, if a consultant, selected in consultation with the San Francisco Planning Department's Environmental Review Officer (ERO) and meeting criteria or specialization required for the resource type as identified by the ERO.

1) The SFPUC qualified archeologist will conduct an archival review for the project site, including review of Environmental Planning's (EP's) archeological GIS data and/or a records search of the California Historical Resources Information System (CHRIS) and other archival sources as appropriate. The qualified archeologist will also conduct an archeological field survey of the project site if, in the archeologist's judgment, this is warranted by site conditions. Based on the results, the archeologist will complete and submit to EP a Preliminary Archeological Checklist (PAC) (version dated 4/2015, to be amended in consultation with the ERO as needed). The PAC will include recommendations for the need for archeological testing, additional research and/or treatment measures consistent with Archeological Measures I, II, and III, to be implemented by the project to protect and/or treat significant archeological resources identified as being present within the site and potentially affected by the project.

2) The EP Archeologist (for projects within the City) or the ERO's archeological designee (for projects outside the City) will then conduct a Preliminary Archeological Review (PAR) of the PAC and other sources as warranted; concur with the PAC recommendations; and/or amend the PAC in consultation with the SFPUC archeologist or archeological consultant to require additional research, reports, or treatment measures as warranted based on his/her professional opinion.

3) The SFPUC shall implement the PAC/PAR recommendations prior to and/or during project construction consistent with Standard Archeological Measures I, II, and III, and

shall consult with the EP Archeologist in selecting an archeological consultant, as needed, to implement these measures.

4) Ground disturbing activities in archeologically sensitive areas, as identified through the above screening, will not begin until required preconstruction archeological measures of the PAC/PAR (e.g., preparation of an Archeological Monitoring Plan, Archeological Treatment Plan, and/or an Archeological Research Design and Data Recovery Plan) have been implemented.

Historic (Built Environment) Resources. For projects within the City that include activities with the potential for direct or indirect effects to historic buildings or structures, initial CEQA screening will include a review, for the project footprint and up to one parcel surrounding the footprint of CCSF's online planning map, all relevant survey data, preservation address files, and other pertinent sources for previously-identified, historically significant buildings and building and structures more than 45 years old that have not been previously evaluated. For projects outside of the City, initial CEQA screening will include a records search of EP's CCSF historical resources data, CHRIS, and other pertinent sources for historically significant or potentially significant buildings and structures older than 45 years.

For projects that would modify an existing building or structure that has been determined by EP as being a significant historical resource (i.e., appears eligible to qualify for the CRHR), or that would introduce new aboveground facilities in the vicinity of a significant historical resource, or that would affect previously unevaluated buildings or structures more than 45 years old, the SFPUC will retain a qualified architectural historian (defined as meeting the Secretary of the Interior's Professional Qualification standards and, if a consultant, also selected in consultation with the ERO) to conduct a historical resource evaluation (HRE). SFPUC will submit the project description and the HRE to the CCSF Planning Department Preservation Planner or to the ERO's-designated qualified architectural historian to assess potential effects. Where the potential for the project to have adverse effects on historic buildings or structures is identified, the CCSF Planning Department Preservation Planner or the ERO's designee will consult with SFPUC to determine if the project can be conducted as planned or if the project design can be revised to avoid the significant impact, and will comply with applicable procedures set forth in Historic Architectural Resource Measure I. If these options are not feasible, the project will need to undergo further review with EP and mitigation may be required. If so, the project would not qualify for a Categorical Exemption from CEQA review.

Where construction will take place in proximity to a building or structure identified as a significant historical resource but would not otherwise directly affect it, the SFPUC will implement protective measures, such as but not limited to, the erection of temporary construction barriers to ensure that inadvertent impacts to such buildings or structures are avoided.

APPENDIX TR

Transportation Supporting Information

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1. Traffic Volume Data

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SFPUC Biosolids Digester Facilities Project

Daily Vehicle Trip Classification - Jerrold Avenue East of Rankin

August 13 through 19, 2016

DATE	TIME	WESTBOUND Mcycle, pax car, pick ups	WESTBOUND Bus	WESTBOUND Single Unit Truck	WESTBOUND Multi-Unit Combo	WESTBOUND TOTAL	EASTBOUND Mcycle, pax car, pick ups	EASTBOUND Bus	EASTBOUND Single Unit Truck	EASTBOUND Multi-Unit Combo	EASTBOUND TOTAL	BOTH WAYS Mcycle, pax car, pick ups	BOTH WAYS Bus	BOTH WAYS Single Unit Truck	BOTH WAYS Multi-Unit Combo	BOTH WAYS TOTAL
DAILY DATA																
Average Weekday		**3,607**	**89**	**280**	**53**	**4,029**	**2,446**	**89**	**180**	**31**	**2,746**	**6,053**	**178**	**460**	**84**	**6,775**
		90%	***2%***	***7%***	***1%***	***100%***	***89%***	***3%***	***7%***	***1%***	***100%***	***89%***	***3%***	***7%***	***1%***	***100%***
Early AM	mid-7am	356	8	27	6	397	361	10	23	6	400	717	18	50	12	797
AM Peak	7-9 am	565	17	68	12	662	243	17	34	4	298	808	34	102	16	960
Midday	10am-4pm	1,630	41	147	33	1,851	1,074	39	104	19	1,236	2,704	80	251	52	3,087
PM Peak	4-6 pm	425	10	26	2	463	289	8	7	1	305	714	18	33	3	768
Late PM	6pm-mid	631	13	12	0	656	479	15	12	1	507	1,110	28	24	1	1,163
Early AM	peak hour	151	6	18	3	178	169	9	15	3	196	320	15	33	6	374
		85%	*3%*	*10%*	*2%*	*100%*	*86%*	*5%*	*8%*	*2%*	*100%*	*86%*	*4%*	*9%*	*2%*	*100%*
AM Peak	peak hour	294	9	43	8	354	128	9	21	2	160	422	18	64	10	514
		83%	*3%*	*12%*	*2%*	*100%*	*80%*	*6%*	*13%*	*1%*	*100%*	*82%*	*4%*	*12%*	*2%*	*100%*
Midday	peak hour	294	8	26	7	335	172	7	21	5	205	466	15	47	12	540
		88%	*2%*	*8%*	*2%*	*100%*	*84%*	*3%*	*10%*	*2%*	*100%*	*86%*	*3%*	*9%*	*2%*	*100%*
PM Peak	peak hour	218	6	18	1	243	146	4	4	1	155	364	10	22	2	398
		90%	*2%*	*7%*	*0%*	*100%*	*94%*	*3%*	*3%*	*1%*	*100%*	*91%*	*3%*	*6%*	*1%*	*100%*
Late PM	peak hour	164	3	4	0	171	113	4	5	1	123	277	7	9	1	294
		96%	*2%*	*2%*	*0%*	*100%*	*92%*	*3%*	*4%*	*1%*	*100%*	*94%*	*2%*	*3%*	*0%*	*100%*

SFPUC Biosolids Digester Facilities Project

Daily Vehicle Trip Classification - Jerrold Avenue East of Rankin

August 13 through 19, 2016

		WESTBOUND					EASTBOUND					BOTH WAYS				
DATE	**TIME**	Mcycle, pax car, pick ups	Bus	Single Unit Truck	Multi-Unit Combo	TOTAL	Mcycle, pax car, pick ups	Bus	Single Unit Truck	Multi-Unit Combo	TOTAL	Mcycle, pax car, pick ups	Bus	Single Unit Truck	Multi-Unit Combo	TOTAL
DAILY DATA																
08/13/16	**Saturday**	**2,578**	**44**	**93**	**22**	**2,737**	**1,605**	**44**	**62**	**13**	**1,724**	**4,183**	**88**	**155**	**35**	**4,461**
Early AM	mid-7am	310	4	6	3	323	183	5	8	2	198	493	9	14	5	521
AM Peak	7-9 am	248	8	16	7	279	117	7	9	4	137	365	15	25	11	416
Midday	10am-4pm	1,180	15	61	11	1,267	704	16	36	6	762	1,884	31	97	17	2,029
PM Peak	4-6 pm	281	5	6	1	293	191	4	4	1	200	472	9	10	2	493
Late PM	6pm-mid	559	12	4	0	575	410	12	5	0	427	969	24	9	0	1,002
Early AM	peak hour	66	3	5	2	76	51	3	5	2	61	117	6	10	4	137
AM Peak	peak hour	130	5	10	5	150	61	4	5	2	72	191	9	15	7	222
Midday	peak hour	189	3	13	3	208	140	3	11	3	157	329	6	24	6	365
PM Peak	peak hour	143	3	4	1	151	102	2	4	1	109	245	5	8	2	260
Late PM	peak hour	116	2	1	0	119	87	3	2	0	92	203	5	3	0	211
08/14/16	**Sunday**	**2,147**	**35**	**41**	**5**	**2,228**	**1,355**	**35**	**31**	**4**	**1,425**	**3,502**	**70**	**72**	**9**	**3,653**
Early AM	mid-7am	226	1	4	1	232	157	2	3	1	163	383	3	7	2	395
AM Peak	7-9 am	184	4	6	0	194	70	4	4	0	78	254	8	10	0	272
Midday	10am-4pm	1,046	14	25	4	1,089	579	14	16	1	610	1,625	28	41	5	1,699
PM Peak	4-6 pm	238	4	1	0	243	180	4	1	0	185	418	8	2	0	428
Late PM	6pm-mid	453	12	5	0	470	369	11	7	2	389	822	23	12	2	859
Early AM	peak hour	58	1	2	1	62	52	1	2	1	56	110	2	4	2	118
AM Peak	peak hour	117	2	5	0	124	39	2	2	0	43	156	4	7	0	167
Midday	peak hour	172	2	6	2	182	103	2	3	1	109	275	4	9	3	291
PM Peak	peak hour	119	2	1	0	122	94	2	1	0	97	213	4	2	0	219
Late PM	peak hour	102	2	3	0	107	75	2	4	1	82	177	4	7	1	189
08/15/16	**Monday**	**3,527**	**97**	**277**	**60**	**3,961**	**2,350**	**86**	**191**	**33**	**2,660**	**5,877**	**183**	**468**	**93**	**6,621**
Early AM	mid-7am	329	12	19	7	367	340	11	27	10	388	669	23	46	17	755
AM Peak	7-9 am	539	14	64	17	634	231	15	35	4	285	770	29	99	21	919
Midday	10am-4pm	1,604	48	148	34	1,834	1,070	38	109	17	1,234	2,674	86	257	51	3,068
PM Peak	4-6 pm	423	10	29	2	464	280	6	8	1	295	703	16	37	3	759
Late PM	6pm-mid	632	13	17	0	662	429	16	12	1	458	1,061	29	29	1	1,120
Early AM	peak hour	132	8	11	4	155	167	10	16	6	199	299	18	27	10	354
AM Peak	peak hour	297	8	45	9	359	123	8	24	2	157	420	16	69	11	516
Midday	peak hour	278	8	32	8	326	186	9	20	6	221	464	17	52	14	547
PM Peak	peak hour	222	6	19	2	249	146	3	5	1	155	368	9	24	3	404
Late PM	peak hour	154	3	6	0	163	110	5	5	1	121	264	8	11	1	284
08/16/16	**Tuesday**	**3,587**	**92**	**284**	**59**	**4,022**	**2,487**	**95**	**176**	**37**	**2,795**	**6,074**	**187**	**460**	**96**	**6,817**
Early AM	(midn.-7 am)	348	8	19	12	387	325	12	22	6	365	673	20	41	18	752
AM Peak	(7-9 am)	576	19	71	11	677	245	17	33	6	301	821	36	104	17	978
Midday	(10 am-4 pm)	1,627	42	156	32	1,857	1,136	43	101	23	1,303	2,763	85	257	55	3,160
PM Peak	(4-6 pm)	415	9	27	2	453	313	9	8	0	330	728	18	35	2	783
Late PM	(6 pm-midn.)	621	14	11	2	648	468	14	12	2	496	1,089	28	23	4	1,144
Early AM	peak hour	151	6	14	5	176	156	10	14	4	184	307	16	28	9	360
AM Peak	peak hour	300	12	46	7	365	129	9	17	3	158	429	21	63	10	523
Midday	peak hour	318	10	27	8	363	182	9	19	6	216	500	19	46	14	579
PM Peak	peak hour	208	5	18	2	233	167	5	5	0	177	375	10	23	2	410
Late PM	peak hour	178	4	6	1	189	110	3	7	2	122	288	7	13	3	311

SFPUC Biosolids Digester Facilities Project

Daily Vehicle Trip Classification - Jerrold Avenue East of Rankin

August 13 through 19, 2016

		WESTBOUND					EASTBOUND					BOTH WAYS				
DATE	**TIME**	Mcycle, pax car, pick ups	Bus	Single Unit Truck	Multi-Unit Combo	TOTAL	Mcycle, pax car, pick ups	Bus	Single Unit Truck	Multi-Unit Combo	TOTAL	Mcycle, pax car, pick ups	Bus	Single Unit Truck	Multi-Unit Combo	TOTAL
DAILY DATA																
08/17/16	**Wednesday**	**3,585**	**99**	**299**	**49**	**4,032**	**2,475**	**87**	**176**	**31**	**2,769**	**6,060**	**186**	**475**	**80**	**6,801**
Early AM	mid-7am	357	10	31	2	400	384	8	21	4	417	741	18	52	6	817
AM Peak	7-9 am	572	22	80	9	683	255	22	34	2	313	827	44	114	11	996
Midday	10am-4pm	1,648	46	158	34	1,886	1,084	33	104	24	1,245	2,732	79	262	58	3,131
PM Peak	4-6 pm	430	9	20	3	462	277	9	6	1	293	707	18	26	4	755
Late PM	6pm-mid	578	12	10	1	601	475	15	11	0	501	1,053	27	21	1	1,102
Early AM	peak hour	148	5	22	1	176	182	7	12	2	203	330	12	34	3	379
AM Peak	peak hour	287	13	43	5	348	138	12	22	1	173	425	25	65	6	521
Midday	peak hour	299	12	28	9	348	179	10	21	8	218	478	22	49	17	566
PM Peak	peak hour	227	6	14	2	249	153	5	4	1	163	380	11	18	3	412
Late PM	peak hour	145	3	4	1	153	113	3	8	0	124	258	6	12	1	277
08/18/16	**Thursday**	**3,633**	**88**	**271**	**46**	**4,038**	**2,467**	**87**	**182**	**29**	**2,765**	**6,100**	**175**	**453**	**75**	**6,803**
Early AM	mid-7am	339	10	30	8	387	373	13	25	6	417	712	23	55	14	804
AM Peak	7-9 am	602	17	73	5	697	245	16	36	3	300	847	33	109	8	997
Midday	10am-4pm	1,639	38	132	32	1,841	1,050	34	102	18	1,204	2,689	72	234	50	3,045
PM Peak	4-6 pm	424	10	24	1	459	280	7	7	1	295	704	17	31	2	754
Late PM	6pm-mid	629	13	12	0	654	519	17	12	1	549	1,148	30	24	1	1,203
Early AM	peak hour	160	7	18	5	190	177	10	16	2	205	337	17	34	7	395
AM Peak	peak hour	307	10	48	3	368	125	8	19	2	154	432	18	67	5	522
Midday	peak hour	283	9	25	7	324	173	7	28	6	214	456	16	53	13	538
PM Peak	peak hour	220	6	18	1	245	145	4	5	1	155	365	10	23	2	400
Late PM	peak hour	176	3	4	0	183	123	3	4	1	131	299	6	8	1	314
08/19/16	**Friday**	**3,714**	**80**	**279**	**53**	**4,126**	**2,444**	**89**	**182**	**31**	**2,746**	**6,158**	**169**	**461**	**84**	**6,872**
Early AM	mid-7am	406	7	39	2	454	380	8	22	7	417	786	15	61	9	871
AM Peak	7-9 am	539	13	54	18	624	239	14	32	2	287	778	27	86	20	911
Midday	10am-4pm	1,634	36	144	31	1,845	1,027	43	106	19	1,195	2,661	79	250	50	3,040
PM Peak	4-6 pm	431	11	31	2	475	295	9	9	1	314	726	20	40	3	789
Late PM	6pm-mid	704	13	11	0	728	503	15	13	2	533	1,207	28	24	2	1,261
Early AM	peak hour	165	6	25	1	197	162	6	17	4	189	327	12	42	5	386
AM Peak	peak hour	282	7	33	14	336	128	10	23	1	162	410	17	56	15	498
Midday	peak hour	294	9	29	11	343	167	10	20	6	203	461	19	49	17	546
PM Peak	peak hour	217	6	20	2	245	152	6	5	1	164	369	12	25	3	409
Late PM	peak hour	169	3	4	0	176	111	4	4	1	120	280	7	8	1	296

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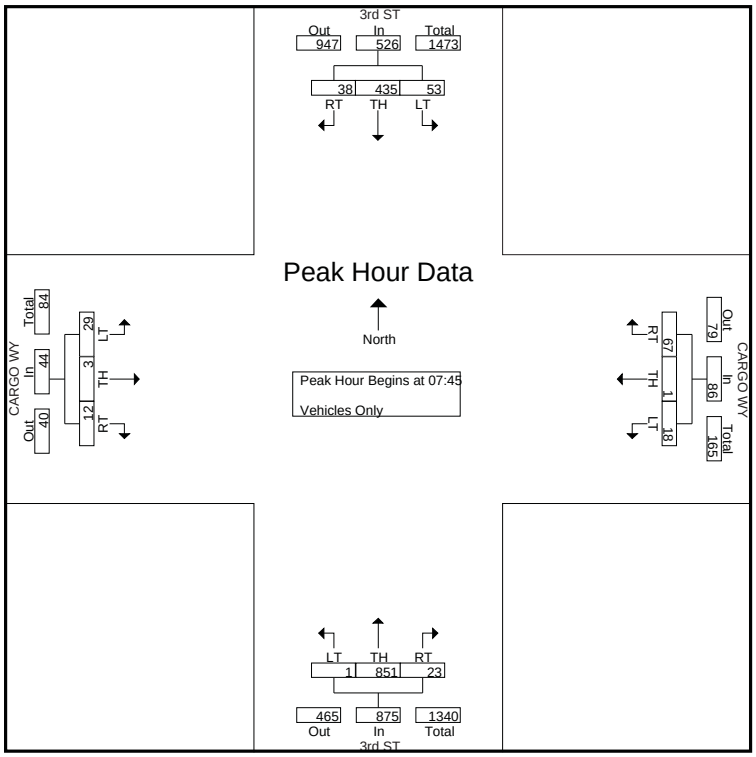

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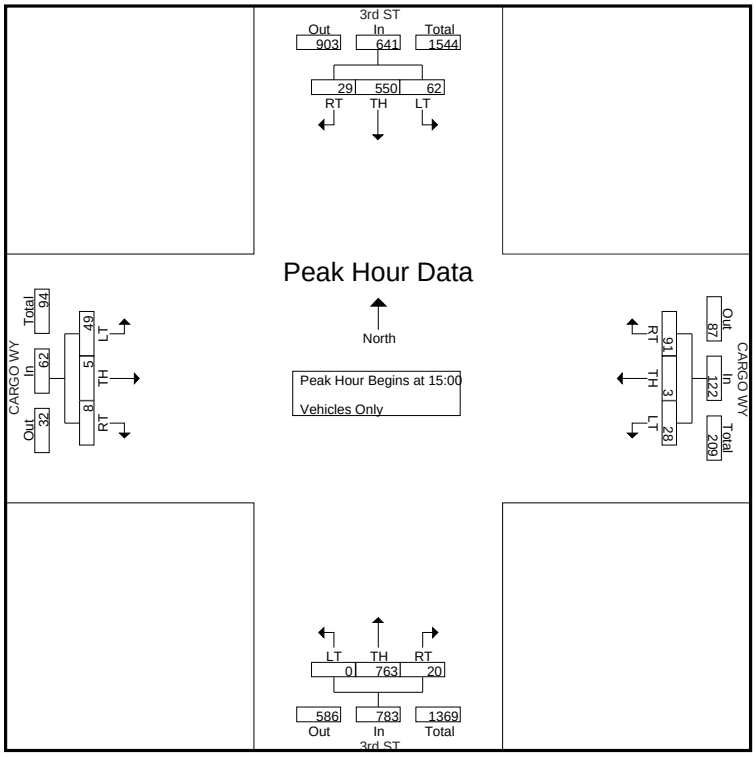

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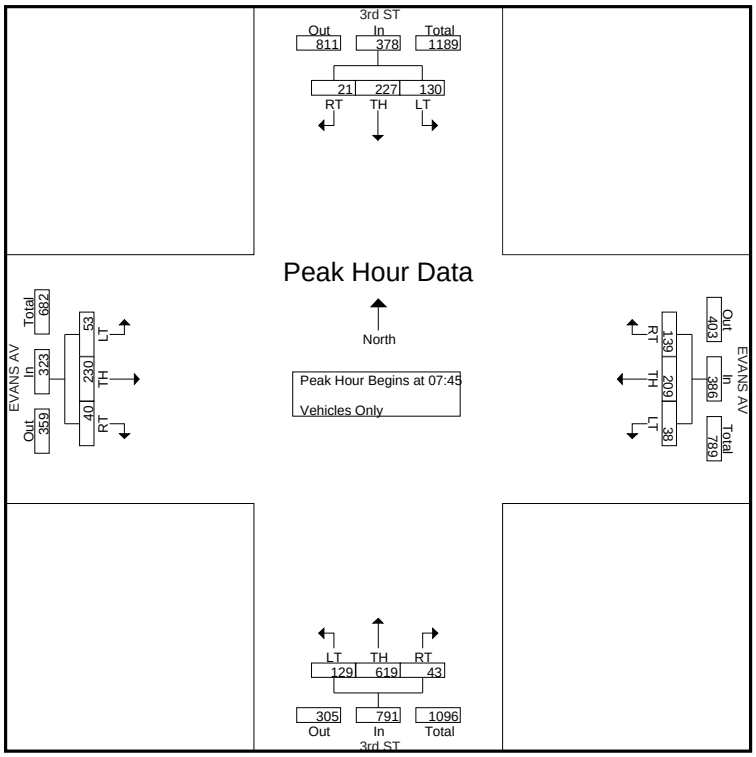

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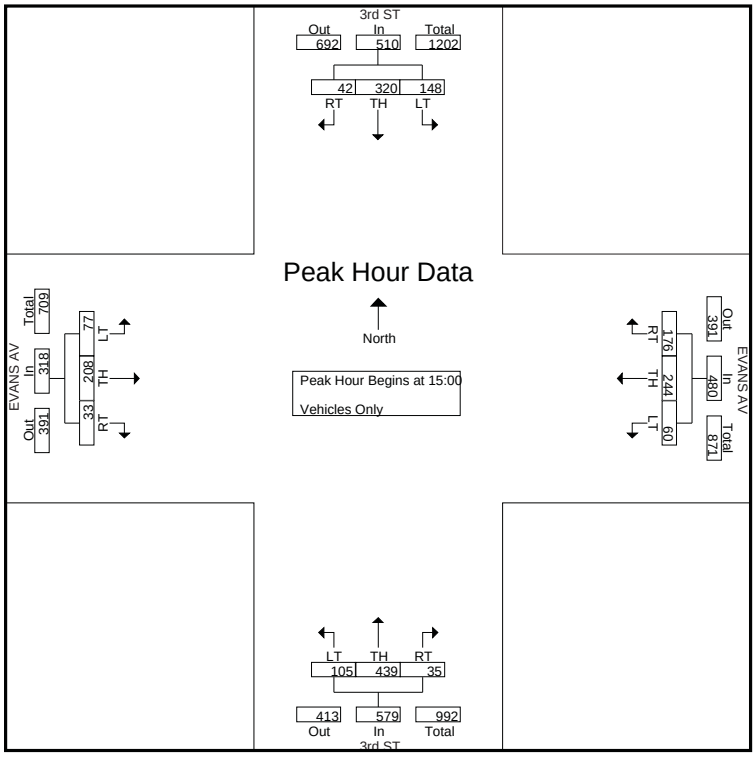

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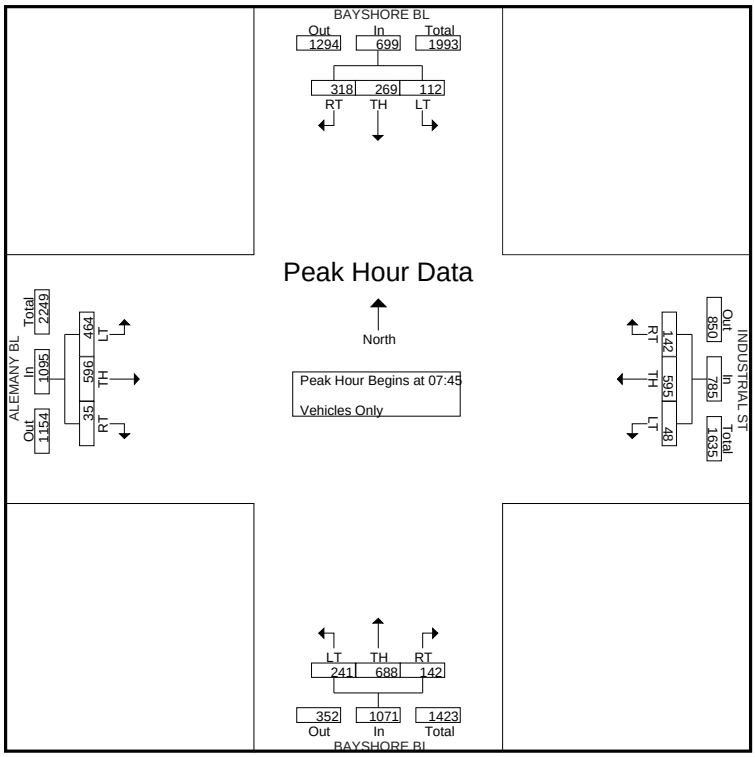

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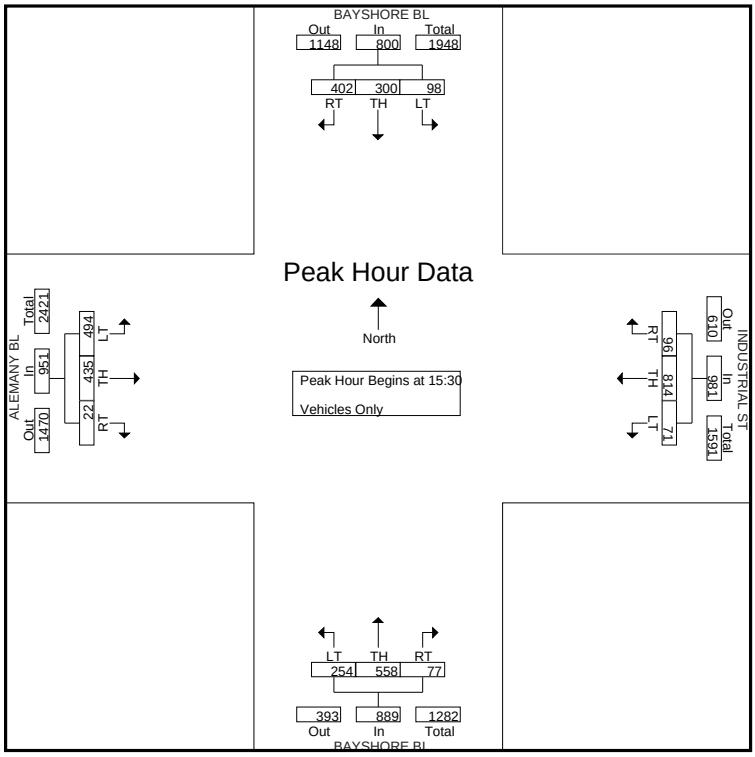

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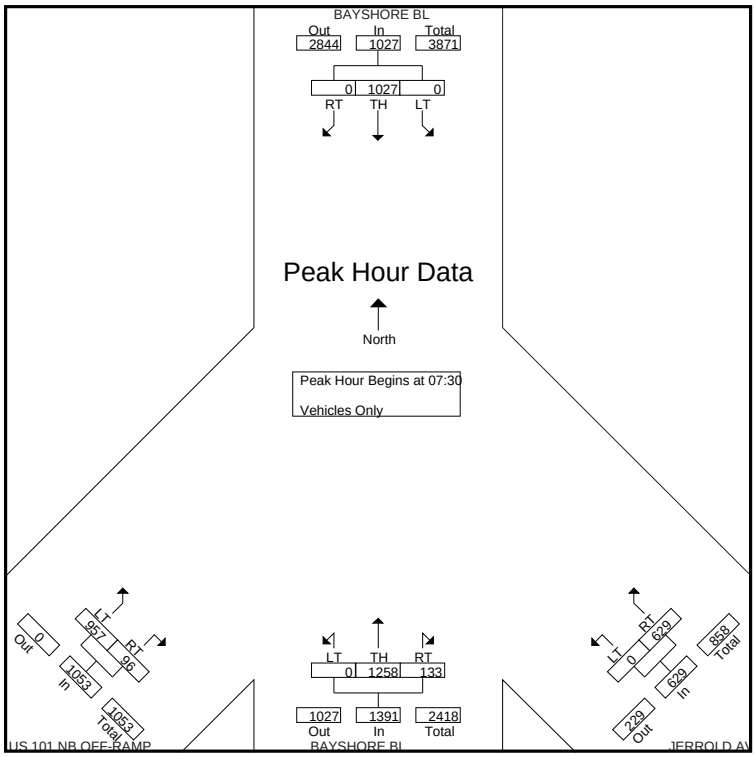

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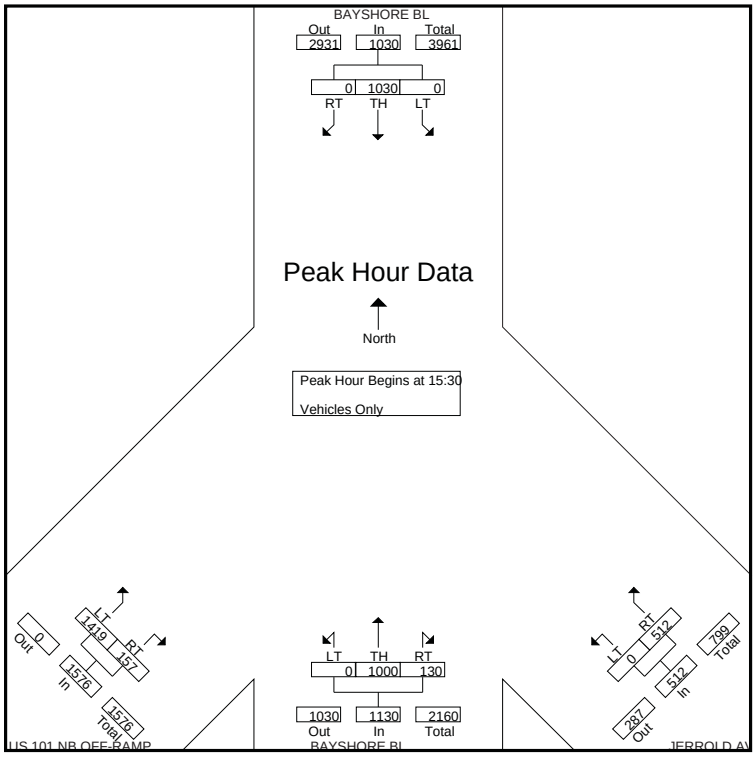

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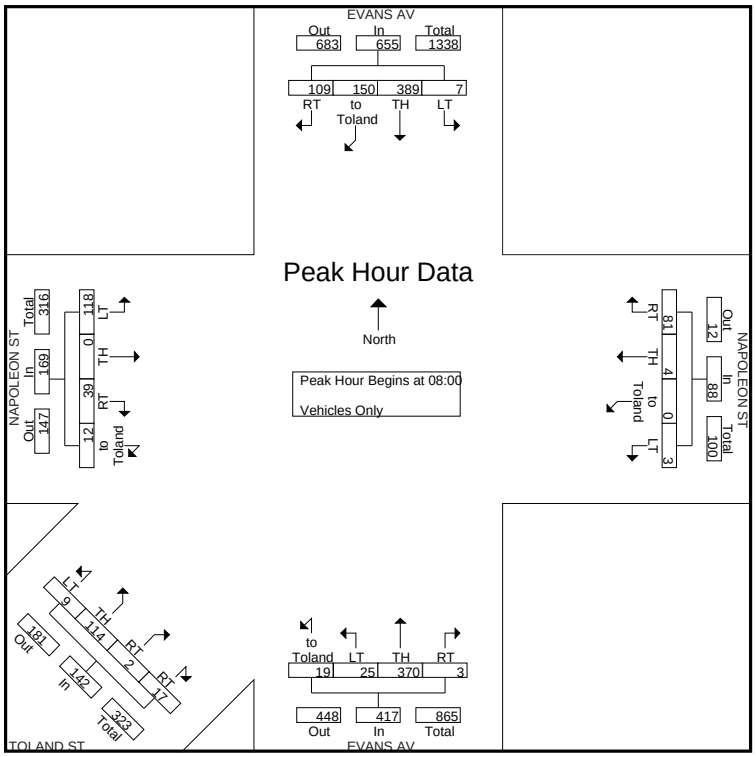

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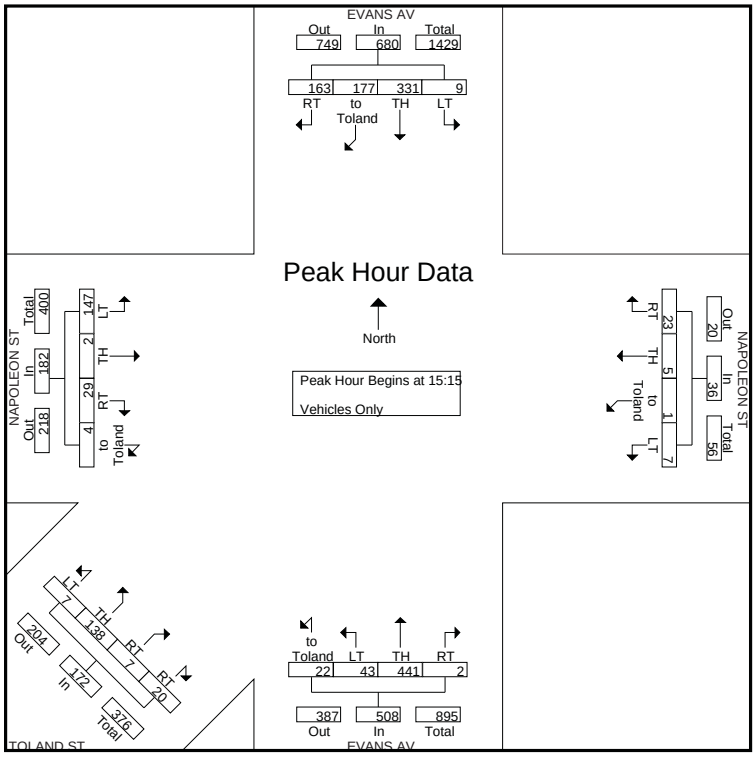

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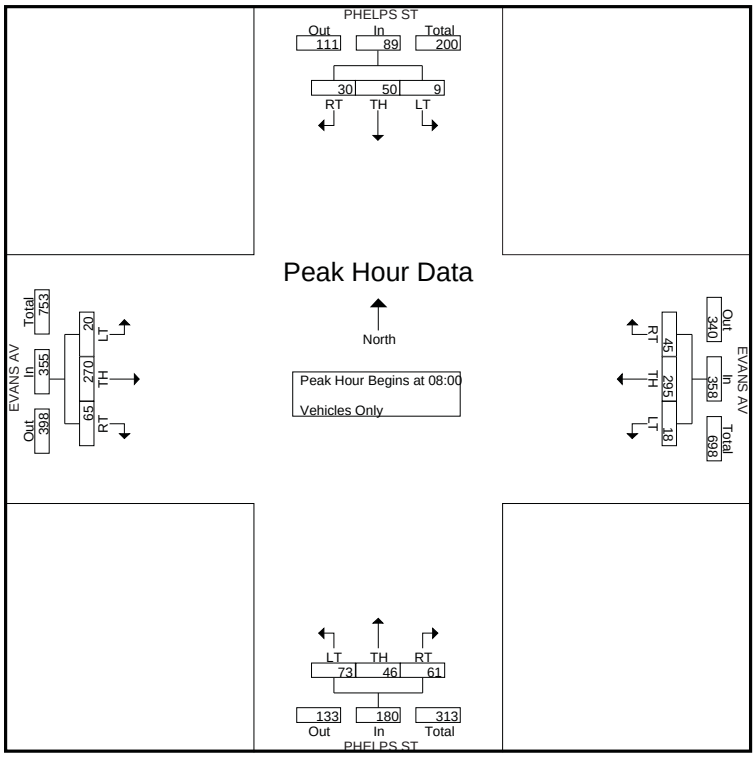

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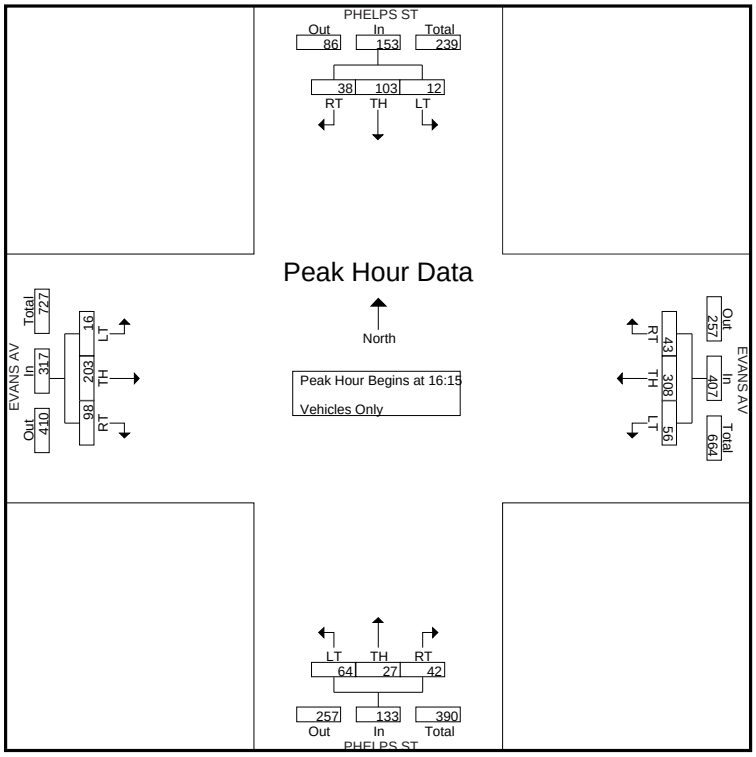

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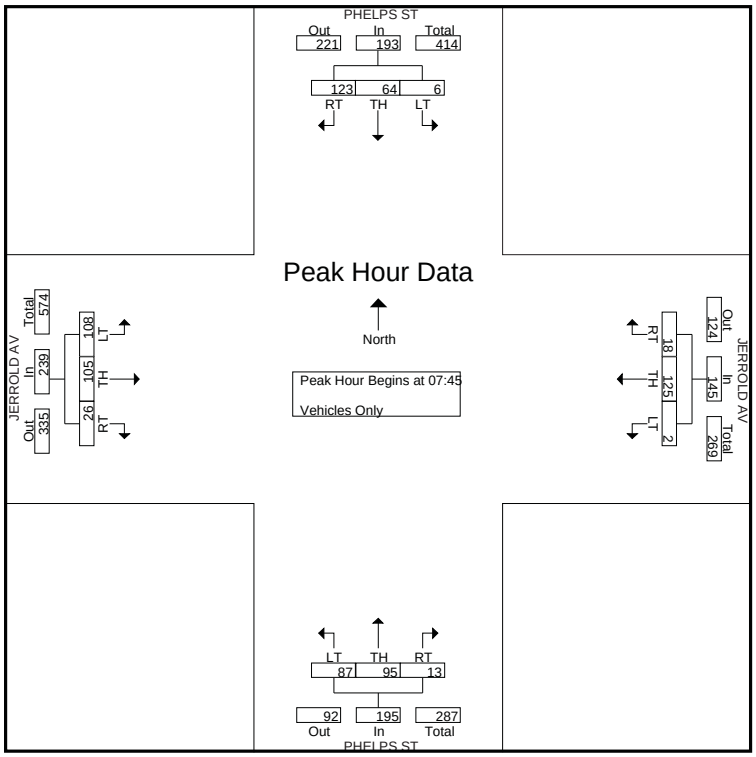

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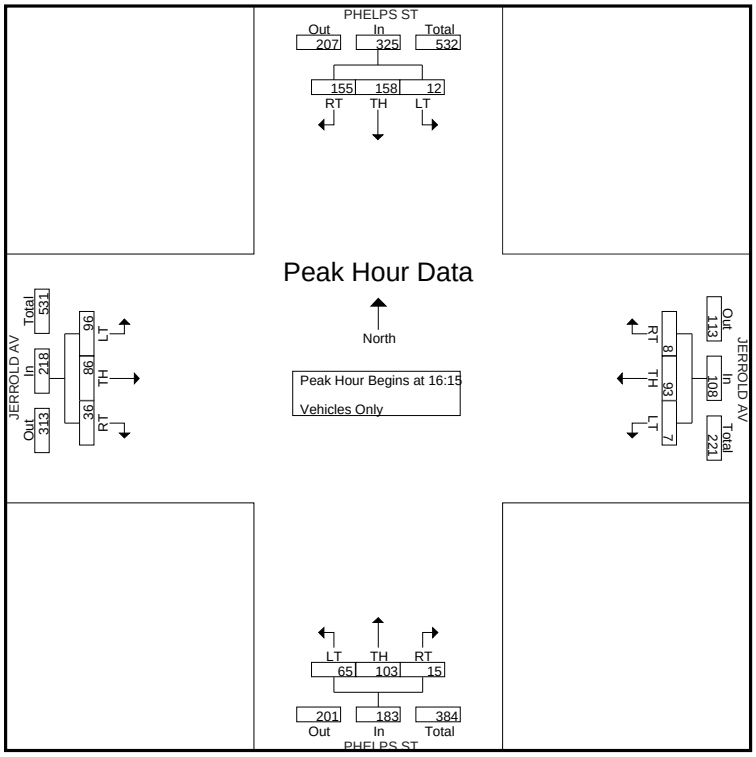

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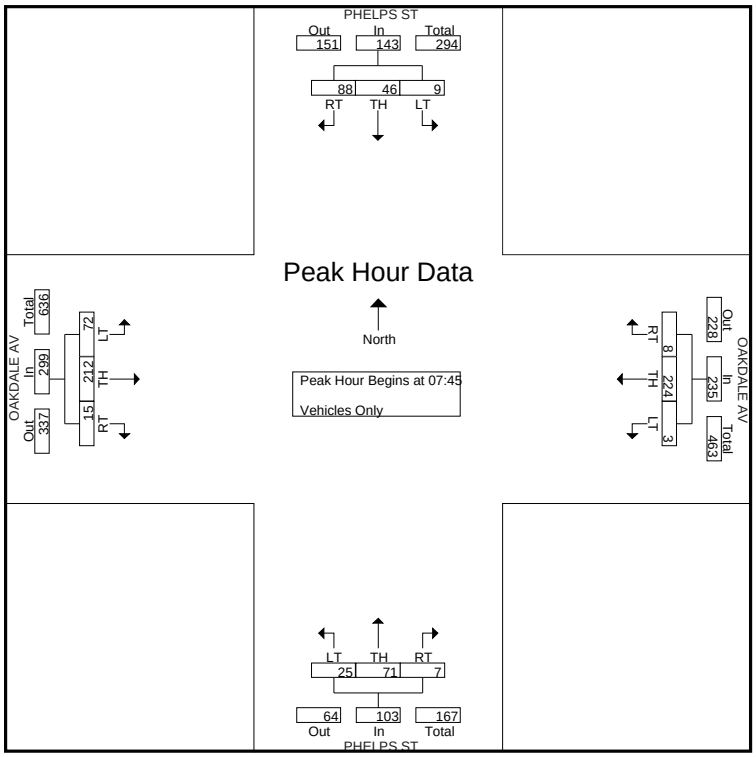

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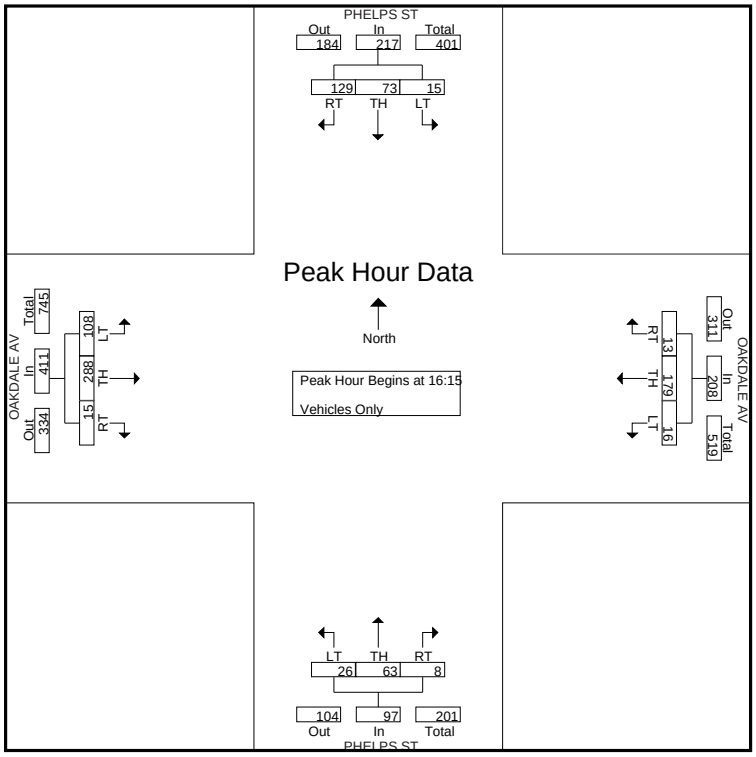

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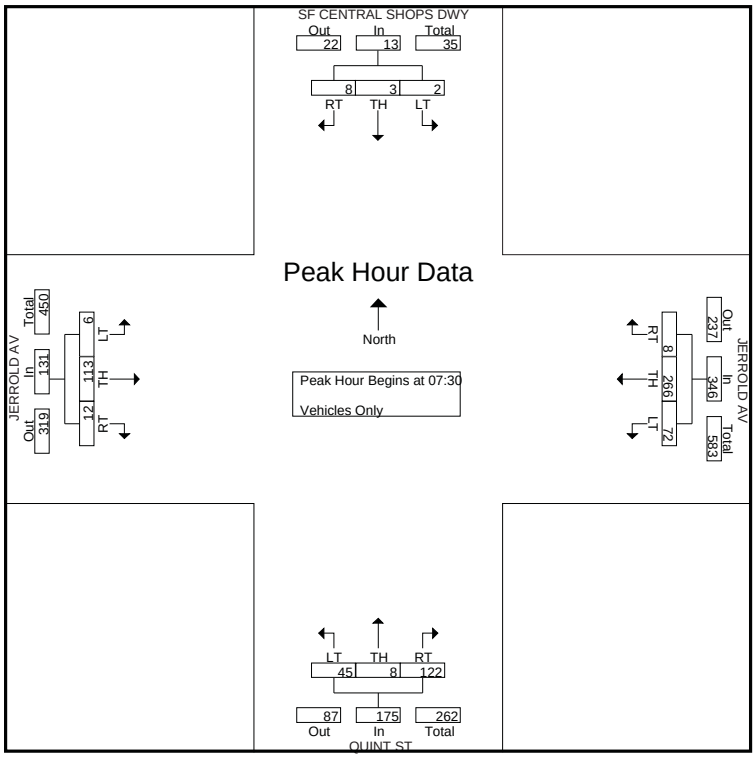

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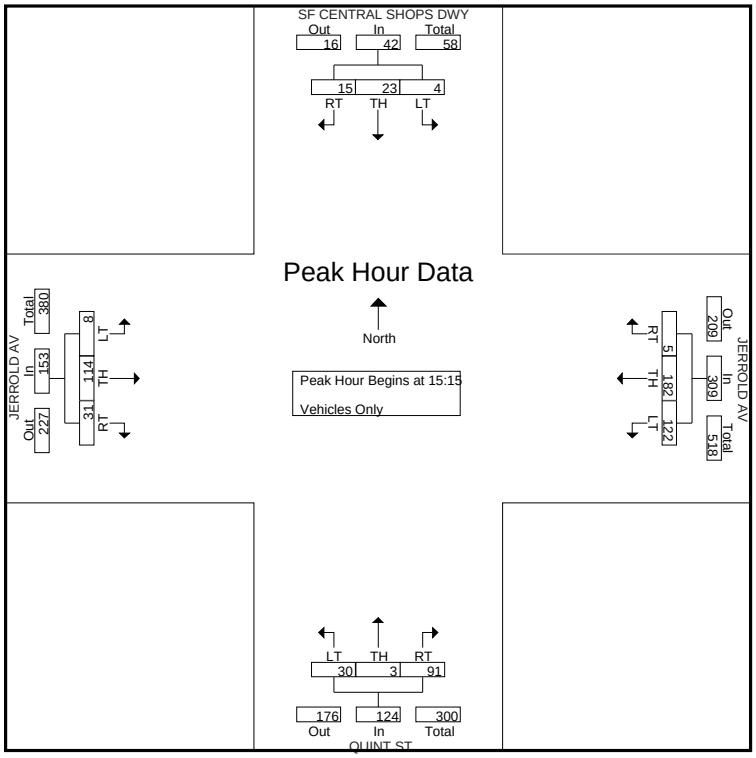

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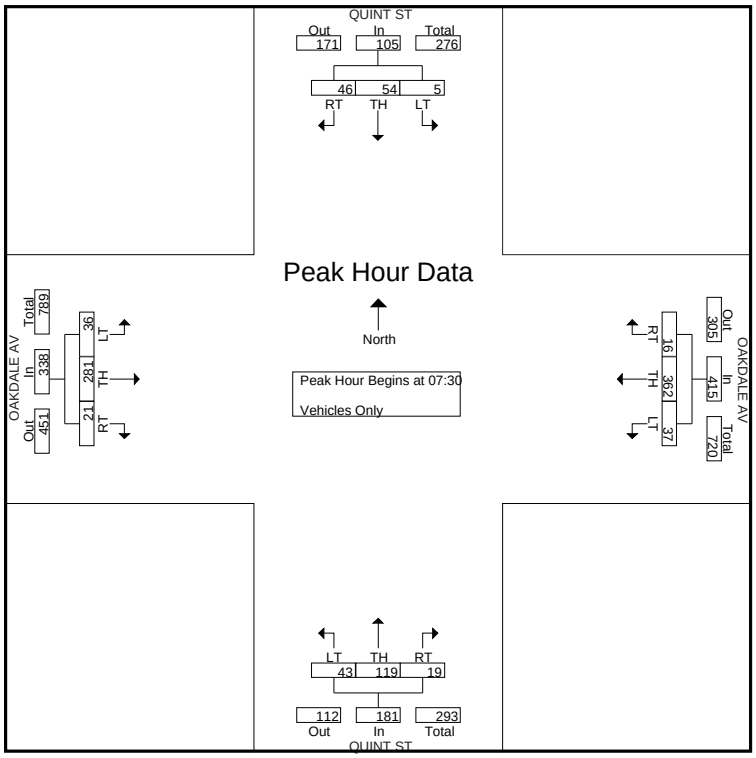

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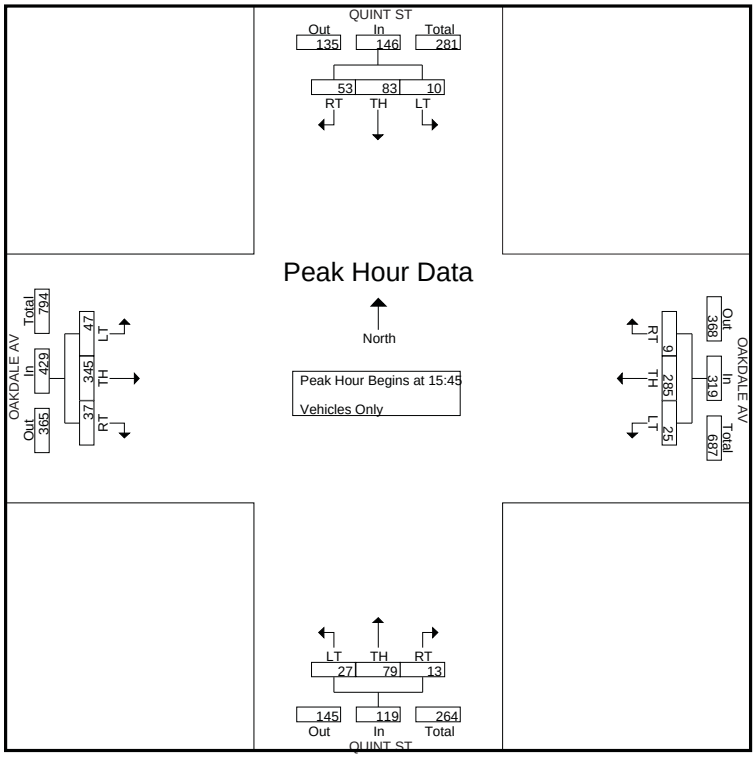

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CITY OF SAN FRANCISCO

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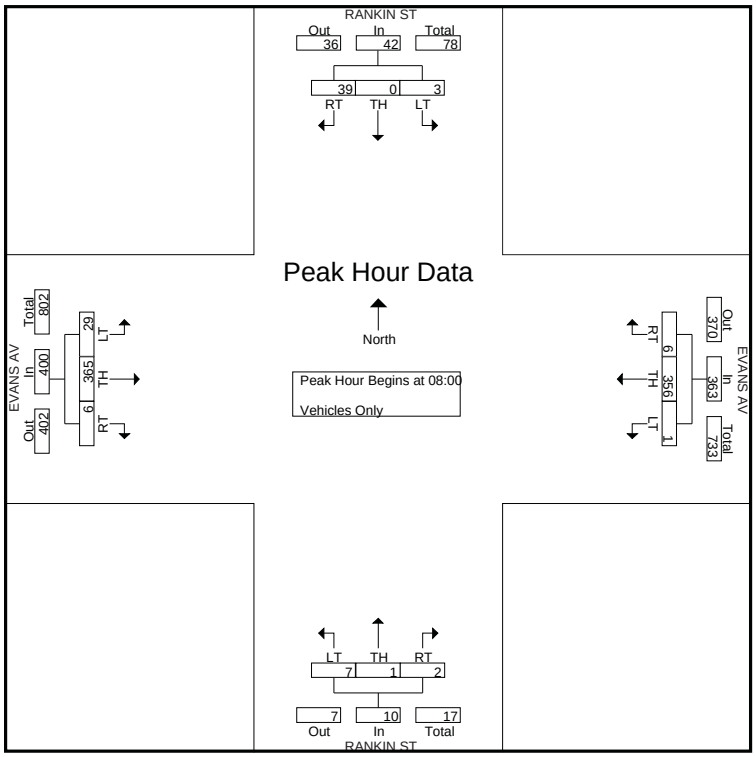

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CITY OF SAN FRANCISCO

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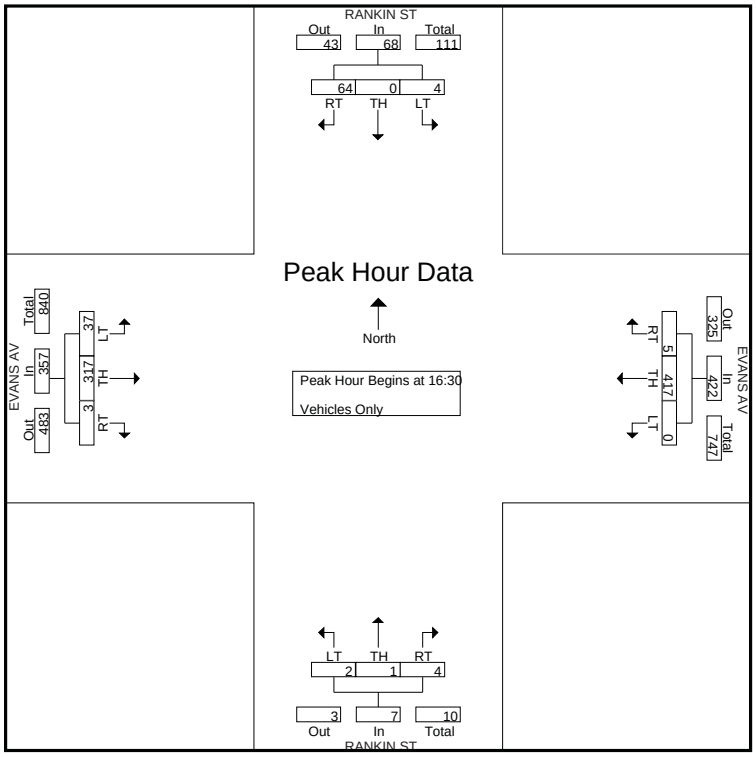

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CITY OF SAN FRANCISCO

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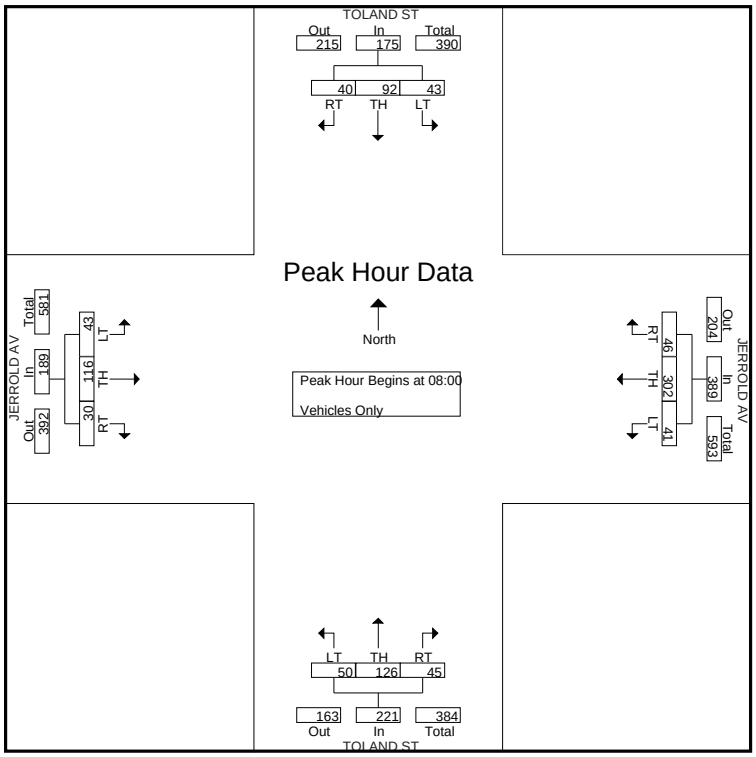

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CITY OF SAN FRANCISCO

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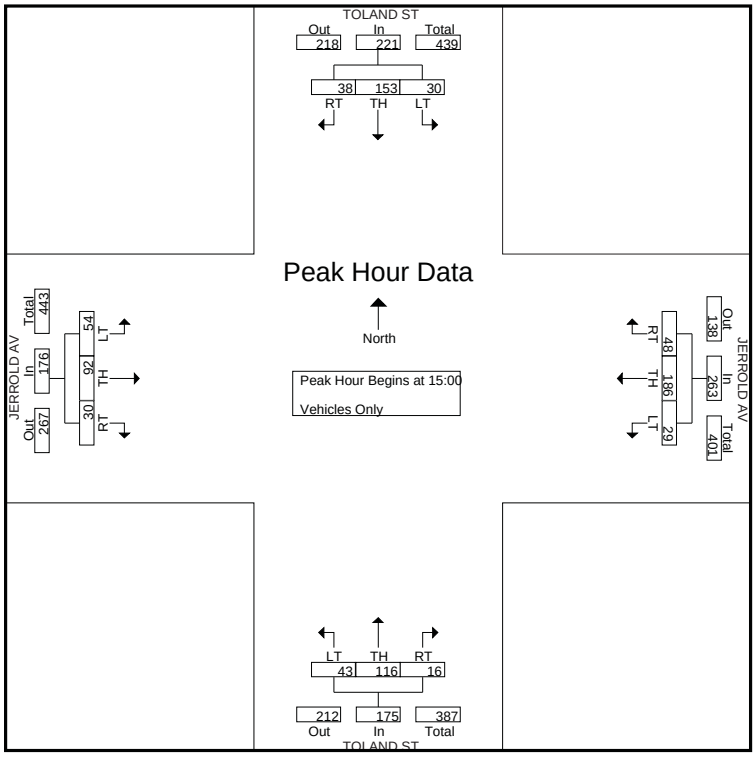

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CITY OF SAN FRANCISCO

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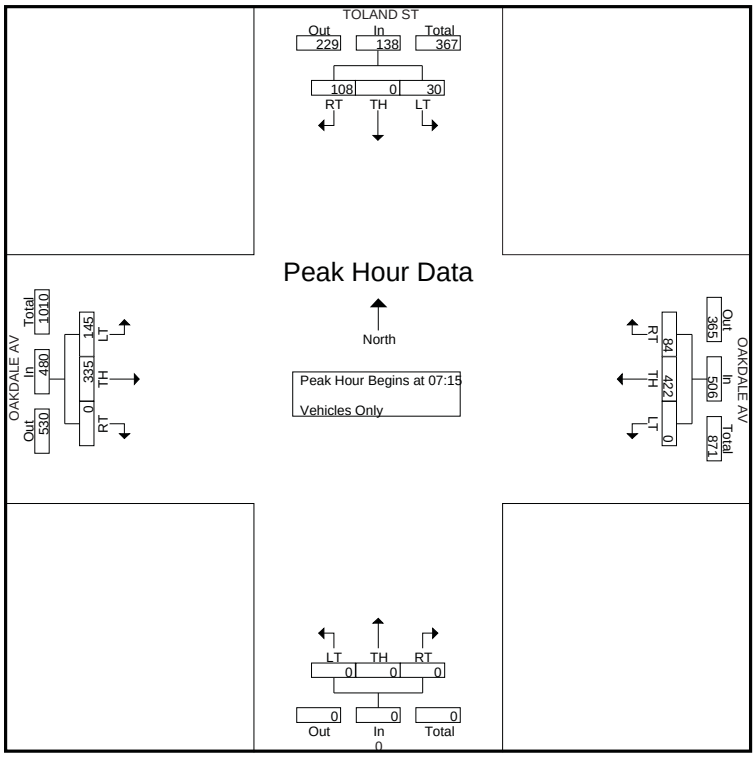

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CITY OF SAN FRANCISCO

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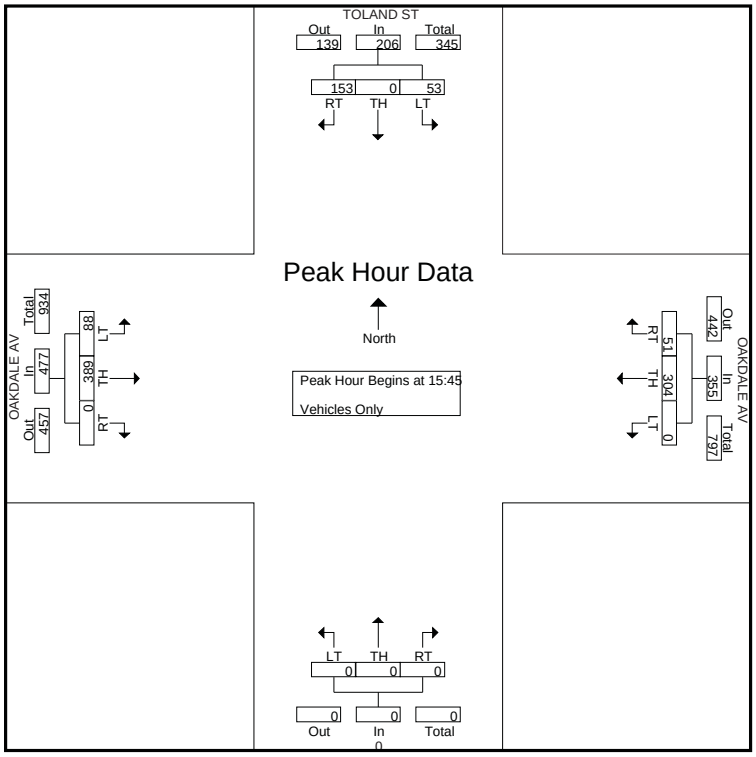

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CITY OF SAN FRANCISCO

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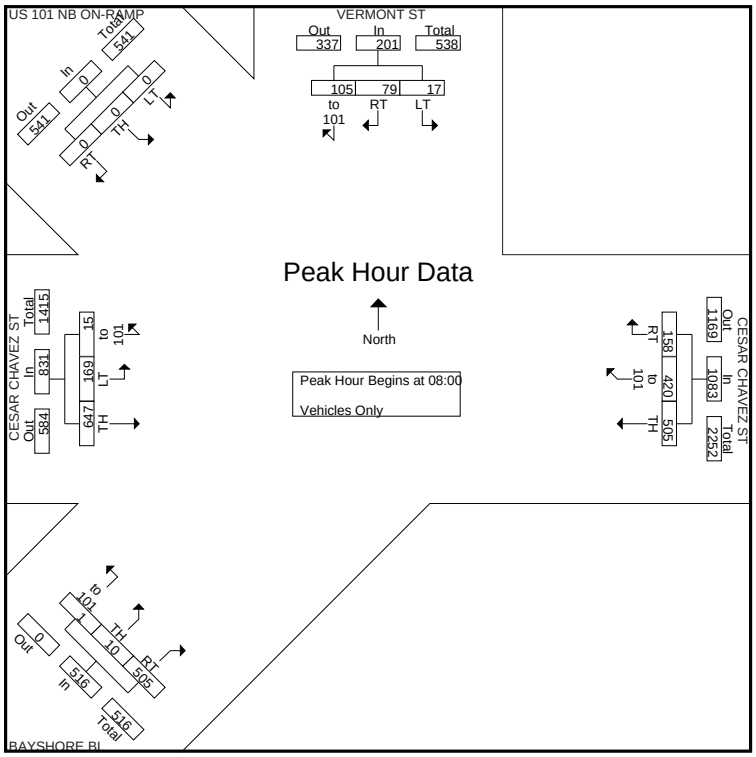

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CITY OF SAN FRANCISCO

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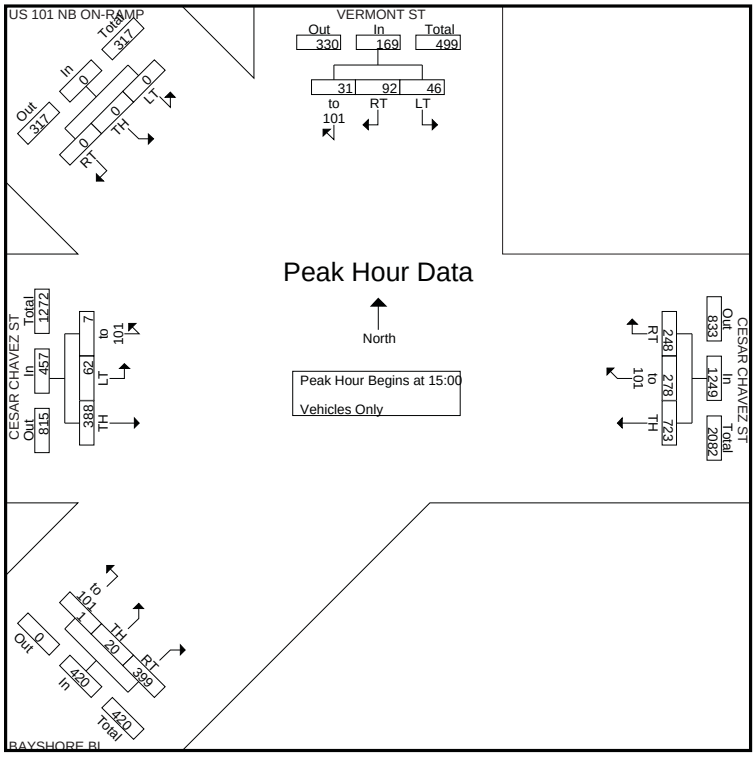

2. Transit Data

	Daily Total			AM Peak			Midday			School			PM Peak			Evening			Night		
Stop	**On**	**Off**	**Load**	**On**	**Off**	**Load**	**On**	**Off**	**Load**	**On**	**Off**	**Load**	**On**	**Off**	**Load**	**On**	**Off**	**Load**	**On**	**Off**	**Load**
Sloat Blvd&47th Ave NW-FS/BZ	13	-	13	2	-	2										7	-	7	4	-	4
Great Hwy&Sloat Blvd W-MB	76	-	94	13	-	16	22	-	22	15	-	17	26	-	28	-	-	7	-	-	4
Sloat Blvd&47th Ave SE-FS/BZ	51	2	143	10	1	25	13	-	35	11	-	28	17	1	44	-	-	7	-	-	4
Sloat Blvd&45th Ave SE-FS/BZ	89	1	231	30	-	55	24	1	58	14	-	42	11	-	55	4	-	11	6	-	10
Sloat Blvd&43rd Ave S-FS	12	-	243	7	-	62	4	-	62	1	-	43	-	-	55	-	-	11	-	-	10
Sloat Blvd&41st Ave S-FS/BZ	18	1	260	8	-	70	1	-	63	4	-	47	2	1	56	1	-	12	2	-	12
Sloat Blvd&Skyline Blvd SW-NS/BZ	43	1	302	14	-	84	14	1	76	3	-	50	8	-	64	2	-	14	2	-	14
Sloat Blvd&37th Ave SW-NS	3	-	305	-	-	84	1	-	77	2	-	52	-	-	64	-	-	14	-	-	14
Sloat Blvd&36th Ave SW-NS	27	-	332	8	-	92	8	-	85	3	-	55	6	-	70	1	-	15	1	-	15
Sloat Blvd&Clearfield Dr SW-NS/BZ	80	7	405	17	1	108	28	5	108	14	-	69	17	1	86	2	-	17	2	-	17
Sloat Blvd&Everglade Dr S-MB/BZ	145	18	532	18	2	124	34	5	137	29	7	91	36	4	118	14	-	31	14	-	31
Sloat Blvd&Sylvan Dr SW-NS/BZ	72	1	603	13	1	136	11	-	148	35	-	126	9	-	127	1	-	32	3	-	34
Sloat Blvd&Forest View Dr SW-NS	111	10	704	11	2	145	12	2	158	51	4	173	34	1	160	2	1	33	1	-	35
Sloat Blvd&26th Ave SW-NS/BZ	23	3	724	10	2	153	6	-	164	5	-	178	2	1	161	-	-	33	-	-	35
Sloat Blvd&23rd Ave SW-NS/BZ	9	1	732	3	-	156	-	-	164	2	-	180	3	1	163	1	-	34	-	-	35
Sloat Blvd&21st Ave SW-NS/BZ	22	5	749	1	1	156	16	3	177	1	-	181	2	1	164	1	-	35	1	-	36
Sloat Blvd&19th Ave SW-NS/BZ	86	47	788	18	3	171	22	17	182	18	13	186	21	10	175	6	2	39	1	2	35
Sloat Blvd&West Portal Ave SW-NS	124	177	735	15	59	127	24	60	146	33	18	201	33	26	182	13	7	45	6	7	34
Saint Francis Blvd&San Fernando SW	7	-	742	1	-	128	-	-	146	3	-	204	1	-	183	1	-	46	1	-	35
Saint Francis Blvd&Santa Ana Ave W	4	1	745	-	-	128	-	-	146	3	-	207	1	-	184	-	1	45	-	-	35
Saint Francis Blvd&Santa Clara Ave	2	1	746	-	1	127	-	-	146	2	-	209	-	-	184	-	-	45	-	-	35
Santa Clara Ave&Monterey Blvd NW-NS	9	2	753	-	1	126	-	-	146	8	-	217	1	-	185	-	1	44	-	-	35
Monterey Blvd&San Aleso Ave W-NS	17	9	761	3	3	126	2	1	147	11	2	226	1	3	183	-	-	44	-	-	35
Monterey Blvd&Northgate Dr SW-NS	21	24	758	8	1	133	6	6	147	2	7	221	1	5	179	3	4	43	1	1	35
Monterey Blvd&Faxon Ave S-FS	3	4	757	3	1	135	-	1	146	-	-	221	-	1	178	-	1	42	-	-	35
Monterey Blvd&Plymouth Ave NS-NS	23	4	776	12	-	147	2	1	147	2	1	222	6	2	182	-	-	42	1	-	36
Monterey Blvd&Valdez Ave SW-NS	6	4	778	4	1	150	-	2	145	1	-	223	1	1	182	-	-	42	-	-	36
Monterey Blvd&Ridgewood Ave SE-FS	25	41	762	13	9	154	4	17	132	2	8	217	4	5	181	-	2	40	2	-	38
Monterey Blvd&Gennessee St	65	50	777	29	13	170	19	18	133	6	7	216	7	10	178	2	-	42	2	2	38
Monterey Blvd&Foerster St SE-FS	96	46	827	33	3	200	23	16	140	19	16	219	12	5	185	6	4	44	3	2	39
Monterey Blvd&Edna St SW-NS/BZ	36	12	851	15	2	213	10	2	148	4	5	218	4	3	186	1	-	45	2	-	41
Monterey Blvd&Detroit St SE-FS/BZ	24	19	856	12	-	225	9	1	156	2	12	208	-	3	183	1	1	45	-	2	39
Monterey Blvd&Congo St SW-NS	18	16	858	11	2	234	4	3	157	1	4	205	2	5	180	-	1	44	-	1	38
Monterey Blvd&Baden St SW-NS	11	19	850	2	2	234	7	2	162	1	7	199	1	7	174	-	1	43	-	-	38
Monterey Blvd&Acadia St S-FS	2	4	848	2	-	236	-	1	161	-	-	199	-	2	172	-	1	42	-	-	38
Diamond St&Bosworth St SE-NS/BZ	314	385	777	68	152	152	41	73	129	45	78	166	110	49	233	31	10	63	19	23	34
Bosworth St&Milton St SW-NS	6	7	776	-	-	152	2	2	129	1	-	167	2	4	231	-	1	62	1	-	35
Bosworth St&Marsily St SW-NS	-	11	765	-	1	151	-	-	129	-	2	165	-	7	224	-	1	61	-	-	35
Mission St&Murray St NE-FS/BZ	32	92	705	16	13	154	6	20	115	3	25	143	4	26	202	2	6	57	1	2	34
Crescent Ave&College Ave SE-FS/BZ	102	61	746	25	8	171	21	6	130	16	16	143	28	20	210	10	8	59	2	3	33
Crescent Ave&Agnon Ave SE-FS	1	12	735	-	1	170	1	1	130	-	5	138	-	4	206	-	1	58	-	-	33
Crescent Ave&Arnold Ave SW-NS	9	26	718	2	1	171	1	2	129	3	6	135	3	11	198	-	5	53	-	1	32
Crescent Ave&Porter St SW-NS	-	17	701	-	1	170	-	3	126	-	6	129	-	6	192	-	1	52	-	-	32
Crescent Ave&Andover St SW-NS	7	53	655	2	2	170	2	7	121	2	9	122	1	27	166	-	5	47	-	3	29
Crescent Ave&Ellsworth St SW-NS	22	62	615	12	10	172	2	6	117	4	12	114	3	24	145	-	7	40	1	3	27
Crescent Ave&Folsom St SW-NS	9	34	590	-	4	168	2	7	112	3	8	109	3	11	137	1	4	37	-	-	27
Crescent Ave&Putnam St SW-NS	16	39	567	6	3	171	4	6	110	2	8	103	2	16	123	-	5	32	2	1	28
Bay Shore Blvd&Marengo St NE-FS	2	25	544	1	14	158	-	1	109	-	3	100	1	7	117	-	-	32	-	-	28
Bay Shore Blvd&Cortland Ave NE-FS	24	22	546	2	3	157	5	7	107	7	8	99	6	3	120	4	-	36	-	1	27
Bay Shore Blvd&Oakdale Ave S-NS	91	45	592	10	18	149	22	7	122	20	7	112	29	8	141	8	1	43	2	4	25
Oakdale Ave&Barneveld Ave SW-NS	6	25	573	-	22	127	1	-	123	3	3	112	2	-	143	-	-	43	-	-	25
Toland St&Newcomb Ave SE-NS	5	24	554	1	12	116	-	10	113	1	1	112	2	-	145	1	-	44	-	1	24
Toland St&Jerrold Ave SE-NS	6	41	519	3	19	100	1	8	106	1	6	107	1	-	146	-	2	42	-	6	18
Jerrold Ave&Selby St S-FS	1	24	496	-	14	86	-	3	103	-	-	107	-	2	144	1	4	39	-	1	17
Jerrold Ave&Rankin St S-FS/BZ	1	7	490	-	6	80	1	-	104	-	-	107	-	1	143	-	-	39	-	-	17
Jerrold Ave&Quint St S-FS	-	2	488	-	1	79	-	-	104	-	-	107	-	1	142	-	-	39	-	-	17
Jerrold Ave&Phelps St W-NS	3	37	454	-	7	72	1	6	99	2	11	98	-	9	133	-	3	36	-	1	16
Phelps St&Mckinnon Ave N-NS	1	42	413	-	8	64	-	9	90	-	9	89	-	11	122	1	3	34	-	2	14
Phelps St&Oakdale Ave N-NS	8	15	406	1	6	59	3	5	88	3	2	90	1	1	122	-	1	33	-	-	14
Phelps St&Palou Ave N-NS	7	21	392	2	1	60	2	4	86	1	7	84	2	7	117	-	1	32	-	1	13
Palou Ave&Newhall St E-NS/PS	2	16	378	-	-	60	1	3	84	-	4	80	1	7	111	-	2	30	-	-	13
Palou Ave&3rd St S-FS/BZ	146	68	457	21	9	72	35	17	102	25	17	88	44	20	135	8	4	34	13	1	26
Palou Ave&Lane St W-NS	16	30	443	1	2	71	5	5	102	2	7	83	3	12	126	4	3	35	1	1	26
Palou Ave&Keith St W-FS	8	50	401	2	8	65	-	10	92	2	10	75	1	17	110	2	5	32	1	-	27
Palou Ave&Jennings St W-NS	7	40	368	3	4	64	1	10	83	-	11	64	2	11	101	1	2	31	-	2	25
Palou Ave&Ingalls St S-NS	8	58	318	1	7	58	1	9	75	2	11	55	3	25	79	1	6	26	-	-	25
Oakdale Ave&Ingalls St S-FS	11	37	292	4	4	58	2	9	68	3	7	51	1	10	70	1	4	23	-	3	22
Oakdale Ave&Baldwin Ct S-FS	26	74	244	12	8	62	9	25	52	1	14	38	4	21	53	-	2	21	-	4	18
Oakdale Ave&Griffith St W-NS	31	35	240	12	3	71	13	4	61	2	4	36	3	14	42	-	7	14	1	3	16
Palou Ave&Crisp Ave N-FS	24	42	222	4	28	47	5	3	63	7	2	41	-	2	40	2	-	16	6	7	15
Palou Ave&Hawes St E-NS	48	47	223	20	3	64	12	11	64	10	9	42	4	17	27	1	5	12	1	2	14
Palou Ave&Ingalls St N-MB	86	12	297	31	2	93	22	2	84	8	3	47	10	3	34	6	2	16	9	-	23
Palou Ave&Jennings St E-NS	2	-	299	-	-	93	-	-	84	-	-	47	-	-	34	-	-	16	2	-	25
Palou Ave&Keith St E-NS	-	-	299	-	-	93	-	-	84	-	-	47	-	-	34	-	-	16	-	-	25
Palou Ave&Lane St E-NS	-	1	298	-	-	93	-	-	84	-	-	47	-	-	34	-	-	16	-	1	24
Palou Ave&3rd St E-NS/BZ	-	241	57	-	71	22	-	75	9	-	36	11	-	26	8	-	12	4	-	21	3
Total Passenger Boardings	2,461	2,410		608	587		550	541		487	478		545	539		154	150		117	115	
Passenger Miles	5,424			1,210			1,105			1,207			1,302			341			259		
Average Passenger Trip Length	2.2			2.0			2.0			2.5			2.4			2.2			2.2		

Stop selected in Loading Analysis Report

Transportation Management & Design, Inc © 2007

	Daily Total			AM Peak			Midday			School			PM Peak			Evening			Night		
Stop	**On**	**Off**	**Load**	**On**	**Off**	**Load**	**On**	**Off**	**Load**	**On**	**Off**	**Load**	**On**	**Off**	**Load**	**On**	**Off**	**Load**	**On**	**Off**	**Load**
Palou Ave&3rd St E-NS/BZ	268	-	324	80	-	94	85	-	95	39	-	39	41	-	64	13	-	19	10	-	13
Palou Ave&Newhall St E-NS/PS	34	4	354	8	-	102	12	-	107	-	-	39	10	3	71	3	-	22	1	1	13
Palou Ave&Phelps St E-NS	35	5	384	14	2	114	9	-	116	2	1	40	5	2	74	2	-	24	3	-	16
Phelps St&Oakdale Ave S-NS	17	16	385	5	8	111	3	5	114	2	2	40	3	1	76	1	-	25	3	-	19
Phelps St&Mckinnon Ave S-NS	32	4	413	16	1	126	6	1	119	3	-	43	4	1	79	1	1	25	2	-	21
Phelps St&Jerrold Ave S-NS	35	2	446	23	-	149	2	1	120	5	-	48	4	1	82	-	-	25	1	-	22
Jerrold Ave&Quint St E-NS	4	-	450	-	-	149	-	-	120	-	-	48	4	-	86	-	-	25	-	-	22
Jerrold Ave&Rankin St NE-MI	12	-	462	-	-	149	3	-	123	2	-	50	6	-	92	1	-	26	-	-	22
Jerrold Ave&Selby St N-FS	16	1	477	5	-	154	4	1	126	3	-	53	-	-	92	-	-	26	4	-	26
Toland St&Jerrold Ave W-FS/BZ	45	9	513	4	2	156	7	4	129	13	1	65	15	2	105	2	-	28	4	-	30
Toland St&Mckinnon Ave N-NS	6	2	517	-	-	156	1	-	130	2	2	65	2	-	107	-	-	28	1	-	31
Toland St&Oakdale Ave N-NS	27	1	543	1	1	156	6	-	136	12	-	77	7	-	114	-	-	28	1	-	32
Oakdale Ave&Loomis St NE-NS/BZ	30	87	486	5	29	132	3	27	112	1	5	73	19	16	117	2	6	24	-	4	28
380 Bay Shore Blvd N-NS	11	2	495	2	-	134	1	-	113	2	1	74	5	1	121	-	-	24	1	-	29
Bay Shore Blvd&Cortland Ave NW-NS	58	26	527	21	4	151	9	5	117	9	5	78	12	7	126	4	1	27	3	4	28
Bay Shore Blvd&Alemany Blvd NW-NS	13	-	540	2	-	153	3	-	120	4	-	82	2	-	128	-	-	27	2	-	30
Crescent Ave&Putnam St N-MB	54	8	586	26	1	178	12	4	128	-	-	82	5	3	130	-	-	27	11	-	41
Crescent Ave&Folsom St NE-NS	56	10	632	27	1	204	10	1	137	5	2	85	5	5	130	2	1	28	7	-	48
Crescent Ave&Ellsworth St NE-NS	84	21	695	45	4	245	12	3	146	10	3	92	9	6	133	2	3	27	6	2	52
Crescent Ave&Andover St NE-NS	71	7	759	39	2	282	14	2	158	4	2	94	8	1	140	2	-	29	4	-	56
Crescent Ave&Roscoe St NE-NS	8	2	765	7	-	289	1	1	158	-	-	94	-	-	140	-	-	29	-	1	55
Crescent Ave&Murray St NE-NS	25	6	784	14	2	301	4	1	161	3	1	96	3	2	141	-	-	29	1	-	56
Crescent Ave&Leese St NE-NS	7	2	789	6	-	307	1	1	161	-	-	96	-	1	140	-	-	29	-	-	56
Crescent Ave&Mission St NE-NS/BZ	68	162	695	29	51	285	16	38	139	11	25	82	9	29	120	2	6	25	1	13	44
Bosworth St&Mission St NW-FS	74	35	734	39	11	313	14	7	146	8	6	84	8	9	119	2	1	26	3	1	46
Bosworth St&Milton St NE-NS	12	1	745	8	-	321	2	-	148	2	1	85	-	-	119	-	-	26	-	-	46
Bosworth St&Rotteck St NW-FS	-	2	743	-	-	321	-	-	148	-	-	85	-	-	119	-	1	25	-	1	45
Diamond St&Bosworth St SW-FS/BZ	396	289	850	59	137	243	51	48	151	59	24	120	168	37	250	43	9	59	16	34	27
Monterey Blvd&Acadia St NW-FS/BZ	6	10	846	2	-	245	1	3	149	2	1	121	1	4	247	-	1	58	-	1	26
Monterey Blvd&Baden St NE-NS/BB	12	21	837	9	1	253	1	-	150	-	4	117	2	13	236	-	2	56	-	1	25
Monterey Blvd&Congo St NE-NS	11	47	801	6	4	255	1	9	142	1	4	114	3	22	217	-	7	49	-	1	24
Monterey Blvd&Detroit St NW-FS/BZ	16	56	761	6	-	261	4	4	142	1	17	98	2	27	192	2	7	44	1	1	24
Monterey Blvd&Edna St NE-NS	15	47	729	8	7	262	6	7	141	1	9	90	-	17	175	-	4	40	-	3	21
Monterey Blvd&Foerster St NW-FS	59	96	692	15	23	254	27	19	149	9	11	88	4	29	150	2	11	31	2	3	20
Monterey Blvd&Gennessee St	32	58	666	10	13	251	11	11	149	6	10	84	3	18	135	1	4	28	1	2	19
Monterey Blvd&Ridgewood Ave NE-NS	16	22	660	8	2	257	2	2	149	2	5	81	2	12	125	-	1	27	2	-	21
Monterey Blvd&Valdez Ave NE-NS	8	18	650	-	4	253	-	2	147	6	2	85	2	9	118	-	1	26	-	-	21
Monterey Blvd&Plymouth Ave NE-NS	11	20	641	5	3	255	4	2	149	1	5	81	1	6	113	-	2	24	-	2	19
Monterey Blvd&Saint Elmo Way NE-NS	1	7	635	-	-	255	-	-	149	-	-	81	1	6	108	-	1	23	-	-	19
Monterey Blvd&El Verano Way NE-NS	7	29	613	3	9	249	3	5	147	-	3	78	1	8	101	-	2	21	-	2	17
Monterey Blvd&San Jacinto Way E-NS	4	43	574	2	27	224	1	1	147	-	5	73	1	7	95	-	3	18	-	-	17
Santa Clara Ave&Saint Francis Blvd	2	2	574	1	-	225	1	2	146	-	-	73	-	-	95	-	-	18	-	-	17
Saint Francis Blvd&Santa Ana Ave NE	1	5	570	-	4	221	-	1	145	-	-	73	1	-	96	-	-	18	-	-	17
Saint Francis Blvd&San Fernando Way	4	7	567	-	5	216	3	-	148	-	1	72	1	1	96	-	-	18	-	-	17
Sloat Blvd&West Portal Ave NW-FS	172	97	642	19	42	193	57	28	177	40	11	101	44	11	129	10	2	26	2	3	16
Sloat Blvd&19th Ave NE-NS/BZ	38	113	567	5	51	147	14	37	154	7	10	98	9	9	129	3	2	27	-	4	12
Sloat Blvd&21st Ave NW-FS/BZ	6	7	566	-	-	147	1	3	152	3	1	100	2	3	128	-	-	27	-	-	12
Sloat Blvd&Crestlake Dr NW-FS/BZ	4	7	563	-	-	147	2	2	152	-	2	98	2	2	128	-	-	27	-	1	11
Sloat Blvd&Paraiso Pl NE-NS/BZ	2	22	543	1	9	139	1	2	151	-	4	94	-	4	124	-	2	25	-	1	10
Sloat Blvd&Vale Ave NE-NS/BZ	7	77	473	1	63	77	1	2	150	4	4	94	1	5	120	-	3	22	-	-	10
Sloat Blvd&El Mirasol Pl NW-FS/BZ	2	29	446	-	6	71	2	2	150	-	6	88	-	14	106	-	1	21	-	-	10
Sloat Blvd&Constanso Way NW-FS/BZ	4	100	350	-	10	61	1	46	105	2	22	68	1	16	91	-	3	18	-	3	7
Sloat Blvd&34th Ave NW-FS/BZ	12	50	312	2	6	57	3	17	91	4	10	62	2	12	81	1	5	14	-	-	7
Sloat Blvd&36th Ave NW-FS/BZ	-	28	284	-	6	51	-	5	86	-	5	57	-	12	69	-	-	14	-	-	7
Sloat Blvd&39th Ave NW-FS/BZ	-	40	244	-	9	42	-	8	78	-	8	49	-	10	59	-	4	10	-	1	6
Sloat Blvd&41st Ave N-FS/BZ	2	31	215	1	5	38	-	8	70	-	6	43	1	10	50	-	1	9	-	1	5
Sloat Blvd&43rd Ave N-FS/BZ	1	37	179	-	5	33	-	15	55	-	7	36	1	8	43	-	2	7	-	-	5
Sloat Blvd&45th Ave NW-FS/BZ	5	77	107	-	12	21	-	22	33	-	18	18	1	19	25	2	4	5	2	2	5
Sloat Blvd&47th Ave NW-FS/BZ	2	39	70	1	8	14	-	10	23	1	6	13	-	6	19	-	4	1	-	5	-
Great Hwy&Sloat Blvd W-MB	-	64	4	-	13	1	-	22	1	-	12	1	-	17	1						
Total Passenger Boardings	1,960	2,010		590	603		438	447		291	290		443	464		103	108		95	98	
Passenger Miles	4,405			1,434			1,035			607			935			207			187		
Average Passenger Trip Length	2.2			2.4			2.4			2.1			2.1			2.0			2.0		

Stop selected in Loading Analysis Report

Transportation Management & Design, Inc © 2007

Relocated Segment

			Daily Total	
To Bayview (eastbound)		**On**	**Off**	**Total**
1	Toland & Newcomb	5	24	29
2	Toland & Jerrold	6	41	47
3	Jerrold & Selby	1	24	25
4	Jerrold & Rankin (BZ)	1	7	8
5	Jerrold & Quint	0	2	2
6	Jerrold & Phelps	3	37	40
7	Phelps & McKinnon	1	42	43
8	Phelps & Oakdale	8	15	23
9	Phelps & Palou	7	21	28
		32	213	245
	Route Daily Totals	2,461	2,410	4,871
	Segment as % of Route	1.3%	8.8%	5.0%

			Daily Total	
To SF Zoo (westbound)		**On**	**Off**	**Total**
1	Phelps & Oakdale	17	16	33
2	Phelps & McKinnon	32	4	36
3	Phelps & Jerrold	35	2	37
4	Jerrold & Quint	4	0	4
5	Jerrold & Rankin (MI)	12	0	12
6	Jerrold & Selby	16	1	17
7	Toland & Jerrold (BZ)	45	9	54
8	Toland & McKinnon	6	2	8
9	Toland & Oakdale	27	1	28
		194	35	229
	Route Daily Totals	2,461	2,410	4,871
	Segment as % of Route	7.9%	1.5%	4.7%

Source: SFMTA TEP
Data Collected Fall 2006 - Spring 2007
SFMTA website

3. Pedestrian and Bicycle Data

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File Name: C:\Petra Pro\San Francisco\Adavant\sf puc\phelps-jerrold-a.ppd
Start Date: 5/27/2015
Start Time: 6:00:00 AM
Site Code: 9
Comment 1: CITY OF SAN FRANCISCO
Comment 2: Bicycle and Pedestrian Volumes
Comment 3: Phelps/Jerrold
Comment 4: AM Peak Period

	PHELPS ST Southbound					JERROLD AV Westbound					PHELPS ST Northbound					JERROLD AV Eastbound				
Start Time	RT	TH	LT	total	Ped	RT	TH	LT	total	Ped	RT	TH	LT	total	Ped	RT	TH	LT	total	Ped
06:00	0	0	0	0	1	0	0	0	0	0	0	0	3	3	1	0	0	0	0	0
06:15	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	1	0	1	2	0
06:30	1	1	0	2	1	0	0	0	0	2	0	0	0	0	1	0	0	3	3	1
06:45	1	0	0	1	2	0	0	0	0	2	0	1	0	1	5	1	0	0	1	0
07:00	1	1	0	2	1	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0
07:15	0	0	0	0	0	0	0	0	0	3	0	3	0	3	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	1
07:45	0	0	0	0	1	0	0	0	0	4	0	1	0	1	0	0	0	0	0	5
08:00	0	0	0	0	0	0	1	0	1	1	0	0	0	0	2	0	0	1	1	1
08:15	0	0	0	0	1	0	0	0	0	3	1	1	0	2	0	0	0	2	2	2
08:30	1	1	0	2	1	0	0	0	0	1	0	0	0	0	1	0	2	1	3	0
08:45	0	0	0	0	2	0	0	0	0	2	0	1	0	1	3	0	0	1	1	2
6:00 - 7:00	2	1	0	3	4	0	0	0	0	5	0	1	4	5	7	2	0	4	6	1
6:15 - 7:15	3	2	0	5	4	0	0	0	0	6	0	1	1	2	6	2	1	4	7	1
6:30 - 7:30	3	2	0	5	4	0	0	0	0	8	0	4	0	4	6	1	1	3	5	1
6:45 - 7:45	2	1	0	3	3	0	0	0	0	7	0	5	0	5	5	1	1	0	2	1
7:00 - 8:00	1	1	0	2	2	0	0	0	0	9	0	5	0	5	0	0	1	0	1	6
7:15 - 8:15	0	0	0	0	1	0	1	0	1	9	0	5	0	5	2	0	0	1	1	7
7:30 - 8:30	0	0	0	0	2	0	1	0	1	9	1	3	0	4	2	0	0	3	3	9
7:45 - 8:45	1	1	0	2	3	0	1	0	1	9	1	2	0	3	3	0	2	4	6	8
8:00 - 9:00	1	1	0	2	4	0	1	0	1	7	1	2	0	3	6	0	2	5	7	5

File Name: C:\Petra Pro\San Francisco\Adavant\sf puc\phelps-jerrold-p.ppd
Start Date: 5/27/2015
Start Time: 3:00:00 PM
Site Code: 9
Comment 1: CITY OF SAN FRANCISCO
Comment 2: Bicycle and Pedestrian Volumes
Comment 3: Phelps/Jerrold
Comment 4: PM Peak Period

	PHELPS ST Southbound					JERROLD AV Westbound					PHELPS ST Northbound					JERROLD AV Eastbound				
Start Time	RT	TH	LT	total	Ped	RT	TH	LT	total	Ped	RT	TH	LT	total	Ped	RT	TH	LT	total	Ped
15:00	0	0	0	0	0	0	1	0	1	1	0	0	0	0	2	0	0	0	0	1
15:15	0	1	0	1	1	0	0	0	0	2	0	0	0	0	1	0	0	2	2	3
15:30	1	0	0	1	0	0	0	0	0	1	0	0	0	0	3	0	1	0	1	1
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	2	0	0	1	1	0	0	0	0	0	3
16:15	0	0	0	0	0	0	1	0	1	2	0	0	0	0	0	0	0	0	0	1
16:30	0	1	0	1	0	0	1	0	1	1	0	6	0	6	1	0	0	0	0	3
16:45	0	0	0	0	0	0	1	0	1	3	0	1	0	1	0	1	0	0	1	2
17:00	0	1	0	1	0	0	1	0	1	0	0	0	1	1	3	0	0	0	0	4
17:15	2	3	1	6	2	0	1	0	1	2	0	0	1	1	2	0	2	1	3	4
17:30	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
17:45	0	0	0	0	2	0	1	0	1	2	0	0	0	0	0	1	0	1	2	0
3:00 - 4:00	1	1	0	2	1	0	1	0	1	4	0	0	0	0	7	0	1	2	3	5
3:15 - 4:15	1	1	0	2	1	0	0	0	0	5	0	0	1	1	5	0	1	2	3	7
3:30 - 4:30	1	0	0	1	0	0	1	0	1	5	0	0	1	1	4	0	1	0	1	5
3:45 - 4:45	0	1	0	1	0	0	2	0	2	5	0	6	1	7	2	0	0	0	0	7
4:00 - 5:00	0	1	0	1	0	0	3	0	3	8	0	7	1	8	1	1	0	0	1	9
4:15 - 5:15	0	2	0	2	0	0	4	0	4	6	0	7	1	8	4	1	0	0	1	10
4:30 - 5:30	2	5	1	8	2	0	4	0	4	6	0	7	2	9	6	1	2	1	4	13
4:45 - 5:45	2	4	1	7	3	0	3	0	3	6	0	1	2	3	6	1	2	1	4	10
5:00 - 6:00	2	4	1	7	5	0	3	0	3	5	0	0	2	2	6	1	2	2	5	8

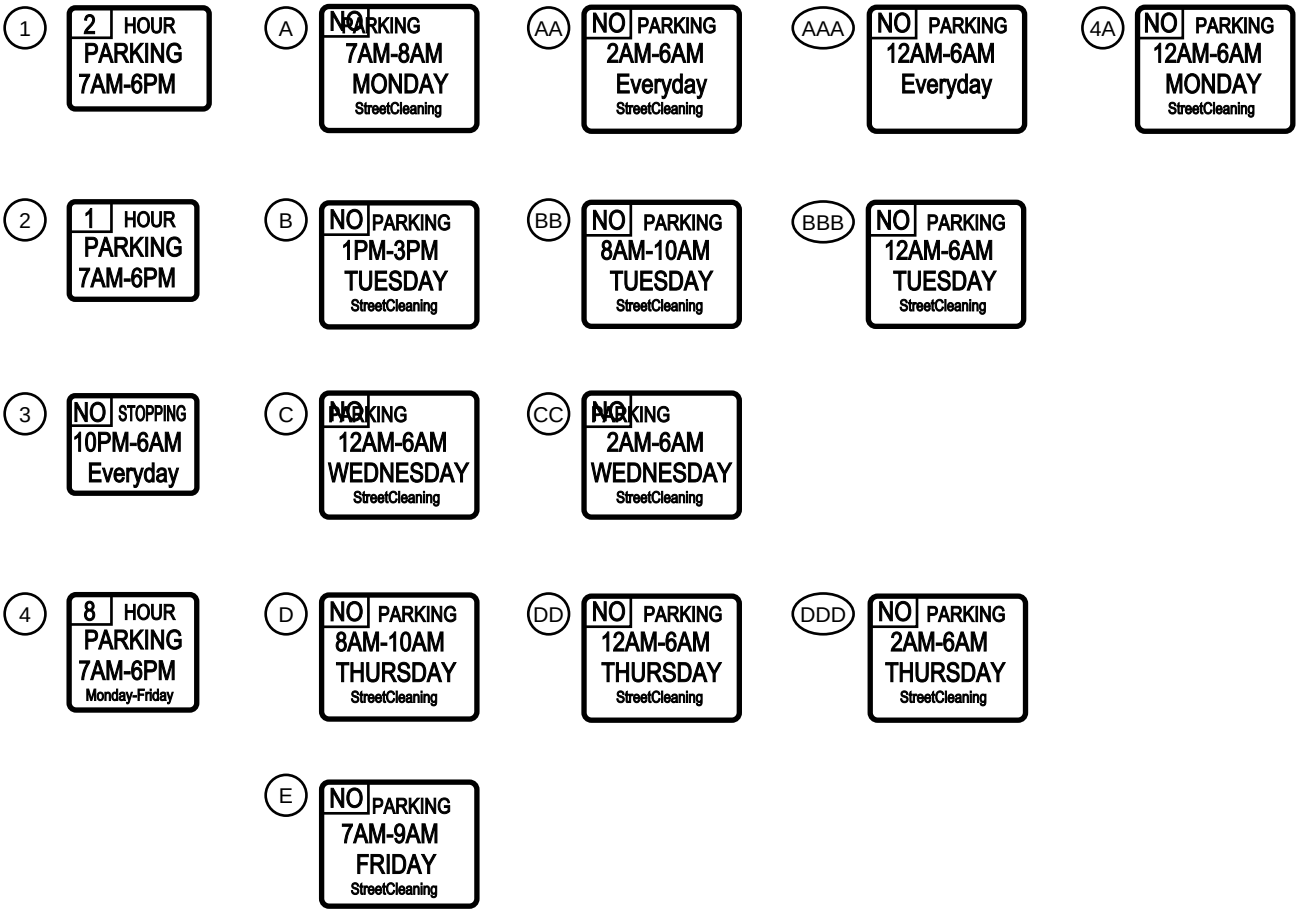
File Name: c:\petra pro\san francisco\adavant\sf puc\phelps-oakdale-a.ppd
Start Date: 5/27/2015
Start Time: 6:00:00 AM
Site Code: 12
Comment 1: CITY OF SAN FRANCISCO
Comment 2: Bicycle and Pedestrian Volumes
Comment 3: Phelps/Oakdale
Comment 4: AM Peak Period

	PHELPS ST Southbound					OAKDALE AV Westbound					PHELPS ST Northbound					OAKDALE AV Eastbound				
Start Time	RT	TH	LT	total	Ped	RT	TH	LT	total	Ped	RT	TH	LT	total	Ped	RT	TH	LT	total	Ped
06:00	0	0	0	0	1	0	0	0	0	1	0	0	0	0	5	0	0	0	0	2
06:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
06:30	0	0	0	0	0	0	1	0	1	2	0	0	0	0	1	0	1	0	1	0
06:45	0	0	0	0	4	0	0	0	0	7	0	0	0	0	1	0	1	1	2	4
07:00	0	0	0	0	3	0	2	0	2	11	0	0	0	0	2	0	1	0	1	2
07:15	0	0	0	0	2	0	0	0	0	11	0	1	0	1	1	0	1	2	3	2
07:30	0	0	0	0	4	0	0	0	0	9	0	0	0	0	3	0	0	1	1	6
07:45	0	0	1	1	5	0	3	0	3	11	0	0	0	0	0	0	7	0	7	7
08:00	0	0	0	0	2	0	1	0	1	11	0	0	0	0	3	0	3	0	3	11
08:15	0	0	0	0	0	0	0	0	0	6	0	0	0	0	7	0	0	2	2	4
08:30	0	0	0	0	4	0	0	0	0	7	0	0	0	0	3	0	1	0	1	5
08:45	0	0	0	0	0	0	2	0	2	0	0	0	1	1	0	0	2	0	2	0
6:00 - 7:00	0	0	0	0	5	0	1	0	1	10	0	0	0	0	8	0	2	1	3	7
6:15 - 7:15	0	0	0	0	7	0	3	0	3	20	0	0	0	0	5	0	3	1	4	7
6:30 - 7:30	0	0	0	0	9	0	3	0	3	31	0	1	0	1	5	0	4	3	7	8
6:45 - 7:45	0	0	0	0	13	0	2	0	2	38	0	1	0	1	7	0	3	4	7	14
7:00 - 8:00	0	0	1	1	14	0	5	0	5	42	0	1	0	1	6	0	9	3	12	17
7:15 - 8:15	0	0	1	1	13	0	4	0	4	42	0	1	0	1	7	0	11	3	14	26
7:30 - 8:30	0	0	1	1	11	0	4	0	4	37	0	0	0	0	13	0	10	3	13	28
7:45 - 8:45	0	0	1	1	11	0	4	0	4	35	0	0	0	0	13	0	11	2	13	27
8:00 - 9:00	0	0	0	0	6	0	3	0	3	24	0	0	1	1	13	0	6	2	8	20

File Name: C:\Petra Pro\San Francisco\Adavant\sf puc\phelps-oakdale-p.ppd
Start Date: 5/27/2015
Start Time: 3:00:00 PM
Site Code: 12
Comment 1: CITY OF SAN FRANCISCO
Comment 2: Bicycle and Pedestrian Volumes
Comment 3: Phelps/Oakdale
Comment 4: PM Peak Period

	PHELPS ST Southbound					OAKDALE AV Westbound					PHELPS ST Northbound					OAKDALE AV Eastbound				
Start Time	RT	TH	LT	total	Ped	RT	TH	LT	total	Ped	RT	TH	LT	total	Ped	RT	TH	LT	total	Ped
15:00	0	0	0	0	4	0	0	0	0	4	0	0	0	0	3	0	1	0	1	11
15:15	1	0	0	1	5	0	2	0	2	3	0	0	0	0	5	0	1	0	1	3
15:30	1	0	0	1	4	0	1	0	1	6	0	0	0	0	3	0	2	1	3	5
15:45	0	0	0	0	2	0	5	0	5	1	0	0	0	0	3	0	1	0	1	4
16:00	0	0	0	0	6	0	0	0	0	3	0	0	0	0	4	0	1	0	1	13
16:15	0	0	0	0	1	0	2	0	2	4	0	0	0	0	0	0	0	0	0	7
16:30	0	1	0	1	4	5	2	0	7	4	0	0	0	0	5	0	0	0	0	8
16:45	0	0	0	0	8	0	4	0	4	8	0	0	0	0	6	0	0	0	0	16
17:00	0	0	0	0	6	0	1	0	1	7	0	0	0	0	8	0	0	0	0	12
17:15	0	0	0	0	3	0	2	0	2	3	0	0	1	1	6	0	5	1	6	6
17:30	0	0	1	1	10	0	0	0	0	5	0	0	0	0	2	0	0	0	0	7
17:45	0	0	1	1	2	0	0	0	0	5	0	1	0	1	4	0	7	0	7	3
3:00 - 4:00	2	0	0	2	15	0	8	0	8	14	0	0	0	0	14	0	5	1	6	23
3:15 - 4:15	2	0	0	2	17	0	8	0	8	13	0	0	0	0	15	0	5	1	6	25
3:30 - 4:30	1	0	0	1	13	0	8	0	8	14	0	0	0	0	10	0	4	1	5	29
3:45 - 4:45	0	1	0	1	13	5	9	0	14	12	0	0	0	0	12	0	2	0	2	32
4:00 - 5:00	0	1	0	1	19	5	8	0	13	19	0	0	0	0	15	0	1	0	1	44
4:15 - 5:15	0	1	0	1	19	5	9	0	14	23	0	0	0	0	19	0	0	0	0	43
4:30 - 5:30	0	1	0	1	21	5	9	0	14	22	0	0	1	1	25	0	5	1	6	42
4:45 - 5:45	0	0	1	1	27	0	7	0	7	23	0	0	1	1	22	0	5	1	6	41
5:00 - 6:00	0	0	2	2	21	0	3	0	3	20	0	1	1	2	20	0	12	1	13	28

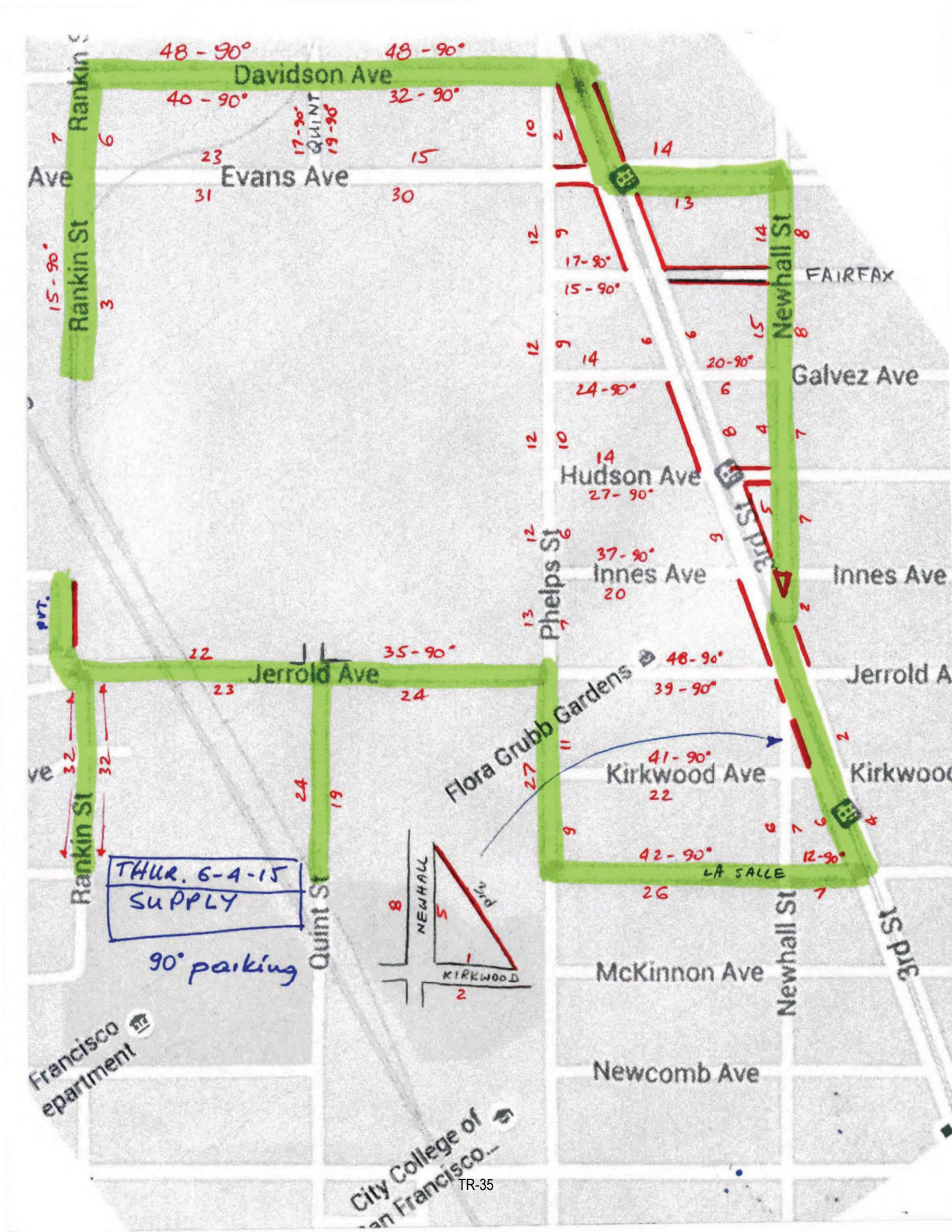
4. Parking Data



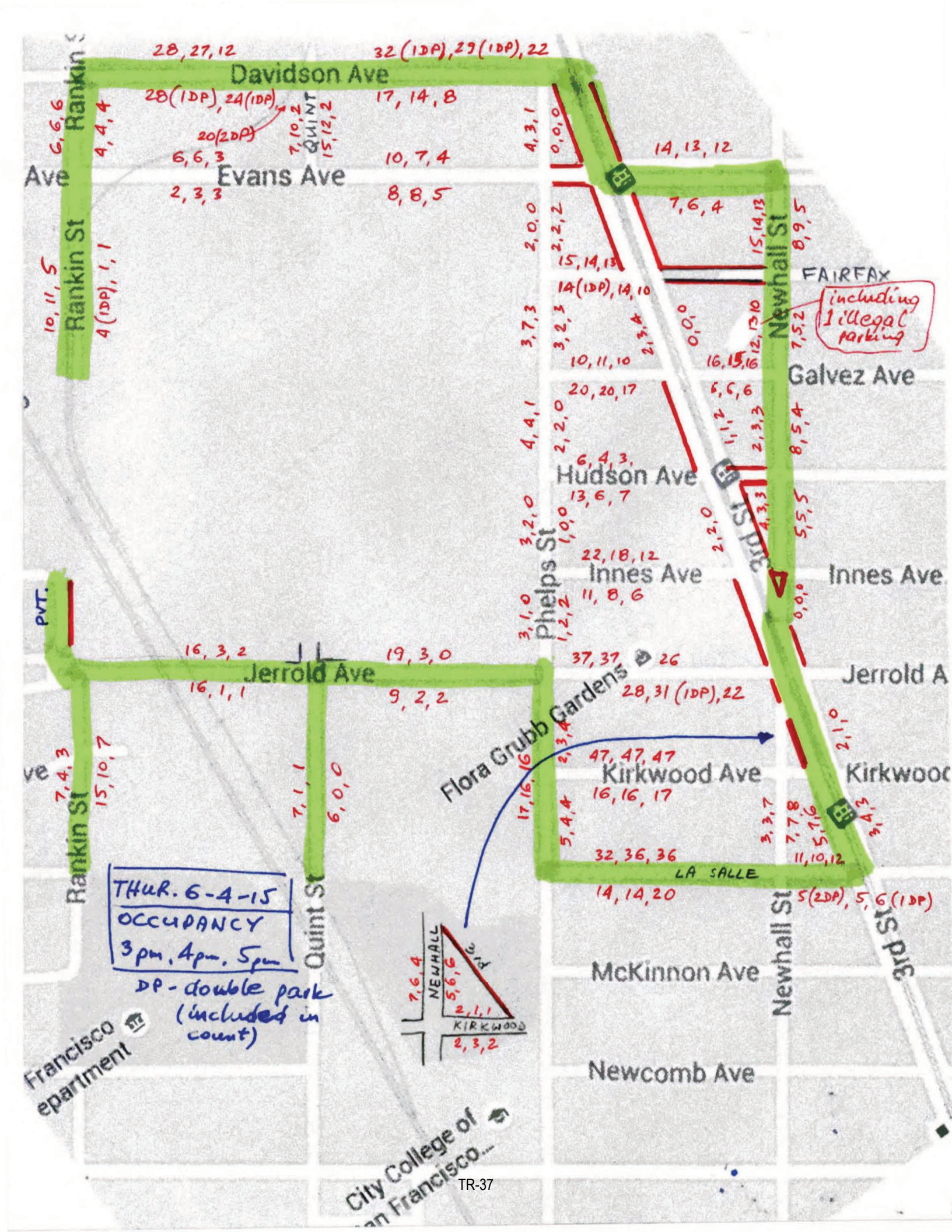
City of San Francisco

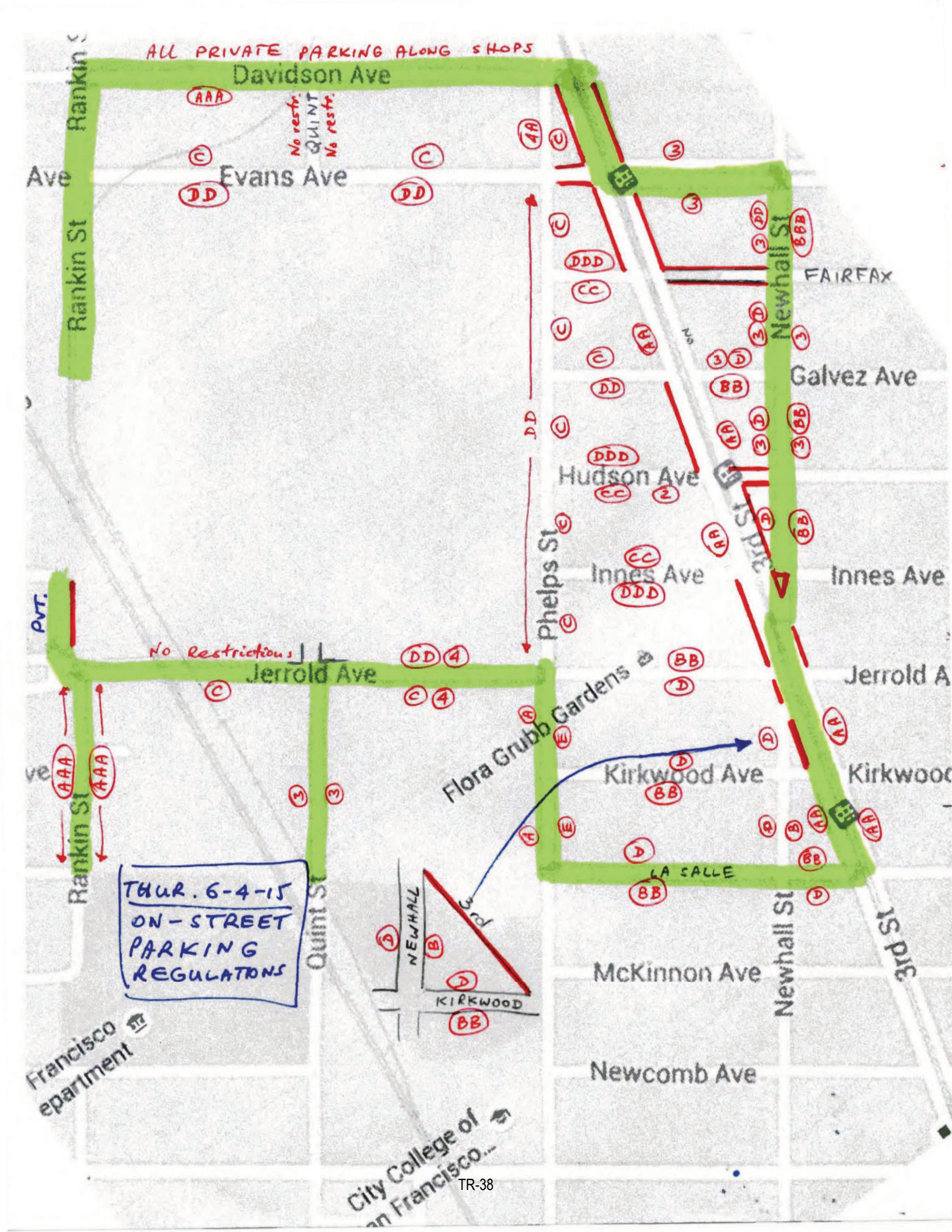
PUC Project

June 2015	Prepared by: MTD


Davidson Ave
Evans Ave
Rankin St
Quint St
Newhall St
Galvez Ave
Hudson Ave
Innes Ave
Jerrold Ave
Flora Grubb Gardens
Kirkwood Ave
LA SALLE
McKinnon Ave
Newcomb Ave
Phelps St
3rd St
FAIRFAX
NEWHALL
KIRKWOOD
THUR. 6-4-15
SUPPLY
90° parking
City College of San Francisco

Davidson Ave
Evans Ave
Rankin St
Quint St
Newhall St
3rd St
Phelps St
Hudson Ave
Galvez Ave
Innes Ave
Jerrold Ave
Flora Grubb Gardens
Kirkwood Ave
LA SALLE
McKinnon Ave
Newcomb Ave
FAIRFAX
PVT.
8, 18, 23
24, 31, 34
8, 10, 12
6, 11, 14
5, 8, 4
6, 4, 10
4, 5, 9
2, 3, 9
0, 3, 13 (3DP)
13, 14, 10
13, 13, 11
3, 6, 5
1, 6, 9
2, 6 (1DP), 7
8, 16, 20 (3DP)
8, 10, 17
2, 6, 8
12, 18, 19
12, 14, 15
9, 24, 28
3, 7, 8
33, 49, 42
2, 6, 9
40, 30, 3
23, 21 (2DP), 30 (8DP)
45, 44, 43
12, 7, 1
4, 6 (1DP), 3
9, 11, 10
3, 8, 9
4, 7, 13
5, 11, 11
11, 15, 13
Thur. 6-4-15
OCCUPANCY
6am, 7am, 8am
DP - double park (included in count)
NEWHALL
KIRKWOOD
3rd
2, 2, 2
City College of San Francisco...
Francisco Department


Davidson Ave
Evans Ave
Rankin St
Quint St
Newhall St
Galvez Ave
Hudson Ave
Innes Ave
Phelps St
3rd St
Jerrold Ave
Flora Grubb Gardens
Kirkwood Ave
LA SALLE
McKinnon Ave
Newcomb Ave
FAIRFAX
including 1 illegal parking
THUR. 6-4-15
OCCUPANCY
3pm, 4pm, 5pm
DP - double park (included in count)
City College of San Francisco...


ALL PRIVATE PARKING ALONG SHOPS
Davidson Ave
Rankin St
Evans Ave
No restr.
QUINT
No restr.
Newhall St
FAIRFAX
Galvez Ave
Hudson Ave
Phelps St
Innes Ave
Jerrold Ave
No Restrictions
Flora Grubb Gardens
Kirkwood Ave
LA SALLE
McKinnon Ave
Newcomb Ave
3rd St
Quint St
NEWHALL
KIRKWOOD
PVT.
THUR. 6-4-15
ON-STREET
PARKING
REGULATIONS
City College of
San Francisco...

				Occupancy								
	Supply			**3:00 PM**			**4:00 PM**			**5:00 PM**		
	North	**South**	**Total**	**North**	**South**	**Total**	**North**	**South**	**Total**	**North**	**South**	**Total**
Davidson Ave	96	72	168	60	45	105	56	38	94	34	28	62
Evans Avenue	52	74	126	30	17	47	26	17	43	19	12	31
Fairfax	17	15	32	15	14	29	14	14	28	13	10	23
Galvez Ave	44	30	74	26	26	52	26	26	52	26	23	49
Hudson Ave	14	27	41	6	13	19	4	6	10	3	7	10
Innes Ave	37	20	57	22	11	33	18	8	26	12	6	18
Jerrold Avenue	57	47	104	35	25	60	6	3	9	2	3	5
Jerrold Avenue	48	39	87	37	28	65	37	31	68	26	22	48
Kirkwood Avenue	42	22	64	49	18	67	48	19	67	48	19	67
LaSalle	54	33	87	43	19	62	46	19	65	48	26	74
	461	379	840	323	216	539	281	181	462	231	156	387
	East	**West**	**Total**	**East**	**West**	**Total**	**East**	**West**	**Total**	**East**	**West**	**Total**
Rankin Street	41	54	95	23	23	46	15	21	36	12	14	26
Quint Street	38	41	79	21	14	35	12	11	23	2	3	5
Phelps Street	63	98	161	16	36	52	15	33	48	15	21	36
Third Street	18	21	39	6	9	15	6	12	18	5	10	15
Newhall Street	44	52	96	40	43	83	37	42	79	30	40	70
	204	266	470	106	125	231	85	119	204	64	88	152
Davidson Ave				63%	63%	63%	58%	53%	56%	35%	39%	37%
Evans Avenue				58%	23%	37%	50%	23%	34%	37%	16%	25%
Fairfax				88%	93%	91%	82%	93%	88%	76%	67%	72%
Galvez Ave				59%	87%	70%	59%	87%	70%	59%	77%	66%
Hudson Ave				43%	48%	46%	29%	22%	24%	21%	26%	24%
Innes Ave				59%	55%	58%	49%	40%	46%	32%	30%	32%
Jerrold Avenue				61%	53%	58%	11%	6%	9%	4%	6%	5%
Jerrold Avenue				77%	72%	75%	77%	79%	78%	54%	56%	55%
Kirkwood Avenue				117%	82%	105%	114%	86%	105%	114%	86%	105%
LaSalle				80%	58%	71%	85%	58%	75%	89%	79%	85%
				70%	***57%***	***64%***	***61%***	***48%***	***55%***	***50%***	***41%***	***46%***
Rankin Street				56%	43%	48%	37%	39%	38%	29%	26%	27%
Quint Street				55%	34%	44%	32%	27%	29%	5%	7%	6%
Phelps Street				25%	37%	32%	24%	34%	30%	24%	21%	22%
Third Street				33%	43%	38%	33%	57%	46%	28%	48%	38%
Newhall Street				91%	83%	86%	84%	81%	82%	68%	77%	73%
				52%	***47%***	***49%***	***42%***	***45%***	***43%***	***31%***	***33%***	***32%***
Total Study Area	***665***	***645***	***1,310***	429	341	770	366	300	666	295	244	539
				65%	***53%***	***59%***	***55%***	***47%***	***51%***	***44%***	***38%***	***41%***
				65%	53%	59%	55%	47%	51%	44%	38%	41%

	Jerrold Ave Rankin-Phelps	Jerrold Ave Phelps-Third	Rest of Study Area	Total Study Area
Supply	104	87	1,119	1,310
Occupied Spaces				
AM Period				
6:00 AM	36	35	396	467
7:00 AM	63	55	476	594
8:00 AM	62	51	516	629
PM Period				
3:00 PM	60	65	645	770
4:00 PM	9	68	589	666
5:00 PM	5	48	486	539
Percent Occupied				
AM Period				
6:00 AM	35%	40%	35%	36%
7:00 AM	61%	63%	43%	45%
8:00 AM	60%	59%	46%	48%
PM Period				
3:00 PM	58%	75%	58%	59%
4:00 PM	9%	78%	53%	51%
5:00 PM	5%	55%	43%	41%

	Jerrold Ave	**Jerrold Ave**	**Rest of**	**Total Study**
	Rankin-Phelps	**Phelps-Third**	**Study Area**	**Area**
Supply	21	87	1,119	1,227
	less 83 spaces			
Occupied Spaces				
AM Period				
6:00 AM	36	35	396	467
7:00 AM	63	55	476	594
8:00 AM	62	51	516	629
PM Period				
3:00 PM	60	65	645	770
4:00 PM	9	68	589	666
5:00 PM	5	48	486	539
Percent Occupied				
AM Period				
6:00 AM				38%
7:00 AM				48%
8:00 AM				51%
PM Period				
3:00 PM				63%
4:00 PM				54%
5:00 PM				44%

	Jerrold Ave	**Jerrold Ave**	**Rest of**	**Total Study**
	Rankin-Phelps	**Phelps-Third**	**Study Area**	**Area**
Supply	84	87	1,119	1,290
	less 20 spaces			
Occupied Spaces				
AM Period				
6:00 AM	36	35	396	467
7:00 AM	63	55	476	594
8:00 AM	62	51	516	629
PM Period				
3:00 PM	60	65	645	770
4:00 PM	9	68	589	666
5:00 PM	5	48	486	539
Percent Occupied				
AM Period				
6:00 AM	43%	40%	35%	36%
7:00 AM	75%	63%	43%	46%
8:00 AM	74%	59%	46%	49%
PM Period				
3:00 PM	71%	75%	58%	60%
4:00 PM	11%	78%	53%	52%
5:00 PM	6%	55%	43%	42%

5. Field Survey Notes

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Transit Field Notes

DATE March 2016

PURPOSE

LCW Consulting

CUE COLUMN NOTES

23 Monterey remove these stops - confirm

Toland / Oakdale SB	Toland / Newell NB
Tolad / McKinnon SB	Jerrold / Selby EB
Told / Jerold EB	Jerrold / Rankin EB
Jerrold / Selby WB	Jerrold / Phelps EB
Jerrold / Rankin WB	Pellps / Odell SB
Jerrold / Quint WB	
Phelps / McKinnon SB NB	

loss of 2 to 5 park spaces per stop

New stops — Oakdale / Told EB WB

Told → Ind = 634 feet

Ind. Oak - Palou 330 feet

634
330
964

loss 4 to 10

942

4 2 x 2 2x5
4 x 2 4x5
8 20

SUMMARY

1 to 2 new bus stops in each direction

LCW Consulting

FIELD SURVEY - SEP SITE 10/9/16

SIDEWALK WIDTHS

Evans Avenue

15' W of Rankin

9' E of Rankin
8'
10'

ped signals on all approaches
8 - 10' E of Quint

Phelps Steet

@ Evans Ave Heading south

path 8'
8'

3' 7" @ curb for cars

11'

10'

10' 5" s. of path @ Hudson

Jerrold Avenue

10'

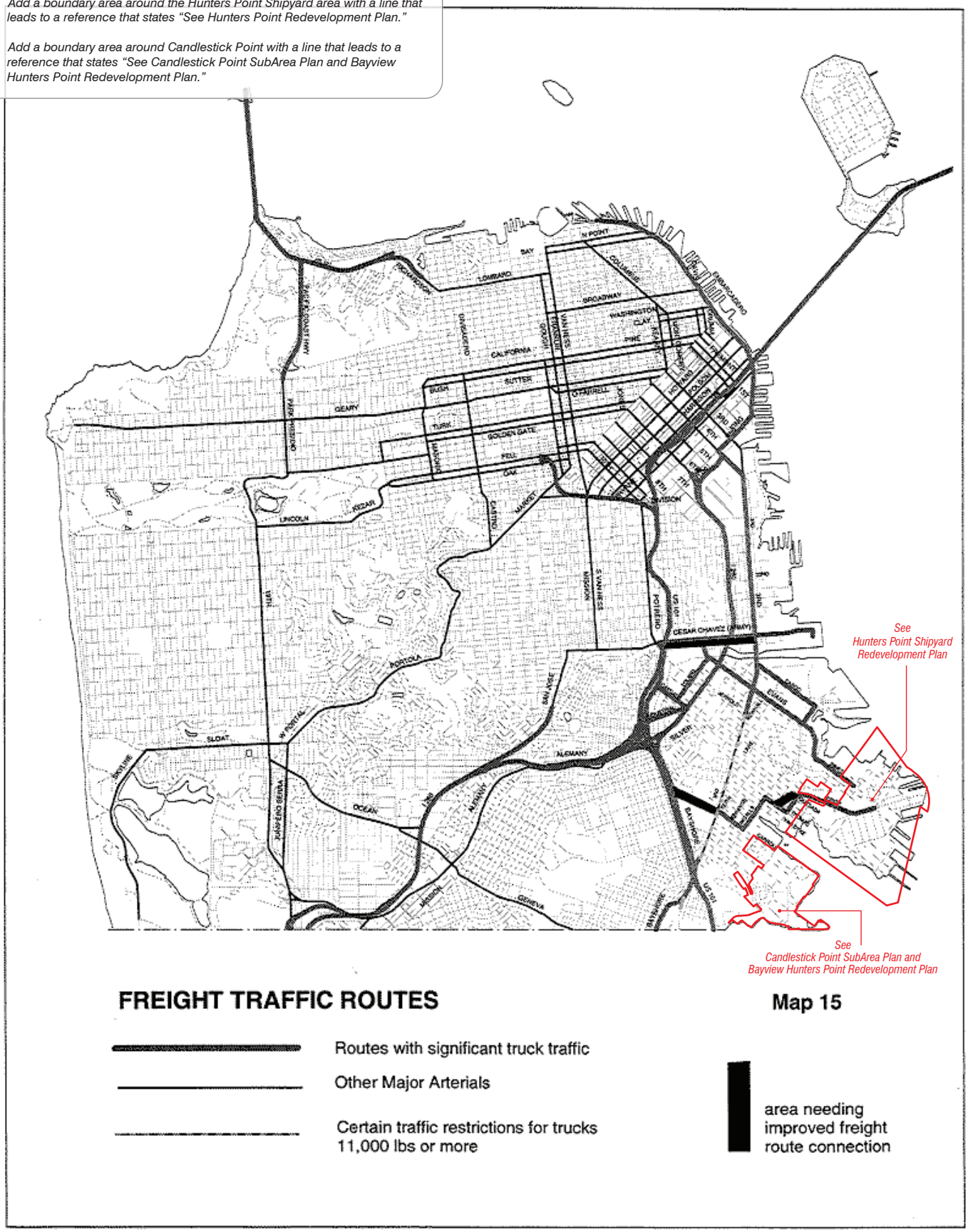
6. Truck Traffic Routes and Restrictions

MAP APPROVED BY THE BOARD OF SUPERVISORS

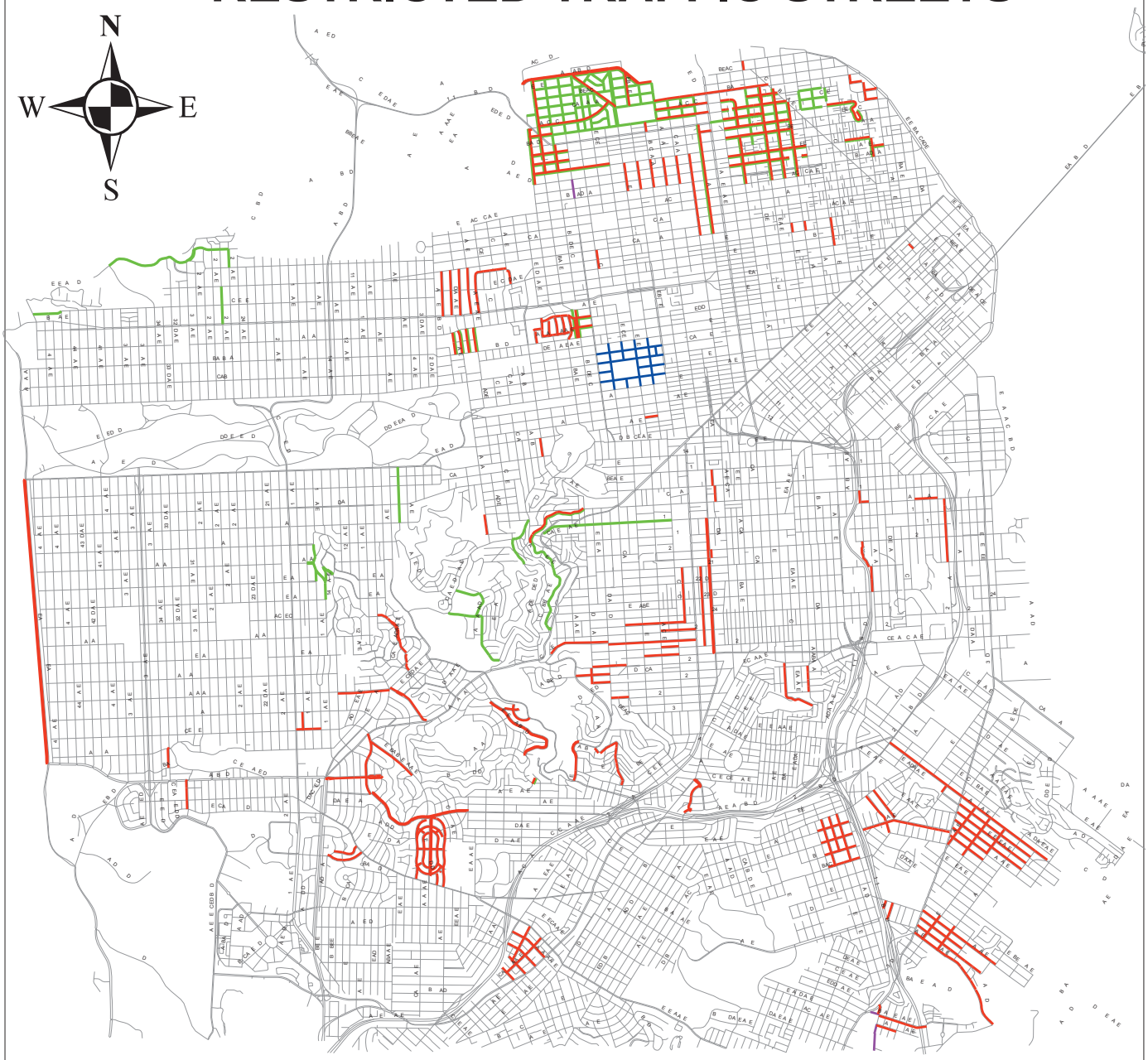
The notation below in italics represents a recent amendment to the General Plan that has been approved by the Board of Supervisors after this map was originally adopted. The change will be added to the map during the next map update.

→ *Add a boundary area around the Hunters Point Shipyard area with a line that leads to a reference that states "See Hunters Point Redevelopment Plan."*

→ *Add a boundary area around Candlestick Point with a line that leads to a reference that states "See Candlestick Point SubArea Plan and Bayview Hunters Point Redevelopment Plan."*



RESTRICTED TRAFFIC STREETS



- Weight Restriction Over 3 Tons Transportation Code Section 501(b)
- Weight Restriction Over 9 Tons Transportation Code Section 501(c)
- Buses and Vans With 8 or More Passengers Restricted
- Buses and Vans With 8 or More Passengers Restricted (Alamo Square Neighborhoud)

BASEMAP:
Department of Public Works

RESTRICTED STREETS LAYER:
SFMTA - SUSTAINABLE STREETS

Notes:

1) Certain vehicles exempt, including vehicles with business in that block, utility vehicles, emergency vehicles, school buses, and city vehicles.
2) Transportation code restricts the parking of commercial vehicles with gross weight over 10,000 pounds on residentially zoned areas.

For further information on restricted traffic streets, go to: www.sfgov.org and view the Municipal Codes Transportation Code

SFMTA
Municipal Transportation Agency

C 1

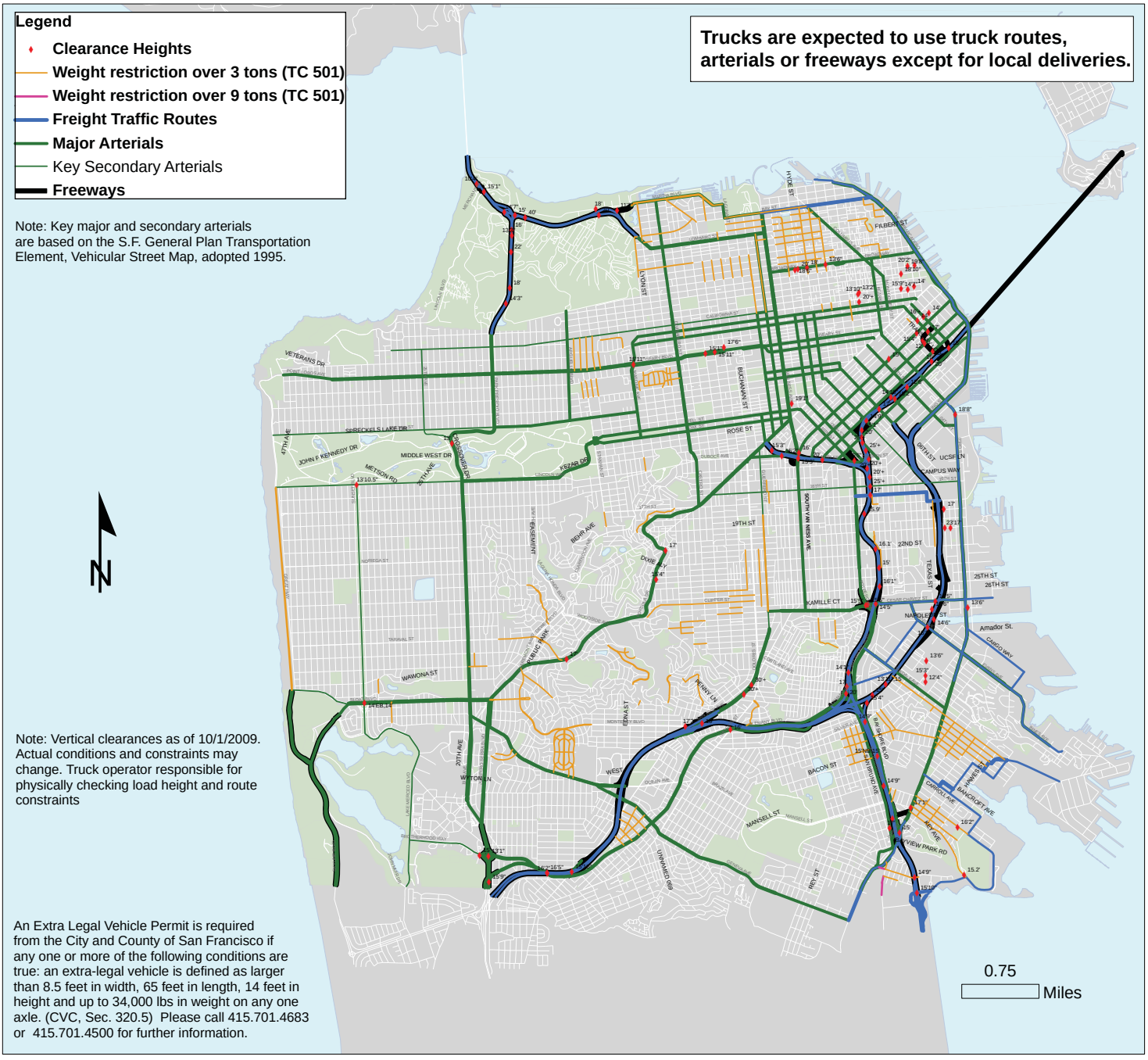
C 3

Disclaimer:
The City and County of San Francisco does not guarantee the accuracy or completeness of any information provided.

LAST MODIFIED: 05/12/2016

2 2 1
A

San Francisco Truck Traffic Routes



SFMTA | Municipal Transportation Agency

The City and County of San Francisco does not guarantee the accuracy or completeness of any information in this map. Call 415.701.4500 for comments, questions or suggestions.

Sam Fielding
Jan. 29, 2010

7. Travel Demand

San Francisco Superdistrict Boundaries

The boundaries of the four San Francisco Superdistricts are based on the travel analysis zones established by the Metropolitan Transportation Commission (MTC). The four Superdistricts shown in this figure are aggregations of the MTC's 1454 Regional Travel Analysis Zones (May 2002) that encompasses the nine-county San Francisco Bay Area. MTC's 1454-zone system fits within the year 2000 U.S. Census tracts.

SEP Biosolids Project

DAILY VEHICLE-TRIPS AND VEHICLE-MILES OF TRAVEL SUMMARY	Existing 2015		Existing plus Construction				2040 or 2045	
			October 2018 [a]		May 2022 [b]			
	Vehicle-trips	Vehicle-Miles	Vehicle-trips	Vehicle-Miles	Vehicle-trips	Vehicle-Miles	Vehicle-trips	Vehicle-Miles
PLANT STAFF AND RELATED VEHICLES TO/FROM SITE	488	16,524	488	16,524	488	16,524	488	16,524
DELIVERY TRUCKS TO/FROM SITE	60	3,000	60	3,000	60	3,000	60	3,000
CONSTRUCTION TRUCKS	----	----	142	4,440	56	1,652	----	----
CONSTRUCTION WORKERS	----	----	264	5,054	685	13,315	----	----
CONSTRUCTION WORKERS SHUTTLE BUS	----	----	----	----	8	12	----	----
TOTAL	548	19,524	954	29,018	1,297	34,503	548	19,524

[a] Month with Highest Construction Total Truck Traffic
[b] Month with Highest Number of Construction Workers

SEP Biosolids Project

PLANT STAFF AND RELATED VEHICLES TO/FROM SITE	Existing Average per weekday			Typical Work Hours	Existing Access Points	Average per weekday	Notes
PLANT STAFF					Jerrold Northside		154 parking spaces on-site
Operations on Watch 6am-6pm	13			6:00 am to 6:00 pm		13	(Includes some disabled and 3 motorcycle slots)
Operations on Watch 6pm-6am	13			6:00 pm to 6:00 am		13	
Operations (Training, Special Projects)	30			6:00 am to 2:30 pm		30	
Maintenance	124			6:00 am to 2:30 pm		124	
Engineering	34			7:00 am to 3:30 pm		34	
Laboratory	23			7:00 am to 3:30 pm		23	
Others (Admin, Safety, etc.)	20			7:00 am to 3:30 pm		20	
Total Plant Staff - Day	244					244	
Total Plant Staff - Night	13					13	
TOTAL DAILY PLANT STAFF	*257*					*257*	
			Veh.				
Plant Day Staff by Mode of Travel			Occup				
Drive alone	180	74%	1.00			180	
Carpool	15	6%	7.50			15	2 veh (3 people in 1 car & 10 people in a van)
BART (vía shuttle)	30	12%	7.50			30	24th St BART(4 trips in AM & 4 trips in PM
SF Muni and other transit	19	8%				19	(shuttle seats 10 passenger and 1 driver)
Walk/Other modes	0	0%				0	
Total Plant Staff - Day	*244*	*100%*				*244*	
Plant Day Staff Vehicle-trips	380		1.69			380	
Plant Night Staff Vehicle-trips	26		1.00			26	
TOTAL PLANT STAFF VEHICLE TRIPS	*406*					*406*	
PLANT CITY VEHICLES				6:00 am to 6:00 pm	Jerrold Northside		45 parking spaces on-site
SEP City vehicles	20					20	
Other PUC Vehicles	0					0	
Total Plant City Vehicles	*20*					*20*	
Total Plant Staff Vehicle-trips	*40*					*40*	Assume 2 trips per vehicle per day
TOTAL STAFF AND PLANT VEHICLE-TRIPS	446					446	
			Veh.				
VISITORS AND TOURS			Occup				
Plant visitors	20		1.00			20	
Plant tour attendees	25		25			25	
Total Plant Visitors and Tour Attendees	*45*					*45*	
Total Plant Visitor and Tours Vehicle-trips	*42*					42	
TOTAL PLANT STAFF & VISITORS VEHICLE TRIPS	488					488	
Total daytime-only plant staff & visitors vehicle trips	462					462	

SEP Biosolids Project

DAILY PLANT STAFF AND RELATED VEHICLES TO/FROM SITE

	Origin/Destination	Miles one-way	% of trips [a] Work	% of trips [a] Visitors	Number of Vehicles-trips Plant Staff	Plant Vehicles	Visitors & Tours	Total	Total No. of Vehicle-miles of Travel
SD1	Broadway / Columbus	5.5	8.3%	13.0%	34	7	7	48	528
SD2	Geary / Arguello	6.5	10.6%	14.0%	43	8	8	59	767
SD3	Guerrero / César Chávez	2.5	23.9%	44.0%	97	19	24	140	700
SD4	Taraval / 30th Av	10.5	7.9%	7.0%	32	6	3	41	861
EB	Walnut Creek	27	14.3%	9.0%	58			58	3,132
NB	Petaluma	43	5.6%	1.0%	23			23	1,978
SB	Palo Alto	31	26.9%	9.0%	109			109	6,758
Other	Sacramento	90	2.5%	3.0%	10			10	1,800
TOTAL			100.0%	100.0%	406	40	42	488	16,524

[a] Based on San Francisco Guidelines Tables E-5 Work Trips to SD3 (All) and E-15 Visitor Trips to SD-3 All Other

DAYTIME ONLY PLANT STAFF AND RELATED VEHICLES TO/FROM SITE

	Origin/Destination	Number of Daytime Vehicles-trips Plant Staff	Plant Vehicles	Visitors & Tours	Total
SD1	Broadway / Columbus	32	7	7	39
SD2	Geary / Arguello	40	8	8	53
SD3	Guerrero / César Chávez	91	19	24	137
SD4	Taraval / 30th Av	30	6	3	34
EB	Walnut Creek	54	0	0	38
NB	Petaluma	21	0	0	22
SB	Palo Alto	102	0	0	132
Other	Sacramento	10	0	0	7
TOTAL		380	40	42	462

HOURLY PLANT STAFF AND RELATED VEHICLES TO/FROM SITE

	Origin/Destination	AM PEAK HOUR Inbound	AM PEAK HOUR Outbound	AM PEAK HOUR Total	PM PEAK HOUR Inbound	PM PEAK HOUR Outbound	PM PEAK HOUR Total
SD1	Broadway / Columbus	20	4	23	4	20	23
SD2	Geary / Arguello	24	4	28	4	24	28
SD3	Guerrero / César Chávez	58	10	67	10	58	67
SD4	Taraval / 30th Av	17	3	20	3	17	20
EB	Walnut Creek	27	0	27	0	27	27
NB	Petaluma	11	0	11	0	11	11
SB	Palo Alto	51	0	51	0	51	51
Other	Sacramento	5	0	5	0	5	5
TOTAL		211	20	231	20	211	231

SEP Biosolids Project

TYPICAL NUMBER OF TRUCKS TO/FROM SITE	Existing Total Monday thru Friday	Existing Average per weekday	Typical Work Hours	Existing Access Points	2045 Average per weekday	Round trip miles per truck	Notes	Daily Vehicle-miles of Travel Existing	2040
CHEMICALS									
Bisulfite	2	< 1	Daytime (mainly morning)	Jerrold Northside	< 1	50	Richmond, CA (Chevron Facility)	< 50	< 50
Ferric Chloride	2	< 1	Daytime	Jerrold Southside	< 1	100	Based on existing ferric deliveries from Kemira Water Solutions Inc.(45051 Industrial Drive, Fremont, CA 9453	< 100	< 100
Hypochlorite	7	< 2	Daytime (mainly morning)	Jerrodl Northside	< 2	140	Tracy, CA	< 280	< 280
Oxygen	1	< 1		Jerrold Northside	< 1	130	Vacaville (50%), Pittsburg (30%), Sacramento (20%)	< 130	< 130
Polymer	3	< 1	Daytime	Jerrold Southside	< 1	800	Based on existing polymer deliveries from SNF Polydyne Inc. (4690 Worth St, Los Angeles, CA 90063)	< 800	< 800
Subtotal	*15*	< 6			< 6			< 1,360	< 1,360
GRIT	2	< 1	Before Noon	Jerrold Northside; exit to Rankin only on as-needed basis	< 1	60	Ox Mountain Landfill (Half Moon Bay)	< 60	< 60
SCREENINGS									
Coarse screenings (dumptruck)	4	< 1	Morning	Jerrold Northside	incl. below				
Fine screenings	2	< 1	Daytime	Jerrold Northside	incl. below				
	6	< 2			< 1	10	Recology Facility on Tunnel Road, in SF (final location in landfill not included).	< 20	< 10
TRASH, RECYCLE,COMPOST	4	1	Morning	Jerrold Northside;	1	10	Recology Facility on Tunnel Road	10	10
YELLOW GREASE LOADOUT	1	< 1	5:30-7:00	Quint (typically on Friday)	< 1	400	to biodiesel plant; Salem OR; Bakersfield, CA; Selma, CA	< 400	< 400
YELLOW GREASE DROP-OFF	20	4	Trucks leave early morning and return mid-afternoon		4	30	Throughout City (2 round trips)	120	120
BIOSOLIDS	50	10	Very early morning	Quint (in); Jerrold Southside (out)	14	100	To Bay Bridge - during dry weather to Solano and Sonoma Co. In wet weather, at landfill sites in the Bay Area. A small portion is sent to Synargro's Central Valley Compost Facility 13757 Harmon Rd, Dos Palos, CA 93620	1,000	1,400
RECYCLED WATER (for construction)	20	4	Anytime access; number of trucks can vary	Quint	4	30		120	120
OTHER DELIVERIES (from deliveries log, excludes chemicals)	20	4	Daytime		4	30	Throughout City	120	120
TOTAL	138	< 33			< 36			< 3,210	< 3,600

SEP Biosolids Project

CONSTRUCTION WORKERS - Daily

				Month with Highest Construction Total Trucks			October 2018	Month with Highest Construction Workers			May 2022
	Origin/Destination	Miles one-way	% of trips [b] Work	Number of Construction Workers [c]	Auto Person Trips [d] 79.8%	Vehicle Trips (Veh.Occ.) [b] 1.28	Workers Vehicle-miles of Travel	Number of Construction Workers [c]	Auto Person Trips [d] 79.8%	Vehicle Trips (Veh.Occ.) [b] 1.28	Workers Vehicle-miles of Travel
SD1	Broadway / Columbus	5.5	8.3%	18	29	22	123	46	73	57	315
SD2	Geary / Arguello	6.5	10.6%	22	35	27	178	58	93	72	470
SD3	Guerrero / César Chávez	2.5	23.9%	51	81	64	159	131	209	163	408
SD4	Taraval / 30th Av	10.5	7.9%	17	27	21	223	43	69	54	563
EB	Walnut Creek	27	14.3%	30	48	37	1,010	79	126	98	2,659
NB	Petaluma	43	5.6%	12	19	15	643	31	49	39	1,662
SB	Palo Alto	31	26.9%	57	91	71	2,203	148	236	185	5,720
Other	Sacramento	90	2.5%	5	7	6	515	14	22	17	1,518
TOTAL			100.0%	212	338	264	5,054	550	877	685	13,315

	Scenarios 2 & 6 Highest Construction Total Trucks October 2018					Scenarios 3 & 7 Highest Construction Total Trucks October 2018				
	Workers	Vehicle Trips	Peak Park Dmnd	Max Spaces	VMT	Workers	Vehicle Trips	Peak Park Dmnd	Max Spaces	VMT
Project Site	40	50	25	40	955	40	50	25	40	955
Greenhouses	172	214	107	215	4,108					0
1550 Evans St					0	172	214	107	340	4,108
Pier 94				385	0				260	0
Construction shuttle [e]		0			0		0			0
Total Workers - Daily	212	264	132	640	5,064	212	264	132	640	5,064

	Scenarios 4 & 8 Highest Construction Workers (1 shift) May 2022					Scenarios 5 & 9 Highest Construction Workers (1 shift) May 2022				
	Workers	Vehicle Trips	Peak Park Dmnd	Max Spaces	VMT	Workers	Vehicle Trips	Peak Park Dmnd	Max Spaces	VMT
Project Site	40	50	25	40	969	40	50	25	40	969
Greenhouses	310	386	193	215	7,511					0
1550 Evans St					0	510	636	318	340	12,357
Pier 94	200	249	125	385	4,846	0	0	0	260	0
Construction shuttle [e]		8			12		0			0
Total Workers - Daily	550	694	343	640	13,338	550	686	343	640	13,326

[b] Based on San Francisco Guidelines

[c] Includes construction workers and office staff

[d] Adapted from SF Guidelines; Walk and Other trip % moved to Auto.

[e] 50 passengers per bus; 1 mile from Pier 94 to project site

SEP Biosolids Project

CONSTRUCTION TRUCKS - Daily

Type of Truck	Origin/ Destination Location	Miles from Project Site	Round Trip (miles)	Month with Highest Construction Total Truck Traffic October 2018 site prep (incl. utility relocation) Number of trucks per day	Month with Highest Construction Total Truck Traffic October 2018 site prep (incl. utility relocation) Vehicle-miles of Travel	Month with Highest Number of Construction Workers May 2022 site prep (incl utility relocation) Number of trucks per day	Month with Highest Number of Construction Workers May 2022 site prep (incl utility relocation) Vehicle-miles of Travel
CONCRETE TRUCKS [a]							
- Cemex	500 Amador Street, San Francisco	0.7	1.4	5	7	0	0
- Bode Concrete	450 Amador Street, San Francisco	0.6	1.2	5	6	0	0
- Allied Redy Mix	450 Amador Street, San Francisco	0.6	1.2	4	5	0	0
Subtotal Concrete Trucks				*14*	*18*	*0*	*0*
DUMP TRUCKS							
- Backfill Soil	Assume 50 miles from construction site	50	100	0	0	0	0
- Contaminated Excavated Soil	Port Facility (Cargo Way)	1.1	2.2	12	26	2	4
- Unsuitable Excavated Soil	Altamont Landfill in Livermore	54	108	37	3,996	6	648
- Lead/Asbestos Building Materials	Recology Hay Road Landfill in Vacaville	65	130	0	0	0	0
- Recyclable Materials	Republic Ox Mountain Landfill in Half Moon Bay	24	48	0	0	0	0
- Unrecyclable Materials	Republic Ox Mountain Landfill in Half Moon Bay	24	48	0	0	0	0
Subtotal Dump Trucks				*49*	*4,022*	*8*	*652*
FLATBED TRUCKS							
- Equipment Deliveries to Pier 94	Origin unknown; assume 50 miles from site	50	100	2	200	5	500
- Equipment Deliveries to Greenhouses	Origin unknown; assume 50 miles from site	50	100	2	200	5	500
Subtotal Flatbed Trucks				*4*	*400*	*10*	*1,000*
SMALL DELIVERY TRUCKS							
- Equipment Deliveries	From Pier 94 to construction site (half size trucks)	1	2	4	8	10	20
TOTAL CONSTRUCTION TRUCKS - Daily				71	4,440	28	1,652

[a] Assume trucks are evenly distributed among three locations

SEP Biosolids Project

EXISTING VISITORS Month	Days	Visitors	Visitors per Day
April 2015	13	200	15.4
May 2015	20	377	18.9
June 2015	11	162	14.7
TOTAL	44	739	16.8

EXISTING DELIVERIES Month	Days	Deliveries	Deliveries per Day (including chemicals)
March 2015	21	217	10.3
April 2015	22	205	9.3
May 2015	20	176	8.8
TOTAL	63	598	9.5

EXISTING TOURS Month	Days	Tour Visitors	Visitors per Day	School Visits	Other Visits
January 2015	3	54	18.0	2	1
February 2015	9	191	21.2	8	1
March 2015	2	24	12.0	2	0
April 2015	8	187	23.4	7	1
May 2015	5	97	19.4	3	2
TOTAL	27	553	20.5	22	5

CONSTRUCTION TRUCKS - Daily

Month/Year	Concrete Trucks [a]	Dump Trucks (**20 CY, filled to 18 CY capacity to provide freeboard**)								Flatbed Trucks			
		Backfill Soil [b]	Contaminated Excavated Soil	Unsuitable Excavated Soil	Total Excavated Soil	Demolition Debris, Lead/Asbestos Building Materials [d]	Demolition Debris, Recycable Materials [d]	Demolition Debris, Un-recycable Materials [d]	Total Demolition Debris	Total Dump Trucks	Equipment Deliveries			
	See locations below	*Assume 50 miles from construction site*	*Assume Port Facility then to Landfill in Utah*	*Assume Altamont Landfill in Livermore [54 miles from site]*		*Recology Hay Road Landfill in Vacaville [65 miles from site]*	*Republic Ox Mountain Landfill in Half Moon Bay [24 miles from site]*	*Republic Ox Mountain Landfill in Half Moon Bay [24 miles from site]*			Equipment Delivered to Pier 94	Equipment Delivered to Greenhouses	Total Equipment Deliveries (Undetermined Source) [e]	Total Trucks
February-18	0	0	0	0	0	8	8	8	24	24	0	0	0	24
March-18	0	0	0	0	0	6	6	6	18	18	1	1	2	20
April-18	0	0	0	0	0	7	7	7	21	21	1	1	2	23
May-18	2	0	0	0	0	6	6	6	18	18	1	1	2	22
June-18	8	0	0	0	0	0	0	0	0	0	3	3	6	14
July-18	9	0	0	0	0	0	0	0	0	0	3	3	6	15
August-18	3	0	14	45	59	0	0	0	0	59	2	2	4	66
September-18	2	0	15	46	61	0	0	0	0	61	1	1	2	65
October-18	14	0	12	37	49	0	0	0	0	49	2	2	4	67
November-18	17	0	11	34	45	0	0	0	0	45	2	2	4	66
December-18	0	0	15	47	62	0	0	0	0	62	2	2	4	66
January-19	18	0	0	0	0	0	0	0	0	0	2	2	4	22
February-19	17	0	0	0	0	0	0	0	0	0	2	2	4	21
March-19	16	0	0	0	0	0	0	0	0	0	2	2	4	20
April-19	18	0	0	0	0	0	0	0	0	0	2	2	4	22
May-19	15	0	0	0	0	0	0	0	0	0	2	2	4	19
June-19	18	0	0	0	0	0	0	0	0	0	2	2	4	22
July-19	16	0	0	0	0	0	0	0	0	0	2	2	4	20
August-19	15	0	0	0	0	0	0	0	0	0	2	2	4	19
September-19	14	0	0	0	0	0	0	0	0	0	2	2	4	18
October-19	10	0	1	1	2	0	0	0	0	2	2	2	4	16
November-19	12	0	1	1	2	0	0	0	0	2	3	3	6	20
December-19	14	0	1	1	2	0	0	0	0	2	3	3	6	22
January-20	14	0	0	1	1	0	0	0	0	1	3	3	6	21
February-20	13	0	0	0	0	0	0	0	0	0	3	3	6	19
March-20	12	0	0	0	0	0	0	0	0	0	3	3	6	18
April-20	11	0	1	1	2	0	0	0	0	2	3	3	6	19
May-20	12	0	1	4	5	0	0	0	0	5	3	3	6	23
June-20	13	0	4	12	16	0	0	0	0	16	3	3	6	35
July-20	11	0	3	10	13	0	0	0	0	13	3	3	6	30
August-20	13	0	4	11	15	0	0	0	0	15	4	4	8	36
September-20	7	0	5	16	21	0	0	0	0	21	3	3	6	34
October-20	3	0	6	17	23	0	0	0	0	23	4	4	8	34
November-20	5	0	5	15	20	0	0	0	0	20	4	4	8	33
December-20	5	0	6	19	25	0	0	0	0	25	4	4	8	38
January-21	4	0	6	18	24	0	0	0	0	24	4	4	8	36
February-21	1	0	5	14	19	0	0	0	0	19	3	3	6	26
March-21	1	0	3	9	12	0	0	0	0	12	3	3	6	19
April-21	0	0	3	9	12	0	0	0	0	12	3	3	6	18
May-21	8	0	1	3	4	0	0	0	0	4	5	5	10	22
June-21	1	0	0	0	0	0	0	0	0	0	4	4	8	9
July-21	0	0	0	0	0	0	0	0	0	0	4	4	8	8
August-21	0	0	0	0	0	0	0	0	0	0	3	3	6	6
September-21	0	0	0	0	0	0	0	0	0	0	3	3	6	6
October-21	0	0	0	0	0	0	0	0	0	0	4	4	8	8
November-21	0	0	0	0	0	0	0	0	0	0	4	4	8	8
December-21	0	0	0	0	0	0	0	0	0	0	4	4	8	8
January-22	0	0	0	0	0	0	0	0	0	0	4	4	8	8
February-22	0	0	0	0	0	0	0	0	0	0	4	4	8	8
March-22	0	0	0	0	0	0	0	0	0	0	4	4	8	8
April-22	0	0	0	0	0	0	0	0	0	0	4	4	8	8
May-22	0	0	2	6	8	0	0	0	0	8	5	5	10	18
June-22	0	0	3	10	13	0	0	0	0	13	5	5	10	23

CONSTRUCTION TRUCKS - Daily

Month/Year	Concrete Trucks [a]	Dump Trucks (**20 CY, filled to 18 CY capacity to provide freeboard**)									Flatbed Trucks			
		Backfill Soil [b]	Contaminated Excavated Soil	Unsuitable Excavated Soil	Total Excavated Soil	Demolition Debris, Lead/Asbestos Building Materials [d]	Demolition Debris, Recycable Materials [d]	Demolition Debris, Un-recycable Materials [d]	Total Demolition Debris	Total Dump Trucks	Equipment Deliveries			
	See locations below	*Assume 50 miles from construction site*	*Assume Port Facility then to Landfill in Utah*	*Assume Altamont Landfill in Livermore [54 miles from site]*		*Recology Hay Road Landfill in Vacaville [65 miles from site]*	*Republic Ox Mountain Landfill in Half Moon Bay [24 miles from site]*	*Republic Ox Mountain Landfill in Half Moon Bay [24 miles from site]*			Equipment Delivered to Pier 94	Equipment Delivered to Greenhouses	Total Equipment Deliveries (Undetermined Source) [e]	Total Trucks
July-22	0	0	3	9	12	0	0	0	0	12	4	4	8	20
August-22	0	0	3	10	13	0	0	0	0	13	3	3	6	19
September-22	0	0	3	8	11	0	0	0	0	11	3	3	6	17
October-22	0	0	2	4	6	0	0	0	0	6	3	3	6	12
November-22	0	0	0	0	0	0	0	0	0	0	2	2	4	4
December-22	0	0	0	0	0	0	0	0	0	0	1	1	2	2
January-23	0	0	0	0	0	0	0	0	0	0	1	1	2	2
Period Total	372	0	139	418	557	27	27	27	81	638	171	171	342	1,352
Maximum	18	0	15	47	62	8	8	8	24	62	5	5	10	67

a. Concrete deliveries:
Cemex – 500 Amador Street, San Francisco, CA – 0.7 miles
Bode Concrete – 450 Amador Street, San Francisco, CA – 0.6 miles
Allied Redy Mix – 450 Amador Street, San Francisco, CA – 0.6 miles

b. Clean material excavated from digester complex will be used for backfill.
c. Unsuitable soil (due to geotechnical or environmental reaons) will be excavated and hauled off-site. Unsuitable soil destination will depend on soil classification. Assume that contaminated soil will be transported to a landfill in Utah and the remainder will be transported to the Altamonte Landfill outside Livermore/T
d. Due to limited information, estimates of demolition debris material is assumed to be a third lead/asbestos materials, a third recycable materials and a third un-recycable materials. Potential locations are listed based on the type of material.
e. Source of equipment has not been determined yet. Assume equipment deliveries will be distributed between the two potential staging areas identified at this time: Pier 94 and Southeast Greenhouses.
f. All quantities and truckload estimates are rough order of magnitude, based on 10% design and class 4 cost estimate. These estimates will be refined during design development.
g. Truck capacity is assumed to be 20 CY, filled to 18 CY capacity (to provide freeboard).
h. The total excavation volumes (and breakdown for hazardous and non-hazardous materials) are based on the Final Environmental Site Investigation Report for San Francisco Department of Public Health (May 2016)

Source: SF PUC, August 2016

Construction Workers and Shuttle Bus [a]

Month	Construction Workers Per Day [b]	Parking stalls needed per day, number of vehicles/stalls [c] *(Calculation)*	Area needed for workforce parking off-site, in acres [d] *(Calculation)*	On-site Office Staff (40 people, 40 cars) [e]	Off-site Office Staff (175 max., 175 cars) [f]	Total Construction Office Staff	Area (175 general office staff and On-site Staff Parking at Greenhouses) [g] *(Calculation)*	Shuttles trips at each end of the work shift (construction workers, 50 pax bus) [h] *(Calculation)*	Total Construction Employees	Work Shifts
February-18	61	49	0.34	40	25	65	0.4	2	126	One shift: 7AM-3:30PM
March-18	75	60	0.41	40	25	65	0.4	2	140	
April-18	74	59	0.41	40	25	65	0.4	2	139	
May-18	77	61	0.42	40	25	65	0.4	2	142	
June-18	52	42	0.29	40	25	65	0.4	2	117	
July-18	46	37	0.25	40	50	90	0.6	1	136	
August-18	58	46	0.32	40	50	90	0.6	2	148	
September-18	88	70	0.48	40	50	90	0.6	2	178	
October-18	122	97	0.67	40	50	90	0.6	3	212	
November-18	149	119	0.82	40	50	90	0.6	3	239	
December-18	104	83	0.57	40	50	90	0.6	3	194	
January-19	99	79	0.54	40	50	90	0.6	2	189	
February-19	99	79	0.54	40	50	90	0.6	2	189	
March-19	109	87	0.60	40	50	90	0.6	3	199	
April-19	91	73	0.50	40	75	115	0.8	2	206	
May-19	110	88	0.61	40	100	140	1.0	3	250	
June-19	98	79	0.54	40	125	165	1.1	2	263	
July-19	113	90	0.62	40	125	165	1.1	3	278	
August-19	132	106	0.73	40	125	165	1.1	3	297	
September-19	137	110	0.76	40	125	165	1.1	3	302	
October-19	152	122	0.84	40	125	165	1.1	4	317	
November-19	167	134	0.92	40	125	165	1.1	4	332	
December-19	174	139	0.96	40	125	165	1.1	4	339	
January-20	160	128	0.88	40	125	165	1.1	4	325	
February-20	170	136	0.94	40	125	165	1.1	4	335	
March-20	183	146	1.01	40	125	165	1.1	4	348	
April-20	202	161	1.11	40	125	165	1.1	5	367	
May-20	210	168	1.16	40	125	165	1.1	5	375	
June-20	163	130	0.90	40	125	165	1.1	4	328	
July-20	175	140	0.96	40	150	190	1.3	4	365	
August-20	221	176	1.21	40	150	190	1.3	5	411	
September-20	155	124	0.85	40	150	190	1.3	4	345	
October-20	198	158	1.09	40	150	190	1.3	4	388	
November-20	181	145	1.00	40	150	190	1.3	4	371	
December-20	173	139	0.96	40	150	190	1.3	4	363	
January-21	185	148	1.02	40	150	190	1.3	4	375	
February-21	198	158	1.09	40	150	190	1.3	4	388	
March-21	193	154	1.06	40	150	190	1.3	4	383	
April-21	250	200	1.38	40	150	190	1.3	6	440	
May-21	319	255	1.76	40	175	215	1.5	7	534	Potentially 2 shifts: 7AM-3:30 PM & 2:30 PM-11 PM (see Note
June-21	327	262	1.80	40	175	215	1.5	7	542	See Note (a)
July-21	308	246	1.69	40	175	215	1.5	7	523	See Note (a)
August-21	224	179	1.23	40	175	215	1.5	5	439	See Note (a)
September-21	192	153	1.05	40	175	215	1.5	4	407	See Note (a)
October-21	234	187	1.29	40	175	215	1.5	5	449	See Note (a)
November-21	282	226	1.56	40	175	215	1.5	6	497	See Note (a)
December-21	280	224	1.54	40	175	215	1.5	6	495	See Note (a)
January-22	304	243	1.67	40	175	215	1.5	7	519	See Note (a)
February-22	255	204	1.40	40	175	215	1.5	6	470	See Note (a)
March-22	270	216	1.49	40	175	215	1.5	6	485	See Note (a)
April-22	304	243	1.67	40	175	215	1.5	7	519	See Note (a)

Construction Workers and Shuttle Bus [a]

Month	Construction Workers Per Day [b]	Parking stalls needed per day, number of vehicles/stalls [c] *(Calculation)*	Area needed for workforce parking off-site, in acres [d] *(Calculation)*	On-site Office Staff (40 people, 40 cars) [e]	Off-site Office Staff (175 max., 175 cars) [f]	Total Construction Office Staff	Area (175 general office staff and On-site Staff Parking at Greenhouses) [g] *(Calculation)*	Shuttles trips at each end of the work shift (construction workers, 50 pax bus) [h] *(Calculation)*	Total Construction Employees	Work Shifts
May-22	335	268	1.85	40	175	215	1.5	7	550	See Note (a)
June-22	303	242	1.67	40	175	215	1.5	7	518	See Note (a)
July-22	292	234	1.61	40	175	215	1.5	6	507	See Note (a)
August-22	185	148	1.02	40	175	215	1.5	4	400	One shift: 7AM-3:30PM
September-22	146	117	0.81	40	175	215	1.5	3	361	
October-22	161	129	0.89	40	150	190	1.3	4	351	
November-22	83	67	0.46	40	125	165	1.1	2	248	
December-22	54	43	0.30	40	100	140	1.0	2	194	
January-23	23	19	0.13	40	90	130	0.9	1	153	
February-23	3	3	0.02	40	90	130	0.9	1	133	
March-23	3	3	0.02	40	90	130	0.9	1	133	
April-23	3	3	0.02	40	90	130	0.9	1	133	
May-23	3	3	0.02	40	90	130	0.9	1	133	
June-23	3	3	0.02	40	90	130	0.9	1	133	
July-23	3	3	0.02	40	90	130	0.9	1	133	
MAXIMUM	335	268	1.85	40	175	215	1.5	7	550	

a. BDFP estimates for people per day and office staff as shown in Draft CER Construction Staging TM. Standard working hours are assumed (8.5 hours per day, 5 days per week).
While one work shift is assumed for VMT calculations, it is possible that two work shifts could occur during the shaded period shown above (May '21 to May '22). Workshifts are 8.5 hours, which include 1/2 hour lunch.
They are as follows: 7 am - 3:30 pm (1st shift) and 2:30 pm - 11 pm (2nd shift, if needed).
b. Contractor Work Force is based on base case or mid-point of probable range (direct cost plus 15 to 25 percent design contingency).
c. Work force parking in this table is calculated based on 1.25 vehicle occupancy ratio.
d. Work force parking area is calculated based on 300 sq.ft. parking stalls and the estimated number of vehicles.
e. A minimum of 0.5 acres for on-site office trailers is required to allow enough space for the design team field staff, general contractor, major subcontractors,
full-time inspectors and meeting rooms.throughout the period. This assumes 40 people (40 cars) will be on-site throughout the period.
f. Off-site office trailers are required to accommodate additional Contractor Manager and General Contractor staff. Estimates are based on 175 people (175 cars)
The car pool ratio was not appliedto the off-site office estimate.
g. Off-site office staff parking area is calculated based on 300 sq.ft. parking stalls and the estimated number of vehicles.
h. A shuttle bus with capacity for 50 passengers is assumed during peak of construction. A smaller shuttle bus could be used at other times.
Estimate does not include off-site office staff. (Approximaty calculation)

Source: Sue Chau, Project Manager, SF PUC, June 28, 2016

SEP Biosolids Project

Scenarios: Maximum Construction Trucks and Maximum Construction Workers
All Scenarios: Construction Worker Trips at Project Site
Office staff = 40 Construction employees = 0

Proposed Size:		**40 workers**						
DAILY					**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip Generation Rate [1]:		2.0 trips/worker	Person-trip Gen Rate [4]:	50.0%	1.0	50.0%	1.0
Total Person Trips:		80 person-trips	Total Person-trips:		40		40
Total Work Trips:	100%	80 person-trips	Work Person-trips:	100%	40	100%	40

Percent of Origin Distribution [2]	Mode of Travel	Percent Distribution [3]	Average Vehicle Occupancy [2]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
	Auto	67.3%	1.30	4	3	2	2	2	2
SF Superdistrict 1	Transit	32.7%		2		1		1	
8.3%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		7	3	3	2	3	2
	Auto	73.6%	1.26	6	5	3	2	3	2
SF Superdistrict 2	Transit	26.4%		2		1		1	
10.6%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		8	5	4	2	4	2
	Auto	79.4%	1.25	15	12	8	6	8	6
SF Superdistrict 3	Transit	20.6%		4		2		2	
23.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		19	12	10	6	10	6
	Auto	78.5%	1.48	5	3	2	2	2	2
SF Superdistrict 4	Transit	21.5%		1		1		1	
7.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		6	3	3	2	3	2
	Auto	70.3%	1.61	8	5	4	2	4	2
East Bay	Transit	29.7%		3		2		2	
14.3%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		11	5	6	2	6	2
	Auto	89.5%	1.44	4	3	2	1	2	1
North Bay	Transit	10.5%		0		0		0	
5.6%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		4	3	2	1	2	1
	Auto	91.2%	1.13	20	17	10	9	10	9
South Bay	Transit	8.8%		2		1		1	
26.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		22	17	11	9	11	9
	Auto	64.7%	1.56	1	1	1	0	1	0
Out of Region	Transit	35.3%		1		0		0	
2.5%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		2	1	1	0	1	0
	Auto	**79.8%**	**1.28**	**64**	**50**	**32**	**25**	**32**	**25**
All Origins	**Transit**	**20.2%**		**16**		**8**		**8**	
100.0%	**Walk**	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**80**	**50**	**40**	**25**	**40**	**25**

Notes:
[1] One inbound plus one outbound trip per worker
[2] SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All)
[3] Adapted from SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All); Walk and Other trip % moved to Auto.
[4] Half of the trips (inbound) occur in the AM and the other half (outbound) occur in the PM

SEP Biosolids Project

Scenario 2: Maximum Construction Trucks
Construction Worker Trips at Greenhouses
Office staff = 50 ##########

Proposed Size:		**172**	**workers**					
DAILY					**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip Generation Rate [1]:		2.0	trips/worker	Person-trip Gen Rate [4]:	50.0%	1.0	50.0%	1.0
Total Person Trips:		344	person-trips	Total Person-trips:		172		172
Total Work Trips:	100%	344	person-trips	Work Person-trips:	100%	172	100%	172

Percent of Origin Distribution [2]	Mode of Travel	Percent Distribution [3]	Average Vehicle Occupancy [2]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
	Auto	67.3%	1.30	19	15	10	7	10	7
SF Superdistrict 1	Transit	32.7%		9		5		5	
8.3%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		29	15	14	7	14	7
	Auto	73.6%	1.26	27	21	13	11	13	11
SF Superdistrict 2	Transit	26.4%		10		5		5	
10.6%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		36	21	18	11	18	11
	Auto	79.4%	1.25	65	52	33	26	33	26
SF Superdistrict 3	Transit	20.6%		17		8		8	
23.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		82	52	41	26	41	26
	Auto	78.5%	1.48	21	14	11	7	11	7
SF Superdistrict 4	Transit	21.5%		6		3		3	
7.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		27	14	14	7	14	7
	Auto	70.3%	1.61	35	21	17	11	17	11
East Bay	Transit	29.7%		15		7		7	
14.3%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		49	21	25	11	25	11
	Auto	89.5%	1.44	17	12	9	6	9	6
North Bay	Transit	10.5%		2		1		1	
5.6%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		19	12	10	6	10	6
	Auto	91.2%	1.13	84	75	42	37	42	37
South Bay	Transit	8.8%		8		4		4	
26.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		93	75	46	37	46	37
	Auto	64.7%	1.56	6	4	3	2	3	2
Out of Region	Transit	35.3%		3		2		2	
2.5%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		9	4	4	2	4	2
	Auto	**79.8%**	**1.28**	**274**	**214**	**137**	**107**	**137**	**107**
All Origins	**Transit**	**20.2%**		**70**		**35**		**35**	
100.0%	**Walk**	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**344**	**214**	**172**	**107**	**172**	**107**

Notes:
[1] One inbound plus one outbound trip per worker
[2] SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All)
[3] Adapted from SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All); Walk and Other trip % moved to Auto.
[4] Half of the trips (inbound) occur in the AM and the other half (outbound) occur in the PM

SEP Biosolids Project

Scenario 3: Maximum Construction Trucks
Construction Worker Trips at 1550 Evans St
Office staff = 50 ##########

Proposed Size:		**172**	**workers**					
DAILY					**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip Generation Rate [1]:		2.0	trips/worker	Person-trip Gen Rate [4]:	50.0%	1.0	50.0%	1.0
Total Person Trips:		344	person-trips	Total Person-trips:		172		172
Total Work Trips:	100%	344	person-trips	Work Person-trips:	100%	172	100%	172

Percent of Origin Distribution [2]	**Mode of Travel**	**Percent Distribution [3]**	**Average Vehicle Occupancy [2]**	**Daily**		**AM Peak Hour**		**PM Peak Hour**	
				Person Trips	**Vehicle-Trips**	**Person Trips**	**Vehicle-Trips**	**Person Trips**	**Vehicle-Trips**
SF Superdistrict 1 8.3%	Auto	67.3%	1.30	19	15	10	7	10	7
	Transit	32.7%		9		5		5	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		29	15	14	7	14	7
SF Superdistrict 2 10.6%	Auto	73.6%	1.26	27	21	13	11	13	11
	Transit	26.4%		10		5		5	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		36	21	18	11	18	11
SF Superdistrict 3 23.9%	Auto	79.4%	1.25	65	52	33	26	33	26
	Transit	20.6%		17		8		8	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		82	52	41	26	41	26
SF Superdistrict 4 7.9%	Auto	78.5%	1.48	21	14	11	7	11	7
	Transit	21.5%		6		3		3	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		27	14	14	7	14	7
East Bay 14.3%	Auto	70.3%	1.61	35	21	17	11	17	11
	Transit	29.7%		15		7		7	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		49	21	25	11	25	11
North Bay 5.6%	Auto	89.5%	1.44	17	12	9	6	9	6
	Transit	10.5%		2		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		19	12	10	6	10	6
South Bay 26.9%	Auto	91.2%	1.13	84	75	42	37	42	37
	Transit	8.8%		8		4		4	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		93	75	46	37	46	37
Out of Region 2.5%	Auto	64.7%	1.56	6	4	3	2	3	2
	Transit	35.3%		3		2		2	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		9	4	4	2	4	2
All Origins 100.0%	**Auto**	**79.8%**	**1.28**	**274**	**214**	**137**	**107**	**137**	**107**
	Transit	**20.2%**		**70**		**35**		**35**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**344**	**214**	**172**	**107**	**172**	**107**

Notes:
[1] One inbound plus one outbound trip per worker
[2] SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All)
[3] Adapted from SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All); Walk and Other trip % moved to Auto.
[4] Half of the trips (inbound) occur in the AM and the other half (outbound) occur in the PM

SEP Biosolids Project

Scenario 4: Maximum Construction Workers (two shifts)
Construction Worker Trips at Greenhouses
Office staff = 175 ##########

Proposed Size:		**310 workers**						
DAILY					**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip Generation Rate [1]:		2.0 trips/worker	Person-trip Gen Rate [4]:	50.0%	1.0	50.0%	1.0
Total Person Trips:		620 person-trips	Total Person-trips:		310		310
Total Work Trips:	100%	620 person-trips	Work Person-trips:	100%	310	100%	310

Percent of Origin Distribution [2]	Mode of Travel	Percent Distribution [3]	Average Vehicle Occupancy [2]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
	Auto	67.3%	1.30	35	27	17	13	17	13
SF Superdistrict 1	Transit	32.7%		17		8		8	
8.3%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		51	27	26	13	26	13
	Auto	73.6%	1.26	48	38	24	19	24	19
SF Superdistrict 2	Transit	26.4%		17		9		9	
10.6%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		66	38	33	19	33	19
	Auto	79.4%	1.25	118	94	59	47	59	47
SF Superdistrict 3	Transit	20.6%		31		15		15	
23.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		148	94	74	47	74	47
	Auto	78.5%	1.48	38	26	19	13	19	13
SF Superdistrict 4	Transit	21.5%		11		5		5	
7.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		49	26	24	13	24	13
	Auto	70.3%	1.61	62	39	31	19	31	19
East Bay	Transit	29.7%		26		13		13	
14.3%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		89	39	44	19	44	19
	Auto	89.5%	1.44	31	22	16	11	16	11
North Bay	Transit	10.5%		4		2		2	
5.6%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		35	22	17	11	17	11
	Auto	91.2%	1.13	152	135	76	67	76	67
South Bay	Transit	8.8%		15		7		7	
26.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		167	135	83	67	83	67
	Auto	64.7%	1.56	10	6	5	3	5	3
Out of Region	Transit	35.3%		5		3		3	
2.5%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		16	6	8	3	8	3
	Auto	**79.8%**	**1.28**	**495**	**386**	**247**	**193**	**247**	**193**
All Origins	**Transit**	**20.2%**		**125**		**63**		**63**	
100.0%	**Walk**	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**620**	**386**	**310**	**193**	**310**	**193**

Notes:
[1] One inbound plus one outbound trip per worker
[2] SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All)
[3] Adapted from SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All); Walk and Other trip % moved to Auto.
[4] Half of the office staff trips (inbound) occur in the AM and the other half (outbound) occur in the PM;
One quarter of the construction employee trips (inbound) occur in the AM and the 50% (half inbound and half outbound) occur in the PM.

SEP Biosolids Project

Scenario 4: Maximum Construction Workers (two shifts)
Construction Worker Trips at Pier 94
Office staff = 0 ##########

Proposed Size:		**200 workers**						
DAILY					**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip Generation Rate [1]:		2.0 trips/worker	Person-trip Gen Rate [4]:	50.0%	1.0	50.0%	1.0
Total Person Trips:		400 person-trips	Total Person-trips:		200		200
Total Work Trips:	100%	400 person-trips	Work Person-trips:	100%	200	100%	200

Percent of Origin Distribution [2]	**Mode of Travel**	**Percent Distribution [3]**	**Average Vehicle Occupancy [2]**	**Daily**		**AM Peak Hour**		**PM Peak Hour**	
				Person Trips	**Vehicle-Trips**	**Person Trips**	**Vehicle-Trips**	**Person Trips**	**Vehicle-Trips**
SF Superdistrict 1 8.3%	Auto	67.3%	1.30	22	17	11	9	11	9
	Transit	32.7%		11		5		5	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		33	17	17	9	17	9
SF Superdistrict 2 10.6%	Auto	73.6%	1.26	31	25	16	12	16	12
	Transit	26.4%		11		6		6	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		42	25	21	12	21	12
SF Superdistrict 3 23.9%	Auto	79.4%	1.25	76	61	38	30	38	30
	Transit	20.6%		20		10		10	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		96	61	48	30	48	30
SF Superdistrict 4 7.9%	Auto	78.5%	1.48	25	17	12	8	12	8
	Transit	21.5%		7		3		3	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		32	17	16	8	16	8
East Bay 14.3%	Auto	70.3%	1.61	40	25	20	12	20	12
	Transit	29.7%		17		8		8	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		57	25	29	12	29	12
North Bay 5.6%	Auto	89.5%	1.44	20	14	10	7	10	7
	Transit	10.5%		2		1		1	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		22	14	11	7	11	7
South Bay 26.9%	Auto	91.2%	1.13	98	87	49	43	49	43
	Transit	8.8%		9		5		5	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		108	87	54	43	54	43
Out of Region 2.5%	Auto	64.7%	1.56	6	4	3	2	3	2
	Transit	35.3%		4		2		2	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		10	4	5	2	5	2
All Origins 100.0%	**Auto**	**79.8%**	**1.28**	**319**	**249**	**160**	**125**	**160**	**125**
	Transit	**20.2%**		**81**		**40**		**40**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**400**	**249**	**200**	**125**	**200**	**125**

Notes:
[1] One inbound plus one outbound trip per worker
[2] SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All)
[3] Adapted from SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All); Walk and Other trip % moved to Auto.
[4] Half of the office staff trips (inbound) occur in the AM and the other half (outbound) occur in the PM;
One quarter of the construction employee trips (inbound) occur in the AM and the 50% (half inbound and half outbound) occur in the PM.

SEP Biosolids Project

Scenario 5: Maximum Construction Workers (two shifts)
Construction Worker Trips at 1550 Evans St
Office staff = 175 ##########

Proposed Size:		**510 workers**						
DAILY					**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip Generation Rate [1]:		2.0	trips/worker	Person-trip Gen Rate [4]:	50.0%	1.0	50.0%	1.0
Total Person Trips:		1,020	person-trips	Total Person-trips:		510		510
Total Work Trips:	100%	1,020	person-trips	Work Person-trips:	100%	510	100%	510

Percent of Origin Distribution [2]	Mode of Travel	Percent Distribution [3]	Average Vehicle Occupancy [2]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
	Auto	67.3%	1.30	57	44	28	22	28	22
SF Superdistrict 1	Transit	32.7%		28		14		14	
8.3%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		85	44	42	22	42	22
	Auto	73.6%	1.26	80	63	40	32	40	32
SF Superdistrict 2	Transit	26.4%		29		14		14	
10.6%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		108	63	54	32	54	32
	Auto	79.4%	1.25	194	155	97	77	97	77
SF Superdistrict 3	Transit	20.6%		50		25		25	
23.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		244	155	122	77	122	77
	Auto	78.5%	1.48	63	43	32	21	32	21
SF Superdistrict 4	Transit	21.5%		17		9		9	
7.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		81	43	40	21	40	21
	Auto	70.3%	1.61	103	64	51	32	51	32
East Bay	Transit	29.7%		43		22		22	
14.3%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		146	64	73	32	73	32
	Auto	89.5%	1.44	51	36	26	18	26	18
North Bay	Transit	10.5%		6		3		3	
5.6%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		57	36	29	18	29	18
	Auto	91.2%	1.13	250	221	125	111	125	111
South Bay	Transit	8.8%		24		12		12	
26.9%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		274	221	137	111	137	111
	Auto	64.7%	1.56	16	11	8	5	8	5
Out of Region	Transit	35.3%		9		5		5	
2.5%	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		26	11	13	5	13	5
	Auto	**79.8%**	**1.28**	**814**	**636**	**407**	**318**	**407**	**318**
All Origins	**Transit**	**20.2%**		**206**		**103**		**103**	
100.0%	**Walk**	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**1,020**	**636**	**510**	**318**	**510**	**318**

Notes:
[1] One inbound plus one outbound trip per worker
[2] SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All)
[3] Adapted from SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All); Walk and Other trip % moved to Auto.
[4] Half of the office staff trips (inbound) occur in the AM and the other half (outbound) occur in the PM;
One quarter of the construction employee trips (inbound) occur in the AM and the 50% (half inbound and half outbound) occur in the PM.

SEP Biosolids Project

Scenario 5: Maximum Construction Workers (two shifts)
Construction Worker Trips at Pier 94
Office staff = 0 Construction employees = 0

Proposed Size:	-	**workers**					
DAILY				**AM PEAK HOUR**		**PM PEAK HOUR**	
Person-trip Generation Rate [1]:	2.0	trips/worker	Person-trip Gen Rate [4]:	0.0%	0.0	0.0%	0.0
Total Person Trips:	0	person-trips	Total Person-trips:		0		0
Total Work Trips: 100%	0	person-trips	Work Person-trips:	100%	0	100%	0

Percent of Origin Distribution [2]	Mode of Travel	Percent Distribution [3]	Average Vehicle Occupancy [2]	Daily		AM Peak Hour		PM Peak Hour	
				Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips	Person Trips	Vehicle-Trips
SF Superdistrict 1 8.3%	Auto	67.3%	1.30	0	0	0	0	0	0
	Transit	32.7%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		0	0	0	0	0	0
SF Superdistrict 2 10.6%	Auto	73.6%	1.26	0	0	0	0	0	0
	Transit	26.4%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		0	0	0	0	0	0
SF Superdistrict 3 23.9%	Auto	79.4%	1.25	0	0	0	0	0	0
	Transit	20.6%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		0	0	0	0	0	0
SF Superdistrict 4 7.9%	Auto	78.5%	1.48	0	0	0	0	0	0
	Transit	21.5%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		0	0	0	0	0	0
East Bay 14.3%	Auto	70.3%	1.61	0	0	0	0	0	0
	Transit	29.7%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		0	0	0	0	0	0
North Bay 5.6%	Auto	89.5%	1.44	0	0	0	0	0	0
	Transit	10.5%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		0	0	0	0	0	0
South Bay 26.9%	Auto	91.2%	1.13	0	0	0	0	0	0
	Transit	8.8%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		0	0	0	0	0	0
Out of Region 2.5%	Auto	64.7%	1.56	0	0	0	0	0	0
	Transit	35.3%		0		0		0	
	Walk			0		0		0	
	Other			0		0		0	
	All Modes	100.0%		0	0	0	0	0	0
All Origins 100.0%	**Auto**	**79.8%**	**1.28**	**0**	**0**	**0**	**0**	**0**	**0**
	Transit	**20.2%**		**0**		**0**		**0**	
	Walk	**0.0%**		**0**		**0**		**0**	
	Other	**0.0%**		**0**		**0**		**0**	
	All Modes	**100.0%**		**0**	**0**	**0**	**0**	**0**	**0**

Notes:
[1] One inbound plus one outbound trip per worker
[2] SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All)
[3] Adapted from SF Guidelines, Appendix E - Table E-5 Work Trips to SD3 (All); Walk and Other trip % moved to Auto.
[4] Half of the office staff trips (inbound) occur in the AM and the other half (outbound) occur in the PM;
One quarter of the construction employee trips (inbound) occur in the AM and the 50% (half inbound and half outbound) occur in the PM.

APPENDIX WS

Shadow Fan Diagram

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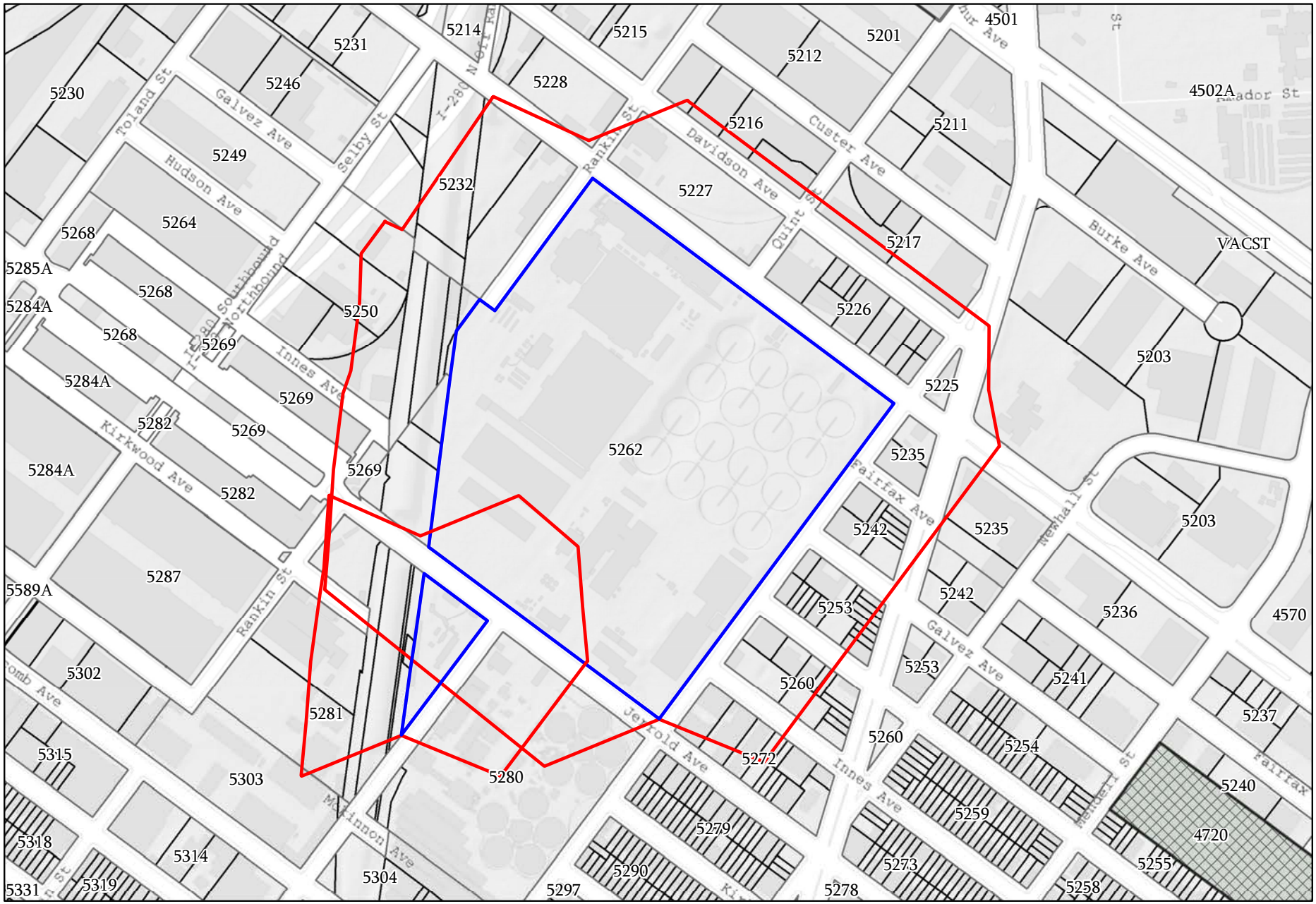

Title: 5262/009 and 5281/001

Comments: No impact at 65 feet

Printed: 3 September, 2015

Feet
0 375 750 1,125 1,500

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APPENDIX WSA

Water Supply Assessment

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San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

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February 16, 2017

TO: Commissioner Anson Moran, President
Commissioner Ike Kwon, Vice President
Commissioner Ann Moller Caen
Commissioner Francesca Vietor
Commissioner Vince Courtney

THROUGH: Harlan L. Kelly, Jr., General Manager

FROM: Steven R. Ritchie, Assistant General Manager, Water

RE: Water Supply Assessment for the Biosolids Digester Facilities Project

1.0 Summary

1.1 Introduction

Under the Water Supply Assessment law (Sections 10910 through 10915 of the California Water Code), urban water suppliers like the San Francisco Public Utilities Commission (SFPUC) must furnish a Water Supply Assessment (WSA) to the city or county that has jurisdiction to approve the environmental documentation for certain qualifying projects (as defined in Water Code Section 10912 (a)) subject to the California Environmental Quality Act (CEQA). The WSA process typically relies on information contained in a water supplier's Urban Water Management Plan (UWMP), and involves answering specific questions related to the estimated water demand of the proposed project. This memo serves as the WSA for the proposed Biosolids Digester Facilities Project ("proposed project"), for use in the preparation of an environmental impact report by the City and County of San Francisco Planning Department (case no. 2015-000644ENV, San Francisco Planning Department).

1.1.1 2015 Urban Water Management Plan

The SFPUC's most current UWMP is the UWMP update for 2015, which was adopted in June 2016. The water demand projections in the UWMP incorporated 2012 Land Use Allocation (LUA 2012) housing and employment growth projections from the San Francisco Planning Department.

The WSA for a qualifying project within the SFPUC's retail service area may use information from the UWMP. Therefore, ***the 2015 UWMP is incorporated via references throughout this WSA shown in bold, italicized text.*** The UWMP may be accessed at www.sfwater.org/uwmp.

1.1.2 Basis for Requiring a WSA for the Proposed Project

The proposed project has not been the subject of a previous WSA, nor has it been part of a larger project for which a WSA was completed. The proposed project qualifies for preparation of a WSA under Water Code Section 10912(a) because it would use more water than required by a 500 dwelling unit project (Water Code section 10912(a)(7)). The SFPUC previously determined that a 500 dwelling unit project would create retail water demand of 50,000 gallons per day (gpd) or 18.25 million gallons per year (gpy). The proposed project is characterized further in Section 1.2.

Edwin M. Lee
Mayor

Anson Moran
President

Ike Kwon
Vice President

Ann Moller Caen
Commissioner

Francesca Vietor
Commissioner

Vince Courtney
Commissioner

Harlan L. Kelly, Jr.
General Manager

1.1.3 Conclusion of this WSA

In this WSA, the SFPUC concludes that there are adequate water supplies to serve the proposed project and cumulative retail water demands during normal years, single dry years, and multiple dry years over a 20-year planning horizon from 2020 through 2040. Additional information on supply sufficiency is provided in Section 4.2, Findings.

1.2 Proposed Project Description

The proposed project would construct new solids treatment, odor control, energy recovery, and associated facilities at the SFPUC's Southeast Water Pollution Control Plant (SEP) in San Francisco. Most of the existing SEP solids treatment facilities (including the digesters) are over 60 years old, were not built to withstand the maximum credible earthquake, require significant maintenance, and are operating well beyond their useful life. Newer, more efficient treatment technologies have since been developed that produce a higher quality of biosolids, capture and treat odors more effectively, and maximize biogas production for heat and energy. The proposed project would update and replace the aging SEP solids treatment system. Over the planning period for the proposed project (2045), projected increases in population will increase solids loads from about 187,000 dry pounds per day (2014) to about 280,000 dry pounds per day (2045).

The proposed project would be located on portions of the existing SEP property at 750 Phelps Street and 1700 Jerrold Avenue (Block and Lot 5262/009), and the adjacent properties at 1800 Jerrold Avenue (the Central Shops site, Block and Lot 5262/009), and 1801 Jerrold Avenue (the decommissioned Asphalt Plant site, Block and Lot 5281/001). The project site totals approximately 415,000 square feet. The project would involve the demolition of existing structures and installation of the following facilities:

- Solids Pretreatment Facility
- Thermal Hydrolysis Process (THS)
- Anaerobic Digestion
- THS Cooling Towers
- Biosolids Dewatering Facility
- Energy Recovery Facility
- Biogas Treatment
- Biogas Storage
- Waste Gas Burners
- Solids Odor Control
- Piping modifications and new pumps for existing pump stations
- Other ancillary facilities (electrical rooms, transformers, chemical storage, and diesel generator)

The proposed project would require construction of new structures totaling less than 215,000 square feet (footprint). No new staff would be needed to operate new facilities. Operation will begin as early as 2023 (startup/commissioning period).

2.0 Water Supply

This section reviews San Francisco's existing and planned water supplies.

2.1 Regional Water System

See ***Section 3.1 of the UWMP*** for descriptions of the Regional Water System (RWS) and ***Section 6.1 of the UWMP*** for water rights held by City and County of San Francisco and the SFPUC Water System Improvement Program (WSIP).

2.2 Existing Retail Supplies

Retail water supplies from the RWS are described in ***Section 6.1 of the UWMP***.

Local groundwater supplies, including the Westside Groundwater Basin, Central Groundwater Sub Basin, and Sunol Filter Gallery Subsurface Diversions, are described in ***Section 6.2.1 of the UWMP***.

Local recycled water supplies, including the Harding Park Recycled Water Project and Pacifica Recycled Water Project, are described in ***Section 6.2.1 of the UWMP***.

2.3 Planned Retail Water Supply Sources

The San Francisco Groundwater Supply Project is described in ***Section 6.2.2 of the UWMP***.

The proposed Westside and Eastside Recycled Water Projects, as well as non-potable water supplies associated with onsite water systems implemented in compliance with San Francisco's Non-potable Water Ordinance (Health Code Chapter 12C), are also described in ***Section 6.2.2 of the UWMP***.

2.4 Summary of Current and Future Retail Water Supplies

A breakdown of water supply sources for meeting SFPUC retail water demand through 2040 in normal years is provided in ***Section 6.2.5 of the UWMP***.

2.5 Dry-Year Water Supplies

A description of dry-year supplies developed under WSIP is provided in ***Section 7.2 of the UWMP***. Other water supply reliability projects and efforts that are currently underway or completed are described in ***Section 7.4 of the UWMP***. A breakdown of water supply sources for meeting SFPUC retail water demand through 2040 in multiple dry years are provided in ***Section 7.5 of the UWMP***. For a single dry year, the retail RWS allocation and, thus, the breakdown of water supply sources would be the same as those in a normal year.

3.0 Water Demand

This section reviews the climatic and demographic factors that may affect San Francisco's water use, projected retail water demands, and the demand associated with the proposed project.

3.1 Climate

San Francisco has a Mediterranean climate. Summers are cool and winters are mild with infrequent rainfall. Temperatures in the San Francisco area average 57 degrees Fahrenheit annually, ranging from the mid-40s in winter to the upper 60s in late summer. Strong onshore flow of wind in summer keeps the air cool, generating fog through September. The warmest temperatures generally occur in September and October. Rainfall in the San Francisco area averages about 22 inches per year and is generally confined to the "wet" season from late October to early May. Except for

occasional light drizzles from thick marine stratus clouds, summers are nearly completely dry. A summary of the temperature and rainfall data for the City of San Francisco is included in Table 1.

Table 1: San Francisco Climate Summary

Month	Average Maximum Temperature (°F)	Average Minimum Temperature (°F)	Average Monthly Rainfall (inches)
January	58.0	45.7	4.36
February	60.3	47.3	4.41
March	61.4	48.1	2.98
April	62.3	49.1	1.38
May	63.2	50.9	0.68
June	64.8	52.7	0.18
July	65.6	54.3	0.02
August	66.6	55.3	0.06
September	68.1	55.0	0.19
October	67.8	53.3	1.04
November	61.2	48.1	2.85
December	58.3	45.9	4.33
Annual Average	**63.3**	**50.6**	**22.45**

Source: Western Regional Climate Center (www.wrcc.dri.edu), 1981-2010 data from two San Francisco monitoring stations (Mission Dolores/SF#047772 and Richmond/SF#047767).

3.2 Projected Growth

Projections of population growth in the retail service area through 2040 are presented in ***Section 3.2.2 of the UWMP***. The corresponding LUA 2012 projections for housing and employment in San Francisco, which are incorporated into the projected retail water demands, are provided in ***Appendix E of the UWMP***.

3.3 Projected Retail Water Demands

For the 2015 UWMP, the SFPUC developed a new set of models that incorporate socioeconomic factors to project retail demands through 2040. These models incorporate the latest housing and employment projections from LUA 2012. ***See Section 4.1 of the UWMP*** for tabulated retail water demand projections through 2040 and a description of the model methodology.

3.4 Proposed Project Water Demand

Water demand estimates for the proposed project are detailed in a memo prepared by the SFPUC project team, provided in Attachment A. The proposed project is not encompassed in the San Francisco Planning Department's LUA 2012 projections as it does not result in population or employment growth. Therefore, the demand that would be generated by the proposed project is not encompassed within the San Francisco retail water demands that are presented in the 2015 UWMP.

Water demand associated with the proposed project over the 20-year planning horizon is shown in the following table.

Table 2: Water Demand Based on Project Phasing

	2020	2025	2030	2035	2040
Total Average Demand of Proposed Project (mgd)	—	0.16	0.16	0.16	0.16

mgd = million gallons per day

Notes:
The demand shown in this table is the net increase in potable water demand (BDFP demand compared to existing solids processing facilities). Operation of the proposed project would begin as early as 2023 with the startup/commissioning period.

4.0 Conclusion

4.1 Comparison of Projected Supply and Demand

Section 7.5 of the UWMP compares the SFPUC's retail water supplies and demands through 2040 during normal year, single dry-, and multiple dry-year periods. See Table 3, below, which is adapted from the UWMP (Table 7-4) with the addition of water demands attributed to the proposed project. Although water demands associated with the proposed project are not already captured in the retail demand projections presented in the UWMP, the demands are incremental and would not substantiate the need for additional supplies.

With the addition of demands associated with the proposed project, total retail demand in 2035 is projected to be 86.1 mgd, which represents a 5.2 mgd, or 6 percent, increase over the 2035 demand projected in the 2010 UWMP. The ability to meet the demand of the retail customers is in large part due to development of 10 mgd of local WSIP supplies, including conservation, groundwater, and recycled water. These supplies are anticipated to be fully implemented over the next 10 to 15 years.

Table 3 shows projected shortfalls of 0.2-1.3 mgd resulting from the proposed project. In a normal year, single dry year, or multiple dry year 1, the SFPUC may draw up to 81 mgd from the RWS, thereby increasing the total retail supply beyond the volumes shown in Table 3 and eliminating the 0.2 mgd deficit. In years 2 and 3 of a multiple dry year event, the SFPUC may draw 79.5 mgd, which is already reflected the total retail supply shown in Table 3. The resulting deficit would be easily managed through voluntary conservation or rationing.

If planned future water supply projects (i.e., San Francisco Groundwater Supply Project, Westside Recycled Water Project, Eastside Recycled Water Project, and onsite non-potable supplies) are not implemented, normal-year supplies may not be enough to meet projected retail demands. To balance any water supply deficits during normal years, the SFPUC may import additional water from the RWS beyond the retail allocation of 81 mgd, with mitigation implemented by the SFPUC and potential environmental surcharges if RWS deliveries exceed the 265 mgd interim supply limitation.

If dry-year supply projects (i.e., Calaveras Dam Replacement Project, Lower Crystal Springs Dam Improvements Project, Alameda Creek Recapture, Regional Groundwater Storage and Recovery Project, and water transfers) are not implemented, existing dry year supplies may not be enough to meet projected retail demands. To balance any water supply deficits during dry years, the SFPUC may reduce system deliveries and impose customer rationing.

Table 3: Projected Supply and Demand Comparison with Proposed Project (mgd)

		Normal Year	Single Dry Year[1]	Multiple Dry Years		
				Year 1[1]	Year 2[2]	Year 3[2]
2020	Total Retail Demand Excluding Proposed Project[3]	77.5	77.5	77.5	77.5	77.5
	Demand of Proposed Project	—	—	—	—	—
	Total Retail Demand Including Proposed Project	77.5	77.5	77.5	77.5	77.5
	Total Retail Supply[4]	77.5	77.5	77.5	77.5	77.5
	Surplus/(Deficit)	0	0	0	0	0
2025	Total Retail Demand Excluding Proposed Project[3]	79.0	79.0	79.0	79.0	79.0
	Demand of Proposed Project	0.16	0.16	0.16	0.16	0.16
	Total Retail Demand Including Proposed Project	79.2	79.2	79.9	79.2	79.2
	Total Retail Supply[4]	79.0	79.0	79.0	79.0	79.0
	Surplus/(Deficit)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)
2030	Total Retail Demand Excluding Proposed Project[3]	82.3	82.3	82.3	82.3	82.3
	Demand of Proposed Project	0.16	0.16	0.16	0.16	0.16
	Total Retail Demand Including Proposed Project	82.5	82.5	82.5	82.5	82.5
	Total Retail Supply[4]	82.3	82.3	82.3	82.3	82.3
	Surplus/(Deficit)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)
2035	Total Retail Demand Excluding Proposed Project[3]	85.9	85.9	85.9	85.9	85.9
	Demand of Proposed Project	0.16	0.16	0.16	0.16	0.16
	Total Retail Demand Including Proposed Project	86.1	86.1	86.1	86.1	86.1
	Total Retail Supply[4]	85.9	85.9	85.9	85.9	85.9
	Surplus/(Deficit)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)
2040	Total Retail Demand Excluding Proposed Project[3]	89.9	89.9	89.9	89.9	89.9
	Demand of Proposed Project	0.16	0.16	0.16	0.16	0.16
	Total Retail Demand Including Proposed Project	90.1	90.1	90.1	90.1	90.1
	Total Retail Supply[4]	89.9	89.9	89.9	88.8	88.8
	Surplus/(Deficit)	(0.2)	(0.2)	(0.2)	(1.3)	(1.3)

Notes:

1. During a single dry year and multiple dry year 1, a system-wide shortage of 10% is in effect. Under the Water Shortage Allocation Plan (WSAP), the retail supply allocation at this stage of shortage is 36.0% of available RWS supply, or 85.9 mgd. However, due to the Phased WSIP Variant, only 81 mgd of RWS supply can be delivered. RWS supply is capped at this amount.
2. During multiple dry years 2 and 3, a system-wide shortage of 20% is in effect. Under the WSAP, the retail supply allocation at this stage of shortage is 37.5% of available RWS supply, or 79.5 mgd. RWS supply is capped at this amount.
3. Total retail demands correspond to those in ***Table 4-1 of the UWMP***, and reflect both passive and active conservation, as well as water loss.
4. Total retail supplies correspond to those in ***Table 6-7 of the UWMP***. Procedures for RWS allocations and the WSAP are described in ***Section 8.3 of the UWMP***. Groundwater and recycled water are assumed to be used before RWS supplies to meet retail demand. However, if groundwater and recycled water supplies are not available, up to 81 mgd, or the corresponding capped amount in dry years, of RWS supply could be used.

The SFPUC remains committed to meeting the level of service goals and objectives outlined under WSIP. In addition, the SFPUC continues to explore other future supplies, including:

- Development of additional conservation and recycling.
- Development of additional groundwater supplies.
- Securing of additional water transfer volumes.
- Increasing Tuolumne River supply.

4.2 Findings

Regarding the availability of water supplies to serve the proposed project beginning as early as 2023, the SFPUC finds, based on the entire record before it, as follows:

- During normal years, single dry years, and multiple dry years, the SFPUC has sufficient water supplies to serve the proposed project.
- With the addition of planned retail supplies, the SFPUC has sufficient water supplies available to serve its retail customers, including the demands of the proposed project, existing customers, and foreseeable future development.

Approval of this WSA by the Commission is not equivalent to approval of the development project for which the WSA is prepared. A WSA is an informational document required to be prepared for use in the City's environmental review of a project under CEQA. It assesses the adequacy of water supplies to serve the proposed project and cumulative demand.

Furthermore, this WSA is not a "will serve" letter and does not verify the adequacy of existing distribution system capacity to serve the proposed project. A "will serve" letter and/or hydraulic analysis must be requested separately from the SFPUC City Distribution Division to verify hydraulic capacity.

If there are any questions or concerns, please contact Steve Ritchie at (415) 934-5736 or SRitchie@sfwater.org.

Attachment A –

Biosolids Digester Facilities Project Demand Memo

San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

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San Francisco, CA 94102
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February 15, 2017

TO: Fan Lau, Water Resources Specialist

FROM: Carolyn Chiu, BDFP Project Manager

RE: Input to Water Supply Assessment for the Biosolids Digester Facilities Project

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This document provides information specified in the "Project Demand Memo for Preparation of WSA." Specifically, this document responds to the input requested for Items 1b (Introduction) and 3b (Project Demand).

Project Description (Item 1b)

The Biosolids Digester Facilities Project (the "project" or BDFP) would construct new solids treatment, odor control, energy recovery, and associated facilities at the San Francisco Public Utilities Commission's (SFPUC) Southeast Water Pollution Control Plant (SEP) in San Francisco. Most of the existing SEP solids treatment facilities (including the digesters) are over 60 years old, were not built to withstand the maximum credible earthquake, require significant maintenance, and are operating well beyond their useful life. Newer, more efficient treatment technologies have since been developed that produce a higher quality and reduced volume of biosolids, capture and treat odors more effectively, and maximize biogas production for heat and energy. The proposed BDFP would update and replace the aging SEP solids treatment system. Over the planning period for the BDFP (2045), projected increases in population will increase solids loads from about 187,000 pounds per day (2014) to about 280,000 pounds per day (2045) (SFPUC, 2016)[1].

The BDFP would be located on portions of the existing SEP property at 750 Phelps Street and 1700 Jerrold Avenue (Block and Lot 5262/009), and the adjacent properties at 1800 Jerrold Avenue (the Central Shops site, Block and Lot 5262/009) and 1801 Jerrold Avenue (the decommissioned Asphalt Plant site, Block and Lot 5281/001). The project site totals approximately 415,000 square feet. The project would involve the demolition of other onsite structures and installation of the following facilities:

- Solids Pretreatment Facility
- Thermal Hydrolysis Process (THS)
- Anaerobic Digestion
- THS Cooling Towers
- Biosolids Dewatering Facility
- Energy Recovery Facility

Edwin M. Lee
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Harlan L. Kelly, Jr.
General Manager

[1] SFPUC. March.. Final Conceptual Engineer Report. 2016.

- Biogas Treatment
- Biogas Storage
- Waste Gas Burners
- Solids Odor Control
- Piping modifications and new pumps for existing pump stations
- Maintenance Shops
- Other ancillary facilities (electrical rooms, transformers, chemical storage, and diesel generator)

The BDFP would require construction of new structures totaling less than 215,000 square feet (footprint). No new staff would be needed to operate new facilities.

Currently, the SEP uses supplies from three water systems, as follows:

- No. 1 water (W1): potable water
- No. 2 water (W2): non-potable, disinfected and filtered SEP effluent
- No. 3 water (W3): non-potable, chlorinated SEP effluent

The type of water used in the treatment system under the proposed project would depend on the process and required water quality. For example, W1, the highest quality water, would be used for the cooling tower and energy recovery facilities. W2 and W3 water would be used for wash water, chemical dissolution, dilution, and to maintain moisture for the odor control facilities.

Project Demand (Item 3b)

BDFP processes would increase overall water use. However, the BDFP has been designed to maximize use of SEP recycled water and/or other non-potable water, to the extent possible in its processes. Thus, the majority of the water needs (about 92 percent) would be supplied by the No. 2 and No. 3 water systems, while only about 8 percent would be associated with the No. 1 potable water system. **Table 1** presents the existing and projected future water demand (process and non-process water [administration / maintenance only] and irrigation) for the proposed project, including for W1, W2, and W3. W2 and W3 demand are shown to demonstrate how SFPUC would minimize potable water use and reduce treated effluent that would otherwise be discharged into the Bay.

As shown in **Tables 1** and **2**, the BDFP average demand for W1 is approximately 140 gallons per minute (gpm), or approximately 205,000 gallons per day (gpd). This would result in a net increase of approximately 162,000 gpd of potable water, above the 50,000 gpd that would trigger the preparation of a WSA. Nearly 100 percent of the W1 demand is associated with process needs.

Irrigation water demand, which is currently met by potable water, is also assumed to be supplied by potable water under the proposed project due to the higher salinity levels of the existing SEP effluent. This may likely change when recycled water or other viable non-potable water source is identified. At this time however, with selection of the right palette of salt tolerant plants and

implementation of the appropriate irrigation strategies (e.g., avoid wetting leaves with recycled water, adjusting irrigation frequency to keep soils moist, leaching soils with gypsum periodically), existing recycled water that is currently produced at the SEP could likely be used. Other water sources may be available to meet the irrigation needs of the project, such as stormwater (captured during rainy events)[2] and greywater (captured from sinks). In addition, as discussed in the Final CER (SFPUC, 2016), landscape planting will reflect the strategies of the City's Water Efficient Irrigation Ordinance Requirements for Tier 2 projects and the Green Landscaping Ordinance, including consideration of irrigation with recycled water or harvested rain water, water-efficient/drought tolerant plantings, and automatic irrigation controllers equipped with climatological sensors.

Project design has not proceeded to a level in which the plant palette has been selected, associated water requirements have been evaluated, or the specific water supplies have been identified for irrigation. Thus, the values specified in **Table 2** are based on assumptions of the calculated landscape area, estimated water requirements of peak (71 gpm) irrigation, and hours of irrigation (6 hours) during the plant establishment period. Following the plant establishment period, it is expected that water demands would reduce to 10 gpm. By assuming the irrigation water needs would be supplied entirely by the use of potable water, the project is providing a conservative estimate of W1 use. As design progresses, the BDFP Team will determine the details to better gauge the water needs as well as investigate other alternatives to potable water that can be used for irrigation.

Potable water, which is necessary for certain processes that require the lowest level of salinity, could be further reduced in the future. SFPUC has identified the Eastside Recycled Water Project as a potential project that would deliver disinfected tertiary level treated recycled water to a variety of customers on the east side of the City for non-drinking uses such as irrigation and toilet flushing. Title 22 disinfected tertiary level treated recycled water provides a variety of reuse opportunities, including supply for cooling or air conditioning, toilet and urinal flushing, and irrigation (e.g., in public spaces). If available, this level of recycled water could be used to meet proposed biosolids facilities water demand (process and non-process) as well as irrigation demand. Although not yet formally in the planning stage, the Eastside Recycled Water Project may be available by 2030. In compliance with the City's Reclaimed Water Use Ordinance, SFPUC proposes that all Irrigation pipelines would be single-piped with a crossover/air gap connection such that recycled water (Title 22) could be used if and when it becomes available in the future. In addition, bathrooms in BDFP buildings would be dual plumbed for recycled water use if and when it becomes available.

[2] As discussed in the Final CER, the BDFP will comply with SFPUC's Stormwater Design Guidelines, and thus would be required to decrease runoff rate and volume using low-impact development (LID) or other green infrastructure approaches. Examples of LID measures that could be implemented include flow-through stormwater planters, and rain barrels / oversized downsprouts. The use of LID measures would offset potable water use (SFPUC, 2016). Since the publication of the Final CER, SFPUC replaced the SFPUC's Stormwater Design Guidelines with the San Francisco Stormwater Management Requirements (SMR) and Design Guidelines in 2016. The BDFP would be in compliance with the SMR.

The water demands provided in Tables 1 and 2 are for the horizon year 2045. The BDFP would be installed with the majority of the major facilities (e.g., all five proposed digesters) that would be needed during the horizon year. As such, water demand is not expected to change substantially between the start of operation (startup/commissioning period to begin as early as 2023) and the horizon year, and demand is not broken down by phases. In addition, water demand based on water year type is not provided as THP processes do not change depending on the hydrologic water type; thus a breakdown based on the hydrologic water type is also not provided.

Table 1: Existing and Proposed Water Demand

Facility	Potable Water (W1)		Non-potable, Chlorinated and Filtered Water (W2)		Non-potable and Chlorinated Water (W3)		Total (W1+W2+W3)	
	Max (Peak Hour) Demand), gpm	Avg Day Demand gpm	Max (Peak Hour) Demand gpm	Avg Day Demand gpm	Max (Peak Hour) Demand, gpm	Avg Day Demand gpm	Max Demand gpm	Avg Demand gpm
	(1)	(2)	(3)	(4)	(5)	(6)	(1)+(3)+(5)	(2)+(4)+(6)
Existing Overall SEP[1] (Liquid and Bisolids Facilities)	300	70	600	250	5,550	3,000	6,450	3,320
Existing Biosolids Facilities[1,2,3]	110	30	280	120	1,420	770	1,810	920
Project BDFP Facilities								
Process only[3]	144	138	2,070	1,600	360	150	2,574	1,888
Irrigation only[3,4]	7	4	--	--	--	--	7	4
Non-process[3,5]	116	0.5	--	--	--	--	116	0.5
Total Projected BDFP Facilities demand	***267***	***143***	***2,070***	***1,600***	***360***	***150***	***2,697***	***1,893***
Increase in Biosolids Facilities Avg demand (gpm)	**157**	**113**	**1,790**	**1,480**	**-1,060**	**-620**	**887**	**973**
Increase in Biosolids Facilities Avg demand (gpd)[6]	**226,080**	**162,058**	**2,577,600**	**2,131,200**	**-1,526,400**	**-892,800**	**1,277,280**	**1,400,458**

NOTES

[1] Peak values from SFPUC, Final CER, March 2016.

[2] Average values from SFPUC, Draft Site Logistics Plan, March 2016.

[3] Values from Brown and Caldwell (December 2016).

[4] It is assumed irrigation is intermittent and would be up to 71 gpm (or 7 gpm when a 10% diversity factor is applied for intermittent use). The irrigation demand is based on calculated landscape area, estimated water requirements of peak (71 gpm) irrigation, and hours of irrigation (6 hours) during the plant establishment period. Following the plant establishment period, it is expected that water demands would reduce to 10 gpm, but this is not reflected above in order to provide a conservative estimate..

[5] Based on an occupancy of 110 people/day. Note that there is no increase in staffing at SEP due to the project, these people will be existing staff at SEP who will move from one building to another.

[6] SFPUC staff has clarified that secondary effluent demands (W2 and W3 system water) are nonpotable demands that would otherwise be discharged into the Bay if it were not reused for proposed operations. Thus, they're not included in the determination of whether a WSA is needed.

Definitions: Max = maximum; Avg = average; gpm = gallons per minute; gpd = gallons per day; and NA = not applicable

Table 2. SFPUC SEP BDFP No. 1 Water (W1) Demands

Functional Area	Average (gpd)	Peak Hour (gpm)	Average (mgd)
Existing Demands			
Existing Biosolids Water Demands	**43,200**	**110**	**0.04**
New Biosolids Demands (2045)			
Biosolids process facilities (Cooling Tower and Boiler Makeup Water Feed)	198,720	144	0.20
Biosolids Irrigation[a]	5,760	7	0.01
Biosolids facilities fixtures (bathrooms, locker rooms) [b]	778	116	0.001
Total new biosolids demands (2045)	**205,258**	**267**	**0.21**
Net W1 Demand Increase from BDFP Project	**162,058**	**157**	**0.16**

Source: Brown and Caldwell, December 2016.

a. Based on calculated area and estimated water requirements, at 71 gpm (peak) irrigation would be accomplished in 6 hours during plant establishment. Estimates will be revisited during design. Following the plant establishment period, it is expected that water demands would reduce to 10 gpm.

b. Based on an occupancy of 110 people/day.

Definitions: gpd = gallons per day; gpm = gallons per minute; mgd = million gallons per day.

San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

FROM: **Jeremy Spitz, Policy and Government Affairs**

DATE: **January 16, 2025**

SUBJECT: **[Grant of Easement – Pacific Gas and Electric Company – Approximately 2,9444-square-foot permanent easement for a Natural Gas Facility exclusively serving the San Francisco Public Utilities Commission's Southeast Water Pollution Control Plant located at 1800 Jerrold Avenue – At No Cost]**

Please see attached a proposed Resolution approving and authorizing a grant of a permanent easement on SFPUC's property located at 1800 Jerrold Avenue (Assessor's Parcel Block No. 5262, Lot No. 009), consisting of an easement of approximately 2,9444-square-feet of land within SFPUC's Southeast Water Pollution Control Plant, between City and PG&E, for the purpose of replacing and relocating SFPUC's existing solids treatment facilities at its Southeast Water Pollution Control Plant with more reliable, efficient, and modern technologies and facilities, at no cost for a term effective upon approval of this Resolution and recordation of the agreement by City's Office of the Assessor Recorder, pursuant to Charter, Section 9.118, and until PG&E surrenders or abandons the easement area or the agreement is terminated; determination that the grant of the easement at no cost will serve a public purpose by delivering an increased natural gas supply to SFPUC's existing Southeast Water Pollution Control Plant and its new biosolids digesters facilities, in accordance with Section 23.30; adopting findings of consistency with the General Plan, and the eight priority policies of Planning Code, Section 101.1; and authorizing the Director of Property to execute documents, make certain modifications and take certain actions in furtherance of this Resolution, as defined herein.

The following is a list of accompanying documents:

- Proposed Resolution (Word Doc Version)
- Addendum 1 to BDFP EIR
- Addendum 2 to BDFP EIR
- Attachment A CEQA Findings
- Attachment B MMRP
- Biosolids Digester EIR Appendices
- Easement Deed
- Final Environmental Impact Report VOL 1
- Final Environmental Impact Report VOL 2
- Final Environmental Impact Report VOL 3

Daniel Lurie
Mayor

Joshua Arce
President

Stephen E. Leveroni
Vice President

Avni Jamdar
Commissioner

Meghan Thurlow
Commissioner

Kate H. Stacy
Commissioner

Dennis J. Herrera
General Manager

- General Plan Referral 2015-000644GPR - August 2025
- General Plan Referral Signed Final Letter - Southeast Plant and Central Shops site
- Location Map - PG&E Easement for Biosolids
- Minor Project Modification
- SFPUC Resolution No. 18-0042
- SFPUC Resolution No. 24-0223
- SFPUC Resolution No.26-0006

Please contact Jeremy Spitz at jspitz@sfwater.org if you need any additional information on these items.