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ADDENDUM

Date of Publication of Addendum:	February 6, 2024
Date of Adopted Negative Declaration for the Agreement for Disposal of San Francisco Municipal Solid Waste at Recology Hay Road Landfill in Solano County:	July 22, 2015[1]
Date of Certification of Final EIR for the Newby Island Sanitary Landfill and The Recyclery Rezoning Project:	June 6, 2012[2]
Date of Certification of Final EIR for the Main Wastewater Treatment Plant Land Use Master Plan:	June 28, 2011[3]
Case No.	2022-001263ENV
Project Title:	City Refuse Contract
Block/Lot:	N/A
Project Sponsor:	Claire Phillips, Office of the City Administrator (415) 554-5650, claire.phillips@sfgov.org
Lead Agency:	San Francisco Planning Department
Staff Contact:	Jenny Delumo – (628) 652.7568 jenny.delumo@sfgov.org

REMARKS

This document is an addendum to the final negative declaration and environmental impact reports (EIRs) listed above and described in further detail below. Its purpose is to explain and substantiate the Planning Department's determination that no supplemental or subsequent environmental review is required prior to execution of a contract between Allied Waste Services of North America, LLC (Allied Waste Services) and the City and County of San Francisco (City) to collect, process, and dispose of all refuse generated by all City facilities. As described more fully below, the Planning Department has determined that the environmental impacts of the modified project have been adequately identified and analyzed under CEQA

[1] See footnote 10 for further details.
[2] See footnote 14 for further details.
[3] See footnote 17 for further details.

in the prior environmental documents, and the proposed contract would not result in any new or more severe environmental impacts than were identified previously.

Modified Project Summary

The San Francisco Refuse Project (modified project or proposed project) is a contract between Allied Waste Services and the City to collect, process, and dispose of all refuse (recyclables, compostables, and trash) generated by all City facilities, such as office buildings, institutional buildings, parks, etc. Currently, Recology collects, processes, and disposes of all refuse generated within the boundaries of San Francisco, whether it is generated by a City facility, other government facilities (San Francisco Unified School District, state, and federal facilities), or private property (residential or commercial). Under the modified project, these activities would be undertaken by Allied Waste Services, instead of Recology, for all City facilities.[4] After collection, refuse would be handled as follows:

- Allied Waste Services would deliver all trash to the Recology Transfer Station at 501 Tunnel Avenue. Recology would then transport the trash to the Hay Road Landfill, as it does currently.[5]
- Allied Waste Services would deliver recyclable materials to the Ox Mountain Sanitary Landfill (Ox Mountain SL) where those materials would be consolidated and delivered to the Newby Island Resource Recovery Park for recycling.
- Allied Waste Services would deliver compostable material to the Contra Costa Transfer and Recovery Station[6] for off-loading and preprocessing.[7] Compostable material would then be collected and delivered to the East Bay Municipal Utility District's (EBMUD) Wastewater Treatment Plant in Oakland.[8]

Under the proposed modified project, Allied Waste Services would also make minor physical changes at the existing Ox Mountain SL[9] to support implementation of the contract. These changes would consist of reconfiguring the existing paved surface parking area at the Ox Mountain SL to provide space for a new hauling maintenance structure, container storage, fleet vehicle parking, and refueling of Compressed Natural Gas (CNG)-powered vehicles.

Previous Environmental Review

The proposed modified project is a contract for the collection, processing and disposal of refuse that would end up at the Hay Road Landfill, Newby Island Resource Recovery Park, and EBMUD Wastewater Treatment Plant and the activities needed to accommodate disposal at these facilities. The environmental impacts of waste disposal activities at the Hay Road Landfill, Newby Island Resource Recovery Park, and EBMUD

[4] Public-facing receptacles under the purview of San Francisco Public Works would not be serviced under the proposed project. Recology would continue to collect refuse from private homes and businesses in San Francisco, as well as from other entities within San Francisco with which it holds contracts.

[5] Alternatively, Allied Waste Services would collect and transfer trash to the Ox Mountain Sanitary Landfill where it would be consolidated with other trash and then Allied Waste Services would take the trash to Hay Road Landfill. Allied Waste Services plans to bring the trash to Recology's Transfer Station at 501 Tunnel Avenue. However, to address the possibility that this may not occur, the project description includes this variant scenario.

[6] The Contra Costa Transfer and Recovery Station is located at 951 Waterbird Way, Martinez, CA 94553.

[7] Preprocessing refers to the removal of contaminants from compostable materials in preparation for injection into an anerobic digester.

[8] The East Bay Municipal Utility District's (EBMUD) Wastewater Treatment Plant is located at 2020 Wake Avenue, Oakland, CA 94607.

[9] The Ox Mountain Sanitary Landfill is also known as the Corinda Los Trancos Landfill. It is located at 12310 San Mateo Road, Half Moon Bay, CA 94019.

Wastewater Treatment Plant have been addressed in documents previously prepared pursuant to the California Environmental Quality Act (CEQA). CEQA guidelines section 15164 allows for the use of an addendum to a previously certified EIR or adopted negative declaration provided the conditions identified in CEQA guidelines section 15162 are not met and only minor technical changes or additions are necessary.

The previous environmental documents that address the impacts of the modified project are as follows:

- **Final negative declaration for the Agreement for Disposal of San Francisco Municipal Solid Waste at Recology Hay Road Landfill in Solano County (Recology Hay Road Landfill project)**: The final negative declaration was adopted by the San Francisco Board of Supervisors on July 22, 2015. [10] The Recology Hay Road Landfill project consists of a contract between the City and Recology to change the disposal site for San Francisco's municipal solid waste from Waste Service's Altamont Landfill[11] to the Recology Hay Road Landfill.[12] Under the contract, solid waste would be transported to the Hay Road Landfill by up to 50 long-haul semi-trucks per day.[13] No other changes were proposed under this project. The final negative declaration found that implementation of the Recology Hay Road Landfill project would not result in any significant environmental impacts.

- **Final EIR for the Newby Island Sanitary Landfill and The Recyclery Rezoning Project (Newby Island project):** The final EIR was certified by the City of San Jose's Planning Commission on June 6, 2012.[14] The Newby Island project consists of a planned development rezoning of the Newby Island Sanitary Landfill and the adjacent Recyclery in order to (1) increase the maximum height of the active portion of the landfill from 150 feet to 245 feet[15] and (2) add approximately 15.12 million cubic yards of capacity. The final EIR found that implementation of the Newby Island project would result in significant impacts to air quality, biological resources, geology and soils, and global climate change resource topics, but those impacts would be reduced to less than significant with mitigation. For all other environmental resource topics, the project was found to have less-than-significant or no impacts. Mitigation measures identified in this document have been incorporated as conditions of the facility's permits by the City of San Jose and are in effect.[16] These mitigation measures are provided in this addendum's Attachment A: Mitigation Monitoring and Reporting Programs for Environmental Documents.

[10] San Francisco Planning Department, *Agreement for Disposal of San Francisco Municipal Solid Waste at Recology Hay Road Landfill in Solano County Final Negative Declaration*, Planning Department Case No. 2014.0653E, State Clearinghouse No. 2015032014, issued July 21, 2015. Available online at: https://sfplanning.s3.amazonaws.com/sfmea/2014.0653E_Revised_FND.pdf , accessed January 2024. The final negative declaration was adopted on July 22, 2015, and upheld on appeal on September 29, 2015. The adoption date reflects the date the document was certified/adopted and not the date the document was upheld on appeal.

[11] The Altamont Landfill is located at 10840 Altamont Pass Road, Livermore, CA 94550.

[12] The Recology Hay Road Landfill is located at 6426 Hay Road, Vacaville, CA 95687.

[13] The 50 trucks per day is based on a six-day work week.

[14] City of San Jose, *Newby Island Sanitary Landfill and The Recyclery Rezoning Project Final Environmental Impact Report*, San Jose File No. PDC07-071, State Clearinghouse No. 2007122011, certified June 6, 2012. Available online at: https://www.sanjoseca.gov/your-government/departments-offices/planning-building-code-enforcement/planning-division/environmental-planning/environmental-review/completed-eirs/newby-island-sanitary-landfill-the-recycler, accessed January 2024. The final EIR was certified on June 6, 2012, and upheld on appeal on August 14, 2012. The adoption date reflects the date the document was certified/adopted and not the date the document was upheld on appeal.

[15] Elevation is measured based on the National Geodetic Vertical Datum of 1929.

[16] City of San Jose. *City Council Resolution No. 76392*. August 14, 2012. Available at https://records.sanjoseca.gov/Resolutions/RES76392.PDF. Accessed January 2024.

- **Final EIR for the Main Wastewater Treatment Plant Land Use Master Plan (Main Wastewater Treatment Plant project):** The final EIR was certified by the East Bay Municipal Utility District on June 28, 2011.[17] The Main Wastewater Treatment Plant project consists of a plan for the implementation of short- and long-term land uses on the 48-acre project site. These uses include facilities for biodiesel production, food waste preprocessing and processing, tertiary treatment, household hazardous waste collection, ultraviolet disinfection, and public education. Other project components include a temporary land lease, employee parking, emergency equipment storage, an influent pump station, a dewatering building, primary sedimentation tank odor control, digester expansion, and relocation of resource recovery and septage receiving stations. The final EIR found that implementation of the Main Wastewater Treatment Plant project would result in significant impacts to the aesthetics, air quality, biological resources, cultural resources, geology, soils and seismicity, greenhouse gas emissions, hazards and hazardous material, hydrology and water quality, noise, transportation, and utilities resource topics, but those impacts could be reduced to less than significant with mitigation. The EIR also found that the project could result in potentially significant cumulative impacts related to air quality community risks and hazards, which would remain significant with mitigation. For all other environmental resource topics, the project was found to have less-than-significant or no impacts. Mitigation measures identified in this document have been incorporated as conditions of the facility's permits by the City of Oakland and are in effect.[18] These mitigation measures are provided in this addendum's Attachment A: Mitigation Monitoring and Reporting Programs for Environmental Documents.

Authority to Prepare an Addendum

San Francisco Administrative Code. Section 31.19(c)(1) of the San Francisco Administrative Code 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 therefor shall be noted in writing in the case record, and no further evaluation shall be required by this Chapter."

California Environmental Quality Act. CEQA section 21166 and CEQA guidelines section 15162 state that when an EIR or negative declaration has been certified for a project, no new, subsequent, or supplemental EIR shall be required unless one or more of the following events occurs:

1) substantial changes are proposed in the project which will require major revisions of the EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

2) substantial changes occur with respect to the circumstances under which the project is being undertaken, which will require major revisions of the previous EIR or negative declaration due to

[17] East Bay Municipal Utility District, *Main Wastewater Treatment Plant Land Use Master Plan Final Environmental Impact Report*, Oakland Case No. and State Clearinghouse No. 2009112073, certified June 28, 2011. Available online at: https://oaklandca.s3.us-west-1.amazonaws.com/oakca1/groups/ceda/documents/report/oak036740.pdf, accessed January 2024.

[18] East Bay Municipal Utility District. *East Bay Municipal Utility District Resolution No. 33834-11*. June 28, 2011. Available at: https://www.portofoakland.com/files/pdf/opportunities/RecologyEbmudRESOLUTIONNO33834.pdf. Accessed January 2024.

the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

3) new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, becomes available that shows any of the following:

    a. the project will have one of more significant effects not discussed in the previous EIR or negative declaration;

    b. significant effects previously examined will be substantially more severe than shown in the previous EIR;

    c. mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

    d. mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

Provided the conditions in CEQA guidelines section 15162 for preparation of a subsequent or supplemental EIR are not present and only minor technical changes or additions are necessary, CEQA guidelines section 15164 allows for the use of an addendum to a previously certified EIR or adopted negative declaration. The lead agency's decision to use an addendum must be supported by substantial evidence that the conditions that would trigger the preparation of a subsequent or supplemental EIR are not present.

Purpose of This Addendum

This addendum documents the assessment and determination that the proposed modified project is within the scope of the final negative declaration for the Recology Hay Road Landfill project and the final EIRs for the Main Wastewater Treatment Plant and Newby Island projects, and that no additional environmental review is required. The proposed project is considered a modification of the projects evaluated in those environmental documents because it is a contract for the collection, processing, and disposal of refuse at the facilities identified and analyzed in the final negative declaration for the Recology Hay Road Landfill project and the final EIRs for the Main Wastewater Treatment Plant and Newby Island projects, including any activities necessary to fulfill the proposed contract. Although the modified project is an activity that was not specifically evaluated in these environmental documents, it is an activity subsequent to the projects evaluated in those documents and within the scope of activities contemplated in those documents. The modified project provides more detail about the specific activities that would be undertaken to allow for the disposal of refuse at the Hay Road Landfill, Newby Island Resource Recovery Park, and EBMUD Wastewater Treatment Plant, including where the refuse disposed of at the facilities as part of the contract would originate from, the type of vehicles that would collect the refuse, the fuel those vehicles would use, and the distance the vehicles would travel from the point of collection to the facilities.

This addendum evaluates the potential project-specific environmental impacts of the modified project compared to the impacts identified in the final negative declaration for the Recology Hay Road Landfill project and the final EIRs for the Main Wastewater Treatment Plant and Newby Island projects and incorporates by reference information contained in those environmental documents. This addendum also considers whether changes have occurred with respect to the circumstances of the modified project that would cause significant environmental impacts to which the project would contribute considerably, or whether new information has been put forward demonstrating that the modified project would cause new significant environmental impacts or a substantial increase in the severity of previously identified significant impacts.

Proposed Modified Project

The San Francisco Refuse Project is a contract between Allied Waste Services and the City to collect, process, and/or dispose of all refuse (recyclables, compostables, and trash) generated by all City facilities, such as office buildings, institutional buildings, parks, etc. Currently, Recology collects, processes, and/or disposes of all refuse generated within the boundaries of San Francisco, whether it is generated by a City-operated facility, other government facilities (San Francisco Unified School District, state, and federal facilities), or private property (residential or commercial). Under the modified project, these activities would be undertaken by Allied Waste Services, instead of Recology, for all City facilities.[19] Allied Waste Services is also proposing changes within the existing Ox Mountain SL that will support implementation of the contract. The contract would commence on July 1, 2024, and expire on June 30, 2031. The City would have the option to renew the contract for a period of up to three years, for a maximum term of 10 years. The following describes the modified project in detail.

Refuse Collection, Processing, and Disposal

EXISTING REFUSE COLLECTION, PROCESSING, AND DISPOSAL

Recology currently collects all refuse generated by government-operated facilities and private properties in San Francisco. Recology then takes all recyclables to the Recycle Center at Pier 96 in San Francisco. Recology takes all trash and compostables to the Recology Tunnel Avenue Transfer Station[20] for processing, after which compostables are taken to the Recology Blossom Valley Organics facility[21] and trash is taken to the Recology Hay Road Landfill[22] for final disposal. Recology then takes their trucks to the Recology Tunnel Ave Transfer Station, which is where the trucks are staged until the next collection. All public and private properties in San Francisco collectively generate approximately 221,699 tons of trash per year, 135,546 tons of compostables per year, and 126,666 tons of recyclables per year.[23]

PROPOSED REFUSE COLLECTION, PROCESSING, AND DISPOSAL

Under the modified project, Recology would continue to collect, process, and/or dispose of refuse generated by other governmental entities and private properties, and Allied Waste Services would collect, process, and/or dispose of all refuse generated by City properties in San Francisco. Allied Waste Services would also supply and deliver refuse bins and other collection related items to approximately 375 City

[19] Public-facing receptacles under the purview of San Francisco Public Works would not be serviced under the proposed project. Recology would continue to collect refuse from private homes and businesses in San Francisco, as well as from other entities within San Francisco with which it holds contracts.
[20] The Recology Tunnel Avenue Transfer Station is located at 501 Tunnel Avenue, San Francisco, CA 94134.
[21] The Recology Blossom Valley Organics facility is located at 3909 Gaffery Road, Vernalis, CA 95385.
[22] The Recology Hay Road Landfill is located at 6426 Hay Road, Vacaville, CA 95687.
[23] Soko Made, San Francisco Department of the Environment, email *re Allied Fleet Size and Composition*, February 14, 2023.

facility locations. Bins are collected based on the amount of refuse generated at any given location and can range from once per week to daily. Collection would occur on all days except certain City holidays (unless on-call, emergency, and off-hours collection service is requested on a City holiday). The San Francisco Department of the Environment estimates that under the modified project Allied Waste Services would collect approximately seven percent of all trash, four percent of all compostables, and 10 percent of all recyclables generated in San Francisco.[24]

PROPOSED VEHICLE FLEET.
Allied Waste Services would operate a fleet of approximately 17 vehicles (a mix of collection trucks, tractor trailers, and support vehicles) to collect, process, and/or dispose of refuse collected from City facilities. As shown in **Table 1**, Allied Waste Services proposes to use 11 natural gas-powered vehicles for refuse collection (generally, Steps 1 and 2 in Table 2) and three diesel fuel vehicles for refuse transport (generally, Steps 3 and 4 in Table 2). Three diesel powered support vehicles would be used for supervisory, field maintenance, and container delivery. The vehicle fleet would start from the existing Ox Mountain SL in Half Moon Bay. Compressed natural gas (CNG) vehicles are planned to be replaced by electric vehicles as early as possible and feasible, depending on permitting and on vehicle and infrastructure availability. The upgraded solid waste collection vehicle fleet to be used as part of the modified project would consist of CNG, liquified natural gas (LNG), and Biomethane engines that would be alternative-fuel engine technology (L9N) or equivalent. Except for the trucks used in Compost Steps 4 and 5, after collecting, processing, and/or disposing of refuse, all trucks would return to the Ox Mountain SL to be staged for the next collection.

Table 1: Proposed Vehicle Fleet for Collection, Processing, and Disposal

Vehicle Type	Engine Model Year	Assigned Vehicle Class and Fuel Type	Purpose	# Vehicles
CO/CNG/LNG/ Biomethane SWCV[25]	2019	T7 SWCV Class 8 – Natural Gas: Heavy-Heavy Duty Solid Waste Collection Truck	refuse collection	11
Diesel Tractor Trailer	2019	T7 Tractor Class 8 – Diesel Fuel: Heavy-Heavy Duty Tractor Truck	refuse transfer	3
Diesel Support Vehicles	2017	T6 Utility Class 6 – Diesel Fuel: Medium-Heavy Duty Utility Fleet Truck	refuse operations	3
Total				**17**

The following describes the proposed trash, composting, and recycling collection processes and the vehicle fleet that would be used for those activities.

TRASH COLLECTION, PROCESSING, AND DISPOSAL. Under the proposed contract, Allied Waste Services would collect approximately 42.5 tons of trash per day. After collection, Allied Waste Services would deliver all trash destined for landfill disposal to the Recology Transfer Station at 501 Tunnel Avenue. Recology would then transport the trash to Recology's Hay Road Landfill, as Recology does now under the existing process. Alternatively, Allied Waste Services would collect and transfer trash to the Ox Mountain SL where it would

[24] Soko Made, *op cit.*

[25] CO = Commercial Organics; CNG = Compressed Natural Gas; LNG = Liquified Natural Gas; SWCV = Solid Waste Collection Vehicle

be consolidated with other trash and taken to the Hay Road Landfill.[26] This is because, pursuant to a 2015 Landfill Disposal Agreement between the City and Recology, the City is required to dispose of all trash generated in San Francisco at the Hay Road Landfill.[27]

COMPOST COLLECTION AND PROCESSING. Under the proposed contract, Allied Waste Services would collect approximately 14.9 tons of compostable materials per day. After collection, Allied Waste Services would deliver compostable material to the Contra Costa Transfer and Recovery Station[28] for off-loading and preprocessing.[29] Allied Waste Services would then collect and deliver compostable material to the EBMUD Wastewater Treatment Plant in Oakland.[30] In the event the equipment required for preprocessing of compostable material at the Contra Costa Transfer and Recovery Station is inoperable, Allied Waste Services would deliver the material to the Ox Mountain SL where Allied Waste Services would consolidate the material. Allied Waste Services would then take the material to the Newby Island Resource Recovery Park[31] in Milpitas for composting.[32]

RECYCLING COLLECTION AND PROCESSING. Under the proposed contract, Allied Waste Services would collect approximately 34.7 tons of recyclables per day. After collection, Allied Waste Services would deliver recyclable materials to the Ox Mountain SL. Allied Waste Services would then consolidate and deliver recyclables to the Newby Island Resource Recovery Park for recycling.

Table 2 shows the steps for the proposed trash, composting, and recycling collection, processing, and/or disposal activities described above. These activities and location of the existing facilities are also shown in Figures 1-4.

[26] Allied Waste Services plans to bring the trash to Recology's Transfer Station at 501 Tunnel Avenue. However, to address the possibility that this may not occur, the project description includes this variant scenario. Should this variant scenario take place, it would require approval by the San Mateo County Environmental Health Services, the Local Enforcement Agency for the Corinda Los Trancos (Ox Mountain) Landfill.

[27] City and County of San Francisco. *Landfill Disposal Agreement between the City and County of San Francisco and Recology San Francisco.* Approved by the San Francisco Board of Supervisors on July 22, 2015. Available at https://sfpublicworks.org/sites/default/files/Ex.%2013%20-%202015%20Landfill%20Agreement.PDF. Accessed September 2013.

[28] The Contra Costa Transfer and Recovery Station is located at 951 Waterbird Way, Martinez, CA 94553.

[29] Preprocessing refers to the removal of contaminants from compostable materials in preparation for injection into an anerobic digester.

[30] The East Bay Municipal Utility District's (EBMUD) Wastewater Treatment Plant is located at 2020 Wake Avenue, Oakland, CA 94607.

[31] The Newby Island Resource and Recovery Park is located at 1601 Dixon Landing Road, Milpitas, CA 95035.

[32] Given that the preprocessing equipment at the Contra Costa Transfer and Recovery Station in Martinez was inoperable for only three days in 2022, the analysis assumes compost material is delivered to the East Bay Municipal Utility District's Wastewater Treatment Plant in Oakland.

Table 2: Proposed Refuse Collection, Processing, and Disposal Steps

Refuse Material	Step	Activity	Activity Variant
Trash	*Step 1*	Collection trucks leave the Ox Mountain Sanitary Landfill and collect trash in San Francisco	Collection trucks leave the Ox Mountain Sanitary Landfill and collect trash in San Francisco
	Step 2	Allied Waste trucks take collected trash from San Francisco to the 501 Tunnel Avenue Transfer Station[1]	Allied Waste trucks take collected trash from San Francisco to the Ox Mountain Sanitary Landfill for consolidation
	Step 3	Allied Waste's empty trucks drive from the 501 Tunnel Avenue Transfer Station to the Ox Mountain Sanitary Landfill	Allied Waste trucks take consolidated trash from the Ox Mountain SL to the Hay Road Landfill
	Step 4	*N/A*[2]	Allied Waste's empty trucks drive from the Hay Road Landfill to the Ox Mountain Sanitary Landfill
Compost	*Step 1*	Allied Waste's collection trucks leave the Ox Mountain Sanitary Landfill and collect compostables in San Francisco	Allied Waste's collection trucks leave the Ox Mountain Sanitary Landfill and collect compostables in San Francisco
	Step 2	Allied Waste's trucks take collected compostables from San Francisco to the Contra Costa Transfer and Recovery Station for offloading and preprocessing[3]	Allied Waste's trucks take collected compostables from San Francisco to the Ox Mountain Sanitary Landfill for offloading and consolidation
	Step 3	Allied Waste's empty trucks drive from the Contra Costa Transfer and Recovery Station to Ox Mountain Sanitary Landfill	Allied Waste's trucks take compostables from the Ox Mountain Sanitary Landfill to the Newby Island Resource Recovery Park for composting
	Step 4	A second Allied Waste truck takes the processed compostables from the Contra Costa Transfer and Recovery Station to the East Bay Municipal Utility District's Wastewater Treatment Plant for anaerobic digestion	Allied Waste's empty trucks drive from the Newby Island Resource Recovery Park return to the Ox Mountain Sanitary Landfill
	Step 5	Allied Waste's empty trucks drive from the East Bay Municipal Utility District return to Contra Costa Transfer and Recovery Station	*N/A*
Recyclables	*Step 1*	Allied Waste's collection trucks leave the Ox Mountain Sanitary Landfill and collect recyclables in San Francisco	*N/A*
	Step 2	Allied Waste's trucks take collected recyclables from San Francisco to the Ox Mountain Sanitary Landfill for offloading and consolidation	*N/A*

Table 2: Proposed Refuse Collection, Processing, and Disposal Steps

Refuse Material	Step	Activity	Activity Variant
	Step 3	Allied Waste's trucks take consolidated recyclables from the Ox Mountain Sanitary Landfill to the Newby Island Resource Recovery Park	*N/A*
	Step 4	Allied Waste's empty trucks travel from the Newby Island Resource Recovery Park to the Ox Mountain Sanitary Landfill	*N/A*

Source: Allied Waste Services, 2023

Notes:

[1] After Allied Waste Services completes Trash Step 2, Recology would consolidate trash at the 501 Tunnel Avenue Transfer Station and transport to the Recology's Hay Road Landfill, as Recology does currently.

[2] Not Applicable

[3] Preprocessing refers to the removal of contaminants from compostable materials in preparation for injection into an anerobic digester.

Figure 1: Facility Locations

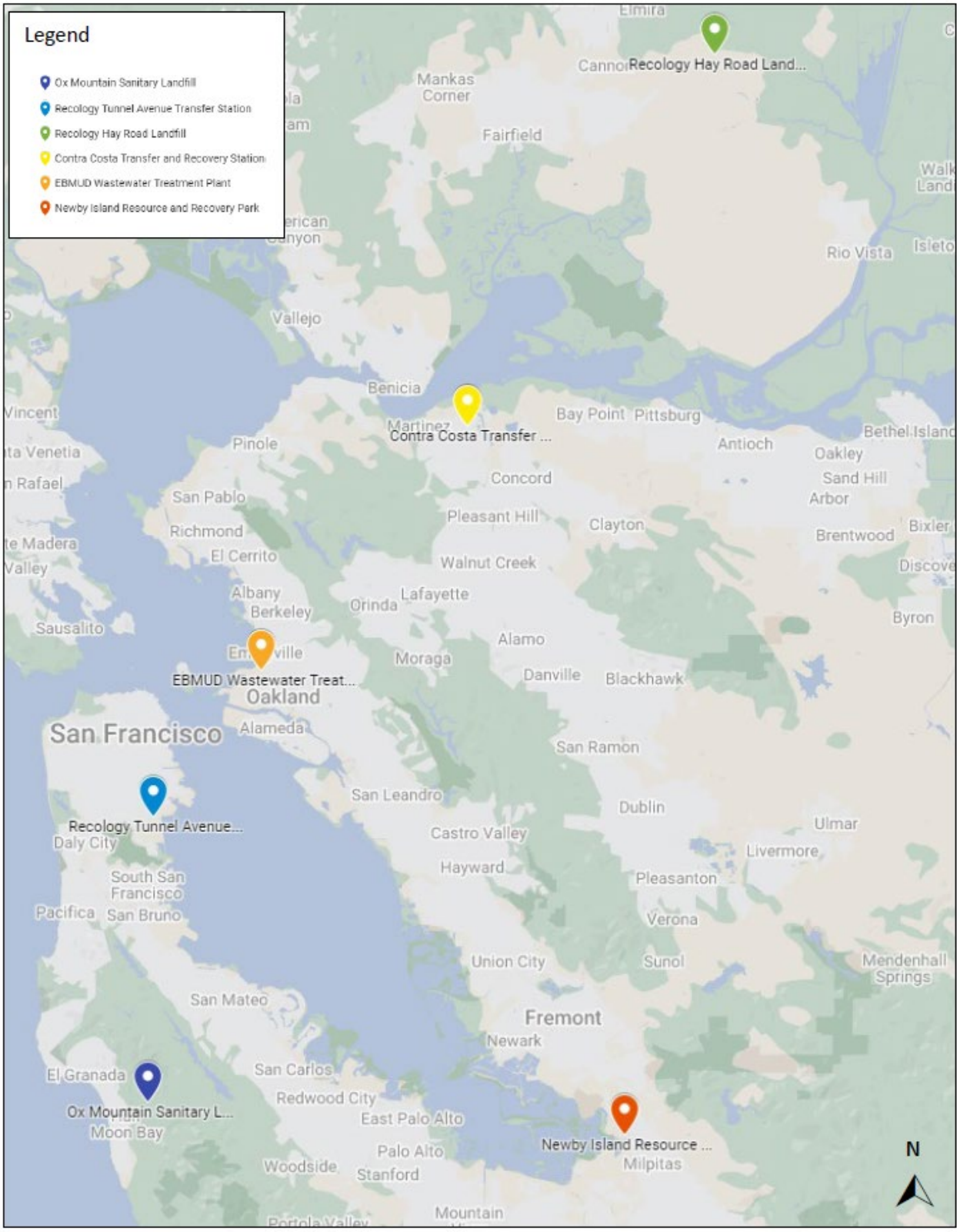
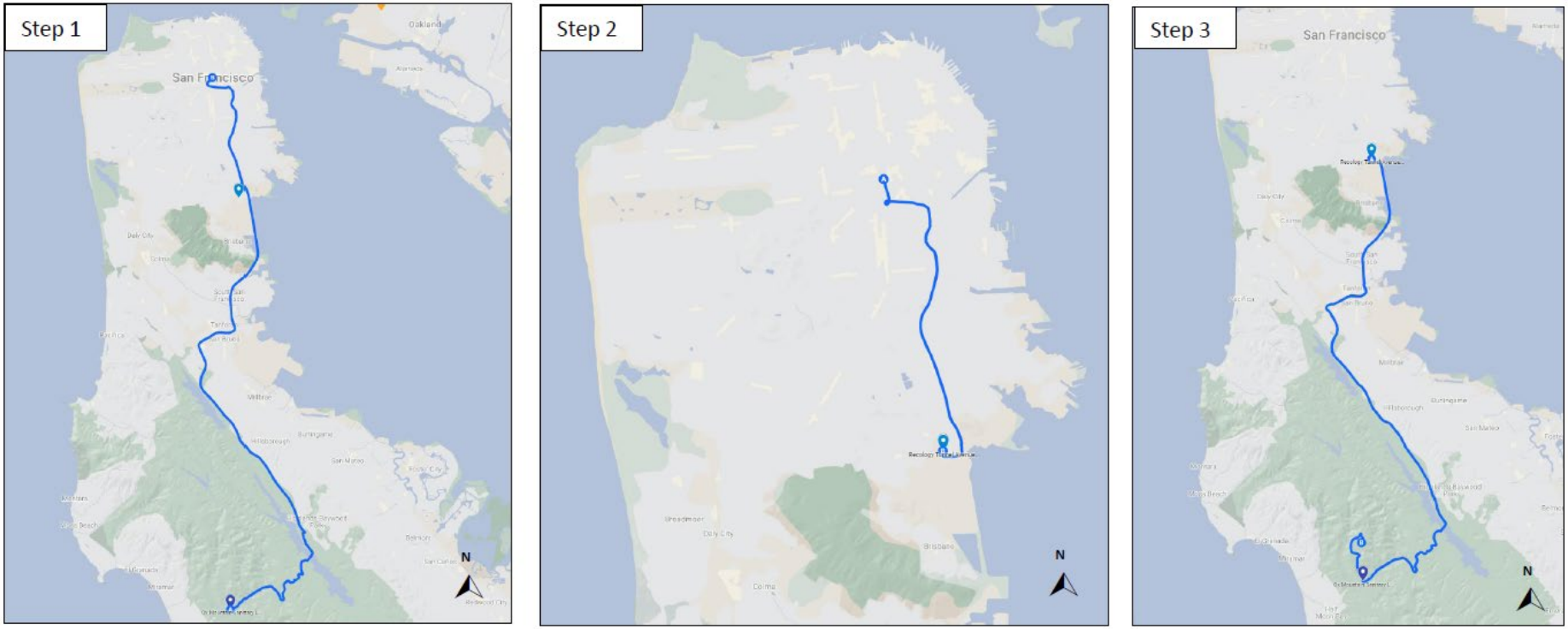
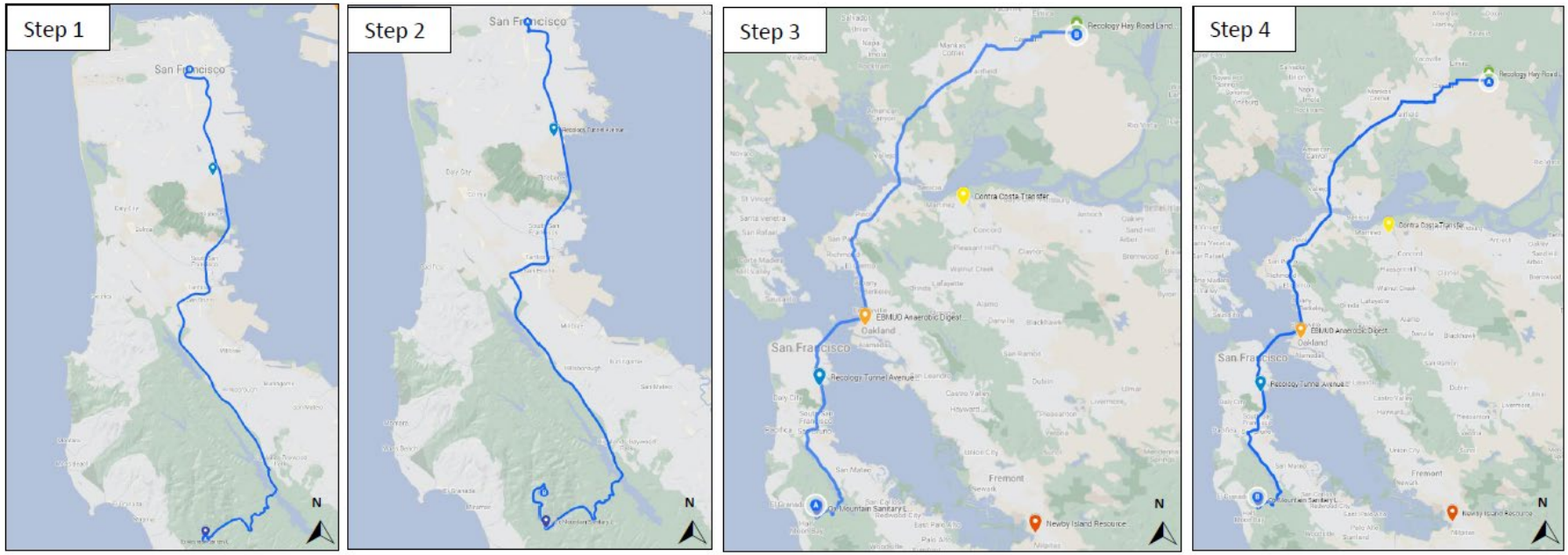


Figure 2a: Proposed Trash Collection, Processing, and Disposal Steps



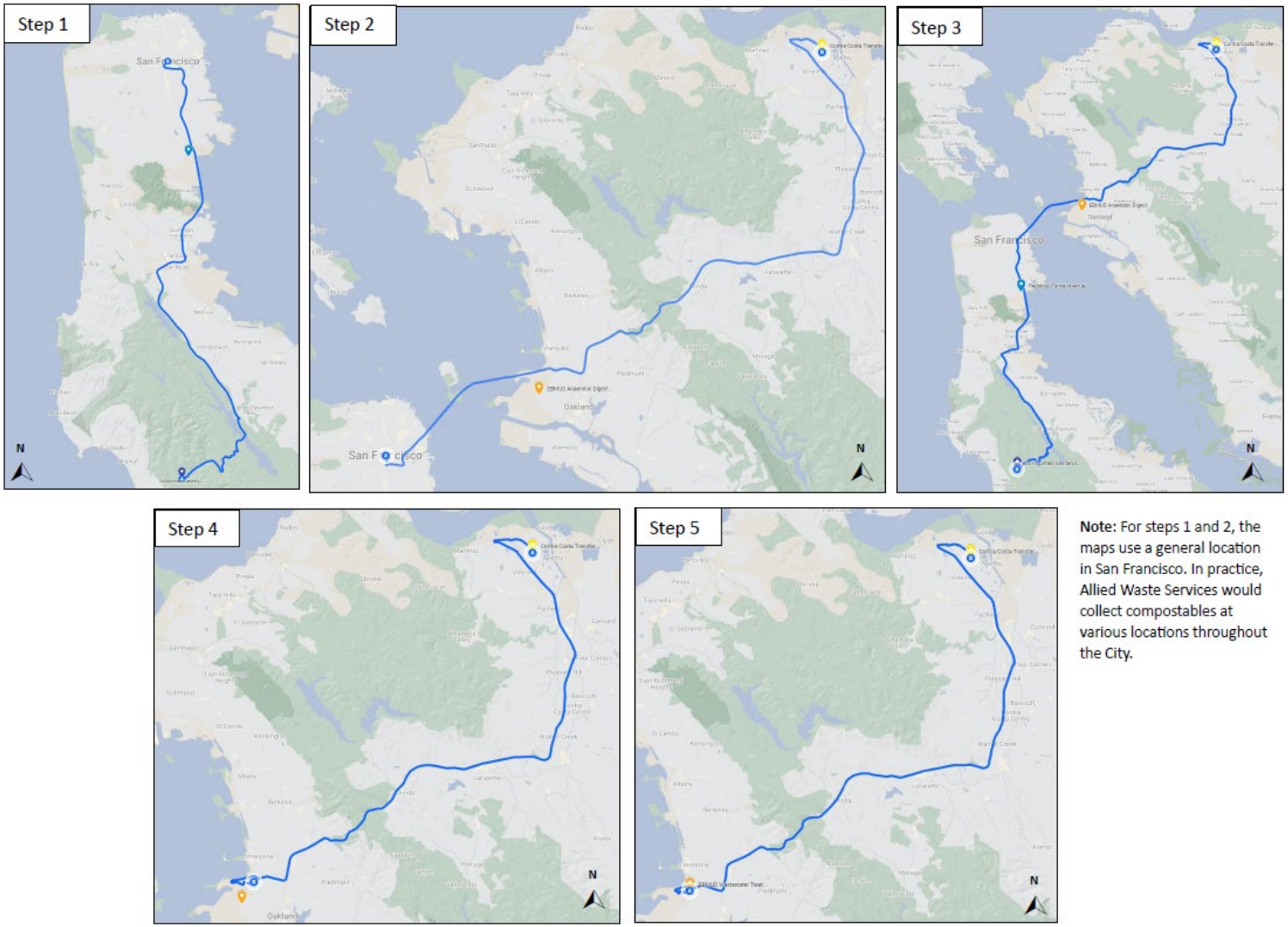
Note: For steps 1 and 2, the maps use a general location in San Francisco. In practice, Allied Waste Services would collect trash at various locations throughout the City.

Figure 2b: Proposed Variant Trash Collection, Processing, and Disposal Steps



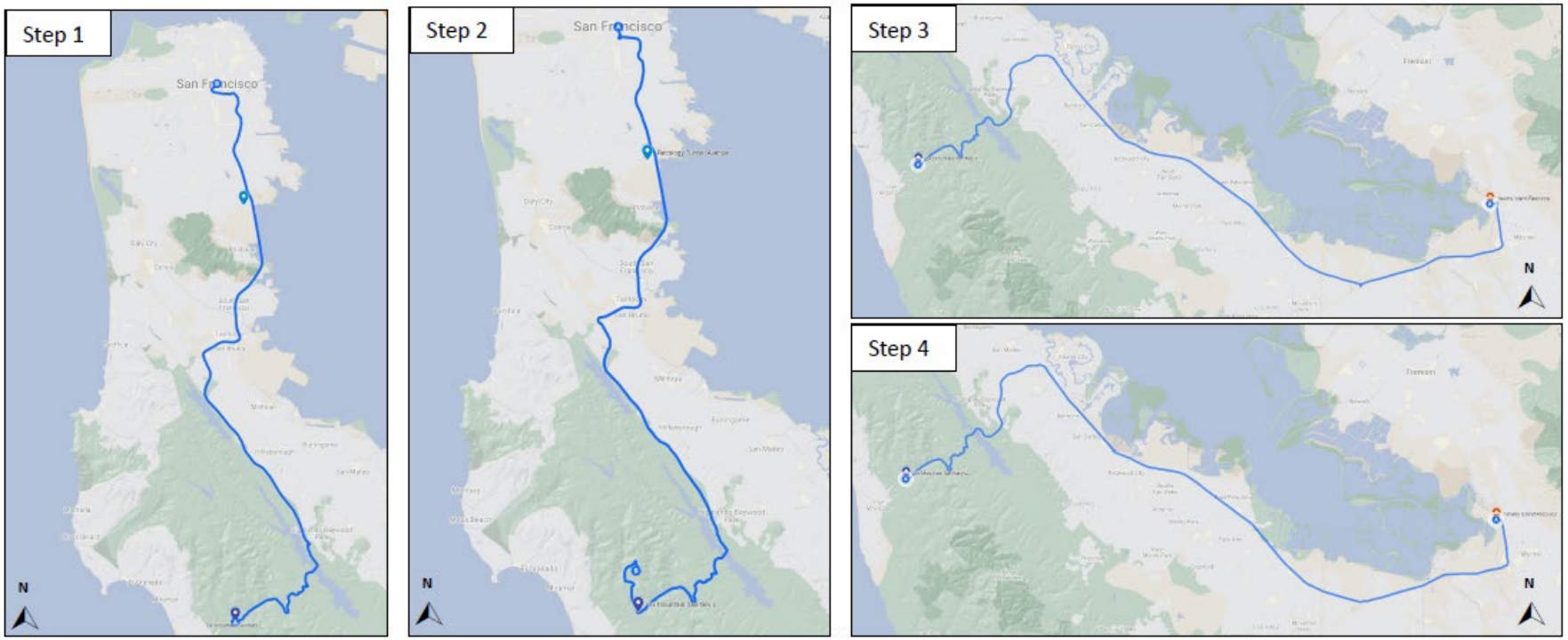
Note: For steps 1 and 2, the maps use a general location in San Francisco. In practice, Allied Waste Services would collect trash at various locations throughout the City.

Figure 3a: Proposed Compost Collection, Processing, and Disposal Steps



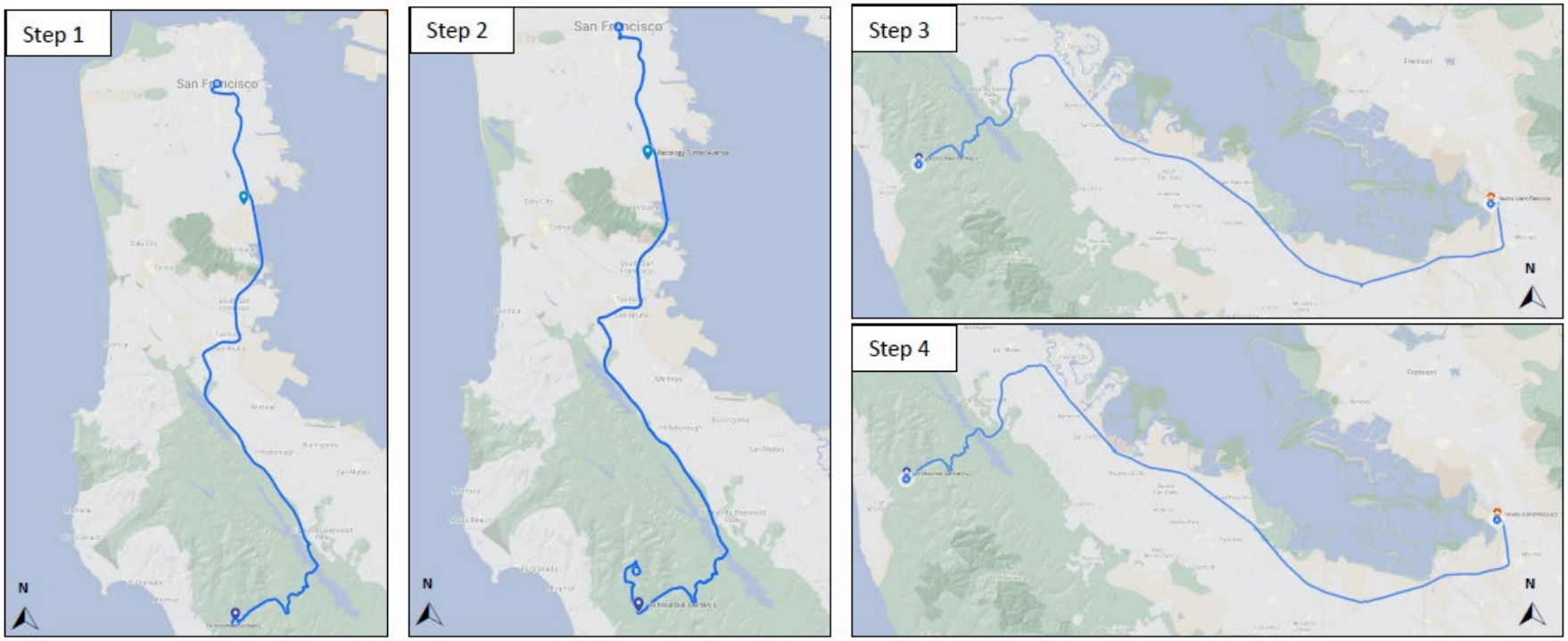
Note: For steps 1 and 2, the maps use a general location in San Francisco. In practice, Allied Waste Services would collect compostables at various locations throughout the City.

Figure 3b: Proposed Variant Compost Collection, Processing, and Disposal Steps



Note: For steps 1 and 2, the maps use a general location in San Francisco. In practice, Allied Waste Services would collect compostables at various locations throughout the City.

Figure 4: Proposed Recycling Collection, Processing, and Disposal Steps



Note: For steps 1 and 2, the maps use a general location in San Francisco. In practice, Allied Waste Services would collect compostables at various locations throughout the City.

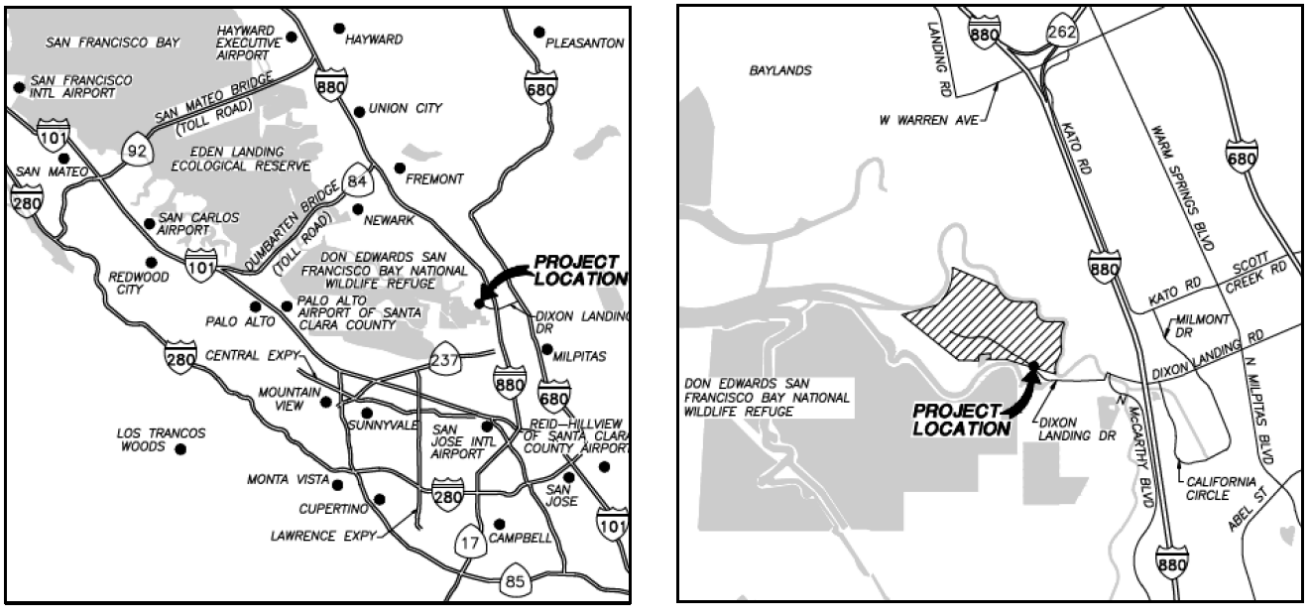
Ox Mountain Sanitary Landfill

EXISTING CONDITIONS AT OX MOUNTAIN SANITARY LANDFILL

The Ox Mountain Sanitary Landfill is located at 12310 San Mateo Road in the city of Half Moon Bay, California and is approximately 20 miles south of San Francisco (**Figure 5**). The landfill is bounded by agricultural uses to the west, east, and north, and San Mateo Road (i.e., State Route 92) to the south.

The Ox Mountain SL operator[33] currently provides waste and recycling services to the City of Half Moon Bay and surrounding unincorporated areas of San Mateo County under two main permits: a solid waste facility permit[34] and a waste discharge requirements permit.[35,36]

Figure 5: Ox Mountain Sanitary Landfill Location



Source: Allied Waste Services

[33] The Ox Mountain SL is owned and operated by Browning-Ferris Industries of California (BFIC), Inc., which is a subsidiary of Republic Services, same as Allied Waste Services of North America, LLC.

[34] The solid waste facility permit was issued by the San Mateo County Environmental Health Services acting as the Local Enforcement Agency on June 6, 2017, under Facility Number 43-AN-0014.

[35] The waste discharge requirements permit was issued by the Regional Water Quality Control Board, San Francisco Bay Region on November 14, 2018, under Order R2-2018-0049.

[36] In addition to the two main permits, the Ox Mountain SL operates under a use permit (file no. 97-0054), a coastal development permit (file no. CDP 97-0054), and a grading permit (file no. GRD 91-0015), which were approved by the San Mateo County Planning Commission on March 10, 1999.

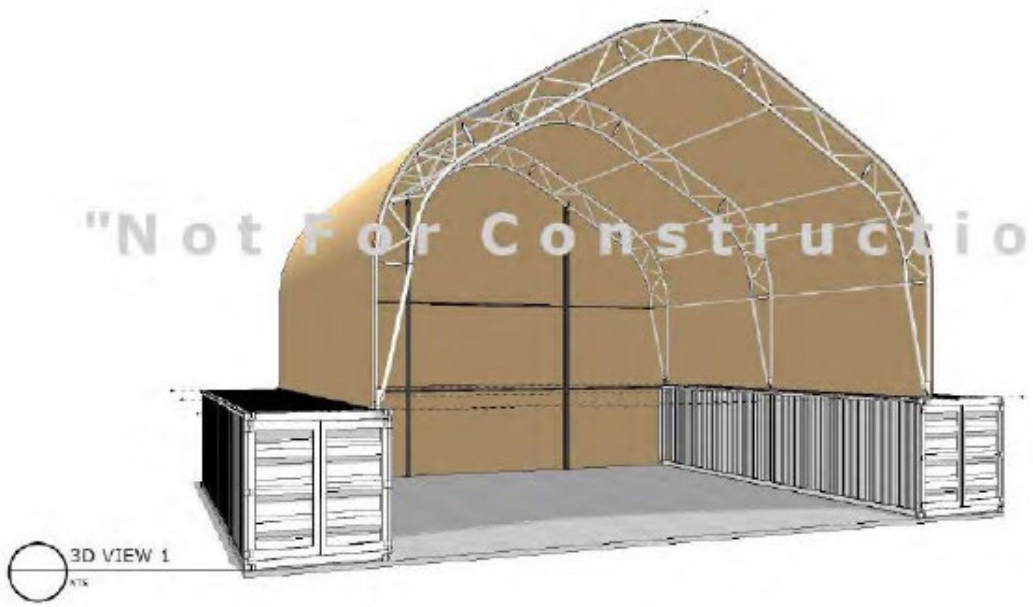
PROPOSED CONDITIONS AT OX MOUNTAIN SANITARY LANDFILL

The modified project would reconfigure the existing paved surface parking area at the Ox Mountain SL (**Figure 6)** to provide space for a new hauling maintenance structure, container storage, fleet vehicle parking, and CNG refueling. These facilities would be located near an existing structure used for office, dispatch, and training activities. The proposed approximately 1,600-square-foot hauling maintenance structure would consist of a steel frame with fabric skin and would be approximately 30 feet tall, 40 feet wide, and 40 feet long. The structure would rest on two 40-foot-long shipping containers that would also be used for the storage of hauling parts (**Figure 7**). A CNG connection would be located near the hauling maintenance structure. Employees would be able to refuel fleet vehicles at the landfill using the proposed CNG connection, mobile CNG station, and a temporary mobile tube trailer, which would hold the fuel.

Figure 6: Proposed Location of Hauling Maintenance Structure and Associated Facilities

Source: Allied Waste Services

Figure 7: Proposed Hauling Maintenance Structure



Source: Allied Waste Services

Under the modified project, Allied Waste Services would store all trucks used for the fulfillment of the refuse contract at the Ox Mountain SL. As described in the Proposed Refuse Collection, Processing, and Disposal section above, Allied Waste Services plans to bring the trash they collect per the refuse contract to Recology's Transfer Station at 501 Tunnel Avenue. However, in the event this is not possible for any reason, Allied Waste Services may need to take the trash they collect to Ox Mountain SL for consolidation and then transport that trash to the Hay Road Landfill (see Table 2, Trash Activity Variant Steps 2 and 3). If that variant scenario occurs, the amount of trash Allied Waste Services collects and consolidates at Ox Mountain SL is estimated to be approximately 42.5 tons per day. In either case, trash collected under the modified project would be disposed of at the Recology Hay Road Landfill, as it is currently.

The modified project would add approximately 19 new employees to the Ox Mountain SL. Up to 16 of those new employees would be drivers and would only be on-site one to three hours per day. The remaining three employees would be full-time on-site personnel, including an operations supervisor (50 percent of the time on-site and 50 percent of the time in the field), a logistical analyst, and one mechanic.

The construction of the hauling maintenance structure at Ox Mountain SL would entail erecting the structure and trenching to install utility lines, such as those for electricity and plumbing. Excavation for the trenching would reach a maximum depth of 4 feet, a maximum length of 50 feet, and result in up to 10 cubic yards of soils disturbance. Trenching activities would occur on previously disturbed soil within the existing footprint of the Ox Mountain SL. Any excavated soil would remain at the Ox Mountain SL. Construction activities are anticipated to occur in the spring of 2024, following project approval, and would last 1 day. No other construction activities are proposed at Ox Mountain SL.

Project Approvals

The project approvals include:[37,38,39]

- Approval by the San Francisco Board of Supervisors of the contract between the City and County of San Francisco and Allied Waste Services of North America, LLC
- Approval by the San Francisco Department of Public Health for a permit to collect, transport, or dispose of refuse within the City and County of San Francisco

Approach to Analysis

As discussed in the Authority to Prepare an Addendum section, CEQA guidelines section 15164 allows for the use of an addendum to a previously certified EIR or adopted negative declaration provided the conditions identified in CEQA guidelines section 15162 are not met and only minor technical changes or additions are necessary. Therefore, the analysis presented in this section evaluates the modified project relative to these CEQA requirements. In particular, this section describes the potential environmental effects of the modified project compared to the impacts identified in the final negative declaration for the Recology Hay Road Landfill project and the final EIRs for the Main Wastewater Treatment Plant and Newby Island projects and assesses whether the modified project would result in any new significant environmental impacts; or would result in a substantial increase in the severity of previously identified environmental impacts. This analysis considers whether there are mitigation measures or alternatives that are considerably different from those identified in the final negative declaration for the Recology Hay Road Landfill project and the final EIRs for the Main Wastewater Treatment Plant and Newby Island projects and would substantially reduce one or more significant impacts, but the project proponents decline to adopt them.

The activities proposed under the modified project, detailed in the Project Description section above, consist of three primary components:

1) collection of trash, recyclables, and compostable materials in the City;
2) processing or disposal of collected trash (at the Hay Road Landfill), recyclables (at the Newby Island Resource Recovery Park), and compostable materials (at the EBMUD Wastewater Treatment Plant); and
3) minor alterations at the existing Ox Mountain SL to support collection, processing, and disposal of City refuse.

These activities are consistent with the projects evaluated in the final negative declaration for the Recology Hay Road Landfill project and the final EIRs for the Main Wastewater Treatment Plant and Newby Island projects because:

[37] The proposed changes at the Ox Mountain SL would be allowed under existing permits for operations at the site. These permits are described in footnotes 34, 35, 36.

[38] Allied Waste Services plans to bring trash to Recology's Transfer Station at 501 Tunnel Avenue. However, if Allied is required to consolidate trash at the Ox Mountain SL and take collected trash to the Hay Road Landfill, as described above, it would require approval by the San Mateo County Environmental Health Services.

[39] The Hay Road Landfill, EBMUD Wastewater Treatment Plant, and Newby Island Resource Recovery Park facilities have permits from their respective local enforcement agency to operate the activities described in Table 2.

1) The adopted negative declaration for the Recology Hay Road Landfill project evaluated the environmental impacts of the collection and disposal of City trash at the Hay Road Landfill. (Hay Road Landfill project final negative declaration, section A.2, pages 1 to 4)

2) The final EIR for the Newby Island project evaluated the environmental impacts of processing mixed recyclables. (Newby Island final EIR, section 1.4.3.1, pages 18 to 20)

3) The final EIR for the Main Wastewater Treatment Plant project evaluated the environmental impacts of accepting compostable materials for the purpose of anaerobic digestion. (Main Wastewater Treatment Plant project final EIR, section 2.4, pages 2-14 to 2-19)

Table 3 lists the above refuse facilities, the prior environmental review conducted for those facilities, the amount of refuse the facilities currently process or dispose of and the amount of refuse they would process or dispose of with the modified project and how that compares to what was analyzed in the environmental document prepared for each facility. The table shows that the refuse that would be processed and disposed under the modified project, in combination with existing refuse processed and or disposed at these facilities, would not exceed the amount analyzed in the environmental documents for the Hay Road Landfill, Newby Island Resource Recovery Park, and EBMUD Wastewater Treatment Plant.

Table 3: Prior Environmental Review of Existing Refuse Facilities

Refuse facility (SWIS facility no.)	Proposed activities	Prior environmental review[1]	Existing refuse amount processed or disposed	Estimated amount of refuse processed or disposed under modified project	Refuse amount analyzed for environmental review	Existing plus proposed refuse amount less than what was previously analyzed in an environmental review document (Y/N)
Hay Road Landfill (48-AA-0002)	Trash disposal	Agreement for Disposal of San Francisco Municipal Solid Waste at Recology Hay Road Landfill in Solano County, Negative Declaration (2015)[2]	Under the modified project, Allied Waste Services would deliver collected trash to the Recology Transfer Station at 501 Tunnel Avenue. Recology would then transport the trash to Recology's Hay Road Landfill, as Recology does now under the existing process. Alternatively, Allied Waste Services would collect and transfer trash to the Ox Mountain SL where it would be consolidated and taken to the Hay Road Landfill, because disposal of trash at this location is required per the 2015 Landfill Disposal Agreement between the City and Recology. In either case, the amount of trash disposed of at the Hay Road Landfill would not change under the proposed project just because a portion of the overall trash that goes to the Hay Road landfill would be transported there by a different refuse company. It is an existing activity that would not change with the modified project.			
Newby Island Resource Recovery Park (43-AN-0003)	Composting	Newby Island Sanitary Landfill and The Recyclery Rezoning Project EIR (2012)[3]	42 tons per day	14.9 tons per day or less	980 tons per day	Yes
	Processing of recyclable materials		629 tons per day	34.7 tons per day or less	1,600 tons per day	Yes
East Bay Municipal Utility District Wastewater Treatment Plant (01-AA-0299; excluded[5])	Processing of compostable materials	Main Wastewater Treatment Plant Land Use Master Plan EIR (2011)[4]	20-40 tons per day	14.9 tons per day or less	250 tons per day	Yes

Sources: Allied Waste Services and San Francisco Department of Environment, 2023; California Department of Resources Recycling and Recovery, accessed May and October 2023

Notes:

[1] Copies of these documents are available for review on the following website: https://sfplanninggis.org/PIM/. Individual files can be viewed by clicking on the Planning Applications link, clicking the "More Details" link under the project's file number and then clicking on the "Related Documents" link.

[2] San Francisco Planning Department. *Agreement for Disposal of San Francisco Municipal Solid Waste at Recology Hay Road Landfill in Solano County Negative Declaration.* July 21, 2015.

[3] City of San Jose. *Integrated Final Environmental Impact Report for the Newby Island Sanitary Landfill and The Recyclery Rezoning Project.* September 2012.

[4] East Bay Municipal Utility District. *Main Wastewater Treatment Plant Land Use Master Plan Environmental Impact Report.* May 2011.

[5] In 2017, the East Bay Municipal Utility District's Wastewater Treatment Facility was determined to be excluded from CalRecylce Regulator Requirements because the facility and its operation qualified as an excluded activity per Title 14 CCR, Division 7, Chapter 3.2, Article 1, Section 17896.6.

EIR = Environmental Impact Report
SWIS = Solid Waste Information System

Therefore, the modified project's net new processing or disposal of trash, compostables and recyclables at each facility have been adequately analyzed and disclosed under CEQA. However, the modified project could result in net new vehicles trips. While Recology would no longer collect, process or dispose of City refuse under the modified project, it is anticipated that its trucks will continue to travel along existing collection routes to collect refuse from other governmental entities and private homes and businesses in San Francisco. It is uncertain whether the number of trucks that Recology operates for these activities would decrease in response to this contract. Thus, for the purpose of this addendum, all of the vehicle trips and vehicle miles travelled (VMT) generated by Allied Waste Services in the fulfillment of the City Refuse Contract are conservatively considered net new trips and VMT.

For these reasons this addendum discusses in detail only those environmental resource topics associated with the net new vehicle trips and VMT that would be generated by the vehicles that would collect and transport refuse under the modified project and the minor alterations at the existing Ox Mountain SL required to support collection, processing, and disposal of City refuse. These topics are air quality, transportation, and noise. The following project-specific studies were prepared to evaluate whether the modified project would result in any significant air quality or transportation impacts that were not identified in the final negative declaration for the Recology Hay Road Landfill project and the final EIRs for the Main Wastewater Treatment Plant and Newby Island projects: Air Quality Criteria Pollutant and Ozone Precursor Emissions Memorandum (Attachment B) and a Transportation Impacts Analysis Memorandum (Attachment C).

Analysis of Potential Environmental Effects

Construction Related Impacts

The modified project would use the facilities evaluated in the final negative declaration for the Recology Hay Road Landfill project and the final EIRs for the Main Wastewater Treatment Plant and Newby Island projects. These facilities have already been constructed. Therefore, any construction activities from the modified project would not combine with construction activities at these facilities and the modified project does not propose any additional construction on those sites.

The modified project would reconfigure the existing surface parking area at the Ox Mountain SL to provide space for a new 1,600-square-foot hauling maintenance structure (consisting of a steel frame with fabric skin), container storage, fleet vehicle parking, and a station to refuel CNG-fueled vehicles for the purpose of supporting fulfillment of the proposed refuse contract. Installation of the hauling maintenance structure would entail a minor amount of construction: one day of trenching on previously disturbed soil to install utility lines and assembly of the structure.[40] Because the proposed trenching would be of a short duration, the air quality analysis found that construction emissions would be minimal. Furthermore, construction activities would not require impact pile driving or nighttime construction and would result in minimal construction noise.

For these reasons the modified project would not result new or more severe significant impacts than those identified in the final negative declaration for the Recology Hay Road Landfill project and the final EIRs for

[40] The department's staff archeologist conducted a preliminary archeological review on October 3, 2023 and determined that no CEQA-significant archeological resources are expected within project-affected soils.

the Main Wastewater Treatment Plant and Newby Island projects and would not require new mitigation measures that the project sponsor declines to adopt. Construction-related impacts will not be addressed further in this addendum.

Operational Air Quality, Transportation and Noise Impacts

Travel Demand and Vehicle Miles Traveled

Proposed Vehicle Fleet and Vehicle Miles Traveled

Allied Waste Services would operate a fleet of approximately 17 vehicles to collect, process, and or dispose of refuse collected from City facilities. This includes 11 natural gas-powered vehicles for refuse collection, three diesel fuel vehicles for refuse transport, and three diesel powered support vehicles that would be used for supervisory, field maintenance, and container delivery. The vehicle fleet would start from the existing Ox Mountain SL in Half Moon Bay, California. Except for the trucks used to transport processed compostables from the Contra Costa Transfer and Recovery Station[41] to the East Bay Municipal Utility District[42] (see Table 2, Compost Steps 4 and 5), all trucks would return to the Ox Mountain SL to be staged for the next collection. As shown in **Table 4**, the 17 fleet vehicles would collectively generate approximately 8,994 vehicle miles travelled (VMT) per week and 467,732 VMT per year.

Employee Trips

The modified project would add approximately 19 new employees to the Ox Mountain SL. Up to 16 of those new employees would be fleet vehicle drivers and the remaining employees would be full-time on-site personnel. It is assumed that each employee would make two trips per day,[43] for a total of approximately 38 trips per day and 90 trips per week. Based on the limited public transit options near the Ox Mountain SL, it is expected that all employee trips would occur in a vehicle. This would result in approximately 3,099 VMT per week and 161,148 VMT per year.

In total, the modified project would generate approximately 59 vehicle trips per day and 291 trips per week, equating to 12,093 VMT per week and 628,880 VMT per year.

[41] The Contra Costa Transfer and Recovery Station is located at 951 Waterbird Way, Martinez, CA 94553.
[42] The East Bay Municipal Utility District's (EBMUD) anaerobic digestor facility is located at 1820 10th Street, Oakland, CA 94607.
[43] One trip from home to the Ox Mountain SL and one return trip home.

Table 4: Proposed Vehicle Fleet and Vehicle Miles Traveled

Vehicle and Fuel Type	Engine Model Year	Assigned Vehicle Class	Purpose	# Vehicles	Total Daily Trips	Total Weekly Trips	Total Weekly VMT	Total Annual VMT
CO/CNG/LNG/ Biomethane SWCV	2019	T7 SWCV Class 8 – Natural Gas: Heavy-Heavy Duty Solid Waste Collection Truck	refuse collection	11	17	82	7,148	371,708
Diesel Tractor Trailer	2019	T7 Tractor Class 8 – Diesel Fuel: Heavy-Heavy Duty Tractor Truck	refuse transfer	3	3	14	1,782	92,681
Diesel Support Vehicles	2017	T6 Utility Class 6 – Diesel Fuel: Medium-Heavy Duty Utility Fleet Truck	refuse operations	3	1	5	64	3,343
Fleet Total				**17**	**21**	**101**	**8,994**	**467,732**
Employee Total				**N/A**	*38*	*190*[1]	*3,099*	*161,148*
Fleet and Employee Total				**17**	**59**	**291**	**12,093**	**628,880**

Sources: Allied Waste Services, ICF and the San Francisco Planning Department, 2023

Notes:

Individual rows may not add up to the totals shown due to rounding.

CO = Commercial Organics; CNG = Compressed Natural Gas; LNG = Liquified Natural Gas; SWCV = Solid Waste Collection Vehicle; VMT = Vehicles Miles Traveled

[1]Assumes a five-day week

Air Quality Impacts

Recology Hay Road Landfill Project Negative Declaration Findings

The negative declaration for the Recology Hay Road Landfill project determined that all air quality impacts would be less than significant. Accordingly, the project did not require any air quality mitigation measures.

Newby Island Project Final EIR Findings

The final EIR for the Newby Island project determined that the project would exceed the Bay Area Air Quality Management District's (Air District) thresholds for nitrogen oxide (NOx) and volatile organic compounds (VOCs)/precursor organic compounds (POCs)/reactive organic gasses (ROGs). This impact would be reduced to less than significant implementation of a mitigation measure that would require the operator of Newby Island to purchase offsets for NOx and VOCs/POCs/ROGs emissions in excess of the Air District's thresholds of 15 tons per year or obtain the offsets through the Air District's Small Facility Banking Account.

This mitigation measure was adopted and continues to be in effect.[44] All other air quality impacts were determined to be less than significant.

Main Wastewater Treatment Plant Project Final EIR Findings

The final EIR for the Main Wastewater Treatment Plan project determined that the project's criteria air pollutant emission impacts would be less than significant. Local community risks and hazards during operations would be significant. This impact would be reduced to a less-than-significant level with implementation of a mitigation measure to install diesel particulate filters or implement other measures such as use of low-emission diesel products, among other options. Odor from operations of the food waste preprocessing facility would result in significant impacts that could be mitigated to a less-than-significant level with odor control measures. These mitigation measures were adopted and continue to be in effect.[45]

Modified Project Impacts

The planning department directed the preparation of an air quality analysis to estimate emissions that could result from operation of the modified project. The methodology and detailed emissions results of this analysis are provided in Attachment B: Air Quality Criteria Pollutant and Ozone Precursor Emissions Memorandum. The air quality analysis results show that operation of the modified project would not generate ozone precursor or criteria pollutant emissions in excess of the Air District's significance thresholds.

Table 5 shows the modified project's criteria air pollutant emissions in comparison with those of the final negative declaration for the Recology Hay Road Landfill project and the final EIRs for the Main Wastewater Treatment Plant and Newby Island projects. The Newby Island project's emissions exceeded the Air District's significance thresholds, while the Recology Hay Road Landfill, Main Wastewater Treatment Plant, and Modified project would produce emissions below the significance threshold.

[44] City of San Jose. *City Council Resolution No. 76392*. August 14, 2012. Available at https://records.sanjoseca.gov/Resolutions/RES76392.PDF. Accessed January 2024.

[45] East Bay Municipal Utility District. *East Bay Municipal Utility District Resolution No. 33834-11*. June 28, 2011. Available at: https://www.portofoakland.com/files/pdf/opportunities/RecologyEbmudRESOLUTIONNO33834.pdf. Accessed January 2024.

Table 5: Criteria Air Pollutant Emissions

	Maximum Annual Emissions (tons per year)				
Pollutant	**Recology Hay Road Landfill Project[1]**	**Newby Island Project[2]**	**Main Wastewater Treatment Plant[3]**	**Modified Project[4]**	**Air District Significance Threshold[5]**
ROG	0.22	**73.11[6]**	7.3	0.04	**10**
NO_x	2.70	**77.6**	8.7	0.27	**10**
PM_{10}	0.16	11.12	5.6	1.14	**15**
$PM_{2.5}$	0.07	---	5.2	0.30	**10**

[1] *Agreement for Disposal of San Francisco Municipal Solid Waste at Recology Hay Road Landfill in Solano County Final Negative Declaration.* See Table AQ-3, page 56. Emissions in this table reflect the emissions that would occur in the San Francisco Bay Area Air Basin because the modified project's potential net new vehicle trips and therefore emissions would primarily occur within the Bay Area air basin. Emissions that would occur in the Sacramento Valley Air Basin, under the jurisdiction of the Yolo Solano Air Quality Management district, would be less than the emissions occurring in the Bay Area Air Basin.

[2] *Newby Island Sanitary Landfill and The Recyclery Rezoning Project Final Environmental Impact Report*. See net project emissions when compared to existing conditions in Table 3.4-5, page 114. The Newby Island Project EIR did not analyze $PM_{2.5}$ emissions.

[3] *Main Wastewater Treatment Plant Land Use Master Plan Final Environmental Impact Report.* Table 3.3-14, page 3.3-30. These numbers reflect total stationary and mobile source emissions from operation of the biodiesel production and food waste preprocessing projects. EIR Table 3.3-14 provides average daily emissions, these emissions were converted to tons/year in this table.

[4] Air Quality Criteria Air Pollutant and Ozone Precursor Emissions Memorandum for the City and County of San Francisco Refuse Project.

[5] Bay Area Air Quality Management District. CEQA Air Quality Guidelines Chapter 3: Thresholds of Significance, April 20, 2023. Available online at: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Accessed January 19, 2024.

[6] Numbers in bold indicate exceedance of a threshold.

Table 6 presents the annual emissions for the modified project in combination with the Recology Hay Road Landfill, the Main Wastewater Treatment Plant, and Newby Island projects. In the table below, the total of the modified project's vehicle emissions is added to the emissions disclosed in each of these project's environmental documents. This is a conservative, or worst-case scenario, because only a portion of the modified project's emissions would be attributable to each of the facilities below. For example, a portion of the modified project's vehicle trips would be attributed to the Hay Road Landfill, and the other trips would be attributed to either the Main Wastewater Treatment Plant or Newby Island facilities. Further, to the extent these prior environmental documents already accounted for vehicle trips and associated emissions to the facilities, adding all of the modified project's emissions could be double counting the trips and related emissions that were previously disclosed.

Table 6: Combined Criteria Air Pollutant Emissions

	Maximum Annual Emissions (tons per year)			
Pollutant	**Recology Hay Road Landfill Project + Modified Project[1]**	**Newby Island Project[2] + Modified Project**	**Main Wastewater Treatment Plant + Modified Project**	**BAAQMD Significance Threshold**
ROG	0.26	**73.15[3]**	7.34	**10**
NO_x	2.97	**77.87**	8.97	**10**
PM_{10}	1.3	12.26	6.74	**15**
$PM_{2.5}$	0.37	---	5.5	**10**

[1]The modified project emissions were added to the emissions occurring in the San Francisco Bay Area Air Basin because the modified project's potential net new vehicle trips and therefore emissions would primarily occur within the Bay Area air basin. Emissions that would occur in the Sacramento Valley Air Basin, under the jurisdiction of the Yolo Solano Air Quality Management district, would be less than the emissions occurring in the Bay Area Air Basin. Even if all of the project emissions were added to the sum total of the Recology Hay Road Landfill Project emissions occurring in both air basins, emissions would remain below Air District thresholds.

[2] The Newby Island Project EIR did not analyze $PM_{2.5}$ emissions.

[3] Numbers in **bold** indicate exceedance of a threshold.

When combined with the modified project, the Recology Hay Road Landfill and Main Wastewater Treatment Plant project would not exceed the Air District's significance thresholds. The Newby Island project would continue to exceed the Air District's significance threshold for NOx and ROG emissions when combined with the emissions from the modified project, same as it would without the modified project. PM_{10} emissions at the Newby Island facility would remain below the Air District's thresholds. The modified project could result in a negligible 0.3 percent increase in NOx emissions and 0.05 percent increase ROG emissions from this facility. However, as shown in Table 3, with the modified project, Newby Island would process less than 6 percent of compost material and less than 42 percent of recycling material than what the EIR analyzed. Further, the modified project's emissions, which would be generated by trucks transporting refuse to the Hay Road Landfill, Newby Island Resource Recovery Park, and EBMUD Wastewater Treatment Plant, would be dispersed among these locations and thus Table 6 presents a conservative estimate of emissions at each facility. Therefore, the modified project would not result in new or more severe air quality impacts.

Regional air pollution (such as emissions of criteria air pollutants and ozone precursors analyzed above) 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. The project-level thresholds for criteria air pollutants are based on levels below which new sources are not anticipated to result in a considerable net increase in non-attainment criteria air pollutants. Therefore, additional cumulative criteria air pollutant analysis is not required.

Transportation Impacts

Recology Hay Road Landfill Project Negative Declaration Findings

The negative declaration for the Recology Hay Road Landfill project determined that the project would result in less-than-significant transportation impacts, and no mitigation measures were identified.

Newby Island Project Final EIR Findings

The final EIR for the Newby Island project evaluated the project's transportation impacts based on level of service (LOS) and potential hazards to people walking or bicycling and determined that the project would not result in significant transportation impacts.

Main Wastewater Treatment Plant Project Final EIR Findings

The final EIR for the Main Wastewater Treatment Plan project evaluated the project's transportation impacts based on LOS and emergency vehicle access, potential conflicts with people walking or bicycling, and safety impacts related to implementation of a rail spur.[46] The final EIR found that implementation of the rail spur would increase the potential for safety hazards and result in a significant impact. This impact would be reduced to less-than-significant with implementation of mitigation measures to coordinate with Burlington Northern Santa Fe on the design of the rail spur and incorporate railroad crossing safety signage. These mitigation measures were adopted and continue to be in effect. [47] The project's other operational transportation impacts would be less than significant.

Modified Project Impacts

As discussed above, while Recology would no longer collect, process and/or dispose of City refuse under the modified project, it is anticipated that Recology trucks would continue to travel along existing collection routes to collect refuse from other locations in San Francisco. This means that the approximately 59 vehicle trips per day the project is estimated to generate could be net new trips and could result in approximately 628,880 net new VMT per year.

The transportation analysis for the modified project evaluated the potential transportation impacts in accordance with the San Francisco Transportation Impact Analysis Guidelines (Guidelines).[48] This analysis examines the transportation-related impacts of the modified project regarding construction activities; public transit operations; the potential for hazardous conditions to transit, people driving, walking, or bicycling; inadequate access; passenger and freight loading conditions; and VMT[49].

Potentially Hazardous Conditions, Accessibility, Loading, Vehicular Parking, and Public Transit. The proposed project would not result in any changes to the transportation network design and would not generate any walking, bicycling, or transit trips or a substantial number of vehicle trips. Thus, the proposed project would not create a new or exacerbate an existing potentially hazardous condition or interfere in accessibility for people walking, bicycling, or driving or public transit operations, including emergency

[46] The rail spur would consist of two tracks with capacity for four rail cars each would be constructed between the biodiesel facility and the existing rail line parallel to Engineers Road.

[47] East Bay Municipal Utility District. *East Bay Municipal Utility District Resolution No. 33834-11*. June 28, 2011. Available at: https://www.portofoakland.com/files/pdf/opportunities/RecologyEbmudRESOLUTIONNO33834.pdf. Accessed January 2024.

48 San Francisco Planning Department, Transportation Impact Analysis Guidelines Update, Appendix L, February 14, 2019, last updated in October 2019, https://sfplanning.org/project/transportation-impact-analysis-guidelines-environmental-review-update#impact-analysis-guidelines.

[49] CEQA was amended to prevent lead agencies from considering automobile delay in its determination of impacts on the environment. Additionally, the planning department adopted the use of VMT in its determination of impacts on the environment, which was not analyzed in the final negative declaration for the Recology Hay Road Landfill project and the final EIRs for the Main Wastewater Treatment Plant and Newby Island projects. Therefore, this addendum does not discuss automobile delay impacts and associated mitigation measures; rather, this addendum assesses VMT impacts.

vehicles. The proposed project is not expected to generate new passenger or freight loading demand because the project is a contract to collect, process, and dispose of refuse. Even if some loading activities were to occur, there is adequate space within Ox Mountain SL to pick up and drop off passengers or freight without resulting in any secondary effects, such as vehicle queues on public rights-of-way. Allied Waste trucks would make frequent stops along their collection routes to pick up refuse within the City. However, these stops would be of short duration and would not substantially delay transit or create conflicts with people walking, biking, or diving. Further, given the proposed project is replacing the operator who currently collects refuse in the City for a different operator, these collection stops would not be a substantial change from existing conditions. Because the proposed project would not generate loading demand or a substantial number of vehicle trips (i.e., approximately 59 vehicle trips per day), it would not result in an unmet loading demand or a substantial vehicle parking deficit. In accordance with the Guidelines, projects that generate fewer than 300 vehicle trips during the peak hour are presumed to not substantially delay public transit. The proposed project would result in approximately 59 daily vehicle trips, and thus would not result in substantial public transit delay. For the reasons described above, potentially hazardous conditions, accessibility, loading, vehicular parking, and transit delay impacts would be less than significant.

Up to 17 fleet vehicles would collect refuse from approximately 375 locations throughout the city and process or dispose of that refuse at existing facilities, resulting in approximately 101 total trips per week. These trips would be dispersed throughout the City and Bay Area region. Also, as discussed above, the proposed project does not propose any changes to the transportation network. For these reasons, cumulative potentially hazardous conditions, accessibility, loading, vehicular parking, and transit delay impacts would be less than significant.

VMT. The methodology for VMT analysis follows CEQA section 21099(b)(1), CEQA Guidelines section 15064.3, a California Office of Planning and Research (OPR) technical advisory for assessing transportation impacts, and the planning department's Guidelines.

Public resources code section 21099(b)(1) required that OPR develop revisions to the CEQA Guidelines establishing criteria for determining the significance of transportation impacts of projects that promote the "reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." CEQA Guidelines section 15064.3 states that VMT is the most appropriate measure of transportation impacts and includes updated criteria for analyzing transportation impacts.

The final negative declaration for the Recology Hay Road Landfill project was adopted and the final EIRs for the Main Wastewater Treatment Plant and Newby Island projects were certified prior to the revisions to CEQA directed by section 21099(b)(1), and thus did not discuss VMT. However, per the requirements in CEQA section 21099(b)(1) and CEQA Guidelines section 15064.3, the analysis of the modified project's operational transportation impacts does not consider automobile delay and instead uses VMT as a threshold for transportation impacts, among the other transportation topics discussed above.

The OPR's Technical Advisory on Evaluating Transportation Impacts in CEQA (December 2018) provided advice and recommendations to lead agencies for analyzing transportation impacts in CEQA, including the effects of transportation projects on vehicle travel. The December 2018 technical advisory does not

identify quantifiable thresholds of significance for these types of transportation projects; instead, the advisory provides guidance for lead agencies to establish their own thresholds of significance.

The planning department's Guidelines provide criteria to identify types, characteristics, or location of projects and a list of transportation projects that would typically not result in significant transportation impacts under the VMT metric. Pursuant to the Guidelines, a project that generates 100 vehicle trips per day or fewer is presumed to cause a less-than significant VMT impact. As shown in Table 4, the modified project would generate up to approximately 59 vehicle trips per day. Thus, the project would result in a less-than-significant VMT impact.

Further, as discussed below, the department determined that the proposed project would not be inconsistent with the three criteria outlined in CEQA section 21099(b)(1) that required OPR to "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." The modified project is not inconsistent with these three criteria for the following reasons:

1. Reduction of Greenhouse Gas Emissions

   The modified project would not be inconsistent with applicable greenhouse reduction goals, including the 2017 Clean Air Plan, Executive Orders S-3-05, B-30-15, B-55-18, Senate Bill 32, Assembly Bill 32 (also known as the Global Warming Solutions Act), San Francisco's greenhouse gas reduction goals (updated in July 2021 by ordinance no 117-02), and the 2021 Climate Action Plan (updated with a water supply addendum in 2023). This is because the modified project is for a contract that would replace an existing refuse collection, processing, and disposal operator with a different operator. In December 2023, total VMT in San Francisco was estimated to be approximately 8.8 million miles per day (or approximately 3.2 billion miles per year).[50] Though the modified project would generate net new vehicles trips and VMT, the amount is nominal compared to the estimated annual VMT in San Francisco. The modified project's estimated 628,880 annual VMT would represent approximately 0.01 percent of the City's estimated 3.2 billion annual VMT.[51]

2. Development of Multimodal Transportation Networks

   The modified project would not be inconsistent with the development of multimodal transportation networks.[52] The project would not alter the existing transportation network, including multimodal transportation networks, and would not modify, interfere or impact any existing city policies intended to promote multimodal transportation networks.

[50] San Francisco County Transportation Authority. COVID-Era Congestion Tracker. Available at https://covid-congestion.sfcta.org/, accessed January 2024.

[51] Further, as discussed in the project description above, CNG vehicles are planned to be replaced by electric vehicles as early as possible and feasible, depending on permitting and on vehicle and infrastructure availability. The upgraded solid waste collection vehicle fleet to be used as part of the modified project would consist of CNG, liquified natural gas (LNG), and Biomethane engines that would be alternative-fuel engine technology (L9N) or equivalent.

[52] Multi-modal transportation networks are those consisting of people using a variety of ways of travel such as walking, bicycling, public transit, and automobiles.

3. Diversity of Land Uses

   The modified project would not be inconsistent with developing a diversity of land uses because it would not make any changes to Hay Road Landfill, Newby Island Resource Recovery Park, and EBMUD Wastewater Treatment Plant and would not substantially modify or affect the existing land uses at the Ox Mountain SL.

Based on the discussion above, the modified project would not be inconsistent with the three criteria in CEQA section 21099(b)(1).

Overall, the modified project would not result in new or more severe transportation impacts.

Noise

Recology Hay Road Landfill Project Negative Declaration Findings
The negative declaration for the Recology Hay Road Landfill project determined that the project would result in less-than-significant noise impacts, and no mitigation measures were identified.

Newby Island Project Final EIR Findings
The final EIR for the Newby Island project determined that the project's operational noise, including project-generated traffic noise, would have less-than-significant impacts. No mitigation measures were identified.

Main Wastewater Treatment Plant Project Final EIR Findings
The final EIR for the Main Wastewater Treatment Plant project determined that operation of the project's biodiesel production and food waste preprocessing facilities would not result in significant noise impacts. However, operation of future projects that could be implemented under the land use master plan could potentially exceed noise limits at the project site's boundaries or at the nearest residential receptor. This impact would be reduced to a less-than-significant level with the implementation of a mitigation measure to reduce noise from stationary noise sources using noise control methods (e.g., mufflers, acoustic shielding, etc.). Noise due to project-generated traffic along truck and rail routes was found to be less than significant.

Modified Project Impacts
Operation of the proposed project within the limits of City would be regulated by Article 29 of the Police Code (section 2904, Waste Disposal Services), which states: "Notwithstanding the foregoing, it shall be unlawful for any person authorized to engage in waste removal, collection, or disposal services, or recycling removal or garbage-collection services to operate hydraulic compaction or mechanical processing systems on any truck-mounted waste, recycling, or garbage loading and/or compacting equipment or similar mechanical device so as to create mechanical or hydraulic noise exceeding 75 dBA when measured at a distance of 50 feet from the equipments."

Although Article 29 only limits noise within the City, operation of the proposed project would not noticeably increase ambient noise levels outside of these limits. This is because the proposed project would generate approximately 59 vehicle trips per day. These trips would be distributed across the truck routes used to access the Hay Road Landfill, Newby Island Resource Recovery Park, EBMUD Wastewater Treatment Plant,

and Ox Mountain SL (e.g., I-80, I-280, I-680, and US-101). Even if all 59 trucks were on the same road at the same time, it would constitute a proportionally small increment of existing traffic along these routes, including traffic from trucks that already access these facilities. For these reasons, the proposed project would not substantially increase existing traffic noise or substantially increase exposure to noise for people in the vicinity of these routes.

The proposed hauling maintenance structure, container storage, fleet vehicle parking, and CNG refueling at Ox Mountain SL would be located within the existing boundaries of the facility, which is surrounded by industrial, agricultural, and commercial land uses. For these reasons, operations at Ox Mountain SL would not substantially increase noise near sensitive receptors.

Therefore, for the reasons discussed above, the proposed project would not result in significant noise impacts.

Mitigation Measures

Mitigation measures and improvement measures (as applicable) established in certified EIRs for the previously approved projects have been incorporated as conditions of those facility's permits by the City of San Jose and East Bay Municipal Utility District and are in effect at those facilities. Please see Attachment A.1 for the Mitigation Monitoring Reporting Plan for the Newby Island project final EIR and Attachment A.2 for the Main Wastewater Treatment Plant project final EIR. The final negative declaration for the Recology Hay Road Landfill project did not identify any significant impacts requiring mitigation measures.

Conclusion

Based on the foregoing, the planning department concludes that the analyses conducted, and the conclusions reached in the final negative declaration for the Recology Hay Road Landfill project (adopted on July 22, 2015), Newby Island project final EIR (certified on June 6, 2012), and the Main Wastewater Treatment Plant project final EIR (certified on June 28, 2011) remain valid and that no supplemental environmental review is required. The proposed revisions to the project would not cause new significant impacts not identified in the previously adopted final negative declaration and EIRs, and no new mitigation measures would be necessary to reduce significant impacts. No changes have occurred with respect to circumstances surrounding the modified project that would cause significant environmental impacts to which the project would contribute considerably, and no new information has become available that shows that the project would cause significant environmental impacts. Therefore, no supplemental environmental review is required beyond this addendum.

I do hereby certify that the above determination as been made pursuant to State and Local requirements.

Lisa Gibson
Environmental Review Officer

June 6, 2024
Date of Determination

List of Attachments

Attachment A:	Mitigation Measure and Reporting Programs for Environmental Documents
Attachment B:	Air Quality Criteria Pollutant and Ozone Precursor Emissions Memorandum
Attachment C:	Transportation Impacts Analysis Memorandum

cc: Sponsor
San Francisco Board of Supervisors

ATTACHMENT A

MITIGATION MONITORING AND REPORTING PROGRAMS FOR ENVIRONMENTAL DOCUMENTS

Attachment A.1: Newby Island Sanitary Landfill and The Recyclery Rezoning Project Mitigation Monitoring and Reporting Program

Environmental Impacts	Mitigation and Avoidance Measures	Timeframe and Responsibility for Implementation	Method of Compliance	Oversight of Implementation
	Air Quality			
Impact AIR – 1.1: The project would exceed the Bay Area Air Quality Management District (BAAQMD) thresholds for nitrogen oxide (NOx) and VOCs/POCs/ROGs. The project shall implement mitigation measure MM AIR – 1.1 to reduce this impact to a less than significant level.	**MM AIR – 1.1:** As required by BAAQMD regulations, the project proponent shall be responsible for purchasing NO_x and VOCs/POCs/ROGs offsets for emissions in excess of BAAQMD's current annual emission thresholds for NO_x and VOCs/POCs/ROGs or obtaining the offsets through BAAQMD's Small Facility Banking Account.	Prior to issuance of permits from the BAAQMD for the landfill expansion or additional equipment (e.g., expansion of the GRS facility), the landfill operator shall purchase emission offsets based on projected project emissions.	The landfill operator shall retain the BAAQMD permit(s) and necessary documentation as proof of offset emission purchase on-site and produce the documentation if requested by the LEA.	BAAQMD
Impact BIO – 7: The project, with the implementation of mitigation measure MM BIO – 7.1, would reduce impacts to burrowing owls and their burrows (if present on-site) to a less than significant level.	**MM BIO – 7.1:** *Pre-activity Surveys.* To avoid take of burrowing owls in violation of the MBTA, surveys for burrowing owls shall be completed in potential habitat in conformance with the CDFG protocol, no more than 15 days prior to the start of any new ground-disturbing activity (*i.e.*, any activity that is not already ongoing at the same location as part of the current landfill operations) associated with the expansion of the landfill, such as filling or grading in previously undisturbed ruderal/grassy areas. If no burrowing owls are located during these surveys, no additional action is warranted. If these surveys detect burrowing owls on or within 250 feet of the location proposed for landfilling, grading, or other activities, then any ongoing activity can continue as long as it does not increase in intensity, or encroach closer to an existing burrow, based on a review of proposed/ongoing activities in the burrow's vicinity by a qualified biologist, and as long as the existing burrow is not destroyed and owls are not in danger of being harmed. If activity would increase in intensity or proximity to an occupied burrow, based on a review of proposed/ongoing	The landfill operator is responsible for hiring a qualified biologist to complete burrowing owl pre-activity surveys no more than 15 days prior to the start of any new ground disturbing activities (*i.e.*, any activity that is not already ongoing as part of the current landfill operations) associated with the expansion of the landfill. The consulting qualified biologist shall establish buffer zones and/or relocate owls, as appropriate.	Update(s) on proposed ground disturbing activities and burrowing owl surveys and their conclusions/results shall be provided in the annual and monthly (where relevant) status/monitoring report to the Director of Planning, Building and Code Enforcement (PBCE) and Nuisance Species Abatement Plan (NSAP) Oversight Committee.	Director of PBCE and NSAP Oversight Committee

activities in the burrow's vicinity by a qualified biologist, the following measures shall be implemented:

- *Buffer Zones*. If burrowing owls are present during the breeding season (generally 1 February to 31 August), a 250-foot buffer, within which no new project-related activity shall be permissible, shall be maintained between project activities and occupied burrows. Owls present at burrows on the site after 1 February shall be assumed to be nesting on or adjacent to that location unless evidence indicates otherwise to the qualified biologist. This protected area shall remain in effect until 31 August or, based upon monitoring evidence, until the young owls are foraging independently.
- *Relocation*. If ground-disturbing activities would directly impact an occupied burrow, the owl(s) shall be evicted outside the nesting season to avoid impacts to the bird(s). No burrowing owls shall be evicted from burrows during the nesting season (1 February through 31 August) unless evidence indicates that nesting is not actively occurring (*e.g.,* because the owls have not yet begun nesting early in the season, or because young have already fledged late in the season).

Impact BIO – 13: The approval of the project would increase the landfill's capacity, which would extend the useful life of the landfill and its availability to gulls, corvids, and other nuisance species as a food resource. These nuisance species could in turn prey on sensitive wildlife near the landfill. The project shall implement mitigation measures MM BIO – 13.1 and 13.3 to reduce indirect impacts to sensitive wildlife from nuisance species at the landfill and Recyclery to a	**MM BIO – 13.1:** The Nuisance Species Abatement Plan (NSAP), which is attached to this MMRP, shall be fully implemented at the landfill and the Recyclery as long as the landfill and/or Recyclery are in operation. Implementation and funding of the plan, including any consultants considered necessary and approved by the Director of Planning, Building, and Code Enforcement, and associated on-going City staff monitoring/oversight costs, shall be the responsibility of the landfill's General Manager or Director of Infrastructure Development, while the City of San José's Director of Planning, Building, and Code Enforcement shall oversee and enforce the NSAP's implementation. The Plan includes standard nuisance species abatement measures (maintaining the minimum size working face of the landfill consistent with existing practice and permits; compacting and covering refuse – including using safe and stable tarps or other materials in lieu of soil on the working face of the landfill if they are demonstrated to impede access to food waste by nuisance species; covering and rapid processing of tires; minimizing surface water; trapping or	The landfill's General Manager or Director of Infrastructure is responsible for implementing and funding the NSAP (which is attached to this MMRP) as long as the landfill and/or the Recyclery are in operation.	A copy of the NSAP shall be kept at the landfill and be part of the landfill's Solid Waste Facility Permit and PD Permit. NSAP monitoring reports shall be submitted on a monthly and annual basis to the Director of PBCE and NSAP Oversight Committee.	Director of PBCE and NSAP Oversight Committee

less than significant level.	shooting medium-sized mammals; using rodenticides within buildings; and minimizing cover near nuisance species food sources and sensitive habitats) that must be implemented, as well as adaptive nuisance species abatement measures (pyrotechnics, paintball guns, vehicles, trained dogs, trained falcons, human disturbance, distress call recordings, predator calls, decoys of distressed birds, visual distraction/deterrent devices, vegetation management, physical barriers and roots deterrents, rodent trapping, a mobile component to gull abatement, use of radio-controlled drones, and mosquito larvicides) that are to be used as necessary. The standard measures are required to be implemented, although it is not expected that all measures in the NSAP are to be used simultaneously; the landfill operator may choose the appropriate measures to meet the success criteria identified in the NSAP. Outdoor food waste processing on the Recyclery property attracts gulls and other nuisance species to an area of the site where the various abatement measures (pyrotechnics, cannons, falcons, etc.) are not generally used and may be inconvenient. Measures to control access to food waste by gulls and other nuisance species at this location must be implemented, including a building enclosure or netting. The building or netting design must be reviewed by a qualified biologist that has been approved by the Director of Planning, Building, and Code Enforcement. As outlined in the NSAP, monitoring shall be conducted by qualified biologists funded by the landfill's General Manager or Director of Infrastructure Development and approved by the Director of Planning, Building, and Code Enforcement to	The Recyclery operator is responsible for enclosing the outdoor food processing area on the Recyclery property with a building or netting approved by a qualified biologist and the City. Since the food waste processing is not a currently permitted use at the Recyclery, the first PD Permit issued by the City must include the enclosure. The enclosure will either be constructed within the first 90days after issuance of the permit or all food waste processing outside the Recyclery must cease until the enclosure is in place.		76392

	determine the effectiveness of initial abatement measures, and abatement techniques shall be adapted as determined by these biologists as necessary to ensure effectiveness. Regular monitoring reports (monthly memos and annual reports) shall be prepared and submitted to the Director of Planning, Building, and Code Enforcement by monitoring biologists to document the success of the abatement program. The monitoring and reporting criteria are outlined in detail in the NSAP attached to this MMRP. For each group of nuisance species addressed by the NSAP, success of the NSAP is defined as maintaining or reducing abundance of nuisance species using the landfill relative to baseline levels identified in the NSAP. In other words, the abatement plan is not considered successful if measures of abundance of nuisance species exceed baseline levels. The Director of Planning, Building, and Code Enforcement will assemble and select members of an NSAP Oversight Committee. This committee will consist of qualified biologists, City of San José staff, and others chosen at the Director's discretion. The qualified biologists on the committee must include representatives from the Don Edwards San Francisco Bay National Wildlife Refuge and a Bay-area bird observatory. The Director may choose other biologists or others with relevant expertise, which may include City of San José Staff and the City's consultants. The NSAP Oversight Committee will review annual monitoring reports and provide recommendations to the Director regarding any changes in success criteria (including levels of abundance that should be considered the baseline against which monitoring results will be compared), abatement measures, monitoring measures, or other program components	The landfill and Recyclery operators are responsible for hiring qualified biologists (which are subject to the approval of the Director of PBCE) to monitor the effectiveness of the abatement measures. These biologists will make recommendations (as necessary) to the operators on how the abatement techniques should be adapted to be more effective in the monthly monitoring reports. The landfill and Recyclery operators are responsible for implementing the recommendations on a monthly basis. The qualified biologists will also submit monthly and annual monitoring reports to the City that document the success of the NSAP based on the success criteria outlined in the NSAP. The City is responsible for assembling and selecting the members of the NSAP Oversight Committee, per the specifications in the NSAP, within 30 days of project approval. The NSAP Oversight Committee is responsible for reviewing the annual monitoring reports and	Regular monitoring reports (monthly memos and annual reports) shall be prepared by the monitoring biologists and submitted to the Director of PBCE for review. The NSAP Oversight Committee will also review the regular monitoring reports and provide recommendations to the Director of PBCE. If the Director of PBCE, in consultation with the NSAP Oversight Committee, find that the NSAP is not being implemented consistently or successfully, MM BIO – 13.3 shall be implemented.	76392

	that should be made. This committee will be provided copies of monthly status reports and may also be consulted by the Director to discuss nuisance species abatement issues identified in monthly reviews. Meetings of the NSAP Oversight Committee shall include biologists that were retained to monitor wildlife at the landfill and Recyclery and who prepared the reports. Additional details regarding the success criteria for nuisance species, including gulls, corvids, mammals, and mosquitoes, identified in the NSAP are provided in Appendix D of this EIR. It is expected that the abatement process will be adaptive, and there may be periods when the success criteria described in the NSAP are not achieved and the NSAP Oversight Committee and consulting biologists determines the most effective means of limiting the landfill's subsidy of nuisance species populations. However, if the Director of Planning, Building, and Code Enforcement (in consultation with the NSAP Oversight Committee) determines that the NSAP is being implemented successfully for that year of operation, no additional mitigation of this impact is necessary. If the Director determines that the abatement program is not being implemented consistently and successfully, and adaptive management is inadequate to achieve the desired success criteria, then MM BIO – 13.3 shall be implemented. **MM BIO – 13.3:** If the landfill operator is not meeting the success criteria specified in the NSAP, the operator shall be required to contribute to one or multiple ongoing predator control programs and/or provide habitat at an off-site, South Bay location(s) to benefit the sensitive species that are being adversely affected by nuisance species supported by the landfill. Such sensitive species may include species associated with managed ponds, such as the western snowy plover, terns, American avocets, and black-necked stilts, and/or species associated with tidal salt marshes, such as the California clapper rail, salt marsh harvest mouse, and salt marsh wandering shrew. If off-site mitigation is determined to be necessary, the Director of Planning, Building, and Code Enforcement, in consultation with qualified biologists as described in the	making recommendations to the City regarding any changes that should be made. The NSAP Oversight Committee is also responsible for reviewing the monthly monitoring reports. The Director of PBCE is responsible for coordinating NSAP Oversight Committee meetings and directing the landfill operator on changes to the NSAP and its implementation. In the event that the Director of PBCE, in consultation with the NSAP Oversight Committee, determines that the landfill and Recyclery operators are not meeting the success criteria outlined in the NSAP, the Director shall inform the operators. The operators are then responsible for contributing to on-going predator control	The Director of PBCE will determine whether ongoing programs are sufficient in consultation with the NSAP Oversight Committee.	76392

	NSAP and government agencies (*e.g.*, CDFG and USFWS) as appropriate, will determine the specific type and amount of off-site mitigation required. The type of mitigation required will depend on the type of nuisance species for which abatement measures are found to be inadequate, and the type of sensitive species potentially adversely affected by depredation or encroachment by the nuisance species. For example, if gull and corvid abatement is inadequate, off-site mitigation may take the form of a financial contribution to focused avian predator management programs being implemented by others in the South Bay (*e.g.*, elimination of problem corvids at snowy plover breeding locations); a financial contribution to habitat restoration and management projects being undertaken by others in the South Bay (*e.g.*, pond management and tidal marsh restoration by the CDFG at Eden Landing Ecological Preserve); acquisition and management/restoration of suitable pond and marsh habitat in the South Bay; or other measures to benefit sensitive species that are adversely affected by gulls and corvids. The amount of off-site mitigation, either in terms of the amount of a financial contribution to predator/habitat management or the acreage of habitat restoration/management required, will depend on the difference between nuisance species monitoring results and the success criteria specified by the NSAP. The Director, in consultation with qualified biologists, will determine the appropriate level of the financial contribution or habitat restoration/management required based on the level of performance of the abatement program and an analysis, using the best information available at the time, of the likely effects of the nuisance species in question on sensitive species in the South Bay.	programs and/or providing off-site habitat to benefit special-status species that are adversely affected by the landfill. The Director of PBCE, in consultation with qualified biologists and appropriate government agencies, is responsible for determining the appropriate type and amount of off-site mitigation, as stipulated in the NSAP.		
Impact BIO – 14: The project proposes to increase the capacity of the landfill, which would extend landfill activities and operations for an undetermined period of time. The extended duration of landfill activities and operations	**MM BIO – 14.1:** <u>Off-site Habitat Restoration/Enhancement.</u> Before landfill activities continue beyond the extent of current permitted capacity (50.8 million cubic yards), mitigation for project impacts on the habitat of California clapper rails located within 700 feet of landfill activities during the extended project lifetime and on the habitat of salt marsh harvest mice and salt marsh wandering shrews located within 100 feet of landfill activities during the extended lifetime shall be determined based on the performance standards and criteria described below. If impacts are determined to exist	In January 2018 or when the landfill has filled 48 million cubic yards (whichever occurs first), the landfill operator is responsible for hiring a qualified biologist approved by the Director of PBCE to complete an assessment of the impacts	This mitigation measure shall be included on the PD Permit and the Solid Waste Facility Permit	Director of PBCE

may result in significant impacts to the California clapper rail if the landfill operations continue to occur within 700 feet of its suitable habitat and significant impacts to the salt marsh harvest mouse and salt marsh wandering shrew if the landfill operations continue to occur within 100 feet of their suitable habitat. The project shall implement mitigation measure MM BIO – 14.1 to reduce impacts to the California clapper rail, salt marsh harvest mouse, and salt marsh wandering shrew from extended landfill operations to a less than significant level.

based on such performance standards and criteria, the operator of the landfill shall implement off-site mitigation to the extent determined to be necessary in accordance with the standards and criteria described herein.

In January 2018 or when the landfill has filled 48 million cubic yards (whichever comes first), the landfill operator shall have a qualified biologist complete an assessment of the impacts of continuing landfill activities on California clapper rails, salt marsh harvest mice, and salt marsh wandering shrews. The assessment shall occur before current permitted capacity (50.8 million cubic yards) is reached or exceeded. That assessment shall consider (a) the types and locations of project activities at the landfill that will continue beyond the point of current permitted capacity, (b) the distribution and quality of habitat in the surrounding marsh, (c) the distribution of clapper rails, salt marsh harvest mice, and salt marsh wandering shrews in the marsh (and more widely, in the South Bay, if appropriate), to the best and most complete extent that this can be determined or reasonably estimated, and (d) the use of the affected marsh by clapper rails, salt marsh harvest mice, and salt marsh wandering shrews (*e.g.*, for breeding or nonbreeding use), and other relevant factors based upon the information known at the time.

The biologist shall then determine the effect of continuing those landfill activities identified as noted in the previous paragraph on clapper rails, salt marsh harvest mice, and salt marsh wandering shrews. This assessment will be based on consideration of the types of landfill activities that will occur in proximity to habitat suitable for these species; currently, "in proximity to" means within 700 feet of habitat suitable for the clapper rail and within 100 feet of habitat suitable for the salt marsh harvest mouse and salt marsh wandering shrew, although these distances may be refined during the assessment by more up-to-date information on effects of human activities on these species if more information is available when the assessment is performed. The biologist will consider any landfill activities involving the movement of heavy equipment, loud noise, and substantial vibrations, and new lighting to represent an impact if (a) those activities would not be performed during regular landfill closure or post-closure of continuing landfill activities beyond existing permitted capacity (50.8 million cubic yards). The qualified biologist is responsible for completing the assessment consistent with the methodology outlined in MM BIO – 14.1. If off-site mitigation is required, it must be fully implemented prior to the landfill reaching its current permitted capacity of 50.8 million cubic yards.

activities, and (b) they occur in close proximity to suitable habitat as described above.

The biologist will also take into account the anticipated duration (beyond the point of current permitted capacity - 50.8 million cubic yards) of activities that will adversely affect these species. Because these impacts are indirect and temporary (not permanent, but indefinite), the impacts of continuing landfill operations will cease after landfill capacity is reached and the landfill is closed. As a result, in determining the impacts to these species' habitat and/or populations, the biologist will consider the duration of the impact based on the predicted closure date as of the time that current landfill capacity is reached.

The type, location, and duration of landfill activities shall be identified by the landfill engineer responsible for NISL, based on landfill contract information and on the landfill engineer's professional knowledge and experience. Such information shall be provided to the City and consulting biologist.

The biologist's assessment will determine the extent of impacts of continuing activities on the California clapper rail, salt marsh harvest mice, and salt marsh wandering shrew in terms of either impacts to these species' populations (i.e., an estimate of the number of individuals/pairs affected) or the extent of impacts to these species' habitats, taking into account both habitat acreage and quality.

As part of this assessment, the biologist shall also conduct a survey of comparable salt marsh and brackish salt marsh habitat in the South Bay which are similar to the varying types of habitat within the 700 foot buffer (for clapper rails) and 100 foot buffer (for salt marsh harvest mice and wandering shrews) as measured from the then projected future landfill activities. This survey shall: (a) consider the quality of the varying types of comparable habitat in these comparable South Bay areas and contrast it with the quality of the habitat within these buffer areas adjacent to the landfill; (b) determine to the extent practicable and allowed by then current laws and regulations the average populations of each of these special status species in the comparable South Bay

habitats; and (c) determine to the extent practicable and allowed by then current laws and regulations the number of these special status species within their respective buffer areas around the landfill. Taking differences in habitat quality into consideration, the biologist shall then reach a professional judgment as to whether the special status species in the habitat areas adjacent to the landfill are less numerous than in the comparable South Bay habitat areas. If the biologist makes this determination, the landfill operator shall be required to provide off-site mitigation for the species in question on a one to one acreage ratio for the area of affected habitat adjacent to the landfill. The same off-site mitigation can serve to mitigate impacts to California clapper rails, salt marsh harvest mice, and salt marsh wandering shrews in a single location as long as the habitat restored or enhanced is suitable for all three species.

A report of this assessment and the biologist's findings shall be submitted to the Director of Planning, Building, and Code Enforcement. If the Director (in consultation with the NSAP Oversight Committee) determines, based on findings of the biologists' report or any other reasonable information available, that significant impacts to those species have not occurred from landfill activities up to that point in time and will not occur from continued landfill operations past the point of current permitted capacity (50.8 million cubic yards), the landfill owner will not be required to provide mitigation. If the Director (in consultation with the NSAP Oversight Committee) determines that the continued operation of the landfill past the point of current permitted capacity will result in significant impacts, off-site mitigation shall be provided.

Such mitigation shall be required to be implemented by the landfill operator using a one to one acreage ratio (i.e., the area of the largest affected habitat adjacent to the landfill to the area of mitigation habitat to be provided by the landfill operator, as described above). This off-site mitigation may take one or several forms, including, but not limited to:

- Restoring tidal marsh habitat suitable for use by these species
- Enhancing tidal marsh habitat suitable for use by these

species (e.g., via the control of invasive plants or alteration of the hydrologic regime [such as restoration of a muted tidal marsh to a fully tidal condition])
- Enhancing populations of these species by increasing reproduction and survivorship (e.g., by controlling predatory or competitive animal species, in addition to the abatement required at the landfill itself)

This mitigation may take the form of direct implementation by the landfill owner or a monetary contribution to similar efforts being performed by others, preferably in the area, such as efforts by the CDFG or USFWS. The mitigation must be described and in place within 12 months prior to the landfill reaching its current permitted capacity of 50.8 million cubic yards.

The same off-site mitigation can serve to mitigate impacts to California clapper rails, salt marsh harvest mice, and salt. marsh wandering shrews in a single location as long as the mitigation implemented will benefit all three species. However, performance criteria for each species must be satisfied. For habitat restoration, performance criteria would include the presence of the target species within five years of the development of vegetation suitable for each of those species within the restoration area and management of the site in accordance with the species' habitat and life-history requirements. For habitat enhancement or for measures, such as predator or competitor control, targeting increased reproduction and survivorship, performance criteria would include an increase in populations of the target species, within five years of implementation of the enhancement measures, commensurate with the estimated impact of the project. Prior to the point at which waste exceeding the current landfill capacity is accepted by the landfill, the applicant shall have a qualified biologist prepare a mitigation plan, which shall be submitted and reviewed by the Director of PBCE and the NSAP Oversight Committee, detailing the following:

1. A summary of habitat and population impacts
2. Goals of the mitigation
3. A description of the type of mitigation
4. The location of the mitigation site(s) and description of

	existing site conditions 5. Mitigation design (for habitat restoration and enhancement efforts) including: • Existing and proposed site hydrology, geomorphology, and geotechnical stability, as applicable • Grading/restoration plan • Soil amendments and other site preparation elements as appropriate • Maintenance activities • Remedial measures and adaptive management measures 6. Monitoring plan (including final and performance criteria, monitoring methods, data analysis, reporting requirements, and monitoring schedule) 7. A contingency plan for mitigation elements that do not meet performance or final success criteria The mitigation plan shall be submitted to the Director of Planning, Building, and Code Enforcement for review and approval. Once approved, the landfill operator shall fully implement and comply with such mitigation plan. The City shall ensure that the mitigation is provided and that the mitigation site meets its success criteria.			
	Geology and Soils			
Impact GEO – 1: Since the makeup of the buried waste on the landfill and D-shaped area is unknown, the construction or development of structures on the landfill or D-shaped area could result in significant geological impacts. The project shall implement mitigation measure MM GEO – 1 to reduce geological impacts to a less than significant level.	**MM GEO – 1.1:** In order to construct or relocate buildings or structures anywhere on the project site, a design-level geotechnical report by a qualified professional that documents testing of conditions on the site shall be prepared prior to the approval of a PD Permit or PD Permit amendment for any such structure or relocation to the satisfaction of both the Director of Planning, Building, and Code Enforcement and the City Geologist. Specifically for buildings proposed on the D-shaped area, the design-level geotechnical study shall a) identify the extent of the potentially liquefiable soils by completing closely spaced CPT soundings to more accurately locate potentially liquefiable soils, and b) identify the necessary measures needed to avoid and/or mitigate liquefaction impacts, in accordance with local building codes. Possible measures include deep soil mixing, jet grouting, dynamic deep compaction, removal and replacement, vibrocompaction/ vibroreplacement, and/or in-situ cementitious shear panels.	At the PD Permit stage, the landfill operator is responsible for hiring a qualified professional to complete a design-level geotechnical report in order to construct or relocate buildings or structures anywhere on the project site. The recommended measures must then be incorporated into the proposed structure's design.	This mitigation measure shall be printed on project plans. Design-level geotechnical report(s) shall be submitted to the Director of PBCE and City Geologist for review and approval.	Director of PBCE and City Geologist

	Global Climate Change			
Impact C-GCC – 1: The project shall implement mitigation measure MM C-GCC – 1.1 to reduce impacts from predicted sea-level rise and a 100-year flood event to a less than significant level.	**MM C-GCC – 1.1:** As part of the landfill's annual capacity survey report to the LEA (as well as CalRecycle), the landfill operator shall also evaluate the status of sea level rise to ensure that the perimeter levee would provide at least two feet of freeboard above currently predicted sea level rise and a 100-year flood.	The landfill operator is responsible for ensuring that the landfill's annual capacity survey report addresses the adequacy of protection provided by the perimeter levee from current mean sea level, mean sea-level rise predictions, and 100-year flood elevation. The landfill operator is responsible for implementing necessary improvements (such as raising the levee) to ensure adequate sea-level and flood protection. Levee improvements may require separate CEQA review and permits from relevant authorities, such as the Regional Water Quality Control Board (RWQCB) and San Francisco Bay Conservation and Development Commission (BCDC).	The adequacy of protection provided by the levee from current mean sea level, means sea-level rise predictions, and 100-year flood elevation shall be incorporated into the landfill's annual capacity survey report submitted to the LEA.	Director of PBCE and RWQCB

Sources: 1) City of San José. Draft Environmental Impact Report for the Newby Island Sanitary Landfill and The Recyclery Rezoning Project. September 2009. 2) City of San José. First Amendment to the Draft Environmental Impact Report for the Newby Island Sanitary Landfill and The Recyclery Rezoning Project. May 2012.

Attachment A.2: Main Wastewater Treatment Plant Land Use Master Plan Mitigation Monitoring and Reporting Program

EXHIBIT B

EAST BAY MUNICIPAL UTILITY DISTRICT LAND USE MASTER PLAN ENVIRONMENTAL IMPACT REPORT
MITIGATION MONITORING AND REPORTING PROGRAM

Impact No.	Impact Summary	Mitigation No.	Mitigation Measure (Exact Text)	Monitoring and Reporting Program: Implementation and Reporting — Responsible Party	Monitoring and Reporting Program: Implementation and Reporting — Reviewing & Approval Party	Monitoring and Reporting Program: Monitoring and Reporting Actions	Monitoring and Reporting Program: Implementation Schedule — Design (D), Pre-Construction (PC), During Construction (C), Operational (O)
3.2 AESTHETICS							
AES-2	Alter Existing Visual Character and Views in the Study Area	AES-2a	**Mitigation Measure AES-2a: Maintenance of Construction Worksite** Throughout the period of demolition and construction, EBMUD will require that the construction contractor keep the worksite free and clean of all rubbish and debris and promptly remove from the site or from property adjacent to the site of the work, all unused and rejected materials, surplus earth, concrete, plaster, and debris.	EBMUD (MP) EBMUD/BD Owner (BD) EBMUD/FW Owner (FW)	EBMUD	1. Confirm that measure is in the construction specifications for the project. 2. Verify that worksite is kept free and clean of all rubbish and debris.	1. D 2. C
		AES-2b	**Mitigation Measure AES-2b: Design of Facilities to Be Aesthetically Consistent with Existing Visual Character** EBMUD would require all new facilities be, at a minimum, designed to be aesthetically consistent with existing visual character and surrounding wastewater treatment buildings. Design, exterior finishes, and color would blend with the surrounding facilities.	EBMUD (MP) EBMUD/BD Owner (BD) EBMUD/FW Owner (FW)	EBMUD	1. Confirm that design is consistent with measure.	1. D
AES-3	New Source of Substantial light or Glare	AES-3	**Mitigation Measure AES-3: Lighting Design and Low Reflective Paint** EBMUD would require that lighting be consistent with existing lighting in terms of height, spacing and design. New lighting would be shielded and directed to the interior of the project site. New structures and buildings would be painted in low reflective paint consistent with existing structures at the MWWTP.	EBMUD (MP) EBMUD/BD Owner (BD) EBMUD/FW Owner (FW)	EBMUD	1. Confirm that measure is incorporated in specifications for the project 2. Confirm that lighting is installed as required by specifications	1. D 2. C.
3.3 AIR QUALITY							
AIR-1	Construction Emissions of Criteria Pollutants and Precursors	AIR-1	**Mitigation Measure AIR-1: Criteria Air Pollutant and Precursor Reduction Measures** To limit dust, criteria pollutant, and precursor emissions associated with construction of all Land Use Master Plan projects, EBMUD shall include the following measures, as applicable, in contract specifications: a. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. b. All haul trucks transporting soil, sand, or other loose material off site shall be covered. c. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. d. All vehicle speeds on unpaved areas shall be limited to 15 miles per hour. e. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. f. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations	EBMUD (MP) EBMUD/BD Owner (BD) EBMUD/FW Owner (FW)	EBMUD	1. Confirm that measure is in the construction specifications for the project. 2. EBMUD inspector to verify that dust control measures are implemented during construction	1. D 2. C

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			[CCR]). Clear signage shall be provided for construction workers at all access points. g. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. h. A publicly visible sign with the telephone number and person to contact at the Lead Agency regarding complaints related to excessive dust or vehicle idling shall be posted at the MWWTP entrance. This person shall respond and take corrective action within 48 hours.				
AIR-5	Local Community Risks and Hazards During Project Operation	AIR-5	**Mitigation Measure AIR-5: Diesel Particulate Reduction Measures** Diesel-powered on-site rolling stock (2 loaders, excavator, and 2 end dump trucks) associated with the food waste preprocessing facility and any other diesel equipment or trucks operating solely within the MWWTP and West End property under the control of EBMUD shall install a CARB-verified Level 3 Diesel Particulate Filter to reduce PM2.5 emissions to achieve a minimum reduction of 50 percent (sufficient to reduce combined emissions to below the BAAQMD CEQA excess cancer risk threshold of 10 in a million). Alternative options for achieving this reduction can also be implemented, including the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as such become available.	EBMUD (MP) EBMUD/BD Owner (BD) EBMUD/FW Owner (FW)	EBMUD	1. Confirm that measure is in the plans for the project. 2. EBMUD to verify food waste preprocessing diesel equipment uses diesel particulate filters or other appropriate measures to reduce DPM emissions	1. D 2. O
AIR-6	Odor Emissions During Project Operation	AIR-6a	**Mitigation Measure AIR-6a: Odor Controls in Food Waste Preprocessing Facility** EBMUD shall include the following measures in contract specifications: • Roof vents on the proposed building or point sources should be designed to accommodate odor controls in the event that odor problems occur in the future and controls are ultimately needed. • All food waste shall be processed within 48 hours of receipt or protocols shall be implemented to minimize nuisance odor problems and ensure compliance with applicable BAAQMD air permit requirements.	EBMUD/FW Owner (FW)	EBMUD	1. Confirm that measure is in the plans for the project. 2. EBMUD to verify food waste preprocessing minimizes nuisance odor problems.	1. D 2. O
		AIR-6b	**Mitigation Measure AIR-6b: Odor Controls on Other Land Use Master Plan Elements** All short- and long-term Land Use Master Plan projects shall be reviewed for odor potential during the design phase. Operational and design odor control measures shall be incorporated into the project to minimize off-site odor impacts and ensure compliance with BAAQMD air permit fenceline monitoring limits. Odor controls that could be implemented where appropriate include: activated carbon filter/carbon adsorption, biofiltration/bio trickling filters, fine bubble aerator, hooded enclosures, wet and dry scrubbers, caustic and hypochlorite chemical scrubbers, ammonia scrubber, energy efficient blower system, thermal oxidizer, capping/covering storage basins and anaerobic ponds, mixed flow exhaust, wastewater circulation technology, and exhaust stack and vent location with respect to receptors.	EBMUD (MP)	EBMUD	1. Confirm that measure is in the design plans for the project.	1. D

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3.4 BIOLOGICAL RESOURCES							
BIO-1	Potential to Interfere with Wildlife Movement or Impede the Use of Native Wildlife Nursery Sites	BIO-1	**Mitigation Measure BIO-1: Protection of Nesting Birds** To the extent practicable, project construction activities including tree removal/pruning and demolition will occur outside of the generally accepted nesting season (February 1 to August 31). If tree removal cannot be completed between September 1 and January 31, and it is not feasible to avoid starting construction during the nesting season, then the following measures will be taken: a) No more than two weeks before the initiation of construction/demolition activities that would commence between February 1 and August 31, a nesting bird survey will be conducted within 250 feet of the project site by a qualified biologist. If active nests are observed, buffer zones will be established around the nests, with a size acceptable to the California Department of Fish and Game. Construction activities will not occur within buffer zones until young have fledged or the nest is otherwise abandoned. b) If construction/demolition is halted for more than two weeks during the nesting season, then additional surveys will be conducted as above. c) Nests that are established during construction/demolition will be protected from direct project impact (e.g., trees or a buffer area around the nests shall be flagged and avoided).	EBMUD (MP) EBMUD/BD Owner (BD) EBMUD/FW Owner (FW)	EBMUD	1. Confirm that measure is in the construction specifications for the project. 2. Confirm that trees are removed or surveys performed before nesting season. 3. Confirm bird protection is implemented as needed during construction	1. D 2. PC 3. C
BIO-2	Potential for Conflict with Local Policies or Ordinances Protecting Biological Resources, Such as Tree Preservation Policy or Ordinance	BIO 2	**Mitigation Measure BIO-2: Replacement of Protected Trees** EBMUD will replace each tree that is removed for this project and that is considered a "protected tree" under the City of Oakland Tree Preservation and Removal Ordinance. The replacement tree (e.g., 5-gallon size) will be planted on site in a suitable location at the MWWTP/West End property.	EBMUD (MP) EBMUD/BD Owner (BD) EBMUD/FW Owner (FW)	EBMUD	1. Confirm that measure is in the construction specifications for the project. 2. Confirm that trees have been replaced	1. D 2. DC

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3.5 CULTURAL RESOURCES							
CUL-1	Potential to Cause a Substantial Adverse Change in the Significance of a Unique Archaeological Resource	CUL-1	**Mitigation Measure CUL-1: Recovery of Buried Cultural Resources** If previously unidentified cultural materials are unearthed during construction, EBMUD will halt work in that area until a qualified archaeologist can assess the significance of the find. Prehistoric materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); battered stone tools, such as hammerstones and pitted stones. Historic-era materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse. If any find is determined to be significant, EBMUD and the archaeologist will determine the appropriate avoidance measures or other appropriate mitigation. All significant cultural materials recovered will be, as necessary and at the discretion of the consulting archaeologist, subject to scientific analysis, professional museum curation, and documentation according to current professional standards. In considering any suggested measures proposed by the consulting archaeologist in order to mitigate impacts to historical resources or unique archaeological resources, EBMUD will determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is infeasible, other appropriate measures (e.g., data recovery) will be instituted. Work may proceed on other parts of the project while mitigation for historical resources or unique archaeological resources is being carried out.	EBMUD (MP) EBMUD/BD Owner (BD) EBMUD/FW Owner (FW)	EBMUD	1. Confirm that measure is in the construction specifications for the project. 2. Confirm that any cultural resources uncovered during construction are treated in accordance with recommendation from a consulting archaeologist	1. D 2. C
CUL-2	Potential to Cause a Substantial Adverse Change in the Significance of a Paleontological Resource	CUL-2	**Mitigation Measure CUL-2: Recovery of Buried Paleontological Resources** In the event that paleontological resources are discovered, EBMUD will notify a qualified paleontologist. The paleontologist will document the discovery as needed, evaluate the potential resource, and assess the significance of the find under the criteria set forth in CEQA Guidelines § 15064.5. If a breas[1] or other fossil is discovered during construction, excavations within 50 feet of the find will be temporarily halted or diverted until the discovery is examined by a qualified paleontologist. The paleontologist shall notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. If EBMUD determines that avoidance is not feasible, the paleontologist will prepare an excavation plan for mitigating the effect of the project on the qualities that make the resource important. The plan will be submitted to EBMUD for review and approval prior to implementation.	EBMUD (MP) EBMUD/BD Owner (BD) EBMUD/FW Owner (FW)	EBMUD	1. Confirm that measure is in the construction specifications for the project. 2. Confirm that any paleontological resources uncovered during construction are treated in accordance with recommendation from a consulting paleontologist	1. D 2. C

[1] A seep of natural petroleum that has trapped extinct animals, thus preserving and fossilizing their remains.

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CUL-3	Potential to Disturb Human Remains	CUL-3	**Mitigation Measure CUL-3: Recovery of Discovered Human Remains** In the event human burials are encountered, EBMUD will halt work in the vicinity and notify the Alameda County Coroner and contact an archaeologist to evaluate the find. If human remains are of Native American origin, the Coroner will notify the Native American Heritage Commission (NAHC) within 24 hours of this identification. The NAHC will then identify the person(s) thought to be the Most Likely Descendent of the deceased Native American, who would then help determine what course of action should be taken in dealing with the remains.	EBMUD (MP) EBMUD/BD Owner (BD) EBMUD/FW Owner (FW)	EBMUD	1. Confirm that measure is in the construction specifications for the project. 2. Confirm that any burials uncovered during construction are treated in accordance with recommendation from a consulting archaeologist with appropriate notifications	1. D 2. C
3.7 GEOLOGY							
GEO-1	Facility Damage and Exposure of People to Hazards From Strong Seismic Groundshaking	GEO-1	**Mitigation Measure GEO-1: Perform Design-Level Geotechnical Evaluations for Seismic Hazards** During the design phase for all other Land Use Master Plan elements that require ground-breaking activities, EBMUD will perform site-specific, design-level geotechnical evaluations to identify potential secondary ground failure hazards (i.e., seismically-induced settlement) associated with the expected level of seismic ground shaking. For specific Land Use Master Plan element sites within the MWWTP that have previously been subject to a geotechnical investigation, a geotechnical memorandum shall be prepared to update the previous investigation. The geotechnical analysis will provide recommendations to mitigate those hazards in the final design and, if necessary, during construction The design-level geotechnical evaluations, based on the site conditions, location, and professional opinion of the geotechnical engineer, may include subsurface drilling, soil testing, and analysis of site seismic response as needed. The geotechnical engineer will review the seismic design criteria of facilities to ensure that facilities are designed to withstand the highest expected peak acceleration, set forth by the CBC for each site. Recommendations resulting from findings of the geotechnical study will be incorporated into the design and construction of proposed facilities. Design and construction for buildings will be performed in accordance with EBMUD's seismic design standards, which meet and/or exceed applicable design standards of the International Building Code.	EBMUD (MP) EBMUD/BD Owner (BD) EBMUD/FW Owner (FW)	EBMUD	1. Confirm that geotechnical studies have been conducted as needed. 2. Confirm that any recommendations from geotechnical study are included in plans and specifications. 3. Confirm that construction is conducted in accordance with specifications.	1. D 2. D 3. C
GEO-2	Facility Damage and Exposure of People to Hazards from Liquefaction and Lateral Spreading	GEO-2	**Mitigation Measure GEO-2: Perform Design-Level Geotechnical Evaluations for Liquefaction and Other Geologic Hazards** During the design phase for all other Land Use Master Plan elements that require ground-breaking activities, EBMUD will perform site-specific design-level geotechnical evaluations to identify geologic hazards and provide recommendations to mitigate those hazards in the final design and during construction. For specific Land Use Master Plan element sites within the MWWTP that have previously been subject to a geotechnical investigation, a geotechnical memorandum shall be prepared to update the previous investigation. The design-level geotechnical evaluations will include the collection of subsurface data for determining liquefaction potential, and appropriate feasible measures will be developed and incorporated into the project design. The performance standard to be used in the geotechnical evaluations for mitigating liquefaction hazards will be minimization of the hazards. Measures to	EBMUD (MP) EBMUD/BD Owner (BD) EBMUD/FW Owner (FW)	EBMUD	1. Confirm that geotechnical studies have been conducted as needed. 2. Confirm that any recommendations from geotechnical study are included in plans and specifications. 3. Confirm that construction is conducted in accordance with specifications.	1. D 2. D 3. C

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			minimize significant liquefaction hazards could include the following, unless the site-specific soils analyses dictate otherwise: • Densification or dewatering of surface or subsurface soils; • Construction of pile or pier foundations to support pipelines and/or buildings; and • Removal of material that could undergo liquefaction in the event of an earthquake, and replacement with stable material. • If soil needs to be imported, EBMUD would require that the contractor ensure that such imported soil complies with specifications that define the minimum geotechnical properties and analytical quality characteristics that must be met for use of fill material from off-site borrow sources.				
3.8 GREENHOUSE GAS EMISSSIONS							
GHG-1	Greenhouse Gas Construction Emissions	GHG-1	**Mitigation Measure GHG-1: GHG Reduction Measures** EBMUD shall implement BAAQMD-recommended Best Management Practices (BMPs) for GHG emissions where feasible, which include the following: • At least 15 percent of the fleet should be alternative-fueled (e.g., biodiesel, electric) construction vehicles/equipment. • At least 10 percent of building materials should be from local sources. • At least 50 percent of construction waste or demolition materials should be recycled or reused. See also **Mitigation Measure AIR-1: Criteria Air Pollutant and Precursor Reduction Measures** above.	EBMUD (MP) EBMUD/BD Owner (BD) EBMUD/FW Owner (FW)	EBMUD	1. Confirm that measure is in the construction specifications for the project. 2. Construction contractor to verify that BMPs are implemented.	1. D 2. C
GHG-2	Greenhouse Gas Operational Emissions	GHG-2a	**Mitigation Measure GHG-2a: Energy Efficiency Measures** Measures GHG 2a and 2b apply to the other Land Use Master Plan elements, as applicable, to reduce overall GHG emissions. Direct and indirect GHG emissions shall be estimated based on the final project design, and energy efficiency measures shall be incorporated into the project as necessary to meet the BAAQMD GHG significance threshold in effect at the time of project implementation.	EBMUD (MP)	EBMUD	1. Confirm that emissions are estimated and efficiency measures are incorporated.	1. D
		GHG-2b	**Mitigation Measure GHG-2b: Water Conservation Measures for Land Use Master Plan Projects** Non-potable water shall be used wherever feasible for equipment and area wash down to minimize GHG emissions associated with increased water demand.	EBMUD (MP)	EBMUD	1. Confirm that non-potable water is used wherever feasible.	1. O

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3.9 HAZARDS AND HAZARDOUS MATERIALS							
HAZ-3	Hazards to Public Health and the Environment due to a Release of Hazardous Building Materials Present in the Buildings that Would be Demolished	HAZ-3	**Mitigation Measure HAZ-3: Hazardous Building Materials Surveys and Abatement** For any building not already surveyed for lead, a registered environmental assessor or a registered engineer would perform a lead-based paint survey for the structure prior to reuse or demolition. Adequate abatement practices for lead-containing materials, such as containment and/or removal, would be implemented prior to reuse or demolition of each structure that includes lead-containing materials or lead-based paint. For demolition, any PCB- or DEHP-containing equipment or fluorescent lights containing mercury vapors would also be removed and disposed of properly. If removal of a transformer is required, EBMUD or the owner/operator would retain a qualified professional to determine the PCB content of the transformer oil. For removal, the transformer oil would be pumped out with a pump truck and appropriately recycled or disposed of off site. The drained transformer would be reused or disposed of in accordance with applicable regulations.	EBMUD (MP) EBMUD/BD Owner (BD) EBMUD/FW Owner (FW)	EBMUD	1. Confirm that hazardous materials surveys have been conducted as needed. 2. Confirm that any recommendations from survey are included in plans and specifications. 3. Confirm that materials are disposed of appropriately	1. D 2. D 3. C
3.10 HYDROLOGY - WATER QUALITY							
HYD-3	Alteration of the Existing Drainage Pattern in a Manner Which Would Result in Flooding	HYD-3	**Mitigation Measure HYD-3: Prepare and Implement a Comprehensive Drainage Plan** Prior to expanding the stormwater collection system to treat runoff from the West End property, EBMUD shall prepare and implement a Comprehensive Drainage Plan for the Land Use Master Plan that incorporates measures to ensure that the storm drain system and treatment capacity are not exceeded during peak conditions. The drainage plan shall define operational controls necessary to prevent flooding of the MWWTP headworks and/or release of surface runoff off site.	EBMUD	EBMUD	1. Confirm that Comprehensive Drainage Plan has been prepared. 2. Confirm that any recommendations from plan are included in plans and specifications. 3. Confirm that necessary improvements are constructed	1. D 2. D 3. C
HYD-5	Inundation Due to a Catastrophic Tsunami or Seiche	HYD-5	**Mitigation Measure HYD-5: Prepare and Implement a Tsunami Response Plan** EBMUD shall prepare and implement a Tsunami Response Plan for the MWWTP site that defines emergency response and coordination procedures. The Tsunami Response Plan shall contain information specific to actions that may be necessary related to receipt of a tsunami watch, warning, or as a result of an actual tsunami along the San Francisco Bay. The first priority of emergency management response shall be the protection of life and property.	EBMUD	EBMUD	1. Confirm that Tsunami Response Plan for the MWWTP site has been prepared and implemented	1. O

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3.12 NOISE							
NOI-1	Disturbance from Temporary, Construction-Related Noise Increases in Excess of Noise Ordinance	NOI-1	**Mitigation Measure NOI-1: Implement Noise Controls** EBMUD's Construction Specifications (013544-3.4) require compliance with local noise ordinances, and measures that shall be employed to meet applicable City of Oakland Noise Ordinance noise limits include the following: • Pile driving activities and operation of other types of impact equipment such as jackhammers should be limited to the daytime hours (7 a.m. to 7 p.m. on weekdays); • If impact pile drivers must be used near the eastern MWWTP boundary, they should not be operated for longer than 10 days to the extent feasible. If pile driving must occur for longer than 10 days near this boundary, sonic or vibratory pile drivers should be used if feasible; • "Quiet" pile driving technology (such as pre-drilling of piles, the use of more than one pile driver to shorten the total pile driving duration) should be employed where feasible (where geotechnical and structural requirements allow); • Pile driving activities with all construction projects at the MWWTP should be coordinated to ensure that these activities do not overlap; • Best available noise control techniques (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) will be used for all equipment and trucks as necessary; and • If any construction activities must occur during the nighttime hours (7 p.m. to 7 a.m. on weekdays, 8 p.m. to 9 a.m. on weekends), operation of noisier types of equipment should be prohibited as necessary to meet ordinance noise limits.	EBMUD (MP) EBMUD/BD Owner (BD) EBMUD/FW Owner (FW)	EBMUD	1. Confirm that measure is in the construction specifications for the project. 2. Construction contractor to verify that construction activities comply with specifications.	1. D 2. C
NOI-2	Temporary Disturbance due to Construction-Related Vibration	NOI-2	**Mitigation Measure NOI-2: Implement Vibration Controls** To ensure that adjacent freeway structures and future commercial structures to the south are not subject to cosmetic damage, EBMUD shall ensure that any future pile driving activities associated with Master Plan projects do not exceed the 0.2 in/sec PPV threshold at these structures. Measures that could be employed to meet this performance standard include using sonic or vibratory pile drivers where feasible or pre-drilling pile holes.	EBMUD (MP) EBMUD/BD Owner (BD) EBMUD/FW Owner (FW)	EBMUD	1. Confirm that measure is in the construction specifications for projects. 2. Construction contractor to verify that construction activities comply with specifications.	1. D 2. C
NOI-3	Increases in Ambient Noise Levels due to Operational Noise and Vibration	NOI-3	**Mitigation Measure NOI-3: Employ Noise Controls for Stationary Equipment** EBMUD shall use best available noise control techniques (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) as necessary on stationary equipment associated with all Master Plan projects in order to comply with applicable City of Oakland Noise Ordinance noise limits, adjusted to reflect ambient noise levels occurring at the time of project implementation (under 2010 conditions, the nighttime noise limit is 54 dBA [Leq] at receiving residential uses to the east and 73 dBA [Leq] at future receiving commercial uses to the south).	EBMUD (MP)	EBMUD	1. Confirm that measure is in the design plans for projects. 2. Confirm best available noise control techniques are used on stationary equipment.	1. D 2. C

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Impact No.	Impact Summary	Mitigation No.	Mitigation Measure (Exact Text)	Monitoring and Reporting Program: Implementation and Reporting — Responsible Party	Monitoring and Reporting Program: Implementation and Reporting — Reviewing & Approval Party	Monitoring and Reporting Program: Monitoring and Reporting Actions	Monitoring and Reporting Program: Implementation Schedule — Design (D), Pre-Construction (PC), During Construction (C), Operational (O)
3.14 TRANSPORTATION							
TRA-1	Temporary Construction-Related Increase in Traffic	TRA-1	**Measure TRA-1: Construction Traffic Management Plan** EBMUD would implement the following measures during project construction at the local intersections outside the MWWTP property: EBMUD and the construction contractor would coordinate with the appropriate City of Oakland agencies to determine traffic management strategies to reduce, to the maximum extent feasible, traffic congestion during construction of this project and other nearby projects that could be simultaneously under construction. EBMUD would develop a construction management plan for submittal to the Planning and Zoning Division, the Building Services Division, and the Transportation Services Division. The plan would include at least the following items and requirements: a. A set of comprehensive traffic control measures, including scheduling of major truck trips and deliveries to avoid peak traffic hours and designated construction access routes; b. Notification procedures for adjacent property owners and public safety personnel regarding when major deliveries would occur; and c. A process for responding to, and tracking, complaints pertaining to construction activity, including identification of an on-site complaint manager. The manager shall determine the cause of the complaints and shall take prompt action to correct the problem.	EBMUD (MP) EBMUD/BD Owner (BD) EBMUD/FW Owner (FW)	EBMUD	1. Confirm that measure is in the construction specifications for the project. 2. Construction contractor to verify compliance with comprehensive traffic control measures.	1. D 2. C
TRA-7	Safety Hazards Due to Conflicts with Rail Transport	TRA-7a	**Measure TRA-7a: Railroad Crossing Safety for New Rail Spur** EBMUD shall install pavement markings and warning signs along Engineers Road where the new rail spur would cross to enter the internal driveway for the biodiesel production facility. Pavement markings and warning signs shall conform to standards set forth in the *California Manual on Uniform Transportation Devices* (Caltrans 2010).	EBMUD (MP) EBMUD/BD Owner (BD)	EBMUD	1. Confirm that measure is in the construction specifications for the project. 2. Confirm that markings and signs have been installed.	1. D 2. C
		TRA-7b	**Measure TRA-7b: Coordination with Burlington Northern Santa Fe (BNSF)** EBMUD and its rail contractor(s) shall work with BNSF during the design phase to obtain the necessary permits and construction approvals for the rail spur and connection with the existing BNSF rail line.	EBMUD (MP) EBMUD/BD Owner (BD)	EBMUD	1. Confirm proper BSNF permits and construction approvals are obtained.	1. D
3.15 UTILITIES							
UTIL-1	Exceed Wastewater Treatment Requirements of the San Francisco Bay Regional Water Quality Control Board		See **Mitigation Measure HYD-3: Prepare and Implement a Comprehensive Drainage Plan** above.				
UTIL-3	Require Construction of New Stormwater Drainage Facilities or Expansion of Existing Facilities		See **Mitigation Measure HYD-3: Prepare and Implement a Comprehensive Drainage Plan** above.				

EAST BAY MUNICIPAL UTILITY DISTRICT LAND USE MASTER PLAN ENVIRONMENTAL IMPACT REPORT
MITIGATION MONITORING AND REPORTING PROGRAM

Impact No.	Impact Summary	Mitigation No.	Mitigation Measure (Exact Text)	Monitoring and Reporting Program: Implementation and Reporting — Responsible Party	Monitoring and Reporting Program: Implementation and Reporting — Reviewing & Approval Party	Monitoring and Reporting Program: Monitoring and Reporting Actions	Monitoring and Reporting Program: Implementation Schedule - Design (D) - Pre-Construction (PC) - During Construction (C) - Operational (O)
UTIL-6	Temporary Disruption of Utilities or Services Due to Construction-Related Activities	UTIL-6	**Mitigation Measure UTIL-6 Coordinate Relocation and Interruptions of Service with Utility Providers During Construction** The construction contractor will be required to verify the nature and location of underground utilities before the start of any construction that would require excavation. The contractor will be required to notify and coordinate with public and private utility providers at least 48 hours before the commencement of work adjacent to any utility. The contractor will be required to notify the service provider in advance of service interruptions to allow the service provider sufficient time to notify customers. The contractor will be required to coordinate timing of interruptions with the service providers to minimize the frequency and duration of interruptions.	EBMUD (MP) EBMUD/BD Owner (BD) EBMUD/FW Owner (FW)	EBMUD	1. Confirm that measure is in the construction specifications for the project. 2. Construction contractor to verify coordination with public and private utility providers to locate and identify underground utilities. 3. Construction contractor to verify coordination with public and private utility providers at least 48 hours before the commencement of work adjacent to any utility.	1. D 2. PC 3. C

Notes: MP -- Land Use Master Plan, FW -- Food Waste Preprocessing Facility, BD -- Biodiesel Facility

ATTACHMENT B

AIR QUALITY CRITERIA POLLUTANT AND OZONE PRECURSOR EMISSIONS MEMORANDUM

Memorandum

To:	Jenny Delumo, San Francisco Planning Department Jessica Range, San Francisco Planning Department
CC:	Robert Begley, Acting Section Manager, Site Assessment and Remediation, San Francisco Public Works
From:	Pierre Glaize, Senior Air Quality Specialist, ICF Laura Yoon, Managing Director, ICF
Date:	November 2, 2023
Re:	**Air Quality Criteria Pollutant and Ozone Precursor Emissions Memorandum for the City and County of San Francisco Refuse Project**

Introduction

At the request of the San Francisco Planning Department, this Air Quality Criteria Pollutant Emission Memorandum (memo) presents ICF's qualitative and quantitative criteria pollutant emissions analysis resulting from the construction and operation of the City and County of San Francisco Refuse Project (Project). The analysis will support the environmental documentation currently being prepared for the Project, pursuant to the California Environmental Quality Act (CEQA). A detailed project description and the calculation methodologies that support the results in this memo are included in Attachment A.

Analysis Thresholds and Screening

Construction

The Bay Area Air Quality Management District's (BAAQMD) 2022 CEQA Guidelines includes screening tables that provide lead agencies with a conservative indication of whether implementing a project could potentially result in the generation of construction-related criteria pollutants or

ozone precursors that exceed BAAQMD's thresholds of significance.[1] The construction screening size for general light industrial land uses, which most closely represents the proposed project's modular light industrial structure at Ox Mountain SL is at or below 452,000 square feet.[2] The BAAQMD also includes other construction related screening criteria, particularly related to including best management practices to control fugitive dust.

Operations

The BAAQMD's 2022 CEQA Guidelines outlines project-level thresholds for regional criteria pollutant and ozone precursors.[3] These thresholds, as summarized in **Table 1** for project operations, are recommended by the BAAQMD to quantitatively evaluate the significance of a project's regional criteria pollutant emissions.

Table 1. BAAQMD Project-Level Regional Criteria Pollutant Emissions Thresholds (Operations)

Analysis	Thresholds
Project operations	Reactive organic gases (ROG): 54 pounds/day or 10 tons/year Nitrogen oxides (NO_X): 54 pounds/day or 10 tons/year Particulate matter (PM10): 82 pounds/day or 15 tons/year Fine particulate matter (PM2.5): 54 pounds/day or 10 tons/year

Source: Bay Area Air Quality Management District. 2023. *2022 CEQA Guidelines Chapter 3: Screening of Criteria Air Pollutants and Precursors*. April 20. Available: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Accessed September 2023.

Project Analysis Results

Construction

The proposed Project's modular light industrial structure would be prefabricated off-site and delivered to the Project site, where the structure would be installed. As part of the installation of this modular structure, the Project will require 50 feet of trenching over a single day of construction to setup the necessary utilities. It is anticipated that all soil excavated during trenching, approximately 10 cubic yards, will be balanced onsite. No other construction activities would occur as part of the Project.

Given that any trenching work would be short-term and is anticipated to occur over the course of one day, fugitive dust resulting from soils disturbance would be minimal.

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[1] Bay Area Air Quality Management District. 2023. *2022 CEQA Guidelines Chapter 4: Screening of Criteria Air Pollutants and Precursors*. April 20. Available: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Accessed September 2023.

[2] As described in the Attachment A, the only construction proposed for the project is trenching to support the installation of one modular structure at the Ox Mountain Sanitary Landfill. General light industrial use is the closest land use category for the proposed construction.

[3] Bay Area Air Quality Management District. 2023. *2022 CEQA Guidelines Chapter 3: Screening of Criteria Air Pollutants and Precursors*. April 20. Available: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Accessed September 2023.

Operations

The Project would generate ozone precursor and criteria pollutant emissions from the combustion of compressed natural gas (CNG)/ liquified natural gas (LNG)/ Biomethane from the solid waste collection vehicles and diesel fuel from the tractor trailer (TT) and support vehicles.[4] The Project would also generate emissions from operation of a modular light industrial structure, including emissions from employee commute trips.

Operational ozone precursor and criteria pollutant emissions from these sources were quantified using the California Air Resources Board's (CARB) 2021 Emission FACtor Model (EMFAC2021) [5], the California Emission Estimator Model (CalEEMod) version 2022, and the United States Environmental Protection Agency's (EPA) AP-42. Consistent with BAAQMD's CEQA Guidelines, the analysis quantified reactive organic gases (ROG), nitrogen oxides (Nox), and particulate matter (PM10 and PM2.5). Refer to Attachment A for additional information on the modeling methods.

The estimated average daily operational emissions from the Project are summarized in **Table 2** and the estimated maximum annual emissions in tons per year are summarized in **Table 3**. Model outputs are provided in Attachment B. As shown in Tables 2 and 3, total operational emissions would be well below the BAAQMD numeric thresholds.

[4] According to email communications with Annie Allen at the Bay Area Air Quality Management District (BAAQMD) on August 10, 2023, the mobile CNG refueling station would not have any evaporative criteria air pollutant emissions and would not need to be permitted.

[5] EMFAC2021 includes the latest data on California's car and truck population, activity, and emission testing. The EMFAC2021 model is needed to support CARB's planning and policy development efforts and to meet the Federal Highway Administration's transportation conformity requirements.

Table 2. Estimated Average Daily Operational Emissions

	Average Daily Emissions (pounds/day)			
Source	ROG	NO_X	PM10[a]	PM2.5[a]
Refuse collection and operations vehicles [b]	0.04	2.03	8.81	2.29
Employee commute vehicles [c]	0.12	0.13	0.35	0.09
Area sources [d]	0.12	<0.01	<0.01	<0.01
Total	**0.28**	**2.16**	**9.16**	**2.38**
BAAQMD Significance Threshold	54	54	82	54
Exceeds Threshold?	No	No	No	No

Notes:
Modeling files provided in Attachment B.
Individual rows may not add up to the totals shown due to rounding.
ROG= reactive organic gases; NO_X = nitrogen oxide; PM_{10} = particulate matter no more than 10 microns in diameter; PM2.5 = particulate matter no more than 2.5 microns in diameter
a. BAAQMD operational thresholds for PM10 and PM2.5 include fugitive dust and exhaust emissions.
b. Mobile emissions from the refuse collection vehicles, tractor trailer, maintenance trucks, and supervisor trucks.
c. Mobile emissions from employees commuting to and from the modular light industrial structure and refuse truck storage.
d. Architectural coatings re-application and landscaping equipment emissions associated with the modular light structure.

Table 3. Estimated Maximum Annual Operational Emissions

	Maximum Annual Emissions (tons per year)			
Source	ROG	NO_X	PM10[a]	PM2.5[a]
Refuse collection and operations vehicles [b]	<0.01	0.25	1.10	0.29
Employee commute vehicles [c]	0.02	0.02	0.04	0.01
Area sources [d]	0.02	<0.01	<0.01	<0.01
Total	**0.04**	**0.27**	**1.14**	**0.30**
BAAQMD Significance Threshold	10	10	15	10
Exceeds Threshold?	No	No	No	No

Notes:
Modeling files provided in Attachment B.
Individual rows may not add up to the totals shown due to rounding.
ROG= reactive organic gases; NO_X = nitrogen oxide; PM_{10} = particulate matter no more than 10 microns in diameter; PM2.5 = particulate matter no more than 2.5 microns in diameter
a. BAAQMD operational thresholds for PM10 and PM2.5 include fugitive dust and exhaust emissions.
b. Mobile emissions from the refuse collection vehicles, tractor trailer, maintenance trucks, and supervisor trucks.
c. Mobile emissions from employees commuting to and from the modular light industrial structure and refuse truck storage.
d. Architectural coatings re-application and landscaping equipment emissions associated with the modular light industrial structure.

Attachment A. Methodology Memorandum

Memorandum

To:	Jenny Delumo, San Francisco Planning Department Jessica Range, San Francisco Planning Department
CC:	Robert Begley, Acting Section Manager, Site Assessment and Remediation, San Francisco Public Works
From:	Pierre Glaize, Senior Air Quality Specialist, ICF Laura Yoon, Managing Director, ICF
Date:	November 2, 2023
Re:	**Air Quality Methodology Memorandum for the City and County of San Francisco Refuse Project**

Introduction

At the request of the San Francisco Planning Department, this Air Quality Methodology Memorandum (memo) presents ICF's proposed methodology to qualitatively analyze construction activities and quantify ozone precursor and criteria air pollutant emissions resulting from operation of the City and County of San Francisco Refuse Project (Project). The proposed analysis will support the environmental documentation currently being prepared for the Project, pursuant to the California Environmental Quality Act (CEQA).

Project Description

The San Francisco Refuse Project (proposed project or project) is a contract between Allied Waste Services of North America, LLC (Allied Waste Services) and the City and County of San Francisco (City) to collect, process, and/or dispose all refuse (recyclables, compostables, and trash) generated by all City government facilities, such as office buildings, institutional buildings, parks, etc. Currently, Recology collects, processes, and/or disposes all refuse generated within the boundaries of San Francisco, whether it is generated by a government-operated facility/property or private property (residential or commercial). Under the proposed project, these activities would be undertaken by

Allied Waste Services, instead of Recology, for all City facilities.[1] The project sponsor is also proposing changes within the existing Ox Mountain Sanitary Landfill (Ox Mountain SL)[2] that will support implementation of the contract. The contract would commence on July 1, 2024, and expire on June 30, 2031. The City has an option to renew the contract for a period of up to three years, for a maximum term of 10 years. The following describes the proposed project in detail.

Refuse Collection, Processing, and Disposal

Existing Refuse Collection, Processing, and Disposal

Recology currently collects all refuse generated by government-operated facilities and private properties in San Francisco. Recology then takes all recyclables to the Recycle Center at Pier 96 in San Francisco. All trash and compostables are taken to the Recology Tunnel Avenue Transfer Station[3] for processing, after which compostables are taken to the Recology Blossom Valley Organics facility[4] and trash is taken to the Recology Hay Road Landfill[5] for final disposal. All of Recology's trucks are then taken to the Recology Tunnel Ave Transfer Station, which is where they are staged until the next collection. All public and private properties in San Francisco collectively generate approximately 221,699 tons of trash per year, 135,546 tons of compostables per year, and 126,666 tons of recyclables per year.[6]

Proposed Refuse Collection, Processing, and Disposal

Under the proposed project, Recology would continue to collect, process, and/or dispose of refuse generated by private properties and Allied Waste Services would collect, process, and/or dispose of all refuse generated by City properties in San Francisco. Allied Waste Services would also supply and deliver refuse bins and other collection related items to approximately 375 City facility locations. Bins are collected based on the amount of refuse generated at any given location, and can range from once per week to daily. Collection would occur on all days except certain City holidays or when on-call, emergency, and off-hours collection service is requested. The San Francisco Department of the Environment estimates that under the proposed project Allied Waste Services would collect approximately seven percent of all trash, four percent of all compostables, and 10 percent of all recyclables generated in San Francisco.[7]

Proposed Vehicle Fleet. Allied Waste Services would operate a fleet of approximately 17 vehicles (a mix of collection trucks, tractor trailers, and support vehicles) to collect, process, and/or dispose of refuse collected from City facilities. As shown in **Table 1**, Allied Waste Services proposes to use 11

[1] Public-facing receptacles under the purview of San Francisco Public Works would not be serviced under the proposed project. Recology would continue to collect refuse from private homes and businesses in San Francisco, as well as from other entities within San Francisco with which it holds contracts.
[2] The Ox Mountain Sanitary Landfill is also known as the Corinda Los Trancos Landfill. It is located at 12310 San Mateo Road, Half Moon Bay, CA 94019.
[3] The Recology Tunnel Avenue Transfer Station is located at 501 Tunnel Avenue, San Francisco, CA 94134.
[4] The Recology Blossom Valley Organics facility is located at 3909 Gaffery Road, Vernalis, CA 95385.
[5] The Recology Hay Road Landfill is located at 6426 Hay Road, Vacaville, CA 95687.
[6] Soko Made, San Francisco Department of the Environment, email *re Allied Fleet Size and Composition*, February 14, 2023.
[7] Soko Made, *op cit.*

natural gas-powered vehicles for refuse collection (generally, Steps 1 and 2 in Table 2) and three diesel fuel vehicles for refuse transport (generally, Steps 3 and 4 in Table 2). Three diesel powered support vehicles would be used for supervisory, field maintenance, and container delivery. The vehicle fleet would start from the existing Ox Mountain SL in Half Moon Bay.

Compressed Natural Gas (CNG) vehicles are planned to be replaced by electric vehicles as early as possible and feasible, depending on permitting and on vehicle and infrastructure availability. The upgraded solid waste collection vehicle fleet to be used as part of the proposed project would consist of CNG, Liquified Natural Gas (LNG), and Biomethane engines that would be alternative-fuel engine technology (L9N) or equivalent. The air quality analysis will conservatively assume the fleet described in Table 1 because these vehicles would have greater emissions than the electric replacement vehicles. This approach ensures that results are worst-case projections of likely air pollutant emissions. Except for the trucks used in Compost Steps 4 and 5, after collecting, processing, and/or disposing of refuse, all trucks would return to the Ox Mountain SL to be staged for the next collection. Operation of all project-related vehicles would generate approximately 8,994 net new vehicle miles traveled (VMT) per week and 467,732 net new VMT per year.[8]

[8] Recology currently collects refuse from private properties and public facilities. Since Recology would continue to collect from private properties and certain public works facilities, for the purposes of analysis, it is assumed that Recology's vehicle related operations would remain the same as its existing operations. That is, it is assumed that Recology would operate the same number and type of trucks on the same routes and with the same frequency as under existing conditions. It is also assumed that all Allied Waste Services' vehicle related operations described herein are net new operations that would occur because of the proposed project. Thus, any VMT generated by the proposed project is conservatively assumed to be net new.

Table 1: Proposed Vehicle Fleet for Collection, Processing, and Disposal

Vehicle Type	Engine Model Year	Assigned Vehicle Class and Fuel Type	Purpose	# Vehicles	Total Weekly VMT	Total Annual VMT
CO/CNG/LNG/ Biomethane SWCV	2019	T7 SWCV Class 8 – Natural Gas: Heavy-Heavy Duty Solid Waste Collection Truck	refuse collection	11	7,148	371,708
Diesel Tractor Trailer	2019	T7 Tractor Class 8 – Diesel Fuel: Heavy-Heavy Duty Tractor Truck	refuse transfer	3	1,782	92,681
Diesel Support Vehicles	2017	T6 Utility Class 6 – Diesel Fuel: Medium-Heavy Duty Utility Fleet Truck	refuse operations	3	64	3,343
Total				17	8,994	467,732

Sources: Allied Waste Services and ICF, 2023

Notes:
CO = Commercial Organics
CNG = Compressed Natural Gas
LNG = Liquified Natural Gas
SWCV = Solid Waste Collection Vehicle

The following describes the proposed trash, composting, and recycling collection processes and the vehicle fleet that would be used for those activities.

Trash Collection, Processing, and Disposal. Under the proposed contract, Allied Waste Services would collect approximately 42.5 tons of trash per day. Trash would be collected using three model year 2019 compressed natural gas/ liquified natural gas/biomethane-powered trash/mixed solid waste vehicles for a combined total of approximately 1,426 VMT and 22 disposal trips per week. After collection, trash destined for landfill disposal would be delivered by Allied Waste Services to the Recology Transfer Station at 501 Tunnel Avenue. Recology would then transport the trash to Recology's Hay Road Landfill, as Recology does now under the existing process. Alternatively, Allied Waste Services would collect and transfer trash to the Ox Mountain SL where it would be consolidated with other trash and taken to the Hay Road Landfill.[9] The air quality analysis assumes collected trash is taken to Ox Mountain SL where it is transferred to a model year 2019 diesel-fueled tractor trailer and the trash is disposed of by Allied trucks at the Recology Hay Road Landfill for a total of approximately 1,166 VMT

[9] Pursuant to a 2015 Landfill Disposal Agreement between the City and Recology, the City is required to dispose of all trash generated in San Francisco at the Hay Road Landfill. City and County of San Francisco. *Landfill Disposal Agreement between the City and County of San Francisco and Recology San Francisco.* Approved by the San Francisco Board of Supervisors on July 22, 2015. Available at https://sfpublicworks.org/sites/default/files/Ex.%2013%20-%202015%20Landfill%20Agreement.PDF. Accessed September 2013.

and 6 trips per week. The air quality analysis uses this assumption because this scenario would result in the greatest increase in vehicle miles traveled and associated criteria air pollutants.[10]

Compost Collection and Processing. Under the proposed contract, Allied Waste Services would collect approximately 14.9 tons of compostable materials per day. Compost would be collected using three model year 2019 Commercial Organics/Compressed Natural Gas/ Liquified Natural Gas /Biomethane-powered vehicles for a combined total of approximately 2,670 VMT and 43 disposal trips per week. After collection, compostable material would be delivered to the Contra Costa Transfer and Recovery Station[11] for off-loading and preprocessing.[12] Compostable material would then be collected and delivered to the East Bay Municipal Utility District's (EBMUD) anaerobic digestor facility in Oakland[13] on a model year 2019 diesel-fueled tractor trailer that would generate approximately 188 VMT and 3 trips per week. In the event the equipment required for preprocessing of compostable material at the Contra Costa Transfer and Recovery Station is inoperable, as an alternative, the material would be delivered to the Ox Mountain SL where it would be consolidated and taken to the Newby Island Resource Recovery Park[14] in Milpitas for composting,[15] also on a model year 2019 diesel-fueled tractor trailer.

Recycling Collection and Processing. Under the proposed contract, Allied Waste Services would collect approximately 34.7 tons of recyclables per day. Recyclables would be collected using three model year 2019 CNG/LNG/Biomethane-powered or electric Commercial Mixed Recycling vehicles for a combined total of approximately 2,433 VMT and 17 disposal trips per week. After collection, recyclable materials would be delivered to the Ox Mountain SL where recyclables would be consolidated onto a model year 2019 diesel-fueled transfer tractor trailer and delivered to the Newby Island Resource Recovery Park for recycling. The tractor trailer would generate approximately 428 VMT and 5 trips per week.

Table 2 shows the steps for the proposed trash, composting, and recycling collection, processing, and/or disposal activities described above.

[10] Allied Waste Services plans to bring the trash to Recology's Transfer Station at 501 Tunnel Avenue. However, to address the possibility that this does not occur for any reason, the air quality analysis is based on this alternative scenario in order to report conservative, worst case, potential air pollutant emissions.

[11] The Contra Costa Transfer and Recovery Station is located at 951 Waterbird Way, Martinez, CA 94553.

[12] Preprocessing refers to the removal of contaminants from compostable materials in preparation for injection into an anerobic digester.

[13] The East Bay Municipal Utility District's (EBMUD) anaerobic digestor facility is located at 1820 10th Street, Oakland, CA 94607.

[14] The Newby Island Resource and Recovery Park is located at 1601 Dixon Landing Road, Milpitas CA 95035.

[15] Given that the preprocessing equipment at the Contra Costa Transfer & Recovery Station in Martinez was inoperable for only three days in 2022, the analysis assumes compost material is delivered to the East Bay Municipal Utility District's anaerobic digester in Oakland.

Table 2: Proposed Refuse Collection, Processing, and Disposal Steps

Refuse Material	Step	Activity	Alternative Activity	Vehicle Type
Trash	*Step 1*	Collection trucks leave the Ox Mountain Sanitary Landfill and collect trash in San Francisco	Collection trucks leave the Ox Mountain Sanitary Landfill and collect trash in San Francisco	T7 SWCV Class 8 – Natural Gas: Heavy-Heavy Duty Solid Waste Collection Truck
	Step 2	Take collected trash from San Francisco to the 501 Tunnel Avenue Transfer Station[1]	Take collected trash from San Francisco to the Ox Mountain Sanitary Landfill for consolidation	
	Step 3	Empty trucks drive from the 501 Tunnel Avenue Transfer Station to the Ox Mountain Sanitary Landfill	Take consolidated trash from the Ox Mountain SL to the Hay Road Landfill	T7 SWCV Class 8 – Natural Gas: Heavy-Heavy Duty Solid Waste Collection Truck *(Activity)* T7 Tractor Class 8 – Diesel Fuel: Heavy-Heavy Duty Tractor Truck *(Alternative Activity)*
	Step 4	*N/A*[2]	Empty trucks drive from the Hay Road Landfill to the Ox Mountain Sanitary Landfill	T7 Tractor Class 8 – Diesel Fuel: Heavy-Heavy Duty Tractor Truck
Compost	*Step 1*	Collection trucks leave the Ox Mountain Sanitary Landfill and collect compostables in San Francisco	Collection trucks leave the Ox Mountain Sanitary Landfill and collect compostables in San Francisco	T7 SWCV Class 8 – Natural Gas: Heavy-Heavy Duty Solid Waste Collection Truck
	Step 2	Take collected compostables from San Francisco to the Contra Costa Transfer and Recovery Station for offloading and preprocessing[3]	Take collected compostables from San Francisco to the Ox Mountain Sanitary Landfill for consolidation	
	Step 3	Empty trucks drive to Ox Mountain Sanitary Landfill	Take compostables from the Ox Mountain Sanitary Landfill to the Newby Island Resource Recovery Park for composting	T7 SWCV Class 8 – Natural Gas: Heavy-Heavy Duty Solid Waste Collection Truck *(Activity)* T7 Tractor Class 8 – Diesel Fuel: Heavy-Heavy Duty Tractor Truck *(Alternative Activity)*

Refuse Material	Step	Activity	Alternative Activity	Vehicle Type
	Step 4	A second truck takes the processed compostables from the Contra Costa Transfer and Recovery Station to the East Bay Municipal Utility District for anaerobic digestion	Empty trucks from the Newby Island Resource Recovery Park return to the Ox Mountain Sanitary Landfill	T7 Tractor Class 8 – Diesel Fuel: Heavy-Heavy Duty Tractor Truck
	Step 5	Empty trucks from the East Bay Municipal Utility District return to Contra Costa Transfer and Recovery Station	*N/A*	
Recyclables	*Step 1*	Collection trucks leave the Ox Mountain Sanitary Landfill and collect recyclables in San Francisco	*N/A*	T7 SWCV Class 8 – Natural Gas: Heavy-Heavy Duty Solid Waste Collection Truck
	Step 2	Take collected recyclables from San Francisco to the Ox Mountain Sanitary Landfill for offloading and consolidation	*N/A*	
	Step 3	Take consolidated recyclables from the Ox Mountain Sanitary Landfill to the Newby Island Resource Recovery Park	*N/A*	T7 Tractor Class 8 – Diesel Fuel: Heavy-Heavy Duty Tractor Truck
	Step 4	Empty trucks travel from the Newby Island Resource Recovery Park to the Ox Mountain Sanitary Landfill	*N/A*	

Source: Allied Waste Services, 2023

Notes:
[1] After Allied Waste Services completes Trash Step 2, Recology would consolidate trash at the 501 Tunnel Avenue Transfer Station and transport to the Recology's Hay Road Landfill, as Recology does currently.
[2] Not Applicable
[3] Preprocessing refers to the removal of contaminants from compostable materials in preparation for injection into an anerobic digester.

Ox Mountain Sanitary Landfill

Existing Conditions at Ox Mountain Sanitary Landfill

The Ox Mountain Sanitary Landfill is located at 12310 San Mateo Road in the city of Half Moon Bay, California and is approximately 20 miles south of San Francisco (**Figure 1**). The landfill is bounded by agricultural uses to the west, east, and north, and San Mateo Road (i.e., State Route 92) to the south.

The Ox Mountain SL operator[16] currently provides waste and recycling services to the City of Half Moon Bay and surrounding unincorporated areas of San Mateo County under two main permits: a solid waste facility permit[17] and a waste discharge requirements permit.[18,19]

Proposed Conditions at Ox Mountain Sanitary Landfill

The proposed project would reconfigure the existing surface parking area at the Ox Mountain SL (to provide space for a new hauling maintenance structure, container storage, fleet vehicle parking, and CNG refueling. These facilities would be located near an existing structure used for office, dispatch, and training activities. The proposed approximately 1,600-square-foot hauling maintenance structure would consist of a steel frame with fabric skin and would be approximately 30 feet tall, 40 feet wide, and 40 feet long. The structure would rest on two 40-foot-long shipping containers that would also be used for the storage of hauling parts . A CNG connection would be located near the hauling maintenance structure. Employees would be able to refuel fleet vehicles at the landfill using the proposed CNG connection, mobile CNG station, and a temporary mobile tube trailer, which would hold the fuel. Under the proposed project, Allied Waste Services would store all trucks used for the fulfillment of the refuse contract at the Ox Mountain SL. As described in the Proposed Refuse Collection, Processing, and Disposal section above, Allied Waste Services plans to bring the trash they collect per the refuse contract to Recology's Transfer Station at 501 Tunnel Avenue. However, in the event this is not possible for any reason, Allied Waste Services may need to take the trash they collect to Ox Mountain SL for consolidation and then transport that trash to the Hay Road Landfill (see Table 2, Trash Alternative Activity Steps 2 and 3). If that alternative scenario occurs, the amount of trash Allied Waste Services consolidates at Ox Mountain SL is estimated to be approximately 42.5 tons per day. In either case, trash collected under the proposed project would be disposed of at the Recology Hay Road Landfill.

The proposed project would add approximately 19 new employees to the Ox Mountain SL. Up to 16 of those new employees would be drivers and would only be on-site one to three hours per day. The remaining three employees would be full-time on-site personnel, including an operations supervisor (50 percent of the time on-site and 50 percent of the time in the field), a logistical analyst, and one mechanic. It is assumed that these employees would drive via passenger vehicle to the Ox Mountain SL for their scheduled shift. Employees driving collection vehicles would pick up their collection vehicle at this site, operate their scheduled route, return the vehicle to this site at the end of their shift and then drive to their place of residence. Additionally, employees would operate support vehicles (see Table 1 for details about the proposed collection and support vehicles).

The construction of the hauling maintenance structure at Ox Mountain SL would entail trenching to install utility lines, such as those for electricity and plumbing. Excavation for the trenching would reach a maximum depth of 4 feet, a maximum length of 50 feet, and result in up to 10 cubic yards of soils disturbance. Trenching activities would occur on previously disturbed soil within the existing footprint

[16] The Ox Mountain SL is owned and operated by Browning-Ferris Industries of California (BFIC), Inc., which is a subsidiary of Republic Services, same as Allied Waste Services of North America, LLC.

[17] The solid waste facility permit was issued by the San Mateo County Environmental Health Services acting as the Local Enforcement Agency on June 6, 2017, under Facility Number 43-AN-0014.

[18] The waste discharge requirements permit was issued by the Regional Water Quality Control Board, San Francisco Bay Region on November 14, 2018, under Order R2-2018-0049.

[19] In addition to the two main permits, the Ox Mountain SL operates under a use permit (file no. 97-0054), a coastal development permit (file no. CDP 97-0054), and a grading permit (file no. GRD 91-0015), which were approved by the San Mateo County Planning Commission on March 10, 1999.

of the Ox Mountain SL. Any excavated soil would remain at the Ox Mountain SL. Trenching is anticipated to occur in March 2024 and would last 1 day. No other construction activities are proposed at Ox Mountain SL. As construction activities would be short-term (one day) and would not require extensive soil movement or additional phasing, construction air quality impacts will be qualitatively analyzed.

Methods for Qualitative Analysis and Quantitative Modeling

Construction

The proposed Project will require approximately 50 feet of trenching during a single day of construction (1) to install utilities to support the new modular structure. It is anticipated that all soil excavated during trenching, approximately 10 cubic yards, will be rebalanced onsite. No other construction activities are proposed as part of the Project.

As construction activities would be short-term (one day) and would not require any extensive soil movement or additional phasing, construction air quality impacts will be qualitatively analyzed.

Operations

The Project would generate ozone precursor and criteria pollutant emissions from the combustion of CNG/LNG/Biomethane from the refuse collection vehicles and diesel fuel from the TT and maintenance/delivery vehicles. The Project would also generate criteria pollutant emissions from operation of a modular light industrial structure and maintenance area, and employee vehicle trips to this light industrial structure.[20] Operational ozone precursor and criteria pollutant emissions from these sources will be estimated using the California Air Resources Board (CARB) 2021 EMission FACtor Model (EMFAC2021) [21], CalEEMod version 2022, and the United States Environmental Protection Agency (EPA) AP-42. The specific pollutants to be modeled are reactive organic gases (ROG), nitrogen oxides (NOx), and particulate matter (PM10 and PM2.5).

The modeling assumptions for the Project are summarized below and included in Attachment A.

Refuse Collection and Support Vehicles. Allied (Applicant) provided annual VMT for the 15 refuse collection and support vehicles, as defined above. The VMT data assumes that all vehicle trips would start and end at the Ox Mountain facility, located in Half Moon Bay, with the exception of the one tractor trailer that would transport compost between the Contra Costa Transfer and Recovery Station and the EBMUD anaerobic digester. The analysis will assume that only CNG/LNG/Biomethane or diesel powered vehicles will operate as part of the Project. It is likely a certain number of electric powered vehicles will be integrated into the Project fleet by January 1, 2027, or at the very least, newer model-year vehicles would be procured. Electric vehicles would have no direct emissions and newer vehicles would emit less emissions due to CARB's Advanced Clean Cars II (ACC II) regulations requiring higher fuel efficiency and increasingly more stringent

[20] According to email communications with Annie Allen at the Bay Area Air Quality Management District (BAAQMD) on August 10, 2023, the mobile CNG refueling station would not have any evaporative criteria air pollutant emissions and would not need to be permitted.

[21] EMFAC2021 includes the latest data on California's car and truck population, activity, and emission testing. The EMFAC2021 model is needed to support CARB's planning and policy development efforts and to meet the Federal Highway Administration's transportation conformity requirements.

emissions standards.[22] Thus, actual emissions generated by the Project are likely to be lower than quantified for this analysis.

Vehicle exhaust, brake, and tire-wear emissions will be quantified by multiplying the annual Project VMT by emission factors derived from EMFAC2021 for the appropriate vehicle categories and model years, as defined below.[23] All EMFAC2021 emission factors will be developed for calendar year 2024 for San Francsico County.

Refuse Collection Vehicles

- T7 SWCV Class 8 – Natural Gas: Heavy-Heavy Duty Solid Waste Collection Truck (Gross vehicle Weight Rating [GVWR] 33001 lbs and over) – Engine Model Year 2019.

Tractor Trailer

- T7 Tractor Class 8 – Diesel Fuel: Heavy-Heavy Duty Tractor Truck (GVWR 33001 lbs and over) – Engine Model Year 2022.

Maintenance and Delivery Vehicles

- T6 Utility Class 6 – Diesel Fuel: Medium-Heavy Duty Utility Fleet Truck (GVWR 19501 – 26000 lbs) – Engine Model Year 2017.

Table 3 below provides a summary of the vehicle type, engine model year, vehicle class and VMT to be assumed in the analysis based on the project description provided above and in Attachment A.

Table 3 - Fleet and VMT Assumptions

Vehicle /Fuel Type	Engine Model Year	Assigned Vehicle Class	# Vehicles	Total Weekly VMT	Total Annual VMT
CO CNG/LNG/ Biomethane SWCV	2019	T7 SWCV Class 8 – Natural Gas: Heavy-Heavy Duty Solid Waste Collection Truck	11	7,148	371,708
Diesel Tractor Trailer	2019	T7 Tractor Class 8 – Diesel Fuel: Heavy-Heavy Duty Tractor Truck	3	1,782	92,681
Diesel Support Vehicles	2017	T6 Utility Class 6 – Diesel Fuel: Medium-Heavy Duty Utility Fleet Truck	3	64	3,343

Notes:
CO = Commercial Organics
CNG = Compressed Natural Gas
LNG = Liquified Natural Gas

[22] California Air Resources Board. 2022. *Proposed Advanced Clean Cars II (ACC II) Regulations*. November 2022. Available: https://ww2.arb.ca.gov/rulemaking/2022/advanced-clean-cars-ii. Accessed September 2023.

[23] California Air Resources Board. 2021. *EMFAC2021 – Volume I – User's Guide: Appendix 4 Vehicle Categories*. January 15. Available: https://ww2.arb.ca.gov/sites/default/files/2021-01/EMFAC202x_Users_Guide_01112021_final.pdf. Accessed August 2023.

Vehicle /Fuel Type	Engine Model Year	Assigned Vehicle Class	# Vehicles	Total Weekly VMT	Total Annual VMT
SWCV = Solid Waste Collection Vehicle					

Fugitive dust emissions from vehicle travel will be quantified by multiplying the annual Project VMT by emission factors derived from the EPA's AP-42 Section 13.2.1.[24] The analysis will use assumptions from Table 13.2.1-1 and the formula from Section 13.2.1.3. An average vehicle weight of 16.5 tons (weight of the refuse vehicles) and 41 wet days will be used in the formula.

Estimated annual criteria pollutant emissions will be divided by 249 workdays per year to quantify average daily emissions. This annualization value assumes Project vehicles will operate 5-days week, 52 weeks per year, except on the City's eleven (11) holidays.[25,26]

Light Industrial Structure and Maintenance Area. The modular 1,600 square foot light industrial structure and maintenance area would generate emissions from employee vehicle trips and area sources.[27] Emissions calculations for both sources are discussed below.

Employee Vehicle Trips. Emissions from employee vehicle trips will be modeled in CalEEMod based on the number of employees at the new modular light industrial structure and maintenance area located at Ox Mountain in Half Moon Bay, and CalEEMod default trip lengths. The proposed Project is expected to have approximately 19 employees on-site. Each employee will be assumed to make two (2) one-way trips per day to the building, for a total of 38 trips per day. The emissions modeling will apply the CalEEMod default trip length for Traffic Analysis Zone (TAZ) 1210 in Half Moon Bay, where Ox Mountain is located, which is 16.31 miles one-way, and the default vehicle fleet mix (e.g., light-duty autos and light-duty trucks).

Area Sources. Emissions from area sources will be modeled in CalEEMod based off the modular light industrial structure's total square footage (1,600 square feet[28]) and CalEEMod defaults for architectural coatings re-application (assumed to be 10 percent of the total coated interior and exterior area of the building). This source category will also include the CalEEMod default use of landscaping equipment (180 summer days per year).

[24] United States Environmental Protection Agency. 2006. *AP-42 Chapter 13: 13.2.1 Paved Roads*. November. Available: https://www3.epa.gov/ttn/chief/ap42/ch13/final/c13s0201.pdf. Accessed August 2023.

[25] City and County of San Francisco. 2023. *City and County of San Francisco Holiday Schedule*. Available: https://sf.gov/information/city-and-county-san-francisco-holiday-schedule. Accessed August 2023.

[26] It is conservative to assume less operational days per year as this increases the average daily emissions. If the Project were to operate for more than 249 days per year, the Project would result in lower average daily emissions.

[27] All space heating for the proposed light industrial structure would be electric.

[28] A 3,700-square-foot structure was modeled in CalEEMod. Since this is larger than the proposed 1,600-square-foot structure proposed, the area source emissions are higher than what is proposed and therefore represents a conservative estimate of emissions.

Attachment A. Project Data Provided by Applicant

Attachment A
Allied Waste Services of North America
City of San Francisco Facilities Services

1. Fleet Data

The upgraded fleet to be used under the City contract would consist of nine collection vehicles plus one to two roll-off (R/O) vehicles: three CNG/LNG/Biomethane-powered or electric Commercial Mixed Recycling (CFM) vehicles to be used for a combined total of approximately 2,433 miles/week & 17 disposal trips; three CNG/LNG/Biomethane-powered Trash/Mixed Solid Waste (CFL) vehicles to be used for a combined total of approximately 1,427 miles/week & 22 disposal trips, and three Commercial Organics (CFR) CNG/LNG/Biomethane-powered vehicles to be used for a combined total of approximately 2670 miles/week & 43 disposal trips. Details of these projections, based on the route information that follows, is provided below. The CNG/LNG/Biomethane engines would be L9N or equivalent. No diesel vehicles would be used for the main collection portion of the fleet. However, some diesel support vehicles must be used as they are not commercially available for the start of the contract. Additionally, three transfer Tractor and Trailers (TT) will be used to transport consolidated loads of recycling from Ox Mountain landfill to The Recyclery at Newby Island. It should be assumed that the tractor trailers will be of L9N (equivalent) or Electric.

Fleet acquisition will commence in 2024, in order to meet potential contract start dates, existing CNG vehicles (2019 or newer) will be transferred in from other divisions. These vehicles will be replaced with new 2023 or newer model years as they become available. CNG vehicles are planned to be replaced by electric vehicles as early as possible and feasible, depending on permitting and on vehicle and infrastructure availability. As of February 2023, the fleet consists of ten vehicles, three of the Cummins engine model ISL and seven of Cummins ISL-G.

Estimated Annual Total Route Miles Ox Mtn. -San Francisco-San Mateo – Santa Clara (Upgraded Fleet)					
Engine Model Year	**Route Type**	**Weekly Miles**	**Annual Miles**	**Vehicle Fuel/Power Type**	**Vehicle Qty**
2019	CFL	1,426	74,167	CNG	3
2019	CFM	2,433	126,533	CNG or Electric	3
2019	CFR	2,670	138,820	CNG	3
2019	R/O	619	32,188	CNG	1 to 2
2022	TT	1,782	92,681	Diesel	3
2017	Cont. Delivery	26	1,353	Diesel	1
2017	Stinger	12	641	Diesel	1
2017	Maintenance	26	1,349	Diesel	1

There would be very few instances of these vehicles making repeated pass-bys of any one location on the same day. This is due to our route optimization planning in advance, which creates route maps for the drivers to follow that plans for the most efficient routing, minimizing impacts to the streets and traffic. Our routing takes into consideration traffic patterns and safety concerns. However, it should be noted that since different vehicles will be collecting trash, recycling, and organics, so if a site has all three being serviced on the same day due to their schedule, then multiple vehicles would be stopping at that location on the same day.

Attachment B. Modeling Results

Regional Emissions - Opening Year 2024

	Average Daily (lbs/day)							
Source	**ROG**	**NOX**	**PM10 Fugitive**	**PM10 Exhaust**	**PM10 Total**	**PM2.5 Fugitive**	**PM2.5 Exhaust**	**PM2.5 Total**
Refuse Collection Vehicles and Maintenance Trucks - Mobile Emissions	0.04	2.03	8.79	0.02	8.81	2.27	0.02	2.29
Onsite Employees - Mobile Emissions	0.12	0.13	0.34	< 0.005	0.35	0.09	< 0.005	0.09
Building - Area Source Emissions	0.12	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005
Average Daily Emissions (lb/day)	**0.28**	**2.16**	**9.13**	**0.02**	**9.16**	**2.36**	**0.02**	**2.38**

Regional Emissions - Opening Year 2024

	Maxmimum Annual Emissions (tons per year)							
Source	**ROG**	**NOX**	**PM10 Fugitive**	**PM10 Exhaust**	**PM10 Total**	**PM2.5 Fugitive**	**PM2.5 Exhaust**	**PM2.5 Total**
Refuse Collection Vehicles and Maintenance Trucks - Mobile Emissions	0.004	0.25	1.09	0.002	1.10	0.28	0.002	0.29
Onsite Employees - Mobile Emissions	0.02	0.02	0.04	< 0.005	0.04	0.01	< 0.005	0.01
Building - Area Source Emissions	0.02	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005
Maximum Annual Emissions (tons per year)	**0.04**	**0.27**	**1.13**	**0.00**	**1.14**	**0.29**	**0.00**	**0.30**

Refuse Collection Mobile Emissions

Phase Name	Model Year	# of Vehicles	AVG VMT per vehicle per week[1]	VMT per vehicle per year	Total Annual VMT	Running Exhaust Emission Factor (g/mile) ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total
Refuse Collection Trucks - CNG	2019	11	650	33,792	371,708	0.001	0.09	9.05	0.000	2.15	0.001	2.15	0.56	0.001	0.56
Maintenance/ Delivery Trucks - Diesel	2017	3	21	1,109	3,343	0.01	0.27	0.04	0.01	1.96	0.002	1.96	0.50	0.002	0.50
Tractor Trailer Truck - Diesel	2023	3	594	30,894	92,681	0.01	1.03	0.04	0.01	2.02	0.02	2.03	0.51	0.02	0.53

1. Average distance per vehicle class per week.

2.T7 SWCV Class 8 NG only have Idlex non-running emission factors that are based on vehicles per day, not trips.
Diesel NOx STREX emissions from diesel vehicles were converted to g/vehicle/day by using 14.53 trips per vehicle from EMFAC2021 for Tractor Trailers.

3. Assumed 52 weeks of operations. 5 days a week. 249 days a year (11 holidays).

4. Solid Waste Collection Vehicles are MY2019, Tractor Trailer is MY2022, and Maintenance Trucks are MY2017.

Refuse Collection Mobile Emissions

Phase Name	Model Year	# of Vehicles	AVG VMT per vehicle per week[1]	VMT per vehicle per year	Total Annual VMT	Non-Running Emission Factors (g/vehicle/day)[2] ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total
Refuse Collection Trucks - CNG	2019	11	650	33,792	371,708	0.027	0.129	33.391	0.000	0.000	0.001	0.001	0.000	0.001	0.001
Maintenance/ Delivery Trucks - Diesel	2017	3	21	1,109	3,343	0.136	28.480	5.741	0.015	0.000	0.002	0.002	0.000	0.002	0.002
Tractor Trailer Truck - Diesel	2023	3	594	30,894	92,681	3.456	104.473	51.070	0.068	0.000	0.015	0.015	0.000	0.014	0.014

1. Average distance per vehicle class per week.

2.T7 SWCV Class 8 NG only have Idlex non-running emission factors that are based on vehicles per day, not trips.

Diesel NOx STREX emissions from diesel vehicles were converted to g/vehicle/day by using 14.53 trips per vehicle from EMFAC2021 for Tractor Trailers.

3. Assumed 52 weeks of operations. 5 days a week. 249 days a year (11 holidays).

4. Solid Waste Collection Vehicles are MY2019, Tractor Trailer is MY2022, and Maintenance Trucks are MY2017.

Refuse Collection Mobile Emissions

Phase Name	Model Year	# of Vehicles	AVG VMT per vehicle per week[1]	VMT per vehicle per year	Total Annual VMT	Emissions (lb/year) ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total
Refuse Collection Trucks - CNG	2019	11	650	33,792	371,708	1.17	73.53	7616.04	0.00	1762.42	0.95	1763.38	457.82	0.88	458.69
Maintenance/ Delivery Trucks - Diesel	2017	3	21	1,109	3,343	0.26	48.86	9.72	0.11	14.40	0.02	14.42	3.63	0.02	3.65
Tractor Trailer Truck - Diesel	2023	3	594	30,894	92,681	7.44	382.09	92.22	2.85	412.55	3.24	415.78	104.74	3.10	107.83

1. Average distance per vehicle class per week.

2.T7 SWCV Class 8 NG only have Idlex non-running emission factors that are based on vehicles per day, not trips.

Diesel NOx STREX emissions from diesel vehicles were converted to g/vehicle/day by using 14.53 trips per vehicle from EMFAC2021 for Tractor Trailers.

3. Assumed 52 weeks of operations. 5 days a week. 249 days a year (11 holidays).

4. Solid Waste Collection Vehicles are MY2019, Tractor Trailer is MY2022, and Maintenance Trucks are MY2017.

Refuse Collection Mobile Emissions

Phase Name	Model Year	# of Vehicles	AVG VMT per vehicle per week[1]	VMT per vehicle per year	Total Annual VMT	Emissions (avg lb/day) ROG	NO_X	CO	SO_X	PM_{10} Fugitive	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Fugitive	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total
Refuse Collection Trucks - CNG	2019	11	650	33,792	371,708	0.00	0.30	30.59	0.00	7.08	0.00	7.08	1.84	0.00	1.84
Maintenance/ Delivery Trucks - Diesel	2017	3	21	1,109	3,343	0.00	0.20	0.04	0.00	0.06	0.00	0.06	0.01	0.00	0.01
Tractor Trailer Truck - Diesel	2023	3	594	30,894	92,681	0.03	1.53	0.37	0.01	1.66	0.01	1.67	0.42	0.01	0.43

1. Average distance per vehicle class per week.
2.T7 SWCV Class 8 NG only have Idlex non-running emission factors that are based on vehicles per day, not trips.
Diesel NOx STREX emissions from diesel vehicles were converted to g/vehicle/day by using 14.53 trips per vehicle from EMFAC2021 for Tractor Trailers.
3. Assumed 52 weeks of operations. 5 days a week. 249 days a year (11 holidays).
4. Solid Waste Collection Vehicles are MY2019, Tractor Trailer is MY2022, and Maintenance Trucks are MY2017.

Region	San Francisco Bay Area
Model Year	2019
Speed	Aggregate

			Emission Rate (g/mi)			
Row Labels	**Vehicle Category**	**Fuel**	**Sum of ROG_RUNEX**	**Sum of NOx_RUNEX**	**Sum of CO_RUNEX**	**Sum of SOx_RUNEX**
2024	**T7 SWCV Class 8**	Natural Gas	0.001235024	0.088780904	9.047693227	0
2025	**T7 SWCV Class 8**	Natural Gas	0.001235024	0.088780902	9.047693227	0
2026	**T7 SWCV Class 8**	Natural Gas	0.001235024	0.0887809	9.047693227	0
2027	**T7 SWCV Class 8**	Natural Gas	0.001235024	0.088780899	9.047693227	0
2028	**T7 SWCV Class 8**	Natural Gas	0.001235024	0.088780897	9.047693227	0
2029	**T7 SWCV Class 8**	Natural Gas	0.001235024	0.088780896	9.047693227	0
2030	**T7 SWCV Class 8**	Natural Gas	0.001235024	0.088780887	9.047693227	0

Emission Rate (g/mi)			
ROG_RUNEX	**NOx_RUNEX**	**CO_RUNEX**	**SOx_RUNEX**
0.001235024	0.088780904	9.047693227	0
0.001235024	0.088780902	9.047693227	0
0.001235024	0.0887809	9.047693227	0
0.001235024	0.088780899	9.047693227	0
0.001235024	0.088780897	9.047693227	0
0.001235024	0.088780896	9.047693227	0
0.001235024	0.088780887	9.047693227	0

Region	San Francisco Bay Area
Model Year	2019
Speed	Aggregate

			Emission Rate (g/mi)			
Row Labels	**Vehicle Category**	**Fuel**	**Sum of PM10_PMTW**	**Sum of PM10_PMBW**	**Sum of PM10_RUNEX**	**Sum of PM2.5_PMTW**
2024	**T7 SWCV Class 8**	Natural Gas	0.03600001	0.21000006	0.001153612	0.009000003
2025	**T7 SWCV Class 8**	Natural Gas	0.03600001	0.21000006	0.001153612	0.009000003
2026	**T7 SWCV Class 8**	Natural Gas	0.03600001	0.21000006	0.001153612	0.009000003
2027	**T7 SWCV Class 8**	Natural Gas	0.03600001	0.21000006	0.001153612	0.009000003
2028	**T7 SWCV Class 8**	Natural Gas	0.03600001	0.21000006	0.001153612	0.009000003
2029	**T7 SWCV Class 8**	Natural Gas	0.03600001	0.21000006	0.001153612	0.009000003
2030	**T7 SWCV Class 8**	Natural Gas	0.03600001	0.21000006	0.001153612	0.009000003

Emission Rate (g/mi)			
PM10_PMTW	**PM10_PMBW**	**PM10_RUNEX**	**PM2.5_PMTW**
0.03600001	0.21000006	0.001153612	0.009000003
0.03600001	0.21000006	0.001153612	0.009000003
0.03600001	0.21000006	0.001153612	0.009000003
0.03600001	0.21000006	0.001153612	0.009000003
0.03600001	0.21000006	0.001153612	0.009000003
0.03600001	0.21000006	0.001153612	0.009000003
0.03600001	0.21000006	0.001153612	0.009000003

Region	San Francisco Bay Area
Model Year	2019
Speed	Aggregate

			Emission Rate (g/mi)			
Row Labels	Vehicle Category	Fuel	Sum of PM2.5_PMBW	Sum of PM2.5_RUNEX	Sum of CO2_RUNEX	Sum of CH4_RUNEX
2024	T7 SWCV Class 8	Natural Gas	0.073500021	0.001060704	1466.7385	0.086437691
2025	T7 SWCV Class 8	Natural Gas	0.073500021	0.001060704	1466.7385	0.086437691
2026	T7 SWCV Class 8	Natural Gas	0.073500021	0.001060704	1466.7385	0.086437691
2027	T7 SWCV Class 8	Natural Gas	0.073500021	0.001060704	1466.7385	0.086437691
2028	T7 SWCV Class 8	Natural Gas	0.073500021	0.001060704	1466.7385	0.086437691
2029	T7 SWCV Class 8	Natural Gas	0.073500021	0.001060704	1466.7385	0.086437691
2030	T7 SWCV Class 8	Natural Gas	0.073500021	0.001060704	1466.7385	0.086437691

Emission Rate (g/mi)			
PM2.5_PMBW	PM2.5_RUNEX	CO2_RUNEX	CH4_RUNEX
0.073500021	0.001060704	1466.7385	0.086437691
0.073500021	0.001060704	1466.7385	0.086437691
0.073500021	0.001060704	1466.7385	0.086437691
0.073500021	0.001060704	1466.7385	0.086437691
0.073500021	0.001060704	1466.7385	0.086437691
0.073500021	0.001060704	1466.7385	0.086437691
0.073500021	0.001060704	1466.7385	0.086437691

Region	San Francisco Bay Area
Model Year	2019
Speed	Aggregate

			Emission Rate (g/mi)	
Row Labels	**Vehicle Category**	**Fuel**	**Sum of N2O_RUNEX**	**Sum of TOG_RUNEX**
2024	**T7 SWCV Class 8**	Natural Gas	0.299004238	0.088216003
2025	**T7 SWCV Class 8**	Natural Gas	0.299004238	0.088216003
2026	**T7 SWCV Class 8**	Natural Gas	0.299004238	0.088216003
2027	**T7 SWCV Class 8**	Natural Gas	0.299004238	0.088216003
2028	**T7 SWCV Class 8**	Natural Gas	0.299004238	0.088216003
2029	**T7 SWCV Class 8**	Natural Gas	0.299004238	0.088216003
2030	**T7 SWCV Class 8**	Natural Gas	0.299004238	0.088216003

Emission Rate (g/mi)	
N2O_RUNEX	**TOG_RUNEX**
0.299004238	0.088216003
0.299004238	0.088216003
0.299004238	0.088216003
0.299004238	0.088216003
0.299004238	0.088216003
0.299004238	0.088216003
0.299004238	0.088216003

Region	San Francisco Bay Area
Model Year	2019
Speed	Aggregate

			Emission Rate (g/vehicle/day)				
Row Labels	**Vehicle Category**	**Fuel**	**Sum of ROG_IDLEX**	**Sum of NOx_IDLEX**	**Sum of CO_IDLEX**	**Sum of SOx_IDLEX**	**Sum of PM10_IDLEX**
2024	**T7 SWCV Class 8**	Natural Gas	0.026756834	0.128922732	33.39102879	0	0.001446195
2025	**T7 SWCV Class 8**	Natural Gas	0.026756834	0.128922732	33.39102879	0	0.001446195
2026	**T7 SWCV Class 8**	Natural Gas	0.026756834	0.128922732	33.39102879	0	0.001446195
2027	**T7 SWCV Class 8**	Natural Gas	0.026756834	0.128922732	33.39102879	0	0.001446195
2028	**T7 SWCV Class 8**	Natural Gas	0.026756834	0.128922732	33.39102879	0	0.001446195
2029	**T7 SWCV Class 8**	Natural Gas	0.026756834	0.128922732	33.39102879	0	0.001446195
2030	**T7 SWCV Class 8**	Natural Gas	0.026756834	0.128922732	33.39102879	0	0.001446195

Emission Rate (g/vehicle/day)				
ROG_IDLEX	**NOx_IDLEX**	**CO_IDLEX**	**SOx_IDLEX**	**PM10_IDLEX**
0.026756834	0.128922732	33.39102879	0	0.001446195
0.026756834	0.128922732	33.39102879	0	0.001446195
0.026756834	0.128922732	33.39102879	0	0.001446195
0.026756834	0.128922732	33.39102879	0	0.001446195
0.026756834	0.128922732	33.39102879	0	0.001446195
0.026756834	0.128922732	33.39102879	0	0.001446195
0.026756834	0.128922732	33.39102879	0	0.001446195

Region	San Francisco Bay Area
Model Year	2019
Speed	Aggregate

			Emission Rate (g/vehicle/day)				
Row Labels	Vehicle Category	Fuel	Sum of PM2.5_IDLEX	Sum of CO2_IDLEX	Sum of CH4_IDLEX	Sum of N2O_IDLEX	Sum of TOG_IDLEX
2024	T7 SWCV Class 8	Natural Gas	0.001329723	7136.462066	1.872675207	1.454814477	1.911202405
2025	T7 SWCV Class 8	Natural Gas	0.001329723	7136.462066	1.872675207	1.454814477	1.911202405
2026	T7 SWCV Class 8	Natural Gas	0.001329723	7136.462066	1.872675207	1.454814477	1.911202405
2027	T7 SWCV Class 8	Natural Gas	0.001329723	7136.462066	1.872675207	1.454814477	1.911202405
2028	T7 SWCV Class 8	Natural Gas	0.001329723	7136.462066	1.872675207	1.454814477	1.911202405
2029	T7 SWCV Class 8	Natural Gas	0.001329723	7136.462066	1.872675207	1.454814477	1.911202405
2030	T7 SWCV Class 8	Natural Gas	0.001329723	7136.462066	1.872675207	1.454814477	1.911202405

Emission Rate (g/vehicle/day)				
PM2.5_IDLEX	CO2_IDLEX	CH4_IDLEX	N2O_IDLEX	TOG_IDLEX
0.001329723	7136.462066	1.872675207	1.454814477	1.911202405
0.001329723	7136.462066	1.872675207	1.454814477	1.911202405
0.001329723	7136.462066	1.872675207	1.454814477	1.911202405
0.001329723	7136.462066	1.872675207	1.454814477	1.911202405
0.001329723	7136.462066	1.872675207	1.454814477	1.911202405
0.001329723	7136.462066	1.872675207	1.454814477	1.911202405
0.001329723	7136.462066	1.872675207	1.454814477	1.911202405

Region	San Francisco Bay Area
Model Year	2022
Speed	Aggregate

			Emission Rate (g/mi)			
Row Labels	**Vehicle Category**	**Fuel**	**Sum of ROG_RUNEX**	**Sum of NOx_RUNEX**	**Sum of CO_RUNEX**	**Sum of SOx_RUNEX**
2024	**T7 Tractor Class 8**	Diesel	0.008559277	1.027939547	0.039714001	0.013377367
2025	**T7 Tractor Class 8**	Diesel	0.008886178	1.098637716	0.041230781	0.013377367
2026	**T7 Tractor Class 8**	Diesel	0.009190842	1.156475059	0.042644384	0.013377367
2027	**T7 Tractor Class 8**	Diesel	0.009473269	1.204945475	0.043954811	0.013377367
2028	**T7 Tractor Class 8**	Diesel	0.009733459	1.24613466	0.045162062	0.013377367
2029	**T7 Tractor Class 8**	Diesel	0.009971413	1.281396792	0.046266137	0.013377367
2030	**T7 Tractor Class 8**	Diesel	0.010187129	1.31166317	0.047267035	0.013377367

Emission Rate (g/mi)			
ROG_RUNEX	**NOx_RUNEX**	**CO_RUNEX**	**SOx_RUNEX**
0.008559277	1.027939547	0.039714001	0.013377367
0.008886178	1.098637716	0.041230781	0.013377367
0.009190842	1.156475059	0.042644384	0.013377367
0.009473269	1.204945475	0.043954811	0.013377367
0.009733459	1.24613466	0.045162062	0.013377367
0.009971413	1.281396792	0.046266137	0.013377367
0.010187129	1.31166317	0.047267035	0.013377367

Region	San Francisco Bay Area
Model Year	2022
Speed	Aggregate

			Emission Rate (g/mi)			
Row Labels	**Vehicle Category**	**Fuel**	**Sum of PM10_PMTW**	**Sum of PM10_PMBW**	**Sum of PM10_RUNEX**	**Sum of PM2.5_PMTW**
2024	**T7 Tractor Class 8**	Diesel	0.03600001	0.078374803	0.015721689	0.009000003
2025	**T7 Tractor Class 8**	Diesel	0.03600001	0.078374803	0.017024024	0.009000003
2026	**T7 Tractor Class 8**	Diesel	0.03600001	0.078374803	0.018318998	0.009000003
2027	**T7 Tractor Class 8**	Diesel	0.03600001	0.078374803	0.019519454	0.009000003
2028	**T7 Tractor Class 8**	Diesel	0.03600001	0.078374803	0.020625392	0.009000003
2029	**T7 Tractor Class 8**	Diesel	0.03600001	0.078374803	0.021636812	0.009000003
2030	**T7 Tractor Class 8**	Diesel	0.03600001	0.078374803	0.022553715	0.009000003

Emission Rate (g/mi)			
PM10_PMTW	**PM10_PMBW**	**PM10_RUNEX**	**PM2.5_PMTW**
0.03600001	0.078374803	0.015721689	0.009000003
0.03600001	0.078374803	0.017024024	0.009000003
0.03600001	0.078374803	0.018318998	0.009000003
0.03600001	0.078374803	0.019519454	0.009000003
0.03600001	0.078374803	0.020625392	0.009000003
0.03600001	0.078374803	0.021636812	0.009000003
0.03600001	0.078374803	0.022553715	0.009000003

Region	San Francisco Bay Area
Model Year	2022
Speed	Aggregate

			Emission Rate (g/mi)			
Row Labels	**Vehicle Category**	**Fuel**	**Sum of PM2.5_PMBW**	**Sum of PM2.5_RUNEX**	**Sum of CO2_RUNEX**	**Sum of CH4_RUNEX**
2024	**T7 Tractor Class 8**	Diesel	0.027431181	0.015041576	1412.693925	0.000397556
2025	**T7 Tractor Class 8**	Diesel	0.027431181	0.016287572	1412.693925	0.00041274
2026	**T7 Tractor Class 8**	Diesel	0.027431181	0.017526526	1412.693925	0.000426891
2027	**T7 Tractor Class 8**	Diesel	0.027431181	0.018675051	1412.693925	0.000440009
2028	**T7 Tractor Class 8**	Diesel	0.027431181	0.019733147	1412.693925	0.000452094
2029	**T7 Tractor Class 8**	Diesel	0.027431181	0.020700813	1412.693925	0.000463146
2030	**T7 Tractor Class 8**	Diesel	0.027431181	0.021578051	1412.693925	0.000473166

Emission Rate (g/mi)			
PM2.5_PMBW	**PM2.5_RUNEX**	**CO2_RUNEX**	**CH4_RUNEX**
0.027431181	0.015041576	1412.693925	0.000397556
0.027431181	0.016287572	1412.693925	0.00041274
0.027431181	0.017526526	1412.693925	0.000426891
0.027431181	0.018675051	1412.693925	0.000440009
0.027431181	0.019733147	1412.693925	0.000452094
0.027431181	0.020700813	1412.693925	0.000463146
0.027431181	0.021578051	1412.693925	0.000473166

Region	San Francisco Bay Area
Model Year	2022
Speed	Aggregate

			Emission Rate (g/mi)		
Row Labels	**Vehicle Category**	**Fuel**	**Sum of N2O_RUNEX**	**Sum of TOG_RUNEX**	**Sum of NOx_STREX**
2024	**T7 Tractor Class 8**	Diesel	0.222570503	0.009744086	4.379184731
2025	**T7 Tractor Class 8**	Diesel	0.222570503	0.010116237	4.379184731
2026	**T7 Tractor Class 8**	Diesel	0.222570503	0.010463074	4.379184731
2027	**T7 Tractor Class 8**	Diesel	0.222570503	0.010784596	4.379184731
2028	**T7 Tractor Class 8**	Diesel	0.222570503	0.011080803	4.379184731
2029	**T7 Tractor Class 8**	Diesel	0.222570503	0.011351694	4.379184731
2030	**T7 Tractor Class 8**	Diesel	0.222570503	0.011597271	4.379184731

Emission Rate (g/mi)		
N2O_RUNEX	**TOG_RUNEX**	**NOX_STREX**
0.222570503	0.009744086	4.379184731
0.222570503	0.010116237	4.379184731
0.222570503	0.010463074	4.379184731
0.222570503	0.010784596	4.379184731
0.222570503	0.011080803	4.379184731
0.222570503	0.011351694	4.379184731
0.222570503	0.011597271	4.379184731

Region	San Francisco Bay Area
Model Year	2022
Speed	Aggregate

			Emission Rate (g/vehicle/day)			
Row Labels	**Vehicle Category**	**Fuel**	**Sum of ROG_IDLEX**	**Sum of NOx_IDLEX**	**Sum of CO_IDLEX**	**Sum of SOx_IDLEX**
2024	**T7 Tractor Class 8**	Diesel	3.456342696	40.84338337	51.07029647	0.068352215
2025	**T7 Tractor Class 8**	Diesel	3.456342696	40.84338337	51.07029647	0.068352215
2026	**T7 Tractor Class 8**	Diesel	3.456342696	40.84338337	51.07029647	0.068352215
2027	**T7 Tractor Class 8**	Diesel	3.456342696	40.84338337	51.07029647	0.068352215
2028	**T7 Tractor Class 8**	Diesel	3.456342696	40.84338337	51.07029647	0.068352215
2029	**T7 Tractor Class 8**	Diesel	3.456342696	40.84338337	51.07029647	0.068352215
2030	**T7 Tractor Class 8**	Diesel	3.456342696	40.84338337	51.07029647	0.068352215

Emission Rate (g/vehicle/day)			
ROG_IDLEX	**NOx_IDLEX**	**CO_IDLEX**	**SOx_IDLEX**
3.456342696	40.84338337	51.07029647	0.068352215
3.456342696	40.84338337	51.07029647	0.068352215
3.456342696	40.84338337	51.07029647	0.068352215
3.456342696	40.84338337	51.07029647	0.068352215
3.456342696	40.84338337	51.07029647	0.068352215
3.456342696	40.84338337	51.07029647	0.068352215
3.456342696	40.84338337	51.07029647	0.068352215

Region	San Francisco Bay Area
Model Year	2022
Speed	Aggregate

			Emission Rate (g/vehicle/day)				
Row Labels	**Vehicle Category**	**Fuel**	**Sum of PM10_IDLEX**	**Sum of PM2.5_IDLEX**	**Sum of CO2_IDLEX**	**Sum of CH4_IDLEX**	**Sum of N2O_IDLEX**
2024	**T7 Tractor Class 8**	Diesel	0.014709587	0.014073256	7218.21878	0.160538166	1.137233308
2025	**T7 Tractor Class 8**	Diesel	0.014709587	0.014073256	7218.21878	0.160538166	1.137233308
2026	**T7 Tractor Class 8**	Diesel	0.014709587	0.014073256	7218.21878	0.160538166	1.137233308
2027	**T7 Tractor Class 8**	Diesel	0.014709587	0.014073256	7218.21878	0.160538166	1.137233308
2028	**T7 Tractor Class 8**	Diesel	0.014709587	0.014073256	7218.21878	0.160538166	1.137233308
2029	**T7 Tractor Class 8**	Diesel	0.014709587	0.014073256	7218.21878	0.160538166	1.137233308
2030	**T7 Tractor Class 8**	Diesel	0.014709587	0.014073256	7218.21878	0.160538166	1.137233308

Emission Rate (g/vehicle/day)				
PM10_IDLEX	**PM2.5_IDLEX**	**CO2_IDLEX**	**CH4_IDLEX**	**N2O_IDLEX**
0.014709587	0.014073256	7218.21878	0.160538166	1.137233308
0.014709587	0.014073256	7218.21878	0.160538166	1.137233308
0.014709587	0.014073256	7218.21878	0.160538166	1.137233308
0.014709587	0.014073256	7218.21878	0.160538166	1.137233308
0.014709587	0.014073256	7218.21878	0.160538166	1.137233308
0.014709587	0.014073256	7218.21878	0.160538166	1.137233308
0.014709587	0.014073256	7218.21878	0.160538166	1.137233308

Region	San Francisco Bay Area
Model Year	2017
Speed	Aggregate

			Emission Rate (g/mi)			
Row Labels	**Vehicle Category**	**Fuel**	**Sum of ROG_RUNEX**	**Sum of NOx_RUNEX**	**Sum of CO_RUNEX**	**Sum of SOx_RUNEX**
2024	**T6 Utility Class 6**	Diesel	0.00516012	0.26720446	0.036035379	0.011186045
2025	**T6 Utility Class 6**	Diesel	0.005263347	0.274495016	0.036756255	0.011186045
2026	**T6 Utility Class 6**	Diesel	0.005364542	0.281193269	0.037462946	0.011186045
2027	**T6 Utility Class 6**	Diesel	0.005463689	0.287387975	0.038155334	0.011186045
2028	**T6 Utility Class 6**	Diesel	0.005560788	0.293148199	0.03883342	0.011186045
2029	**T6 Utility Class 6**	Diesel	0.005655856	0.298529198	0.03949732	0.011186045
2030	**T6 Utility Class 6**	Diesel	0.005748876	0.303573574	0.040146917	0.011186045

Emission Rate (g/mi)			
ROG_RUNEX	**NOx_RUNEX**	**CO_RUNEX**	**SOx_RUNEX**
0.00516012	0.26720446	0.036035379	0.011186045
0.005263347	0.274495016	0.036756255	0.011186045
0.005364542	0.281193269	0.037462946	0.011186045
0.005463689	0.287387975	0.038155334	0.011186045
0.005560788	0.293148199	0.03883342	0.011186045
0.005655856	0.298529198	0.03949732	0.011186045
0.005748876	0.303573574	0.040146917	0.011186045

Region	San Francisco Bay Area
Model Year	2017
Speed	Aggregate

			Emission Rate (g/mi)			
Row Labels	**Vehicle Category**	**Fuel**	**Sum of PM10_PMTW**	**Sum of PM10_PMBW**	**Sum of PM10_RUNEX**	**Sum of PM2.5_PMTW**
2024	**T6 Utility Class 6**	Diesel	0.012000003	0.045496703	0.002403782	0.003000001
2025	**T6 Utility Class 6**	Diesel	0.012000003	0.045496703	0.002433617	0.003000001
2026	**T6 Utility Class 6**	Diesel	0.012000003	0.045496703	0.002467823	0.003000001
2027	**T6 Utility Class 6**	Diesel	0.012000003	0.045496703	0.002501336	0.003000001
2028	**T6 Utility Class 6**	Diesel	0.012000003	0.045496703	0.002534157	0.003000001
2029	**T6 Utility Class 6**	Diesel	0.012000003	0.045496703	0.002566291	0.003000001
2030	**T6 Utility Class 6**	Diesel	0.012000003	0.045496703	0.002597733	0.003000001

Emission Rate (g/mi)			
PM10_PMTW	**PM10_PMBW**	**PM10_RUNEX**	**PM2.5_PMTW**
0.012000003	0.045496703	0.002403782	0.003000001
0.012000003	0.045496703	0.002433617	0.003000001
0.012000003	0.045496703	0.002467823	0.003000001
0.012000003	0.045496703	0.002501336	0.003000001
0.012000003	0.045496703	0.002534157	0.003000001
0.012000003	0.045496703	0.002566291	0.003000001
0.012000003	0.045496703	0.002597733	0.003000001

Region	San Francisco Bay Area
Model Year	2017
Speed	Aggregate

			Emission Rate (g/mi)			
Row Labels	**Vehicle Category**	**Fuel**	**Sum of PM2.5_PMBW**	**Sum of PM2.5_RUNEX**	**Sum of CO2_RUNEX**	**Sum of CH4_RUNEX**
2024	**T6 Utility Class 6**	Diesel	0.015923846	0.002299795	1181.283139	0.000239674
2025	**T6 Utility Class 6**	Diesel	0.015923846	0.00232834	1181.283139	0.000244469
2026	**T6 Utility Class 6**	Diesel	0.015923846	0.002361066	1181.283139	0.000249169
2027	**T6 Utility Class 6**	Diesel	0.015923846	0.002393129	1181.283139	0.000253774
2028	**T6 Utility Class 6**	Diesel	0.015923846	0.00242453	1181.283139	0.000258284
2029	**T6 Utility Class 6**	Diesel	0.015923846	0.002455275	1181.283139	0.0002627
2030	**T6 Utility Class 6**	Diesel	0.015923846	0.002485356	1181.283139	0.00026702

Emission Rate (g/mi)			
PM2.5_PMBW	**PM2.5_RUNEX**	**CO2_RUNEX**	**CH4_RUNEX**
0.015923846	0.002299795	1181.283139	0.000239674
0.015923846	0.00232834	1181.283139	0.000244469
0.015923846	0.002361066	1181.283139	0.000249169
0.015923846	0.002393129	1181.283139	0.000253774
0.015923846	0.00242453	1181.283139	0.000258284
0.015923846	0.002455275	1181.283139	0.0002627
0.015923846	0.002485356	1181.283139	0.00026702

Region	San Francisco Bay Area
Model Year	2017
Speed	Aggregate

			Emission Rate (g/mi)		
Row Labels	**Vehicle Category**	**Fuel**	**Sum of N2O_RUNEX**	**Sum of TOG_RUNEX**	**Sum of NOx_STREX**
2024	**T6 Utility Class 6**	Diesel	0.18611164	0.005874404	1.419957012
2025	**T6 Utility Class 6**	Diesel	0.18611164	0.00599192	1.419957012
2026	**T6 Utility Class 6**	Diesel	0.18611164	0.006107123	1.419957012
2027	**T6 Utility Class 6**	Diesel	0.18611164	0.006219994	1.419957012
2028	**T6 Utility Class 6**	Diesel	0.18611164	0.006330534	1.419957012
2029	**T6 Utility Class 6**	Diesel	0.18611164	0.006438761	1.419957012
2030	**T6 Utility Class 6**	Diesel	0.18611164	0.006544657	1.419957012

Emission Rate (g/mi)		
N2O_RUNEX	**TOG_RUNEX**	**NOX_STREX**
0.18611164	0.005874404	1.419957012
0.18611164	0.00599192	1.419957012
0.18611164	0.006107123	1.419957012
0.18611164	0.006219994	1.419957012
0.18611164	0.006330534	1.419957012
0.18611164	0.006438761	1.419957012
0.18611164	0.006544657	1.419957012

Region	San Francisco Bay Area
Model Year	2017
Speed	Aggregate

			Emission Rate (g/vehicle/day)			
Row Labels	**Vehicle Category**	**Fuel**	**Sum of ROG_IDLEX**	**Sum of NOx_IDLEX**	**Sum of CO_IDLEX**	**Sum of SOx_IDLEX**
2024	**T6 Utility Class 6**	Diesel	0.13558037	7.847841191	5.741129946	0.015466238
2025	**T6 Utility Class 6**	Diesel	0.13558037	7.847841191	5.741129946	0.015466238
2026	**T6 Utility Class 6**	Diesel	0.13558037	7.847841191	5.741129946	0.015466238
2027	**T6 Utility Class 6**	Diesel	0.13558037	7.847841191	5.741129946	0.015466238
2028	**T6 Utility Class 6**	Diesel	0.13558037	7.847841191	5.741129946	0.015466238
2029	**T6 Utility Class 6**	Diesel	0.13558037	7.847841191	5.741129946	0.015466238
2030	**T6 Utility Class 6**	Diesel	0.13558037	7.847841191	5.741129946	0.015466238

Emission Rate (g/vehicle/day)			
ROG_IDLEX	**NOx_IDLEX**	**CO_IDLEX**	**SOx_IDLEX**
0.13558037	7.847841191	5.741129946	0.015466238
0.13558037	7.847841191	5.741129946	0.015466238
0.13558037	7.847841191	5.741129946	0.015466238
0.13558037	7.847841191	5.741129946	0.015466238
0.13558037	7.847841191	5.741129946	0.015466238
0.13558037	7.847841191	5.741129946	0.015466238
0.13558037	7.847841191	5.741129946	0.015466238

Region	San Francisco Bay Area
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			Emission Rate (g/vehicle/day)				
Row Labels	**Vehicle Category**	**Fuel**	**Sum of PM10_IDLEX**	**Sum of PM2.5_IDLEX**	**Sum of CO2_IDLEX**	**Sum of CH4_IDLEX**	**Sum of N2O_IDLEX**
2024	**T6 Utility Class 6**	Diesel	0.001958878	0.001874138	1633.285579	0.006297357	0.257324808
2025	**T6 Utility Class 6**	Diesel	0.001958878	0.001874138	1633.285579	0.006297357	0.257324808
2026	**T6 Utility Class 6**	Diesel	0.001958878	0.001874138	1633.285579	0.006297357	0.257324808
2027	**T6 Utility Class 6**	Diesel	0.001958878	0.001874138	1633.285579	0.006297357	0.257324808
2028	**T6 Utility Class 6**	Diesel	0.001958878	0.001874138	1633.285579	0.006297357	0.257324808
2029	**T6 Utility Class 6**	Diesel	0.001958878	0.001874138	1633.285579	0.006297357	0.257324808
2030	**T6 Utility Class 6**	Diesel	0.001958878	0.001874138	1633.285579	0.006297357	0.257324808

Emission Rate (g/vehicle/day)				
PM10_IDLEX	**PM2.5_IDLEX**	**CO2_IDLEX**	**CH4_IDLEX**	**N2O_IDLEX**
0.001958878	0.001874138	1633.285579	0.006297357	0.257324808
0.001958878	0.001874138	1633.285579	0.006297357	0.257324808
0.001958878	0.001874138	1633.285579	0.006297357	0.257324808
0.001958878	0.001874138	1633.285579	0.006297357	0.257324808
0.001958878	0.001874138	1633.285579	0.006297357	0.257324808
0.001958878	0.001874138	1633.285579	0.006297357	0.257324808
0.001958878	0.001874138	1633.285579	0.006297357	0.257324808

Road Dust Emission Factors

Daily Paved Road Dust EF[1]

$$EF_{paved} = (k \times (sL)^{0.91} \times (W)^{1.02}) \times (\frac{1-P}{4N})$$

EF_{paved}	Annual or other long-term average emission factor in the same units as k
k	particle size multiplier for particle size range and units of interest
sL	road surface silt loading (g/m^2)
W	average weight (tons) of all the vehicles raveling the road (2.4 tons)
P	Number of "wet' days with at least 0.254 (0.01 in) of precipitation during the averaging period
N	Number of days in the averaging period (e.g. 365 for annual, 91 for seasonal, 30 for monthly)

Site specific P Value[4]: 41.2 <- Update for each site area

Parameters	**PM10**	**PM2.5**
k $(g/VMT)^2$	1	0.25
sL (g/m^2)	0.1	0.1
W $(tons)^3$	16.5	16.5
EF (g/mi)	1.905	0.476

1) CalEEMod User's Guide, Appendix C, p. C-45
2) AP42: Chapter 13: Miscellaneous Sources, 13.2.1 Paved Roads, Table 13.2.1-1. https://www3.epa.gov/ttn/chief/ap42/ch13/final/c13s0201.pdf
3) Weight of the solid waste collection vehicles (33,001 lb).
4) Number of precipation days per year for the San Francisco Bay Area.

City of San Francisco - Refuse Project - Operations v2 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	City of San Francisco - Refuse Project - Operations v2
Operational Year	2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	4.70
Precipitation (days)	41.2
Location	12310 San Mateo Rd #92, Half Moon Bay, CA 94019, USA
County	San Mateo
City	Unincorporated
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1210
EDFZ	1
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.19

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Light Industry	3.70	1000sqft	0.08	3,700	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-1-A	Use Electric or Hybrid Powered Equipment

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.24	0.11	1.48	< 0.005	< 0.005	0.34	0.35	< 0.005	0.09	0.09	4.11	431	435	0.44	0.02	2.37	454
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.21	0.13	1.26	< 0.005	< 0.005	0.34	0.35	< 0.005	0.09	0.09	4.11	413	418	0.44	0.02	1.00	435
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.19	0.09	0.95	< 0.005	< 0.005	0.24	0.24	< 0.005	0.06	0.06	4.11	311	315	0.43	0.01	1.40	332
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.03	0.02	0.17	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	0.68	51.5	52.2	0.07	< 0.005	0.23	54.9

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.12	0.11	1.32	< 0.005	< 0.005	0.34	0.35	< 0.005	0.09	0.09	—	378	378	0.01	0.01	1.41	384
Area	0.12	< 0.005	0.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.66	0.66	< 0.005	< 0.005	—	0.66
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	49.1	49.1	0.01	< 0.005	—	49.6
Water	—	—	—	—	—	—	—	—	—	—	1.64	3.10	4.74	0.17	< 0.005	—	10.2
Waste	—	—	—	—	—	—	—	—	—	—	2.47	0.00	2.47	0.25	0.00	—	8.65
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.96	0.96
Total	0.24	0.11	1.48	< 0.005	< 0.005	0.34	0.35	< 0.005	0.09	0.09	4.11	431	435	0.44	0.02	2.37	454
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.12	0.13	1.26	< 0.005	< 0.005	0.34	0.35	< 0.005	0.09	0.09	—	361	361	0.01	0.01	0.04	366
Area	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	49.1	49.1	0.01	< 0.005	—	49.6
Water	—	—	—	—	—	—	—	—	—	—	1.64	3.10	4.74	0.17	< 0.005	—	10.2
Waste	—	—	—	—	—	—	—	—	—	—	2.47	0.00	2.47	0.25	0.00	—	8.65
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.96	0.96
Total	0.21	0.13	1.26	< 0.005	< 0.005	0.34	0.35	< 0.005	0.09	0.09	4.11	413	418	0.44	0.02	1.00	435
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.09	0.09	0.87	< 0.005	< 0.005	0.24	0.24	< 0.005	0.06	0.06	—	259	259	0.01	0.01	0.43	262
Area	0.10	< 0.005	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.33	0.33	< 0.005	< 0.005	—	0.33
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	49.1	49.1	0.01	< 0.005	—	49.6
Water	—	—	—	—	—	—	—	—	—	—	1.64	3.10	4.74	0.17	< 0.005	—	10.2
Waste	—	—	—	—	—	—	—	—	—	—	2.47	0.00	2.47	0.25	0.00	—	8.65
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.96	0.96
Total	0.19	0.09	0.95	< 0.005	< 0.005	0.24	0.24	< 0.005	0.06	0.06	4.11	311	315	0.43	0.01	1.40	332

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.16	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	42.8	42.8	< 0.005	< 0.005	0.07	43.4
Area	0.02	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.05	0.05	< 0.005	< 0.005	—	0.05
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	8.13	8.13	< 0.005	< 0.005	—	8.21
Water	—	—	—	—	—	—	—	—	—	—	0.27	0.51	0.78	0.03	< 0.005	—	1.68
Waste	—	—	—	—	—	—	—	—	—	—	0.41	0.00	0.41	0.04	0.00	—	1.43
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16
Total	0.03	0.02	0.17	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	0.68	51.5	52.2	0.07	< 0.005	0.23	54.9

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.12	0.11	1.32	< 0.005	< 0.005	0.34	0.35	< 0.005	0.09	0.09	—	378	378	0.01	0.01	1.41	384
Area	0.12	< 0.005	0.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.66	0.66	< 0.005	< 0.005	—	0.66
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	49.1	49.1	0.01	< 0.005	—	49.6
Water	—	—	—	—	—	—	—	—	—	—	1.64	3.10	4.74	0.17	< 0.005	—	10.2
Waste	—	—	—	—	—	—	—	—	—	—	2.47	0.00	2.47	0.25	0.00	—	8.65
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.96	0.96
Total	0.24	0.11	1.48	< 0.005	< 0.005	0.34	0.35	< 0.005	0.09	0.09	4.11	431	435	0.44	0.02	2.37	454
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.12	0.13	1.26	< 0.005	< 0.005	0.34	0.35	< 0.005	0.09	0.09	—	361	361	0.01	0.01	0.04	366
Area	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	49.1	49.1	0.01	< 0.005	—	49.6
Water	—	—	—	—	—	—	—	—	—	—	1.64	3.10	4.74	0.17	< 0.005	—	10.2

Waste	—	—	—	—	—	—	—	—	—	—	2.47	0.00	2.47	0.25	0.00	—	8.65
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.96	0.96
Total	0.21	0.13	1.26	< 0.005	< 0.005	0.34	0.35	< 0.005	0.09	0.09	4.11	413	418	0.44	0.02	1.00	435
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.09	0.09	0.87	< 0.005	< 0.005	0.24	0.24	< 0.005	0.06	0.06	—	259	259	0.01	0.01	0.43	262
Area	0.10	< 0.005	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.33	0.33	< 0.005	< 0.005	—	0.33
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	49.1	49.1	0.01	< 0.005	—	49.6
Water	—	—	—	—	—	—	—	—	—	—	1.64	3.10	4.74	0.17	< 0.005	—	10.2
Waste	—	—	—	—	—	—	—	—	—	—	2.47	0.00	2.47	0.25	0.00	—	8.65
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.96	0.96
Total	0.19	0.09	0.95	< 0.005	< 0.005	0.24	0.24	< 0.005	0.06	0.06	4.11	311	315	0.43	0.01	1.40	332
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.16	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	42.8	42.8	< 0.005	< 0.005	0.07	43.4
Area	0.02	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.05	0.05	< 0.005	< 0.005	—	0.05
Energy	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	8.13	8.13	< 0.005	< 0.005	—	8.21
Water	—	—	—	—	—	—	—	—	—	—	0.27	0.51	0.78	0.03	< 0.005	—	1.68
Waste	—	—	—	—	—	—	—	—	—	—	0.41	0.00	0.41	0.04	0.00	—	1.43
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16
Total	0.03	0.02	0.17	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	0.68	51.5	52.2	0.07	< 0.005	0.23	54.9

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.12	0.11	1.32	< 0.005	< 0.005	0.34	0.35	< 0.005	0.09	0.09	—	378	378	0.01	0.01	1.41	384
Total	0.12	0.11	1.32	< 0.005	< 0.005	0.34	0.35	< 0.005	0.09	0.09	—	378	378	0.01	0.01	1.41	384
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.12	0.13	1.26	< 0.005	< 0.005	0.34	0.35	< 0.005	0.09	0.09	—	361	361	0.01	0.01	0.04	366
Total	0.12	0.13	1.26	< 0.005	< 0.005	0.34	0.35	< 0.005	0.09	0.09	—	361	361	0.01	0.01	0.04	366
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.02	0.02	0.16	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	42.8	42.8	< 0.005	< 0.005	0.07	43.4
Total	0.02	0.02	0.16	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	42.8	42.8	< 0.005	< 0.005	0.07	43.4

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.12	0.11	1.32	< 0.005	< 0.005	0.34	0.35	< 0.005	0.09	0.09	—	378	378	0.01	0.01	1.41	384
Total	0.12	0.11	1.32	< 0.005	< 0.005	0.34	0.35	< 0.005	0.09	0.09	—	378	378	0.01	0.01	1.41	384
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	0.12	0.13	1.26	< 0.005	< 0.005	0.34	0.35	< 0.005	0.09	0.09	—	361	361	0.01	0.01	0.04	366
Total	0.12	0.13	1.26	< 0.005	< 0.005	0.34	0.35	< 0.005	0.09	0.09	—	361	361	0.01	0.01	0.04	366
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.02	0.02	0.16	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	42.8	42.8	< 0.005	< 0.005	0.07	43.4
Total	0.02	0.02	0.16	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	42.8	42.8	< 0.005	< 0.005	0.07	43.4

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	49.1	49.1	0.01	< 0.005	—	49.6
Total	—	—	—	—	—	—	—	—	—	—	—	49.1	49.1	0.01	< 0.005	—	49.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	49.1	49.1	0.01	< 0.005	—	49.6
Total	—	—	—	—	—	—	—	—	—	—	—	49.1	49.1	0.01	< 0.005	—	49.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	8.13	8.13	< 0.005	< 0.005	—	8.21

Total	—	—	—	—	—	—	—	—	—	—	—	8.13	8.13	< 0.005	< 0.005	—	8.21

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	49.1	49.1	0.01	< 0.005	—	49.6
Total	—	—	—	—	—	—	—	—	—	—	—	49.1	49.1	0.01	< 0.005	—	49.6
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	49.1	49.1	0.01	< 0.005	—	49.6
Total	—	—	—	—	—	—	—	—	—	—	—	49.1	49.1	0.01	< 0.005	—	49.6
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	8.13	8.13	< 0.005	< 0.005	—	8.21
Total	—	—	—	—	—	—	—	—	—	—	—	8.13	8.13	< 0.005	< 0.005	—	8.21

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.03	< 0.005	0.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.66	0.66	< 0.005	< 0.005	—	0.66
Total	0.12	< 0.005	0.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.66	0.66	< 0.005	< 0.005	—	0.66
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.05	0.05	< 0.005	< 0.005	—	0.05
Total	0.02	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.05	0.05	< 0.005	< 0.005	—	0.05

4.3.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.03	< 0.005	0.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.66	0.66	< 0.005	< 0.005	—	0.66
Total	0.12	< 0.005	0.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.66	0.66	< 0.005	< 0.005	—	0.66

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	< 0.005	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.05	0.05	< 0.005	< 0.005	—	0.05
Total	0.02	< 0.005	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.05	0.05	< 0.005	< 0.005	—	0.05

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	1.64	3.10	4.74	0.17	< 0.005	—	10.2

Total	—	—	—	—	—	—	—	—	—	—	1.64	3.10	4.74	0.17	< 0.005	—	10.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	1.64	3.10	4.74	0.17	< 0.005	—	10.2
Total	—	—	—	—	—	—	—	—	—	—	1.64	3.10	4.74	0.17	< 0.005	—	10.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	0.27	0.51	0.78	0.03	< 0.005	—	1.68
Total	—	—	—	—	—	—	—	—	—	—	0.27	0.51	0.78	0.03	< 0.005	—	1.68

4.4.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	1.64	3.10	4.74	0.17	< 0.005	—	10.2
Total	—	—	—	—	—	—	—	—	—	—	1.64	3.10	4.74	0.17	< 0.005	—	10.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	1.64	3.10	4.74	0.17	< 0.005	—	10.2
Total	—	—	—	—	—	—	—	—	—	—	1.64	3.10	4.74	0.17	< 0.005	—	10.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	—	—	—	—	—	—	—	—	—	—	0.27	0.51	0.78	0.03	< 0.005	—	1.68
Total	—	—	—	—	—	—	—	—	—	—	0.27	0.51	0.78	0.03	< 0.005	—	1.68

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	2.47	0.00	2.47	0.25	0.00	—	8.65
Total	—	—	—	—	—	—	—	—	—	—	2.47	0.00	2.47	0.25	0.00	—	8.65
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	2.47	0.00	2.47	0.25	0.00	—	8.65
Total	—	—	—	—	—	—	—	—	—	—	2.47	0.00	2.47	0.25	0.00	—	8.65
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	0.41	0.00	0.41	0.04	0.00	—	1.43
Total	—	—	—	—	—	—	—	—	—	—	0.41	0.00	0.41	0.04	0.00	—	1.43

4.5.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	2.47	0.00	2.47	0.25	0.00	—	8.65
Total	—	—	—	—	—	—	—	—	—	—	2.47	0.00	2.47	0.25	0.00	—	8.65
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	2.47	0.00	2.47	0.25	0.00	—	8.65
Total	—	—	—	—	—	—	—	—	—	—	2.47	0.00	2.47	0.25	0.00	—	8.65
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	0.41	0.00	0.41	0.04	0.00	—	1.43
Total	—	—	—	—	—	—	—	—	—	—	0.41	0.00	0.41	0.04	0.00	—	1.43

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.96	0.96
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.96	0.96

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.96	0.96
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.96	0.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.96	0.96
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.96	0.96
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.96	0.96
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.96	0.96
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.16	0.16

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipme Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Light Industry	38.0	0.00	0.00	9,907	490	0.00	0.00	127,665

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Light Industry	38.0	0.00	0.00	9,907	490	0.00	0.00	127,665

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	5,550	1,850	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	87,851	204	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	87,851	204	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	855,625	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	855,625	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)

General Light Industry	4.59	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	4.59	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	8.22	annual days of extreme heat
Extreme Precipitation	9.70	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	106	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	3	0	0	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	3	1	1	3
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A

Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	7.52
AQ-PM	13.7
AQ-DPM	7.38
Drinking Water	37.2
Lead Risk Housing	40.7
Pesticides	76.4
Toxic Releases	30.7
Traffic	82.6
Effect Indicators	—
CleanUp Sites	0.00
Groundwater	45.2
Haz Waste Facilities/Generators	81.5
Impaired Water Bodies	43.8
Solid Waste	91.0

Sensitive Population	—
Asthma	41.3
Cardio-vascular	9.23
Low Birth Weights	18.0
Socioeconomic Factor Indicators	—
Education	61.5
Housing	29.7
Linguistic	32.6
Poverty	22.0
Unemployment	17.1

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	69.81906839
Employed	89.43924034
Median HI	83.06172206
Education	—
Bachelor's or higher	70.67881432
High school enrollment	100
Preschool enrollment	72.20582574
Transportation	—
Auto Access	81.29090209
Active commuting	42.2302066
Social	—
2-parent households	91.28705248

Voting	84.37058899
Neighborhood	—
Alcohol availability	67.40664699
Park access	30.46323624
Retail density	13.40947004
Supermarket access	48.19709996
Tree canopy	87.55293212
Housing	—
Homeownership	61.20877711
Housing habitability	71.15359938
Low-inc homeowner severe housing cost burden	41.28063647
Low-inc renter severe housing cost burden	86.23123316
Uncrowded housing	32.04157577
Health Outcomes	—
Insured adults	77.33863724
Arthritis	0.0
Asthma ER Admissions	61.3
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	77.4
Cognitively Disabled	44.8
Physically Disabled	49.3
Heart Attack ER Admissions	94.0

Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	77.4
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	12.9
SLR Inundation Area	30.2
Children	35.2
Elderly	41.5
English Speaking	38.4
Foreign-born	65.6
Outdoor Workers	38.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	83.1
Traffic Density	73.9
Traffic Access	23.0
Other Indices	—
Hardship	45.7
Other Decision Support	—
2016 Voting	80.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	25.0
Healthy Places Index Score for Project Location (b)	86.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Operations: Vehicle Data	19 total personnel with 16 drivers and 3 support staff (operations supervisor, logistical analyst, and one mechanic). Weekdays only.
Operations: Energy Use	All electricity, no natural gas.

ATTACHMENT C

TRANSPORTATION IMPACTS ANALYSIS MEMORANDUM

San Francisco Planning

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

Date: January 29, 2024
To: San Francisco Refuse Contract Project
Planning Department Case No. 2022-001263ENV
From: Kei Zushi, Transportation Planner
RE: Transportation Analysis

This memo documents the analysis of potential transportation-related impacts that could result from the San Francisco Refuse Contract Project (proposed project or modified project). The analysis was conducted consistent with the Planning Department's 2019 Transportation Impact Analysis Guidelines for Environmental Review (the Guidelines).

Project Description

The proposed project is a contract between Allied Waste Services of North America, LLC (Allied Waste Services) and the City and County of San Francisco (City) to collect, process, and/or dispose all refuse (recyclables, compostables, and trash) generated by all City facilities, such as office buildings, institutional buildings, parks, etc. Currently, Recology collects, processes, and/or disposes all refuse generated within the boundaries of San Francisco, whether it is generated by a City-operated facility/property, other governmental facilities (San Francisco Unified School District, state, and federal facilities), or private property (residential or commercial). Under the proposed project, these activities would be undertaken by Allied Waste Services, instead of Recology, for all City facilities.[1]

Allied Waste services is also proposing changes within the existing Ox Mountain Sanitary Landfill (Ox Mountain SL)[2] that will support implementation of the contract. Proposed work at the Ox Mountain SL includes reconfiguring an existing surface parking area to provide space for a new approximately 1,600-square-foot hauling maintenance structure, container storage, fleet vehicle parking, and compressed natural gas (CNG) refueling.[3] Construction activities would entail erecting the maintenance structure and one day of trenching to install utility lines.[4]

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[1] Public-facing receptacles under the purview of San Francisco Public Works would not be serviced under the proposed project. Recology would continue to collect refuse from private homes and businesses in San Francisco, as well as from other entities within San Francisco with which it holds contracts.

[2] The Ox Mountain Sanitary Landfill is also known as the Corinda Los Trancos Landfill. It is located at 12310 San Mateo Road, Half Moon Bay, CA 94019.

[3] The proposed hauling maintenance structure would consist of a steel frame with fabric skin and would be approximately 30 feet tall, 40 feet wide, and 40 feet long. The structure would rest on two 40-foot-long shipping containers that would also be used for the storage of hauling parts. A CNG connection would be located near the hauling maintenance structure. Employees would be able to refuel fleet vehicles at the landfill using the proposed CNG connection, mobile CNG station, and a temporary mobile tube trailer, which would hold the fuel.

[4] Excavation for the trenching would reach a maximum depth of 4 feet, a maximum length of 50 feet, and result in up to 10 cubic yards of soils disturbance.

The contract would commence on July 1, 2024, and expire on June 30, 2031. The City would have the option to renew the contract for a period of up to three years, for a maximum term of 10 years.

Travel Demand

Fleet Trips

Allied Waste Services would operate a fleet of approximately 17 vehicles to collect, process, and/or dispose of refuse collected from City facilities. As shown in Table 1, the 17 fleet vehicles would generate approximately 21 trips per day and 101 trips per week. This would result in approximately 8,994 vehicle miles travelled (VMT) per week and 467,732 VMT per year. While Recology would no longer collect, process and/or disposes of City refuse under the proposed project, it is anticipated that its trucks will continue to travel along existing collection routes to collect refuse from other governmental entities and private homes and businesses in San Francisco. Thus, for the purpose of the transportation analysis, fleet trips and VMT are considered net new.

Employee Trips

The proposed project would add approximately 19 new employees to the Ox Mountain SL. Up to 16 of those new employees would be fleet vehicle drivers and the remaining employees would be full-time on-site personnel. It is assumed that each employee would make two trips per day,[5] for a total of approximately 38 trips per day and 90 trips per week. Based on the limited public transit options near the Ox Mountain SL, it is expected that all employee trips would occur in a vehicle. This would result in approximately 3,099 VMT per week and 161,148 VMT per year.

Table : Vehicle Fleet and Employee Trips and Vehicle Miles Traveled

Vehicle and Fuel Type	Purpose	Total Daily Trips	Total Weekly Trips	Total Weekly VMT	Total Annual VMT
CO/CNG/LNG/ Biomethane SWCV	refuse collection	17	82	7,148	371,708
Diesel Tractor Trailer	refuse transfer	3	14	1,782	92,681
Diesel Support Vehicles	refuse operations	1	5	64	3,343
Fleet Total		*21*	*101*	*8,994*	*467,732*
Employee Total		*38*	*190*	*3,099*	*161,148*
Fleet and Employee Total		**59**	**291**	**12,093**	**628,880**

Sources: Allied Waste Services, ICF and the San Francisco Planning Department, 2023

Notes:

Individual rows may not add up to the totals shown due to rounding.

CO = Commercial Organics; CNG = Compressed Natural Gas; LNG = Liquified Natural Gas; SWCV = Solid Waste Collection Vehicle; VMT = Vehicles Miles Traveled

Employee VMT is estimated using the CalEEMod default one-way trip length (16.31 miles) for traffic analysis zone (TAZ) 1210, which is the TAZ for the Ox Mountain Sanitary Landfill, and a five-day work week.

[5] One trip from home to the Ox Mountain SL and one return trip home.

In total, the proposed project would generate approximately 59 vehicle trips per day and 291 trips per week, and 12,093 VMT per week and 628,880 VMT[6] per year.

Significance Criteria

San Francisco Administrative Code chapter 31 directs the planning department to identify environmental effects of a project using as its base the environmental checklist form set forth in CEQA Guidelines Appendix G. As it relates to transportation and circulation, Appendix G asks whether the project would:

Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities; conflict or be inconsistent with CEQA Guidelines section 15064.3(b), which pertains to VMT; substantially increase potentially hazardous conditions due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); and result in inadequate emergency access.

The planning department uses significance criteria to facilitate the transportation analysis and address the Appendix G checklist. The planning department separates the significance criteria into construction and operation.

Construction: Construction of the project would have a significant effect on the environment if it would require a substantially extended duration or intense activity; and the effects would 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 or substantially delay public transit.

Operation: The operation of a project would have a significant effect if it would:

- Create potentially hazardous conditions for people walking, bicycling, or driving or public transit operations.
- Interfere with accessibility of people walking or bicycling to and from the project site, and adjoining areas, or result in inadequate emergency access.
- Substantially delay public transit.
- Cause substantial additional VMT or 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.
- Result in a loading deficit and the secondary effects would create potentially hazardous conditions for people walking, bicycling, or driving; or substantially delay public transit.
- Result in a substantial vehicular parking deficit and the secondary effects would create potentially hazardous conditions for people walking, bicycling, or driving; or interfere

[6] This amount of VMT is similar to the amount of VMT that would be generated annually by a 100-unit project in Presidio Heights in San Francisco.

with accessibility for people walking or bicycling or inadequate access for emergency vehicles; or substantially delay public transit.

Impact Analysis

Construction

The proposed construction activities at Ox Mountain SL would last approximately one day and would require excavation of up to 10 yards of soil. No other construction activities are proposed. As such, construction for the proposed project would not be of a substantially extended duration or require intense activity. Therefore, the proposed project would not result in significant construction-related impacts.

Operation

Potentially Hazardous Conditions, Accessibility, Loading, Vehicular Parking, and Public Transit

The proposed project would not result in any changes to the transportation network design and would not generate any walking, bicycling, or transit trips or a substantial number of vehicle trips. Thus, the proposed project would not create a new or exacerbate an existing potentially hazardous condition or interfere in accessibility for people walking, bicycling, or driving or public transit operations, including emergency vehicles.

The proposed project is not expected to generate new passenger or freight loading demand because the project is a contract to collect, process, and dispose of refuse. Even if some loading activities were to occur, Staff operating fleet vehicles are expected to travel to Ox Mountain SL for their shifts in personal vehicles, and thereby would not use for-hire vehicles (e.g., taxis, Lyft, Uber). The activities associated with implementation of the contract are not expected to generate freight loading demand, and any freight delivery to Ox Mountain SL are expected to occur as they currently do with no additional trips. Even if employees did use for-hire vehicles or additional freight trips occur, there is adequate space within Ox Mountain SL to pick up and drop off passengers or freight without resulting in any secondary effects, such as vehicle queues on public rights-of-way. Allied Waste trucks would make frequent stops along their collection routes to pick up refuse within the City. However, these stops would be of short duration and would not substantially delay transit or create conflicts with people walking, biking, or diving. Further, given the proposed project is replacing the operator who currently collects refuse in the City for a different operator, these collection stops would not be a substantial change from existing conditions. Because the proposed project would not generate loading demand or a substantial number of vehicle trips (i.e., approximately 59 vehicle trips per day), it would not result in an unmet loading demand or a substantial vehicle parking deficit.

In accordance with the Guidelines, projects that generate fewer than 300 vehicle trips during the peak hour are presumed to not substantially delay public transit. The proposed project would result in approximately 59 daily vehicle trips, and thus would not result in substantial public transit delay. For the reasons described above, potentially hazardous conditions, accessibility, loading, vehicular parking, and transit delay impacts would be less than significant.

Up to 17 fleet vehicles would collect refuse from approximately 375 locations throughout the city and process or dispose of that refuse at existing facilities, resulting in approximately 101 total trips per week. These trips would be dispersed throughout the City and Bay Area region. Also, as discussed above, the proposed project does not propose any changes to the transportation network. For these reasons, cumulative potentially hazardous conditions, accessibility, loading, vehicular parking, and transit delay impacts would be less than significant.

VMT Analysis

The methodology for VMT analysis follows CEQA section 21099(b)(1), CEQA Guidelines section 15064.3, a California Office of Planning and Research (OPR) technical advisory for assessing transportation impacts, and the planning department's Guidelines. Public resources code section 21099(b)(1) require that OPR develop revisions to the CEQA Guidelines establishing criteria for determining the significance of transportation impacts of projects that promote the "reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." CEQA Guidelines section 15064.3 states that VMT is the most appropriate measure of transportation impacts and includes updated criteria for analyzing transportation impacts.

The OPR's Technical Advisory on Evaluating Transportation Impacts in CEQA (December 2018) provided advice and recommendations to lead agencies for analyzing transportation impacts in CEQA, including the effects of transportation projects on vehicle travel. The December 2018 technical advisory does not identify quantifiable thresholds of significance for these types of transportation projects; instead, the advisory provides guidance for lead agencies to establish their own thresholds of significance.

The planning department's Guidelines provide criteria to identify types, characteristics, or location of projects and a list of transportation projects that would typically not result in significant transportation impacts under the VMT metric. Pursuant to the Guidelines, a project that generates 100 vehicle trips per day or fewer is presumed to cause a less-than significant VMT impact. As shown in Table 4, the modified project would generate up to approximately 59 vehicle trips per day. Thus, the project would result in a less-than-significant VMT impact.

Further, as discussed below, the department determined that the proposed project would not be inconsistent with the three criteria outlined in CEQA section 21099(b)(1), which require OPR to "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." The modified project is not inconsistent with these three criteria for the following reasons:

1. *Reduction of Greenhouse Gas Emissions*
   The proposed project would not be inconsistent with applicable greenhouse reduction goals, including the 2017 Clean Air Plan, Executive Orders S-3-05, B-30-15, B-55-18, Senate Bill 32, Assembly Bill 32 (also known as the Global Warming Solutions Act), and San Francisco's greenhouse gas reduction goals (updated in July 2021 by ordinance no 117-02) and 2021 Climate Action Plan (updated with a water supply addendum in 2023). This is because the modified project is for a contract that would replace an existing refuse collection, processing, and disposal operator with a different operator. In December 2023, total VMT in San Francisco was estimated to be approximately 8.8 million miles per day (or approximately 3.2 billion miles per year). Though the modified project would generate net new vehicles trips and VMT, the amount is nominal compared to the estimated annual VMT in San Francisco. The modified project's estimated 628,880 annual VMT would represent approximately 0.01 percent of the City's estimated 3.2 billion annual VMT.

2. *Development of Multimodal Transportation Networks*
   The proposed project would not be inconsistent with the development of multimodal transportation networks. The project would not alter the existing transportation network, including multimodal transportation networks, and would not modify, interfere or impact any existing city policies intended to promote multimodal transportation networks.

3. Diversity of Land Uses
   The proposed project would not be inconsistent with developing a diversity of land uses because it would not make any changes to Hay Road Landfill, Newby Island Resource Recovery Park, and EBMUD Wastewater Treatment Plant and would not substantially modify or affect the existing land uses at the Ox Mountain SL.

Based on the discussion above, the proposed project would not be inconsistent with the three criteria in CEQA section 21099(b)(1).

Overall, the proposed project would not result in significant transportation-related impacts.