

File No. 201317

Committee Item No. 15

Board Item No. 20

## COMMITTEE/BOARD OF SUPERVISORS

### AGENDA PACKET CONTENTS LIST

Committee: Budget & Finance Committee

Date December 9, 2020

Board of Supervisors Meeting

Date December 15, 2020

#### Cmte Board

<input type="checkbox"/>	<input type="checkbox"/>	Motion
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Resolution
<input type="checkbox"/>	<input type="checkbox"/>	Ordinance
<input type="checkbox"/>	<input type="checkbox"/>	Legislative Digest
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Budget and Legislative Analyst Report
<input type="checkbox"/>	<input type="checkbox"/>	Youth Commission Report
<input type="checkbox"/>	<input type="checkbox"/>	Introduction Form
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Department/Agency Cover Letter and/or Report
<input type="checkbox"/>	<input type="checkbox"/>	MOU
<input type="checkbox"/>	<input type="checkbox"/>	Grant Information Form
<input type="checkbox"/>	<input type="checkbox"/>	Grant Budget
<input type="checkbox"/>	<input type="checkbox"/>	Subcontract Budget
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Contract/Agreement
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Form 126 – Ethics Commission
<input type="checkbox"/>	<input type="checkbox"/>	Award Letter
<input type="checkbox"/>	<input type="checkbox"/>	Application
<input type="checkbox"/>	<input type="checkbox"/>	Public Correspondence

#### OTHER (Use back side if additional space is needed)

<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>MTA Board of Director Resolution No. 12-017</u>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>MTA Board of Director Resolution No. 12-135</u>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>MTA Board of Director Resolution No. 180918-130</u>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>Central Subway Final SEIS/SEIR</u>
<input type="checkbox"/>	<input type="checkbox"/>	<u> </u>
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Completed by: Linda Wong Date December 4, 2020

Completed by: Linda Wong Date December 10, 2020

1 [Contract Amendment - Aon Risk Insurance Services West, Inc. - Excess Liability Insurance -  
2 Central Subway Project - Not to Exceed \$26,778,986]

3 **Resolution approving Amendment No. 5 to Contract CS-163-1 OCIP Insurance Brokerage**  
4 **Services, to provide excess liability insurance for the Central Subway Project, with Aon**  
5 **Risk Insurance Services West, Inc., to increase the contract amount by \$1,684,550 for**  
6 **additional premium charges due to increased construction time and contract costs, for a**  
7 **total contract amount not to exceed \$26,778,986 and to extend the term for two years for a**  
8 **total term of February 7, 2012, through July 1, 2022.**

9  
10 WHEREAS, The Central Subway Project extends subway service from south of Market  
11 Street to Chinatown 1.6 miles, constructing four stations and dual trackway as Phase 2 of the  
12 Third Street Light Rail Transit Project; and

13 WHEREAS, On February 7, 2012, the SFMTA Board of Directors approved Contract  
14 No. CS-163-1 (Aon Contract), Insurance Brokerage Services for an Owner's Controlled  
15 Insurance Program (OCIP) to provide Excess Liability Insurance for the Central Subway  
16 Project, between the SFMTA and Aon Risk Insurance Services West, Inc. (Aon), in an amount  
17 not to exceed \$9,808,750 and for a term of eight years, with actual insurance premium  
18 charges to be adjusted based on Central Subway Project construction costs and  
19 construction period of the covered contract work; and

20 WHEREAS, The OCIP provides excess liability insurance coverage (OCIP) to cover  
21 catastrophic losses arising from the construction of the Central Subway Project that exceed  
22 the Project contractors' liability insurance policies; and

23 WHEREAS, Tutor Perini Corporation (Tutor) is the contractor for the construction of the  
24 Project stations, trackway, and control system under Contract No. 1300; the OCIP provides  
25



1 \$150 million in coverage over Tutor's own \$50 million policy, for total coverage of \$200 million;  
2 and

3 WHEREAS, The SFMTA pays the premiums (charges) for the OCIP through Aon,  
4 which as the OCIP insurance broker, procures the insurance policies for the OCIP from 16  
5 underwriters; and

6 WHEREAS, The premiums for the OCIP are based on the value of the construction  
7 contracts and the period of active construction; the Aon Contract previously was modified four  
8 times, principally in 2013 when the SFMTA awarded Contract 1300 to Tutor Perini  
9 Corporation to construct the Central Subway Project stations, trackway and systems, and as  
10 construction costs have increased and construction time has been extended, all of which has  
11 increased the total amount of the Aon Contract by \$15,285,456.23 for a total contract amount  
12 not to exceed \$25,094,436; and

13 WHEREAS, Amendment No. 5 increases the contract amount by \$1,684,550 for  
14 additional premium due and arising from increases to construction contract amounts and  
15 extension of construction time; and

16 WHEREAS, Amendment No. 5 to the Contract requires approval by the Board of  
17 Supervisors under Charter, Section 9.118(b), as the original contract was subject to the Board  
18 of Supervisors approval and the value of the amendment exceeds \$500,000; and

19 WHEREAS, The Central Subway Final Supplemental Environmental Impact Statement/  
20 Supplemental Environmental Impact Report (Central Subway SEIS/SEIR) evaluated the  
21 environmental impacts of the Central Subway project, including construction of the subway  
22 stations; on August 7, 2008, the Planning Commission certified the Final SEIR (Case No.  
23 1996.281E); on August 19, 2008, the SFMTA Board of Directors approved Resolution 08-150  
24 adopting Central Subway Project Alternative 3B as the Locally Preferred Alternative, the  
25

1 CEQA Findings, Statement of Overriding Considerations, and the Mitigation Monitoring and  
2 Reporting Plan; and

3 WHEREAS, Amendment No. 5, as described above, falls within the scope of the Final  
4 SEIS/SEIR; and

5 WHEREAS, The Central Subway SEIS/SEIR is on file with the SFMTA Board of  
6 Directors, may be found in the records of the Planning Department at 49 South Van Ness  
7 Avenue in San Francisco, and is incorporated herein by reference; and

8 WHEREAS, The SFMTA Board has reviewed and considered the Central Subway  
9 SEIS/SEIR and record as a whole, and finds that the Central Subway SEIS/SEIR is adequate  
10 for the Board's use as the decision-making body for the actions taken herein relative to  
11 construction of the Project, and incorporates the CEQA findings by this reference as though  
12 set forth in this Resolution; now, therefore be it,

13 RESOLVED, The Board of Supervisors approve Amendment No. 5 to Contract CS-  
14 163-1 Insurance Brokerage Services for an Owner's Controlled Insurance Program, to provide  
15 Excess Liability Insurance for the Central Subway Project, with Aon Risk Insurance Services  
16 West, Inc., to increase the contract amount by \$1,684,550 for payment of additional premium  
17 due to increased construction time and contract costs, for a total amended contract amount  
18 not to exceed \$26,778,986; and, be it

19 FURTHER RESOLVED, That no later than February 1, 2021, the SFMTA shall prepare  
20 a report regarding the revised budget for the Central Subway project and include the report in  
21 the legislative file; and, be it

22 FURTHER RESOLVED, That within 30 days of Amendment No. 5 to Contract CS-163-  
23 1 being fully executed by all parties, the final documents shall be provided to the Clerk of the  
24 Board for inclusion in the official file.

<b>Item 15</b> <b>File 20-1317</b>	<b>Department:</b> Municipal Transportation Agency (MTA)
<b>EXECUTIVE SUMMARY</b>	
<p style="text-align: center;"><b>Legislative Objectives</b></p> <ul style="list-style-type: none"> <li>The proposed resolution would (1) approve the fifth amendment to the Aon Risk Insurance Services West, Inc. (Aon) contract for excess liability insurance for the Central Subway Project to increase the contract amount by \$1,684,550 from \$25,094,436 for an amount not to exceed \$26,778,986; and (2) extend the term by approximately two years from June 24, 2020 to July 1, 2022.</li> </ul> <p style="text-align: center;"><b>Key Points</b></p> <ul style="list-style-type: none"> <li>SFMTA established an Owner Controlled Insurance Program (OCIP) to provide excess coverage above the coverage required to be provided by construction contractors. In January 2012, the SFMTA Board of Directors approved a contract with Aon Risk Insurance Services West, Inc. (Aon). Under the contract, Aon served as an insurance broker for the Central Subway project. The contract pays for insurance premiums, broker's fees, brokers' commissions, and other related charges.</li> <li>The Tutor station construction contract requires insurance coverage of \$50 million and OCIP provides \$150 million in additional coverage. The Barnard tunnel construction contract carries \$350 million in insurance coverage and OCIP provides \$150 million in additional coverage. The premiums for the \$300 million in excess insurance coverage for the two OCIP Central Subway project construction contracts are based on the value of the construction contracts and the period of active construction. According to SFMTA, the majority of the increased costs and project delays were needed to ensure that the construction of the stations and various systems are operational and meet the latest requirements from regulatory agencies, and were a result of modifications to site conditions and other obstructions within the construction site.</li> </ul> <p style="text-align: center;"><b>Fiscal Impact</b></p> <ul style="list-style-type: none"> <li>SFMTA has expended all Central Subway project funding sources for the existing contract. The proposed increased insurance costs will be funded by the Capital Contingency, which are local funds from SFMTA's current operating budget reserved for capital project contingencies and approved for FY 2020-21.</li> </ul> <p style="text-align: center;"><b>Policy Consideration</b></p> <ul style="list-style-type: none"> <li>The \$1.68 million required to fund the proposed contract amendment will be sourced from the SFMTA Capital Reserve, which is part of SFMTA's operating budget that is projected to have a \$37.8 million deficit in FY 2020-21 according to the Controller's Office FY 2020-21 Three-Month Budget Status Report dated November 10, 2020.</li> </ul> <p style="text-align: center;"><b>Recommendations</b></p> <ul style="list-style-type: none"> <li>Request a written report from SFMTA regarding the revised budget for the Central Subway project no later than February 1, 2021 and include the report in the legislative file.</li> <li>Approve the proposed resolution.</li> </ul>	

**MANDATE STATEMENT**

City Charter Section 9.118(b) states that any contract entered into by a department, board or commission that (1) has a term of more than ten years, (2) requires expenditures of \$10 million or more, or (3) requires a modification of more than \$500,000 is subject to Board of Supervisors approval.

**BACKGROUND**

The Central Subway project will connect the Muni's light rail T-line from the Caltrain station at 4th and King Streets to Washington and Stockton Streets in Chinatown. The 1.67-mile extension includes a surface station at 4th and Brannan Streets and three subway stations at Yerba Buena/Moscone Center, Union Square, and Chinatown. Revenue service for the Central Subway is expected to begin in March 2022.

San Francisco Municipal Transportation Agency (SFMTA) established an Owner Controlled Insurance Program (OCIP) to provide excess coverage above the coverage required to be provided by construction contractors. The goals of the OCIP were to reduce the cost of procuring large insurance policies, reduce construction bid costs by relieving some of the contractor insurance burden, and attract more contractors to bid.

Most of the Central Subway construction is divided between two contracts for which OCIP provides excess coverage in addition to the insurance coverage provided by the construction contractors.

- SFMTA has a contract with Barnard Impregilo Healey (Barnard) for construction of the Central Subway tunnels for \$239,973,354.
- SFMTA has a contract with Tutor Perini Corporation (Tutor) for construction of stations, trackways, and control systems for \$936,490,910.

According to Mr. Albert Hoe, Central Subway Project Manager, the Tutor station construction contract requires insurance coverage of \$50 million and OCIP provides \$150 million in additional coverage. The Barnard tunnel construction contract carries \$350 million in insurance coverage and OCIP provides \$150 million in additional coverage.

The contractors are liable for any latent defects not visible by inspection for a period of ten years beyond project completion. OCIP provides coverage to reduce SFMTA's exposure in the event of a catastrophic loss that exceeds the value of the insurance carried by the contractors.

**Contract with Aon**

In January 2012, the SFMTA Board of Directors approved a contract with Aon Risk Insurance Services West, Inc. (Aon). Under the contract, Aon served as an insurance broker. The contract pays for insurance premiums, broker's fees, brokers' commissions, and other related charges. The contract was modified four times, as shown in Table 1 below.

**Table 1: Aon Contract Modifications**

No.	Date	\$150 million coverage – tunnel construction	\$150 million coverage – trackways, stations and control systems	Not-to-Exceed Amount
1	8/3/2012	\$9,808,750 <sup>1</sup>	\$0	\$9,808,750
2 <sup>2</sup>	1/24/2013	\$9,808,750	\$8,280,000	\$18,088,750
3	6/23/2014	\$9,808,750	\$8,964,381	\$18,773,131
4 <sup>3</sup>	10/26/18	\$14,151,837	\$10,942,599	\$25,094,436

Source: Contract Amendments

The contract with Aon was most recently amended in 2018 in order to extend term of contract by two years through to accommodate delays in the Central Subway project.

#### DETAILS OF PROPOSED LEGISLATION

The proposed resolution would (1) approve the fifth amendment to the Aon Risk Insurance Services West, Inc. (Aon) contract for excess liability insurance for the Central Subway Project to increase the contract amount by \$1,684,550 from \$25,094,436 for an amount not to exceed \$26,778,986; and (2) extend the term by approximately two years from June 24, 2020 to July 1, 2022.

The proposed amendment would provide \$150 million OCIP coverage for the station construction and \$150 million OCIP coverage for the tunnel construction through FY 2021-22, totaling \$300 million in OCIP coverage.

#### Retroactive Approval

According to Mr. Robert Stone, Deputy City Attorney, the nominal term of the Aon Contract ended on June 24, 2020, but the insurance agreement is still in effect. An insurance broker is obligated to assist the insured with claims and to represent the insured to the underwriters until the statutory period for claims has expired. With the Board's approval, the nominal term of the Aon Contract will be extended retroactively commencing June 25, 2020, but the broker's obligations did not expire.

<sup>1</sup> SFMTA administratively approved Amendment No. 1 to the contract, which allowed payment to different divisions within Aon, but did not change the term or not-to-exceed amount.

<sup>2</sup> In January 2013, the Board of Supervisors approved Amendment No. 2 to the contract, increasing the insurance coverage for the Central Subway Project from \$150 million to \$300 million. The contract increased by \$8,280,000 to pay for premiums for the additional insurance coverage, resulting in a total contract amount of \$18,088,750 (File 12-1169).

<sup>3</sup> In October 2018, the Board of Supervisors (1) retroactively approved Amendment No. 3 to the Aon contract, increasing the contract amount by \$684,382, for a total not to exceed \$18,773,132 and (2) approved Amendment No. 4 to the Aon contract, increasing the contract amount by \$6,321,304, for a total not to exceed \$25,094,436 (File 18-0907).

**Additional Insurance Coverage Required due to Delays in the Central Subway Project**

According to the November 3, 2020 SFMTA staff report to the SFMTA Board of Directors, the premiums for the \$300 million in excess insurance coverage for the two OCIP Central Subway project construction contracts are based on the value of the construction contracts and the period of active construction.<sup>4</sup> According to Mr. Hoe, the tunnel construction costs under the contract with Barnard increased by \$6.4 million, and station/ trackway/ control system construction costs under the contract with Tutor have increased by \$96.8 million.

Construction of the Central Subway tunnels was completed in October 2018, and construction of the station/ trackway/ control system is scheduled for completion in approximately March 2021. Revenue service is scheduled to begin in early March 2022. Under the proposed contract amendment with Aon, the excess coverage remains at \$300 million, but the contract term would be extended from June 2020 to July 1, 2022. According to Mr. Hoe, the extension of the Aon contract term to July 2022, more than one year after scheduled completion of construction, is due to the need for the insurance coverage to continue through final closeout of the project.

According to Mr. Hoe, the majority of the increased costs and project delays were needed to ensure that the construction of the stations and various systems are operational and meet the latest requirements from regulatory agencies including the Federal Transit Administration and California Public Utilities Commission. In addition, Mr. Hoe states that modifications to site conditions and other obstructions within the construction site contributed to project delays and increased costs.<sup>5</sup> Mr. Hoe also states that the project has been impacted by Covid-19 health restrictions, which have limited the number of construction staff to be used on site and imposed requirements on how contractors perform their work.<sup>6</sup> Consequently, Mr. Hoe states that there

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<sup>4</sup> The SFMTA pays the premiums (charges) for the OCIP through Aon, which as the OCIP insurance broker, procures the insurance policies for the OCIP from 16 underwriters.

<sup>5</sup> According to Mr. Hoe, some examples relate to the construction of the station structure. Because the stations are constructed under the street, there were changes to the soil around the station that required the project to change the special supports to construct the station. This includes the construction of the slurry wall to be thicker and to enhance the temporary shoring to withstand the soil pressure. In addition, there was an adjustment in the water table which allowed water intrusion into the station. Since the station needed to be watertight, additional measures were installed to address the water leakage within the station. At the Union Square/Market Street Station, additional measures were needed to ensure that construction did not undermine the foundation of surrounding buildings. This included providing extra monitoring devices on all the surrounding buildings to determine real-time settlement of each foundation. In addition, increased contract costs and project delays resulted from changes to the site conditions during utility relocation. Abandoned or unidentified utility was discovered when the station structure was constructed. These utility adjustments resulted in delays to the main construction activities.

<sup>6</sup> The San Francisco Health Officer issued the following directives and guidelines concerning performance of construction work during the pandemic: Order of the Health Officer No. C19-07c Appendix B-2 (Large Construction Project Safety Protocol) dated March 31, 2020, superseded and reissued May 5, 2020; Health Officer Directive No. 2020-04; Appendix A: City and County of San Francisco Public Works Project Safety Protocol for COVID-19 (Alternative to Appendices B-1 and B-2 for Public Works Projects), May 5, 2020. The City Administrator also issued the following guidelines that governed safety management on construction sites: Memo from Naomi Kelly, City Administrator to Public Works Construction Departments in San Francisco Construction Industry Consensus – Best Practices COVID-19 Construction Field Safety Guidelines, April 1, 2020.

may be further delays to the project beyond the estimated construction completion date of March 2021.

## FISCAL IMPACT

The proposed resolution would increase the not-to-exceed amount of the Aon contract by \$1,684,550 from \$25,094,436 for an amount not to exceed \$26,778,986. Table 2 below shows the premium costs from the insurance underwriters for the proposed contract amendment. As previously mentioned, the premiums are based on the value of construction contracts and the periods of active construction.

**Table 2: Aon Contract Amendment Proposed Costs**

Uses	Costs
Apollo Side Car Demo	\$557,894
Berkshire Hathaway	\$279,003
CV Starr	\$278,947
Allied World National Assurance Co.	\$557,894
Taxes <sup>7</sup>	\$10,812
<b>Total</b>	<b>\$1,684,550</b>

Source: SFMTA

## Funding Source

Mr. Hoe states that SFMTA has expended all Central Subway project funding sources for the existing contract, and so the proposed increased insurance costs will be funded by the Capital Contingency, which are local funds from SFMTA's current operating budget reserved for capital project contingencies and approved for FY 2020-21.

## POLICY CONSIDERATION

### MTA Operating Funds

According to the Controller's Office FY 2020-21 Three-Month Budget Status Report dated November 10, 2020, SFMTA projects to end the year with a \$37.8 million operating deficit due to a revenue deficit of \$182.4 million, which is partly offset by expenditure savings of \$144.6 million. MTA operating funds are projected to end the fiscal year with a balance of \$147.2 million, of which \$39.1 million has been appropriated in the previously approved FY 2021-22 budget.

As noted above, the \$1.68 million required to fund the proposed contract amendment will be sourced from the SFMTA Capital Reserve, which is part of SFMTA's operating budget that, as noted above, is projected to have a \$37.8 million deficit in FY 2020-21.

<sup>7</sup> According to Mr. Hoe, this is SFMTA's estimated amount of taxes associated with the premium costs.

## RECOMMENDATIONS

1. Request a written report from SFMTA regarding the revised budget for the Central Subway project no later than February 1, 2021 and include the report in the legislative file.
2. Approve the proposed resolution.



**CITY AND COUNTY OF SAN FRANCISCO  
MUNICIPAL TRANSPORTATION AGENCY**

**AMENDMENT NO. 5**

**TO**

**THE AGREEMENT BETWEEN THE CITY AND COUNTY OF SAN FRANCISCO  
MUNICIPAL TRANSPORTATION AGENCY**

**AND**

**AON RISK INSURANCE SERVICES WEST, INC.**

**FOR**

**INSURANCE BROKERAGE SERVICES FOR AN OWNER'S CONTROLLED  
INSURANCE PROGRAM ("OCIP") TO  
PROVIDE EXCESS LIABILITY INSURANCE FOR THE CENTRAL SUBWAY  
PROJECT**

This Amendment No. 5, dated for convenience as ~~October~~ <sup>November</sup> 6, 2020, is made in the City and County of San Francisco, State of California, by and between: Aon Risk Insurance Services West, Inc. ("Broker"), and the City and County of San Francisco, a municipal corporation ("City"), acting by and through its Municipal Transportation Agency ("SFMTA").

**RECITALS**

WHEREAS, On February 7, 2012, the SFMTA Board of Directors adopted Resolution No. 12-017, which authorized the Director of Transportation to execute Contract No. CS-136-1 between SFMTA and Broker for Insurance Brokerage Services for an Owner's Controlled Insurance Program ("OCIP") to provide Excess Liability Insurance for the Central Subway Project ("Agreement"), in an amount not to exceed \$9,808,750 and for a term of eight years, actual premium cost adjusted based on final bid costs of the covered contract work; and,

WHEREAS, Construction of the Central Subway Project has been delayed 1145 calendar days beyond the revised substantial completion date, and Amendment No. 5 to the Contract CS-163 increases the contract by an amount not to exceed \$1,684,550 to extend the excess insurance coverage for the Project; and,

WHEREAS, the parties wish to further amend the Agreement to extend the term of the Agreement from June 24, 2020 to July 1, 2022.

**Now, THEREFORE, the parties agree to amend the Contract as follows:**

A. Section 2 of the Contract, Term and Expiration of the Agreement is deleted and replaced in its entirety with the following:

2.1 Subject to Section 1, the term of this Agreement shall be for a period of ten (10) years commencing on the Effective Date of the Agreement, excluding Broker's obligations

for completed operations claims services.

2.2 Prior to expiration of this Agreement, Broker shall commence and perform, with diligence, all actions necessary on the part of Broker to effect the termination of this Agreement and to minimize the liability of Broker and City to third parties as a result of expiration. Further, Broker shall perform all actions necessary for the uninterrupted continuance of insurance policies secured pursuant to this Agreement with the City and/or through an alternative Broker of the City's choosing. All such actions shall be subject to the prior approval of City. Such actions shall include, without limitation those listed in Section 21.2 of this Agreement. The Term may be extended upon agreement in writing by Broker and SFMTA in one-year increments. However, the expiration of this Contract does not relieve Broker of its responsibilities to provide closeout services as required under the Contract.



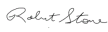
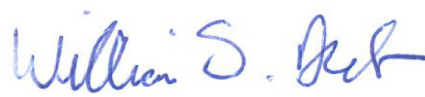
B. Section 5.2(c) of Agreement

(c) The total cost to the City for the insurance coverage described above shall not exceed **Twenty Six Million Seven Hundred Seventy Eight Thousand Nine Hundred Eighty Six Dollars (\$26,778,986)**. Each component of the Broker's compensation and the breakdown of costs associated with this Agreement appear in Appendix C, "Calculation of Charges", attached hereto and incorporated by reference as though fully set forth herein.

C. By signing below, the signatories warrant that they each have the authority to sign this modification to the contract and bind the respective party he or she represents.

*The remainder of this page has been intentionally left blank.*

IN WITNESS WHEREOF, each party has duly executed this Fifth Amendment to the Agreement as of the date first referenced above.

<b>CITY</b> Municipal Transportation Agency	<b>BROKER</b>
<p> _____ Jeffrey P. Tumlin Director of Transportation</p> <p>Authorized By: Municipal Transportation Agency</p> <p>Resolution No. <u>201103-092</u></p> <p>Adopted: <u>November 3, 2020</u></p> <p>Attest:</p> <p>By: <u></u></p> <p>Approved as to Form: Dennis J. Herrera City Attorney</p> <p>By: <u></u> Robert K. Stone Deputy City Attorney</p>	<p> _____ Billy Deeb Director, Public Entities Aon Risk Insurance Services West, Inc. 199 Fremont Street, 17<sup>th</sup> Floor San Francisco, CA 94105</p>

**CS-163-1**  
**APPENDIX C**  
**CALCULATION OF CHARGES**

Note: The fees schedule and other compensation listed in the final Contract will be based on the selected Proposer's price bid submitted with its Proposal. The City anticipates that the compensation provisions of the final Contract will set out terms substantially similar to the following:

1. **Total Amount.** The total amount of this Contract, inclusive of all broker's fees, administrative costs and charges, insurance premiums paid through Broker and other charges for services provided by the Broker, shall not exceed, Twenty Six Million Seven Hundred Seventy Eight Thousand Nine Hundred Eighty Six Dollars (\$26,778,986).
2. **Fees.** As compensation for all services provided under this Agreement, including but not limited to program planning, marketing, placement, implementation and servicing of insurance policies, the SFMTA shall pay Broker standard commissions to be included in the Cost of Premiums. Broker shall disclose the amounts and percentages of its fees as provided in Sections 5.4, 5.5 and 5.6 of the Contract.
3. **Invoices.** Invoices furnished by Broker under this Contract must be in a form acceptable to the Controller, and must include the Contract Progress Payment Authorization number. All amounts paid by City to Broker shall be subject to audit by the City.
4. **Payment.** Payment shall be made by City to Broker at the address specified in the section entitled "Notices."
5. **Cost of Premiums.** Total cost for insurance provided under this Agreement, including all Brokers fees, Surplus Lines taxes and government fees, shall not exceed Twenty Six Million Seven Hundred Seventy Eight Thousand Nine Hundred Eighty Six Dollars (\$26,778,986).
6. **Taxes.** The aforesaid amounts for the Premiums specified in this Contract are inclusive of all federal, state and local sales taxes, use, excise, receipts, gross income and other similar taxes and governmental charges.
7. **Late Payments.** In no event shall the City be liable for interest or late charges for any late payments.
8. **Commissions.** Broker Fees set out herein shall be full and complete compensation for all Program services for the insurance procured under this Contract. Broker and its officers, agents and employees shall not accept or receive any additional commissions or payments from insurance companies, agents or affiliates as a result or in relation to any excess liability, or other insurance contract for the said insurance coverages.

If agreements with insurers require Broker to receive commissions in regard to the coverages provided under this Agreement, Broker will promptly notify City of such commissions and will credit an amount equal to the excess received and retained against any other amount owing to Broker.

9. **Other Service Providers.** City may choose to use a property appraiser, safety control service, structured settlement firm or other similar service provider in connection with the insurance coverages Broker places for City or the services Broker provides to the City. If City elects to use a service provider from which Broker or its corporate parents, subsidiaries or affiliates will receive any compensation directly or indirectly relating to the services City purchases from the provider, Broker will disclose additional information regarding that compensation to City before City makes a final decision to use the service provider.

**City and County of San Francisco  
Municipal Transportation Agency  
One South Van Ness Ave. 7<sup>th</sup> floor  
San Francisco, California 94103**

**Agreement between the City and County of San Francisco  
and Aon Risk Insurance Services West, Inc. for  
Insurance Brokerage Services for an Owner's Controlled Insurance Program ("OCIP") to  
provide Excess Liability Insurance for the Central Subway Project**

**Contract No. CS-163-1**

This Broker Services Agreement ("Agreement" or "Contract"), SFMTA Contract No. CS-163-1 is dated for convenience as January 23, 2012, made in the City and County of San Francisco, State of California, by and between: Aon Risk Insurance Services West, Inc. ("Broker"), and the City and County of San Francisco, a municipal corporation ("City"), acting by and through its Municipal Transportation Agency ("SFMTA").<sup>1</sup>

**RECITALS**

WHEREAS, The SFMTA desires to obtain insurance in the form of a rolling excess policy to provide excess liability insurance coverage to the City and its contractors in the construction of the subway tunnels and three subway stations as part of the public work known as the Central Subway Project ("Project"), which is Part 2 of the Third Street Light Rail Program; and,

WHEREAS, The excess insurance shall provide coverage for third party liability for the City and Project contractors; and

WHEREAS, The SFMTA intends that the implementation of an excess coverage insurance program for the Project will result in increased buying power, uniform insurance, broad coverage, and reduced costs for the Project; and

WHEREAS, the SFMTA wishes to secure the services a qualified insurance broker to provide insurance services to review insurance policies proposed by construction contractors, conduct insurance market studies and surveys for an insurance program for the Project for excess liability; and,

WHEREAS, a Request for Proposals ("RFP") was issued on October 19, 2010, and the SFMTA selected Broker through a competitive process as the highest ranking responsive Proposer; and

WHEREAS, Approval for this Agreement was obtained from the Civil Service Commission Notice of Action No. 4117-10/11 on June 20, 2011.

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<sup>1</sup> Except where a City agency other than the SFMTA acts in a regulatory capacity, the terms City and SFMTA are synonymous.

WHEREAS, Broker represents and warrants that it is qualified to perform the services required by the City, as set forth under this Agreement;

**NOW, THEREFORE, IN CONSIDERATION OF THE MUTUAL AGREEMENTS CONTAINED HEREIN, THE PARTIES AGREE AS FOLLOWS:**

**1. Certification of Funds.** The Controller is not authorized to make payments on any contract for which funds have not been certified as available in the budget or by supplemental appropriation. The City's obligation hereunder shall not at anytime exceed the amount certified by the Controller for the purpose and period stated in such certification. This Agreement is subject to the budget and fiscal provisions of the City's Charter. Charges will accrue only after prior written authorization certified by the Controller, and the amount of the City's obligation hereunder shall not at any time exceed the amount certified for the purpose and period stated in such advance authorization. Funding for the Contract may be certified in parts, as funds become available. Broker shall not perform Work in excess of the amount certified for the Contract. THIS SECTION 1 CONTROLS AGAINST ANY AND ALL OTHER PROVISIONS OF THIS AGREEMENT.

**2. Term and Expiration of the Agreement.**

2.1. Subject to Section 1, the term of this Agreement shall be for a period of eight (8) years commencing on the Effective Date of the Agreement, excluding Broker's obligations for completed operations claims services.

2.2. Prior to expiration of this Agreement, Broker shall commence and perform, with diligence, all actions necessary on the part of Broker to effect the termination of this Agreement and to minimize the liability of Broker and City to third parties as a result of expiration. Further, Broker shall perform all actions necessary for the uninterrupted continuance of insurance policies secured pursuant to this Agreement with the City and/or through an alternative Broker of the City's choosing. All such actions shall be subject to the prior approval of City. Such actions shall include, without limitation those listed in Section 21.2 of this Agreement. The Term may be extended upon agreement in writing by Broker and SFMTA in one-year increments. However, the expiration of this Contract does not relieve Broker of its responsibilities to provide closeout services as required under the Contract.

**3. Effective Date of Agreement.** This Agreement shall become effective when the SFMTA Board of Directors has authorized execution of the Contract, the San Francisco Board of Supervisors has authorized the Contract, the SFMTA's Executive Director/CEO has executed the Contract, and the Controller has certified to the availability of funds and that SFMTA has so notified the Broker in writing.

**4. Scope of Work and Representations of Broker.**

Broker represents and warrants the following:

**4.1 Obligation of Broker.** The Broker agrees to perform or cause to be performed the services provided for in Appendix B, "Services To Be Provided by Broker" attached hereto and as described in the recitals stated above, all which are incorporated by reference as though fully set forth herein. Broker will be responsible for providing the Scope of Services in a timely, cost-effective and professional manner. Broker agrees to perform its services under this Contract as

an independent contractor, and shall devote such time and commit such resources as are necessary to meet its obligations under this Agreement, whether specified or performed as a matter of course under industry standards.

**4.2 Standard of Care.** All employees and subcontractors of Broker who are involved in the provision of services under this Contract shall perform all services and complete all duties with a degree of skill and competence consistent with the skill and competence shown by comparable insurance brokers that have performed and provided similar services to large complex public works projects in California.

**4.3 Corporate Organization and Standing.** Broker is a California corporation duly organized, validly existing and in good standing under the laws of the State of California, and has the power and authority to enter into this Contract and to fulfill its duties under this Contract.

**4.4 Corporate Authorization.** The execution and delivery of this Contract and the fulfillment by Broker of the duties contemplated hereby have been duly authorized by all necessary actions on the part of Broker, and this Contract, as of the Effective Date, will constitute a valid and binding Contract of Broker, enforceable against Broker in accordance with its terms.

**4.5 No Violation by Virtue of the Contract.** Neither the execution and delivery of this Contract nor the fulfillment by Broker of the duties set forth herein will constitute a violation of, or be in conflict with, or constitute an event that, with the giving of notice or the passage of time, or both, would result in a breach of, constitute a default under, or create (or cause the acceleration of the maturity of) any debt, obligation or liability affecting this Contract under:

- (a) Any term or provision of any applicable federal or state statute, law, rule, regulation or any resolutions of any relevant governmental entity having jurisdiction over Broker;
- (b) Any contract, permit, agreement or indenture to which Broker is subject; or
- (c) Any judgment, decree, order, regulation or rule of any governmental entity applicable to City.

**4.6 Accuracy; Completeness.** No statement or representation by Broker in this Contract contains or will contain any untrue statement of a material fact, or omits or will omit to state any material fact relevant to such statement or representation necessary to make the information contained in such statement or representation not misleading.

**4.7 Professional Capacity.** Broker has the professional and financial resources necessary to fulfill its obligations under this Contract.

## **5. Compensation.**

5.1. The City shall compensate Broker for providing the services to the CSP through retail and wholesale commissions received from City's payment to insurance companies either directly or through Broker as provided in "Calculation of Charges" (Appendix C).



5.2. In no event shall the City's total expenditure (inclusive of all premiums, broker's fees, brokers commissions, Surplus Lines Taxes and fees, and government fees for insurance coverage, and other charges and fees) for insurance secured and services provided by Broker under this Agreement exceed Nine Million Eight Hundred Eight Thousand Seven Hundred Fifty Dollars (\$9,808,750). Each component of the Broker's compensation and the breakdown of costs associated with this Agreement appear in Appendix C, "Calculation of Charges," attached hereto and incorporated by reference as though fully set forth herein.

5.3. No charges shall be incurred under this Agreement nor shall any payments become due to Broker until reports, services, or both, required under this Agreement are received from Broker and approved by the SFMTA as being in accordance with this Agreement. City may withhold payment to Broker in any instance in which Broker has failed or refused to satisfy any material obligation provided for under this Agreement.

5.4. Before presenting the City with potential insurance policies, Broker will disclose to the City all compensation agreements it has with any insurer to which it has marketed the City's book of insurance. Prior to each placement by Broker and prior to binding any coverages for the City's insurance programs, Broker shall disclose to the City and obtain the City's approval of any commissions and/or contingent income collected or to be collected by Broker or its affiliates with respect to such placement. The City will also be provided prior to binding any policies with an accounting of any amounts to be paid to Broker, Broker's affiliates, and/or non-Broker intermediaries if available, in connection with coverages placed for the City's insurance programs, including any fees, if applicable, paid to Broker for services it provides to third parties. In addition, Broker will annually provide the City with a summary of all Broker revenue applicable to the City's insurance programs including all fees paid to or income generated from wholesale operations or intermediaries used in the process of obtaining the City's insurance coverage or services.

5.5. Broker is permitted to receive commissions from insurers for the individual coverages placed for the City's insurance programs. However, Broker is prohibited from including the coverages placed for the City in Broker's aggregate with an insurer used to calculate contingent income based on the total volume of coverage placed by Broker with insurer.

5.6. Insurance placements made by Broker on the City's behalf may require the payment of state surplus lines or other premium taxes and or fees in addition to the premium itself. Broker will invoice the City for the payment of these taxes and fees with the premium.

5.7. In no event shall City be liable for interest or late charges for any late payments.

5.8. The Controller is not authorized to pay invoices submitted by Broker prior to Broker's submission of SFMTA SBE Form No. 6: Progress Payment Report. If SFMTA SBE Form No. 6 is not submitted with Broker's invoice, the Controller will notify the department, the SFMTA Contract Compliance Office and Broker of the omission. If Broker's failure to provide SFMTA SBE Form No. 6 is not explained to the Controller's satisfaction, the Controller will withhold 20% of the payment due pursuant to that invoice until SFMTA SBE Form No. 6 is provided.

5.9. Following City's payment of an invoice, Broker has five (5) days to submit SFMTA SBE Form No. 7: Subconsultant Payment Declaration verifying that all subcontractors have been paid and specifying the amount and date of payment.

**6. Guaranteed Maximum Costs.** The City's obligation hereunder shall not at any time exceed the amount certified by the Controller for the purpose and period stated in such certification. Except as may be provided by laws governing emergency procedures, officers and employees of the City are not authorized to request, and the City is not required to reimburse the Broker for, Commodities or Services beyond the agreed upon contract scope unless the changed scope is authorized by amendment and approved as required by law. Officers and employees of the City are not authorized to offer or promise, nor is the City required to honor, any offered or promised additional funding in excess of the maximum amount of funding for which the contract is certified without certification of the additional amount by the Controller. The Controller is not authorized to make payments on any contract for which funds have not been certified as available in the budget or by supplemental appropriation.

**7. Payment; Invoice Format.** Invoices furnished by Broker under this Agreement must be in a form acceptable to the Controller, and must include a unique invoice number. All amounts paid by City to Broker shall be subject to audit by City. Payment shall be made by City to Broker at the address specified in Section 21 ("Notices to the Parties and City Liaison)."

**8. Submitting False Claims; Monetary Penalties.** Pursuant to San Francisco Administrative Code §21.35, any contractor, subcontractor or consultant who submits a false claim shall be liable to the City for the statutory penalties set forth in that Section. The text of Section 21.35, along with the entire San Francisco Administrative Code, is available on the web at <http://www.municode.com/Library/clientCodePage.aspx?clientID=4201>. A contractor, subcontractor or consultant will be deemed to have submitted a false claim to the City if the contractor, subcontractor or consultant: (a) knowingly presents or causes to be presented to an officer or employee of the City a false claim or request for payment or approval; (b) knowingly makes, uses, or causes to be made or used a false record or statement to get a false claim paid or approved by the City; (c) conspires to defraud the City by getting a false claim allowed or paid by the City; (d) knowingly makes, uses, or causes to be made or used a false record or statement to conceal, avoid, or decrease an obligation to pay or transmit money or property to the City; or (e) is a beneficiary of an inadvertent submission of a false claim to the City, subsequently discovers the falsity of the claim, and fails to disclose the false claim to the City within a reasonable time after discovery of the false claim.

**9. Federal Contract Requirements.** Broker shall comply with all applicable federal contracting laws, regulations and requirements, including but not limited those described in Appendix A to this Agreement.

**10. Taxes.**

10.1 Payment of any taxes and government fees, including possessory interest taxes and California sales and use taxes insurance taxes and other government fees, levied upon or as a result of this Agreement, or the services delivered pursuant hereto, shall be the obligation of Broker. Broker recognizes and understands that this Agreement may create a "possessory interest" for property tax purposes. Generally, such a possessory interest is not created unless

the Agreement entitles the Broker to possession, occupancy, or use of City property for private gain. If such a possessory interest is created, then the following shall apply:

a. Broker, on behalf of itself and any permitted successors and assigns, recognizes and understands that Broker, and any permitted successors and assigns, may be subject to real property tax assessments on the possessory interest;

b. Broker, on behalf of itself and any permitted successors and assigns, recognizes and understands that the creation, extension, renewal, or assignment of this Agreement may result in a "change in ownership" for purposes of real property taxes, and therefore may result in a revaluation of any possessory interest created by this Agreement. Broker accordingly agrees on behalf of itself and its permitted successors and assigns to report on behalf of the City to the County Assessor the information required by Revenue and Taxation Code Section 480.5, as amended from time to time, and any successor provision.

c. Broker, on behalf of itself and any permitted successors and assigns, recognizes and understands that other events also may cause a change of ownership of the possessory interest and result in the revaluation of the possessory interest. (see, e.g., Rev. & Tax. Code Section 64, as amended from time to time). Broker accordingly agrees on behalf of itself and its permitted successors and assigns to report any change in ownership to the County Assessor, the State Board of Equalization or other public agency as required by law.

d. Broker further agrees to provide such other information as may be requested by the City to enable the City to comply with any reporting requirements for possessory interests that are imposed by applicable law.

**11. Payment Does Not Imply Acceptance of Work.** The granting of any payment by City, or the receipt thereof by Broker, shall in no way lessen the liability of Broker to replace unsatisfactory work, equipment, or materials, although the unsatisfactory character of such work, equipment or materials may not have been apparent or detected at the time such payment was made. Materials, equipment, components, or workmanship that do not conform to the requirements of this Agreement may be rejected by City and in such case must be replaced by Broker without delay.

## **12. Broker's Personnel.**

**12.1. Qualified Personnel.** Work under this Agreement shall be performed only by competent personnel under the supervision of and in the employment of Broker. Broker will comply with City's reasonable requests regarding assignment of personnel, but all personnel, including those assigned at City's request, must be supervised by Broker. Broker shall commit adequate resources to complete the project within the Project Schedule (Appendix D) specified in this Agreement.

**12.2 Key Personnel.** Regina M. Carter, Managing Director, is Broker's Key Personnel. Ms. Carter shall be authorized to act on behalf of Broker with respect to the obligations, responsibilities and rights of Broker under this Contract, and to accept all communications from City with respect to this Contract. Ms. Carter shall be available to consult with City at all

reasonable times, and City will be entitled to act in reliance upon the recommendations, instructions and decisions of Key Personnel insofar as they relate to this Contract.

**12.3 Approval of Changes.** Any change in Broker's Key Personnel shall require City approval. Any request for change in the Broker's Key Personnel must be submitted to SFMTA in writing forty-five (45) days prior to assignment.

**13. Responsibility for Equipment.** City shall not be responsible for any damage to persons or property as a result of the use, misuse or failure of any equipment used by Broker, or by any of its employees, even though such equipment be furnished, rented or loaned to Broker by City.

**14. Independent Broker; Payment of Taxes and Other Expenses**

**14.1. Independent Broker.** Broker or any agent or employee of Broker shall be deemed at all times to be an independent contractor and is wholly responsible for the manner in which it performs the services and work requested by City under this Agreement. Broker or any agent or employee of Broker shall not have employee status with City, nor be entitled to participate in any plans, arrangements, or distributions by City pertaining to or in connection with any retirement, health or other benefits that City may offer its employees. Broker or any agent or employee of Broker is liable for the acts and omissions of itself, its employees and its agents. Broker shall be responsible for all obligations and payments, whether imposed by federal, state or local law, including, but not limited to, FICA, income tax withholdings, unemployment compensation, insurance, and other similar responsibilities related to Broker's performing services and work, or any agent or employee of Broker providing same. Nothing in this Agreement shall be construed as creating an employment or agency relationship between City and Broker or any agent or employee of Broker. Any terms in this Agreement referring to direction from City shall be construed as providing for direction as to policy and the result of Broker's work only, and not as to the means by which such a result is obtained. City does not retain the right to control the means or the method by which Broker performs work under this Agreement.

**14.2. Payment of Taxes and Other Expenses.** Should City, in its discretion, or a relevant taxing authority such as the Internal Revenue Service or the State Employment Development Division, or both, determine that Broker is an employee for purposes of collection of any employment taxes, the amounts payable under this Agreement shall be reduced by amounts equal to both the employee and employer portions of the tax due (and offsetting any credits for amounts already paid by Broker which can be applied against this liability). City shall then forward those amounts to the relevant taxing authority. Should a relevant taxing authority determine a liability for past services performed by Broker for City, upon notification of such fact by City, Broker shall promptly remit such amount due or arrange with City to have the amount due withheld from future payments to Broker under this Agreement (again, offsetting any amounts already paid by Broker which can be applied as a credit against such liability). A determination of employment status pursuant to the preceding two paragraphs shall be solely for the purposes of the particular tax in question, and for all other purposes of this Agreement, Broker shall not be considered an employee of City. Notwithstanding the foregoing, should any court, arbitrator, or administrative authority determine that Broker is an employee for any other purpose, then Broker agrees to a reduction in City's financial liability so that City's total expenses under this Agreement are not greater than they would have been had the court, arbitrator, or administrative authority determined that Broker was not an employee.

**15. Insurance.**

15.1. Without in any way limiting Broker's liability pursuant to the "Indemnification" Section of this Agreement, Broker must maintain in force, during the full term of the Agreement, insurance in the following amounts and coverages:

- a. Workers' Compensation, in statutory amounts, with Employers' Liability Limits not less than \$1,000,000 for each accident, injury, or illness; and
- b. Commercial General Liability Insurance with general aggregate limits not less than \$2,000,000 each occurrence Combined Single Limit for Bodily Injury and Property Damage, including Contractual Liability, Personal Injury, Products and Completed Operations; and
- c. Personal and Advertising Liability Insurance with limits not less than \$2,000,000; and
- d. Commercial Automobile Liability Insurance with limits not less than \$2,000,000 each occurrence Combined Single Limit for Bodily Injury and Property Damage, including Owned, Non-Owned and Hired auto coverage, as applicable.
- e. Errors and Omissions insurance with limits not less than \$10,000,000 each claim with respect to negligent acts, errors or omissions in connection with professional services to be provided under this Agreement.

15.2. Commercial General Liability and Commercial Automobile Liability Insurance policies must provide the following:

- a. Name as Additional Insured the City and County of San Francisco, its Officers, Agents, and Employees.
- b. That such policies are primary insurance to any other insurance available to the Additional Insureds, with respect to any claims arising out of this Agreement, and that insurance applies separately to each insured against whom claim is made or suit is brought.

15.3. All policies shall provide thirty (30) days' advance written notice to City of reduction or nonrenewal of coverages or cancellation of coverages for any reason. Notices shall be sent to the following address:

San Francisco Municipal Transportation Agency  
1 South Van Ness Avenue,  
3rd Floor San Francisco, CA 94103  
Attention: Shahnam Farhangi  
In re: Contract No. CS-163-A

Matt Hansen, Director  
Risk Management Division

**16.2. Limitations.** No insurance policy covering the Broker's performance under this Agreement shall operate to limit the Broker's Liabilities under this provision. Nor shall the amount of insurance coverage operate to limit the extent of such Liabilities. The Broker assumes no liability whatsoever for the sole negligence, active negligence, or willful misconduct of any Indemnitee or the contractors of any Indemnitee.

**16.3. Copyright infringement.** Broker shall also indemnify, defend and hold harmless all Indemnitees from all suits or claims for infringement of the patent rights, copyright, trade secret, trade name, trademark, service mark, or any other proprietary right of any person or persons in consequence of the use by the City, or any of its boards, commissions, officers, or employees of articles or services to be supplied in the performance of Broker's services under this Agreement. Infringement of patent rights, copyrights, or other proprietary rights in the performance of this Agreement, if not the basis for indemnification under the law, shall nevertheless be considered a material breach of contract.

**17. Incidental and Consequential Damages.** Broker shall be responsible for incidental and consequential damages resulting in whole or in part from Broker's acts or omissions. Nothing in this Agreement shall constitute a waiver or limitation of any rights that City may have under applicable law.

**18. Liability of City.** CITY'S PAYMENT OBLIGATIONS UNDER THIS AGREEMENT SHALL BE LIMITED TO THE PAYMENT OF THE COMPENSATION PROVIDED FOR IN SECTION 5 OF THIS AGREEMENT. NOTWITHSTANDING ANY OTHER PROVISION OF THIS AGREEMENT, IN NO EVENT SHALL City BE LIABLE, REGARDLESS OF WHETHER ANY CLAIM IS BASED ON CONTRACT OR TORT, FOR ANY SPECIAL, CONSEQUENTIAL, INDIRECT OR INCIDENTAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, LOST PROFITS, ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT OR THE SERVICES PERFORMED IN CONNECTION WITH THIS AGREEMENT.

**19. Reports and Program Records.**

**19.1. Progress Reports.** Within five (5) business days of SFMTA request, Broker shall furnish to SFMTA reports in form and content satisfactory to SFMTA. The information in the report shall be current for the period ending on the first day of the previous month.

**19.2. Program Records and Audit.**

(a) Upon reasonable advance written request by City, Broker shall make available to City or representative, at the Broker or such other location mutually agreed upon, accurate records and other work product relating to this Contract documenting Broker's performance under the terms and conditions of this Contract.

(b) Broker shall maintain such data and records in an accessible location and condition for a period of not less than three years after final payment under this Contract or until after final audit has been resolved, whichever is later. The State of California or any federal agency having an interest in the subject matter of this Contract shall enjoy the same rights conferred upon City by this Article.

City and County of San Francisco  
25 Van Ness Ave., Suite 410  
San Francisco, California 94102

15.4. Should any of the required insurance be provided under a claims-made form, Broker shall maintain such coverage continuously throughout the term of this Agreement and, without lapse, for a period of three (3) years beyond the expiration of this Agreement, to the effect that, should occurrences during the contract term give rise to claims made after expiration of the Agreement, such claims shall be covered by such claims-made policies.

15.5. Should any of the required insurance be provided under a form of coverage that includes a general annual aggregate limit or provides that claims investigation or legal defense costs be included in such general annual aggregate limit, such general annual aggregate limit shall be double the occurrence or claims limits specified above.

15.6. Should any required insurance lapse during the term of this Agreement, requests for payments originating after such lapse shall not be processed until the City receives satisfactory evidence of reinstated coverage as required by this Agreement, effective as of the lapse date. If insurance is not reinstated, the City may, at its sole option, terminate this Agreement effective on the date of such lapse of insurance.

15.7. Before commencing any operations under this Agreement, Broker shall do the following: (a) furnish to City certificates of insurance and additional insured policy endorsements with insurers with ratings comparable to A-, VIII or higher, that are authorized to do business in the State of California, and that are satisfactory to City, in form evidencing all coverages set forth above, and (b) furnish to City complete copies of policies promptly upon City request. Failure to maintain insurance shall constitute a material breach of this Agreement.

15.8. Approval of the insurance by City shall not relieve or decrease the liability of Broker hereunder.

15.9. If a subcontractor will be used to complete any portion of this Agreement, the Broker shall ensure that the subcontractor shall provide all necessary insurance and shall name the City, its officers, agents and employees and the Broker listed as additional insureds.

## **16. Indemnification**

**16.1. General.** To the fullest extent permitted by law, Broker shall assume the defense of (with legal counsel subject to approval of the City), indemnify and save harmless the City, its boards, commissions, officers, and employees (collectively "Indemnitees"), from and against any and all claims, loss, cost, damage, injury (including, without limitation, injury to or death of an employee of the Broker or its subconsultants), expense and liability of every kind, nature, and description (including, without limitation, incidental and consequential damages, court costs, attorneys' fees, litigation expenses, fees of expert consultants or witnesses in litigation, and costs of investigation), that arise out of, pertain to, or relate to, directly or indirectly, in whole or in part, the negligence, recklessness, or willful misconduct of the Broker, any subcontractor or subconsultant, anyone directly or indirectly employed by them, or anyone that they control (collectively, "Liabilities").

## 20. Default; Remedies.

20.1 If the City determines that the Broker is in breach of this Agreement, prior to declaring Broker in default of the Agreement, the City shall provide written notice to Broker of the nature and circumstances of the breach. Broker shall have five (5) calendar days to dispute said notice and provide the City with explanation or proof that it is not in breach of Contract. If Broker does not dispute that it is in breach of this Agreement or if the City rejects Broker's dispute of breach, Broker shall have 15 calendar days from the date that the City issued the notice of breach either to cure the breach or provide a plan and schedule acceptable to the City by which it will cure the breach.

20.2 Each of the following shall constitute an event of default ("Event of Default") under this Agreement:

a. Broker fails or refuses to perform or observe any term, covenant or condition contained in any of the following Sections of this Agreement:

- 8. Submitting False Claims; Monetary Penalties
- 10. Taxes
- 15. Insurance
- 24. Proprietary or confidential information of City
- 30. Assignment
- 37. Drug-free Workplace Policy,
- 53. Compliance with Laws
- 57. Protection of Private Information
- 58. Graffiti removal

b. Broker fails or refuses to perform or observe any other term, covenant or condition contained in this Agreement, and such default continues for a period of ten days after written notice thereof from City to Broker.

c. Broker (1) is generally not paying its debts as they become due, (2) files, or consents by answer or otherwise to the filing against it of a petition for relief or reorganization or arrangement or any other petition in bankruptcy or for liquidation or to take advantage of any bankruptcy, insolvency or other debtors' relief law of any jurisdiction, (3) makes an assignment for the benefit of its creditors, (4) consents to the appointment of a custodian, receiver, trustee or other officer with similar powers of Broker or of any substantial part of Broker's property or (5) takes action for the purpose of any of the foregoing.

d. A court or government authority enters an order (a) appointing a custodian, receiver, trustee or other officer with similar powers with respect to Broker or with respect to any substantial part of Broker's property, (b) constituting an order for relief or approving a petition for relief or reorganization or arrangement or any other petition in bankruptcy or for liquidation or to take advantage of any bankruptcy, insolvency or other debtors' relief law of any jurisdiction or (c) ordering the dissolution, winding-up or liquidation of Broker.

20.3 On and after any Event of Default, City shall have the right to exercise its legal and equitable remedies, including, without limitation, the right to terminate this Agreement or to seek



specific performance of all or any part of this Agreement. In addition, City shall have the right (but no obligation) to cure (or cause to be cured) on behalf of Broker any Event of Default; Broker shall pay to City on demand all costs and expenses incurred by City in effecting such cure, with interest thereon from the date of incurrence at the maximum rate then permitted by law. City shall have the right to offset from any amounts due to Broker under this Agreement or any other agreement between City and Broker all damages, losses, costs or expenses incurred by City as a result of such Event of Default and any liquidated damages due from Broker pursuant to the terms of this Agreement or any other agreement.

20.4 All remedies provided for in this Agreement may be exercised individually or in combination with any other remedy available hereunder or under applicable laws, rules and regulations. The exercise of any remedy shall not preclude or in any way be deemed to waive any other remedy.

## **21. Termination for Convenience**

21.1. City shall have the option, in its sole discretion, to terminate this Agreement, at any time during the term hereof, for convenience and without cause. City shall exercise this option by giving Broker written notice of termination. The notice shall specify the date on which termination shall become effective.

21.2. Upon receipt of the notice, Broker shall commence and perform, with diligence, all actions necessary on the part of Broker to effect the termination of this Agreement on the date specified by City and to minimize the liability of Broker and City to third parties as a result of termination. All such actions shall be subject to the prior approval of City. Such actions shall include, without limitation:

- a. Halting the performance of all services and other work under this Agreement on the date(s) and in the manner specified by City.
- b. Not placing any further orders or subcontracts for materials, services, equipment or other items.
- c. Terminating all existing orders and subcontracts.
- d. At City's direction, assigning to City any or all of Broker's right, title, and interest under the orders and subcontracts terminated. Upon such assignment, City shall have the right, in its sole discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts.
- e. Subject to City's approval, settling all outstanding liabilities and all claims arising out of the termination of orders and subcontracts.
- f. Completing performance of any services or work that City designates to be completed prior to the date of termination specified by City.
- g. Taking such action as may be necessary, or as the City may direct, for the protection and preservation of any property related to this Agreement which is in the possession of Broker and in which City has or may acquire an interest.

21.3. Within 30 days after the specified termination date, Broker shall submit to City an invoice, which shall set forth each of the following as a separate line item:

a. The reasonable cost to Broker, without profit, for all services and other work City directed Broker to perform prior to the specified termination date, for which services or work City has not already tendered payment. Reasonable costs may include a reasonable allowance for actual overhead, not to exceed a total of 10% of Broker's direct costs for services or other work. Any overhead allowance shall be separately itemized. Broker may also recover the reasonable cost of preparing the invoice.

b. A reasonable allowance for profit on the cost of the services and other work described in the immediately preceding subsection 21.3.a, provided that Broker can establish, to the satisfaction of City, that Broker would have made a profit had all services and other work under this Agreement been completed, and provided further, that the profit allowed shall in no event exceed 5% of such cost.

c. The reasonable cost to Broker of handling material or equipment returned to the vendor, delivered to the City or otherwise disposed of as directed by the City.

d. A deduction for the cost of materials to be retained by Broker, amounts realized from the sale of materials and not otherwise recovered by or credited to City, and any other appropriate credits to City against the cost of the services or other work.

21.4. In no event shall City be liable for costs incurred by Broker or any of its subcontractors after the termination date specified by City, except for those costs specifically enumerated and described in the immediately preceding Subsection 21.3. Such non-recoverable costs include, but are not limited to, anticipated profits on this Agreement, post-termination employee salaries, post-termination administrative expenses, post-termination overhead or unabsorbed overhead, attorneys' fees or other costs relating to the prosecution of a claim or lawsuit, prejudgment interest, or any other expense which is not reasonable or authorized under such Subsection 21.3.

21.5. In arriving at the amount due to Broker under this Section, City may deduct: (1) all payments previously made by City for work or other services covered by Broker's final invoice; (2) any claim which City may have against Broker in connection with this Agreement; (3) any invoiced costs or expenses excluded pursuant to the immediately preceding Subsection 21.4; and (4) in instances in which, in the opinion of the City, the cost of any service or other work performed under this Agreement is excessively high due to costs incurred to remedy or replace defective or rejected services or other work, the difference between the invoiced amount and City's estimate of the reasonable cost of performing the invoiced services or other work in compliance with the requirements of this Agreement.

21.6. City's payment obligation under this Section shall survive termination of this Agreement.

**22. Rights and Duties upon Termination or Expiration.**

22.1. This Section and the following Sections of this Agreement shall survive termination or expiration of this Agreement:

- 8. Submitting False Claims; Monetary Penalties
- 10. Taxes
- 11. Payment Does Not Imply Acceptance of Work
- 13. Responsibility for Equipment
- 14. Independent Broker; Payment of Taxes and Other Expenses
- 15. Insurance
- 16. Indemnification
- 17. Incidental and Consequential Damages
- 18. Liability of City
- 24. Proprietary or Confidential Information
- 26. Ownership of Results
- 27. Works for Hire
- 28. Audit and Inspection Of Records
- 48. Modification of Agreement.
- 49. Administrative Remedy for Agreement Interpretation.
- 50. Agreement Made in California; Venue
- 51. Construction
- 52. Entire Agreement
- 56. Severability
- 57. Protection of Private Information

22.2. Subject to the immediately preceding Subsection 22.1, upon termination of this Agreement prior to expiration of the Term specified in Section 2, this Agreement shall terminate and be of no further force or effect. Broker shall transfer title to City, and deliver in the manner, at the times, and to the extent, if any, directed by City, any work in progress, completed work, supplies, equipment, and other materials produced as a part of, or acquired in connection with the performance of this Agreement, and any completed or partially completed work which, if this Agreement had been completed, would have been required to be furnished to City. This Subsection shall survive termination of this Agreement.

**23. Conflict of Interest.** Through its execution of this Agreement, Broker acknowledges that it is familiar with the provision of Section 15.103 of the City's Charter, Article III, Chapter 2 of City's Campaign and Governmental Conduct Code, and Section 87100 et seq. and Section 1090 et seq. of the Government Code of the State of California, and certifies that it does not know of any facts which constitutes a violation of said provisions and agrees that it will immediately notify the City if it becomes aware of any such fact during the term of this Agreement.

**24. Proprietary or Confidential Information.** Broker understands and agrees that, in the performance of the work or services under this Agreement or in contemplation thereof, Broker and its subcontractors may have access to private or confidential information which may be owned or controlled by City and that such information may contain proprietary or confidential details, the disclosure of which to third parties may be damaging to City, to City contractors, and/or to their respective employees. Broker agrees that all information disclosed to Broker by

City or other parties in the course Broker's performance of this Contract shall be held in strict confidence and used only in performance of the Agreement. Broker shall release any of said information only upon the written authorization of the SFMTA or as required by law. Broker shall exercise the same standard of care to protect such information as a reasonably prudent contractor would use to protect its own proprietary data. Broker shall comply with all applicable privacy laws, including but not limited to the federal Health Insurance Portability and Accountability Act (HIPAA).

## **25. Notices to the Parties and City Liaison.**

**25.1. Notices.** Unless otherwise indicated elsewhere in this Agreement, all written communications sent by the parties may be by U.S. mail, or by e-mail, and shall be addressed as follows:

To City:           Municipal Transportation Agency  
One South Van Ness Avenue, 3rd Floor  
San Francisco, CA 94103  
Attn: Shahn timer Farhangi  
Phone: 415-701-4284  
Fax: 415-701-4300  
Email: Shahn timer.farhaghi@sfmta.com

With a copy to:  
City and County of San Francisco  
Risk Management Division  
25 Van Ness Avenue., Suite 750410  
San Francisco, California 94102  
Attention: Matt Hansen, Director  
Tel: 415-554-2302  
Fax: 415-554-2357  
Email: matt.hansen@sfgov.org

To Broker:       Regina M. Carter  
Managing Director  
Aon Risk Insurance Services West  
199 Fremont Street, 17th Floor  
San Francisco, CA 94105  
Tel: 415-486-7554  
Fax: 415-486-7022  
email: regina.carter@aon.com

**25.2 Notice of Default.** Any notice of default must be sent by registered mail.

**25.3 City Liaison.** The SFMTA's Liaison/Project Manager is:

John Funghi, Program Manager  
SFMTA Central Subway Project  
821 Howard Street  
San Francisco, CA 94103

Phone: 415-701-4299  
Email: john.funghi@sfmta.com

**26. Ownership of Results.** Any interest of Broker or its Subcontractors, in drawings, plans, specifications, blueprints, studies, reports, memoranda, computation sheets, computer files and media or other documents prepared by Broker or its subcontractors in connection with services to be performed under this Agreement, shall become the property of and will be transmitted to City. However, Broker may retain and use copies for reference and as documentation of its experience and capabilities.

**27. Works for Hire.** If, in connection with services performed under this Agreement, Broker or its subcontractors create artwork, copy, posters, billboards, photographs, videotapes, audiotapes, systems designs, software, reports, diagrams, surveys, blueprints, source codes or any other original works of authorship, such works of authorship shall be works for hire as defined under Title 17 of the United States Code, and all copyrights in such works are the property of the City. If it is ever determined that any works created by Broker or its subcontractors under this Agreement are not works for hire under U.S. law, Broker hereby assigns all copyrights to such works to the City, and agrees to provide any material and execute any documents necessary to effectuate such assignment. With the approval of the City, Broker may retain and use copies of such works for reference and as documentation of its experience and capabilities.

**28. Audit and Inspection of Records.** Broker agrees to maintain and make available to the City, during regular business hours, accurate books and accounting records relating to its work under this Agreement. Broker will permit City to audit, examine and make excerpts and transcripts from such books and records, and to make audits of all invoices, materials, payrolls, records or personnel and other data related to all other matters covered by this Agreement, whether funded in whole or in part under this Agreement. Broker shall maintain such data and records in an accessible location and condition for a period of not less than five years after final payment under this Agreement or until after final audit has been resolved, whichever is later. The State of California or any federal agency having an interest in the subject matter of this Agreement shall have the same rights conferred upon City by this Section.

**29. Subcontracting.** Broker is prohibited from subcontracting this Agreement or any part of it unless such subcontracting is first approved by City in writing. Neither party shall, on the basis of this Agreement, contract on behalf of or in the name of the other party. An agreement made in violation of this provision shall confer no rights on any party and shall be null and void.

**30. Assignment.** The services to be performed by Broker are personal in character and neither this Agreement nor any duties or obligations hereunder may be assigned or delegated by the Broker unless first approved by City by written instrument executed and approved in the same manner as this Agreement.

**31. Non-Waiver of Rights.** The omission by either party at any time to enforce any default or right reserved to it, or to require performance of any of the terms, covenants, or provisions hereof by the other party at the time designated, shall not be a waiver of any such default or right to which the party is entitled, nor shall it in any way affect the right of the party to enforce such provisions thereafter.

**32. Earned Income Credit (EIC) Forms.** Administrative Code Section 12O requires that employers provide their employees with IRS Form W-5 (The Earned Income Credit Advance Payment Certificate) and the IRS EIC Schedule, as set forth below. Employers can locate these forms at the IRS Office, on the Internet, or anywhere that Federal Tax Forms can be found.

32.1. Provision of Forms to Employees. Broker shall provide EIC Forms to each Eligible Employee at each of the following times: (i) within thirty days following the date on which this Agreement becomes effective (unless Broker has already provided such EIC Forms at least once during the calendar year in which such effective date falls); (ii) promptly after any Eligible Employee is hired by Broker; and (iii) annually between January 1 and January 31 of each calendar year during the term of this Agreement.

32.2. Failure to Comply. Failure to comply with any requirement contained in subparagraph (a) of this Section shall constitute a material breach by Broker of the terms of this Agreement. If, within thirty days after Broker receives written notice of such a breach, Broker fails to cure such breach or, if such breach cannot reasonably be cured within such period of thirty days, Broker fails to commence efforts to cure within such period or thereafter fails to diligently pursue such cure to completion, the City may pursue any rights or remedies available under this Agreement or under applicable law.

32.3. Flow Down to Subcontractors. Any Subcontract entered into by Broker shall require the subcontractor to comply, as to the subcontractor's Eligible Employees, with each of the terms of this Section.

32.4. Terms. Capitalized terms used in this Section and not defined in this Agreement shall have the meanings assigned to such terms in Section 12O of the San Francisco Administrative Code.

### **33. Claims**

33.1. Broker shall not be entitled to the payment of any additional compensation for any action, or failure to act, by the SFMTA Project Manager, including failure or refusal to issue a Contract Modification or Amendment or for the happening of any event, thing, occurrence, or other cause, unless Broker shall have given the SFMTA Project Manager due written notice of potential claim.

33.2. The written notice of potential claim shall set forth the reasons for which Broker believes additional time or additional compensation will or may be due, the nature of the costs involved, and insofar as possible, the amount of the potential claim. The said notice as above required must have been given to the SFMTA Project Manager prior to the time that Broker shall have performed the work giving rise to the potential claim for additional compensation, or in all other cases, within 15 days after the happening of the event, thing, occurrence, or other cause giving rise to the potential claim.

33.3. It is the intention of the Parties under this Section that differences between the parties arising under and by virtue of the Contract be brought to the attention of the SFMTA Project Manager at the earliest possible time in order that such matters may be expeditiously resolved, if possible, or other appropriate action promptly be taken. Broker hereby agrees that it shall have no right to additional time or compensation for any claim that may be based on any

such act, failure to act, event, thing, or occurrence for which it has failed to provide timely written notice of potential claim, as required herein.

### **34. Nondiscrimination; Penalties**

**34.1. Broker Shall Not Discriminate.** In the performance of this Agreement, Broker agrees not to discriminate against any employee, City and County employee working with such contractor or subcontractor, applicant for employment with such contractor or subcontractor, or against any person seeking accommodations, advantages, facilities, privileges, services, or membership in all business, social, or other establishments or organizations, on the basis of the fact or perception of a person's race, color, creed, religion, national origin, ancestry, age, height, weight, sex, sexual orientation, gender identity, domestic partner status, marital status, disability or Acquired Immune Deficiency Syndrome or HIV status (AIDS/HIV status), or association with members of such protected classes, or in retaliation for opposition to discrimination against such classes.

**34.2. Subcontracts.** Broker shall incorporate by reference in all subcontracts the provisions of §§12B.2(a), 12B.2(c)-(k), and 12C.3 of the San Francisco Administrative Code (copies of which are available from Purchasing) and shall require all subcontractors to comply with such provisions. Broker's failure to comply with the obligations in this Subsection shall constitute a material breach of this Agreement.

**34.3. Nondiscrimination in Benefits.** Broker does not as of the date of this Agreement and will not during the term of this Agreement, in any of its operations in San Francisco, on real property owned by San Francisco, or where work is being performed for the City elsewhere in the United States, discriminate in the provision of bereavement leave, family medical leave, health benefits, membership or membership discounts, moving expenses, pension and retirement benefits or travel benefits, as well as any benefits other than the benefits specified above, between employees with domestic partners and employees with spouses, and/or between the domestic partners and spouses of such employees, where the domestic partnership has been registered with a governmental entity pursuant to state or local law authorizing such registration, subject to the conditions set forth in §12B.2(b) of the San Francisco Administrative Code.

**34.4. Condition to Contract.** As a condition to this Agreement, Broker shall execute the "Chapter 12B Declaration: Nondiscrimination in Contracts and Benefits" form (form HRC-12B-101) with supporting documentation and secure the approval of the form by the San Francisco Human Rights Commission.

**34.5. Incorporation of Administrative Code Provisions by Reference.** The provisions of Chapters 12B and 12C of the San Francisco Administrative Code are incorporated in this Section by reference and made a part of this Agreement as though fully set forth herein. Broker shall comply fully with and be bound by all of the provisions that apply to this Agreement under such Chapters, including but not limited to the remedies provided in such Chapters. Without limiting the foregoing, Broker understands that pursuant to §§12B.2(h) and 12C.3(g) of the San Francisco Administrative Code, a penalty of \$50 for each person for each calendar day during which such person was discriminated against in violation of the provisions of this Agreement may be assessed against Broker and/or deducted from any payments due Broker.

**35. MacBride Principles—Northern Ireland.** Pursuant to San Francisco Administrative Code §12F.5, the City and County of San Francisco urges companies doing business in Northern Ireland to move towards resolving employment inequities, and encourages such companies to abide by the MacBride Principles. The City and County of San Francisco urges San Francisco companies to do business with corporations that abide by the MacBride Principles. By signing below, the person executing this agreement on behalf of Broker acknowledges and agrees that he or she has read and understood this Section.

**36. Tropical Hardwood and Virgin Redwood Ban.** Pursuant to §804(b) of the San Francisco Environment Code, the City and County of San Francisco urges contractors not to import, purchase, obtain, or use for any purpose, any tropical hardwood, tropical hardwood wood product, virgin redwood or virgin redwood wood product.

**37. Drug-Free Workplace Policy.** Broker acknowledges that pursuant to the Federal Drug-Free Workplace Act of 1989, the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited on City premises. Broker agrees that any violation of this prohibition by Broker, its employees, agents or assigns will be deemed a material breach of this Agreement.

**38. Resource Conservation.** Chapter 5 of the San Francisco Environment Code ("Resource Conservation") is incorporated herein by reference. Failure by Broker to comply with any of the applicable requirements of Chapter 5 will be deemed a material breach of contract.

**39. Compliance with Americans with Disabilities Act.** Broker acknowledges that, pursuant to the Americans with Disabilities Act (ADA), programs, services and other activities provided by a public entity to the public, whether directly or through a contractor, must be accessible to the disabled public. Broker shall provide the services specified in this Agreement in a manner that complies with the ADA and any and all other applicable federal, state and local disability rights legislation. Broker agrees not to discriminate against disabled persons in the provision of services, benefits or activities provided under this Agreement and further agrees that any violation of this prohibition on the part of Broker, its employees, agents or assigns will constitute a material breach of this Agreement.

**40. Sunshine Ordinance.** In accordance with San Francisco Administrative Code §67.24(e), contracts, contractors' bids, responses to solicitations and all other records of communications between City and persons or firms seeking contracts, shall be open to inspection immediately after a contract has been awarded. Nothing in this provision requires the disclosure of a private person or organization's net worth or other proprietary financial data submitted for qualification for a contract or other benefit until and unless that person or organization is awarded the contract or benefit. Information provided which is covered by this paragraph will be made available to the public upon request.

**41. Public Access to Meetings and Records.** If the Broker receives a cumulative total per year of at least \$250,000 in City funds or City-administered funds and is a non-profit organization as defined in Chapter 12L of the San Francisco Administrative Code, Broker shall comply with and be bound by all the applicable provisions of that Chapter. By executing this Agreement, the Broker agrees to open its meetings and records to the public in the manner set forth in §§12L.4 and 12L.5 of the Administrative Code. Broker further agrees to make-good faith efforts to promote community membership on its Board of Directors in the manner set forth in



§12L.6 of the Administrative Code. The Broker acknowledges that its material failure to comply with any of the provisions of this paragraph shall constitute a material breach of this Agreement. The Broker further acknowledges that such material breach of the Agreement shall be grounds for the City to terminate and/or not renew the Agreement, partially or in its entirety.

**42. Limitations on Contributions.** Through execution of this Agreement, Broker acknowledges that it is familiar with Section 1.126 of the City's Campaign and Governmental Conduct Code, which prohibits any person who contracts with the City for the rendition of personal services, for the furnishing of any material, supplies or equipment, for the sale or lease of any land or building, or for a grant, loan or loan guarantee, from making any campaign contribution to (1) an individual holding a City elective office if the contract must be approved by the individual, a board on which that individual serves, or the board of a state agency on which an appointee of that individual serves, (2) a candidate for the office held by such individual, or (3) a committee controlled by such individual, at any time from the commencement of negotiations for the contract until the later of either the termination of negotiations for such contract or six months after the date the contract is approved. Broker acknowledges that the foregoing restriction applies only if the contract or a combination or series of contracts approved by the same individual or board in a fiscal year have a total anticipated or actual value of \$50,000 or more. Broker further acknowledges that the prohibition on contributions applies to each prospective party to the contract; each member of Broker's board of directors; Broker's chairperson, chief executive officer, chief financial officer and chief operating officer; any person with an ownership interest of more than 20 percent in Broker; any subcontractor listed in the bid or contract; and any committee that is sponsored or controlled by Broker. Additionally, Broker acknowledges that Broker must inform each of the persons described in the preceding sentence of the prohibitions contained in Section 1.126.

**43. Requiring Minimum Compensation for Covered Employees**

43.1. Broker agrees to comply fully with and be bound by all of the provisions of the Minimum Compensation Ordinance (MCO), as set forth in San Francisco Administrative Code Chapter 12P (Chapter 12P), including the remedies provided, and implementing guidelines and rules. The provisions of Sections 12P.5 and 12P.5.1 of Chapter 12P are incorporated herein by reference and made a part of this Agreement as though fully set forth. The text of the MCO is available on the web at [www.sfgov.org/olse/mco](http://www.sfgov.org/olse/mco). A partial listing of some of Broker's obligations under the MCO is set forth in this Section. Broker is required to comply with all the provisions of the MCO, irrespective of the listing of obligations in this Section.

43.2. The MCO requires Broker to pay Broker's employees a minimum hourly gross compensation wage rate and to provide minimum compensated and uncompensated time off. The minimum wage rate may change from year to year and Broker is obligated to keep informed of the then-current requirements. Any subcontract entered into by Broker shall require the subcontractor to comply with the requirements of the MCO and shall contain contractual obligations substantially the same as those set forth in this Section. It is Broker's obligation to ensure that any subcontractors of any tier under this Agreement comply with the requirements of the MCO. If any subcontractor under this Agreement fails to comply, City may pursue any of the remedies set forth in this Section against Broker.

43.3. Broker shall not take adverse action or otherwise discriminate against an employee or other person for the exercise or attempted exercise of rights under the MCO. Such

actions, if taken within 90 days of the exercise or attempted exercise of such rights, will be rebuttably presumed to be retaliation prohibited by the MCO.

43.4. Broker shall maintain employee and payroll records as required by the MCO. If Broker fails to do so, it shall be presumed that the Broker paid no more than the minimum wage required under State law.

43.5. The City is authorized to inspect Broker's job sites and conduct interviews with employees and conduct audits of Broker.

43.6. Broker's commitment to provide the Minimum Compensation is a material element of the City's consideration for this Agreement. The City in its sole discretion shall determine whether such a breach has occurred. The City and the public will suffer actual damage that will be impractical or extremely difficult to determine if the Broker fails to comply with these requirements. Broker agrees that the sums set forth in Section 12P.6.1 of the MCO as liquidated damages are not a penalty, but are reasonable estimates of the loss that the City and the public will incur for Broker's noncompliance. The procedures governing the assessment of liquidated damages shall be those set forth in Section 12P.6.2 of Chapter 12P.

43.7. Broker understands and agrees that if it fails to comply with the requirements of the MCO, the City shall have the right to pursue any rights or remedies available under Chapter 12P (including liquidated damages), under the terms of the contract, and under applicable law. If, within 30 days after receiving written notice of a breach of this Agreement for violating the MCO, Broker fails to cure such breach or, if such breach cannot reasonably be cured within such period of 30 days, Broker fails to commence efforts to cure within such period, or thereafter fails diligently to pursue such cure to completion, the City shall have the right to pursue any rights or remedies available under applicable law, including those set forth in Section 12P.6(c) of Chapter 12P. Each of these remedies shall be exercisable individually or in combination with any other rights or remedies available to the City.

43.8. Broker represents and warrants that it is not an entity that was set up, or is being used, for the purpose of evading the intent of the MCO.

#### **44. Requiring Health Benefits for Covered Employees**

44.1. Broker agrees to comply fully with and be bound by all of the provisions of the Health Care Accountability Ordinance (HCAO), as set forth in San Francisco Administrative Code Chapter 12Q, including the remedies provided, and implementing regulations, as the same may be amended from time to time. The provisions of Section 12Q.5.1 of Chapter 12Q are incorporated by reference and made a part of this Agreement as though fully set forth herein. The text of the HCAO is available on the web at [www.sfgov.org/olse](http://www.sfgov.org/olse). Capitalized terms used in this Section and not defined in this Agreement shall have the meanings assigned to such terms in Chapter 12Q.

44.2. For each Covered Employee, Broker shall provide the appropriate health benefit set forth in Section 12Q.3 of the HCAO. If Broker chooses to offer the health plan option, such health plan shall meet the minimum standards set forth by the San Francisco Health Commission.

44.3. Notwithstanding the above, if the Broker is a small business as defined in Section 12Q.3(e) of the HCAO, it shall have no obligation to comply with part (a) above.

44.4. Broker's failure to comply with the HCAO shall constitute a material breach of this agreement. City shall notify Broker if such a breach has occurred. If, within 30 days after receiving City's written notice of a breach of this Agreement for violating the HCAO, Broker fails to cure such breach or, if such breach cannot reasonably be cured within such period of 30 days, Broker fails to commence efforts to cure within such period, or thereafter fails diligently to pursue such cure to completion, City shall have the right to pursue the remedies set forth in 12Q.5.1 and 12Q.5(f)(1-6). Each of these remedies shall be exercisable individually or in combination with any other rights or remedies available to City.

44.5. Any Subcontract entered into by Broker shall require the Subcontractor to comply with the requirements of the HCAO and shall contain contractual obligations substantially the same as those set forth in this Section. Broker shall notify City's Office of Contract Administration when it enters into such a Subcontract and shall certify to the Office of Contract Administration that it has notified the Subcontractor of the obligations under the HCAO and has imposed the requirements of the HCAO on Subcontractor through the Subcontract. Each Broker shall be responsible for its Subcontractors' compliance with this Chapter. If a Subcontractor fails to comply, the City may pursue the remedies set forth in this Section against Broker based on the Subcontractor's failure to comply, provided that City has first provided Broker with notice and an opportunity to obtain a cure of the violation.

44.6. Broker shall not discharge, reduce in compensation, or otherwise discriminate against any employee for notifying City with regard to Broker's noncompliance or anticipated noncompliance with the requirements of the HCAO, for opposing any practice proscribed by the HCAO, for participating in proceedings related to the HCAO, or for seeking to assert or enforce any rights under the HCAO by any lawful means.

44.7. Broker represents and warrants that it is not an entity that was set up, or is being used, for the purpose of evading the intent of the HCAO.

44.8. Broker shall maintain employee and payroll records in compliance with the California Labor Code and Industrial Welfare Commission orders, including the number of hours each employee has worked on the City Contract.

44.9. Broker shall keep itself informed of the current requirements of the HCAO.

44.10. Broker shall provide reports to the City in accordance with any reporting standards promulgated by the City under the HCAO, including reports on Subcontractors and Subtenants, as applicable.

44.11. Broker shall provide City with access to records pertaining to compliance with HCAO after receiving a written request from City to do so and being provided at least ten business days to respond.

44.12. Broker shall allow City to inspect Broker's job sites and have access to Broker's employees in order to monitor and determine compliance with HCAO.

44.13. City may conduct random audits of Broker to ascertain its compliance with HCAO. Broker agrees to cooperate with City when it conducts such audits.

44.14. If Broker is exempt from the HCAO when this Agreement is executed because its amount is less than \$25,000 (\$50,000 for nonprofits), but Broker later enters into an agreement or agreements that cause Broker's aggregate amount of all agreements with City to reach \$75,000, all the agreements shall be thereafter subject to the HCAO. This obligation arises on the effective date of the agreement that causes the cumulative amount of agreements between Broker and the City to be equal to or greater than \$75,000 in the fiscal year.

## **45. First Source Hiring Program**

**45.1. Incorporation of Administrative Code Provisions by Reference.** The provisions of Chapter 83 of the San Francisco Administrative Code are incorporated in this Section by reference and made a part of this Agreement as though fully set forth herein. Broker shall comply fully with, and be bound by, all of the provisions that apply to this Agreement under such Chapter, including but not limited to the remedies provided therein. Capitalized terms used in this Section and not defined in this Agreement shall have the meanings assigned to such terms in Chapter 83.

**45.2. First Source Hiring Agreement.** As an essential term of, and consideration for, any contract or property contract with the City, not exempted by the FSHA, the Broker shall enter into a first source hiring agreement ("agreement") with the City, on or before the effective date of the contract or property contract. Brokers shall also enter into an agreement with the City for any other work that it performs in the City. Such agreement shall:

a. Set appropriate hiring and retention goals for entry level positions. The employer shall agree to achieve these hiring and retention goals, or, if unable to achieve these goals, to establish good faith efforts as to its attempts to do so, as set forth in the agreement. The agreement shall take into consideration the employer's participation in existing job training, referral and/or brokerage programs. Within the discretion of the FSHA, subject to appropriate modifications, participation in such programs maybe certified as meeting the requirements of this Chapter. Failure either to achieve the specified goal, or to establish good faith efforts will constitute noncompliance and will subject the employer to the provisions of Section 83.10 of this Chapter.

b. Set first source interviewing, recruitment and hiring requirements, which will provide the San Francisco Workforce Development System with the first opportunity to provide qualified economically disadvantaged individuals for consideration for employment for entry level positions. Employers shall consider all applications of qualified economically disadvantaged individuals referred by the System for employment; provided however, if the employer utilizes nondiscriminatory screening criteria, the employer shall have the sole discretion to interview and/or hire individuals referred or certified by the San Francisco Workforce Development System as being qualified economically disadvantaged individuals. The duration of the first source interviewing requirement shall be determined by the FSHA and shall be set forth in each agreement, but shall not exceed 10 days. During that period, the employer may publicize the entry level positions in accordance with the agreement. A need for urgent or temporary hires must be evaluated, and appropriate provisions for such a situation must be made in the agreement.

c. Set appropriate requirements for providing notification of available entry level positions to the San Francisco Workforce Development System so that the System may train and refer an adequate pool of qualified economically disadvantaged individuals to participating employers. Notification should include such information as employment needs by occupational title, skills, and/or experience required, the hours required, wage scale and duration of employment, identification of entry level and training positions, identification of English language proficiency requirements, or absence thereof, and the projected schedule and procedures for hiring for each occupation. Employers should provide both long-term job need projections and notice before initiating the interviewing and hiring process. These notification requirements will take into consideration any need to protect the employer's proprietary information.

d. Set appropriate record keeping and monitoring requirements. The First Source Hiring Administration shall develop easy-to-use forms and record keeping requirements for documenting compliance with the agreement. To the greatest extent possible, these requirements shall utilize the employer's existing record keeping systems, be non-duplicative, and facilitate a coordinated flow of information and referrals.

e. Establish guidelines for employer good faith efforts to comply with the first source hiring requirements of this Chapter. The FSHA will work with City departments to develop employer good faith effort requirements appropriate to the types of contracts and property contracts handled by each department. Employers shall appoint a liaison for dealing with the development and implementation of the employer's agreement. In the event that the FSHA finds that the employer under a City contract or property contract has taken actions primarily for the purpose of circumventing the requirements of this Chapter, that employer shall be subject to the sanctions set forth in Section 83.10 of this Chapter.

f. Set the term of the requirements.

g. Set appropriate enforcement and sanctioning standards consistent with this Chapter.

h. Set forth the City's obligations to develop training programs, job applicant referrals, technical assistance, and information systems that assist the employer in complying with this Chapter.

i. Require the developer to include notice of the requirements of this Chapter in leases, subleases, and other occupancy contracts.

**45.3. Hiring Decisions.** Broker shall make the final determination of whether an Economically Disadvantaged Individual referred by the System is "qualified" for the position.

**45.4. Exceptions.** Upon application by Employer, the First Source Hiring Administration may grant an exception to any or all of the requirements of Chapter 83 in any situation where it concludes that compliance with this Chapter would cause economic hardship.

**45.5. Liquidated Damages. Broker agrees:**

- a. To be liable to the City for liquidated damages as provided in this Section;
- b. To be subject to the procedures governing enforcement of breaches of contracts based on violations of contract provisions required by this Chapter as set forth in this Section;
- c. That the contractor's commitment to comply with this Chapter is a material element of the City's consideration for this contract; that the failure of the contractor to comply with the contract provisions required by this Chapter will cause harm to the City and the public which is significant and substantial but extremely difficult to quantify; that the harm to the City includes not only the financial cost of funding public assistance programs but also the insidious but impossible to quantify harm that this community and its families suffer as a result of unemployment; and that the assessment of liquidated damages of up to \$5,000 for every notice of a new hire for an entry level position improperly withheld by the contractor from the first source hiring process, as determined by the FSHA during its first investigation of a contractor, does not exceed a fair estimate of the financial and other damages that the City suffers as a result of the contractor's failure to comply with its first source referral contractual obligations;
- d. That the continued failure by a contractor to comply with its first source referral contractual obligations will cause further significant and substantial harm to the City and the public, and that a second assessment of liquidated damages of up to \$10,000 for each entry level position improperly withheld from the FSHA, from the time of the conclusion of the first investigation forward, does not exceed the financial and other damages that the City suffers as a result of the contractor's continued failure to comply with its first source referral contractual obligations;
- e. That in addition to the cost of investigating alleged violations under this Section, the computation of liquidated damages for purposes of this Section is based on the following data:
  - i. The average length of stay on public assistance in San Francisco's County Adult Assistance Program is approximately 41 months at an average monthly grant of \$348 per month, totaling approximately \$14,379; and
  - ii. In 2004, the retention rate of adults placed in employment programs funded under the Workforce Investment Act for at least the first six months of employment was 84.4%. Since qualified individuals under the First Source program face far fewer barriers to employment than their counterparts in programs funded by the Workforce Investment Act, it is reasonable to conclude that the average length of employment for an individual whom the First Source Program refers to an employer and who is hired in an entry level position is at least one year; therefore, liquidated damages that total \$5,000 for first violations and \$10,000 for subsequent violations as determined by FSHA constitute a fair, reasonable, and conservative attempt to quantify the harm caused to the City by the failure of a contractor to comply with its first source referral contractual obligations;

f. That the failure of contractors to comply with this Chapter, except property contractors, may be subject to the debarment and monetary penalties set forth in Sections 6.80 et seq. of the San Francisco Administrative Code, as well as any other remedies available under the contract or at law; and

g. Violation of the requirements of Chapter 83 is subject to an assessment of liquidated damages in the amount of \$5,000 for every new hire for an Entry Level Position improperly withheld from the first source hiring process. The assessment of liquidated damages and the evaluation of any defenses or mitigating factors shall be made by the FSHA.

**45.6. Subcontracts.** Any subcontract entered into by Broker shall require the subcontractor to comply with the requirements of Chapter 83 and shall contain contractual obligations substantially the same as those set forth in this Section.

**46. Prohibition on Political Activity with City Funds.** In accordance with San Francisco Administrative Code Chapter 12.G, Broker may not participate in, support, or attempt to influence any political campaign for a candidate or for a ballot measure (collectively, "Political Activity") in the performance of the services provided under this Agreement. Broker agrees to comply with San Francisco Administrative Code Chapter 12.G and any implementing rules and regulations promulgated by the City's Controller. The terms and provisions of Chapter 12.G are incorporated herein by this reference. In the event Broker violates the provisions of this Section, the City may, in addition to any other rights or remedies available hereunder, (i) terminate this Agreement, and (ii) prohibit Broker from bidding on or receiving any new City contract for a period of two (2) years. The Controller will not consider Broker's use of profit as a violation of this Section.

**47. Preservative-treated Wood Containing Arsenic.** Broker may not purchase preservative-treated wood products containing arsenic in the performance of this Agreement unless an exemption from the requirements of Chapter 13 of the San Francisco Environment Code is obtained from the Department of the Environment under Section 1304 of the Code. The term "preservative-treated wood containing arsenic" shall mean wood treated with a preservative that contains arsenic, elemental arsenic, or an arsenic copper combination, including, but not limited to, chromated copper arsenate preservative, ammoniacal copper zinc arsenate preservative, or ammoniacal copper arsenate preservative. Broker may purchase preservative-treated wood products on the list of environmentally preferable alternatives prepared and adopted by the Department of the Environment. This provision does not preclude Broker from purchasing preservative-treated wood containing arsenic for saltwater immersion. The term "saltwater immersion" shall mean a pressure-treated wood that is used for construction purposes or facilities that are partially or totally immersed in saltwater.

**48. Modification of Agreement.** This Agreement may not be modified, nor may compliance with any of its terms be waived, except by written instrument executed and approved in the same manner as this Agreement. Broker shall cooperate with the SFMTA to submit to the SFMTA Contract Compliance Office any amendment, modification, supplement or change order that would result in a cumulative increase of the original amount of this Agreement by more than 20% (SFMTA SBE Form No. 8: Amendments of Professional Services Contracts).

**49. Administrative Remedy for Agreement Interpretation.** Should any question arise as to the meaning and intent of this Agreement, the question shall, prior to any other action or resort to any other legal remedy, be referred to Purchasing who shall decide the true meaning and intent of the Agreement.

**50. Agreement Made in California; Venue.** The formation, interpretation and performance of this Agreement shall be governed by the laws of the State of California. Venue for all litigation relative to the formation, interpretation and performance of this Agreement shall be in San Francisco.

**51. Construction.** All paragraph captions are for reference only and shall not be considered in construing this Agreement.

**52. Entire Agreement.** This contract sets forth the entire Agreement between the parties, and supersedes all other oral or written provisions. This contract may be modified only as provided in Section 48, "Modification of Agreement."

**53. Compliance with Laws.** Broker shall keep itself fully informed of the City's Charter, codes, ordinances and regulations of the City and of all state, and federal laws in any manner affecting the performance of this Agreement, and must at all times comply with such local codes, ordinances, and regulations and all applicable laws as they may be amended from time to time.

**54. Services Provided by Attorneys.** Any services to be provided by a law firm or attorney must be reviewed and approved in writing in advance by the City Attorney. No invoices for services provided by law firms or attorneys, including, without limitation, as subcontractors of Broker, will be paid unless the provider received advance written approval from the City Attorney.

**55. Compliance with FTA Procurement Requirements.** The Broker will procure goods and services necessary for this Agreement consistent with the requirements of 49 C.F.R. Part 18, "Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments," FTA Circular 4220.1F, the FTA Master Agreement, and Applicable FTA Certifications and Assurances.

**56. Severability.** Should the application of any provision of this Agreement to any particular facts or circumstances be found by a court of competent jurisdiction to be invalid or unenforceable, then (a) the validity of other provisions of this Agreement shall not be affected or impaired thereby, and (b) such provision shall be enforced to the maximum extent possible so as to effect the intent of the parties and shall be reformed without further action by the parties to the extent necessary to make such provision valid and enforceable.

**57. Protection of Private Information.** Broker has read and agrees to the terms set forth in San Francisco Administrative Code Sections 12M.2, "Nondisclosure of Private Information," and 12M.3, "Enforcement" of Administrative Code Chapter 12M, "Protection of Private Information," which are incorporated herein as if fully set forth. Broker agrees that any failure of Contactor to comply with the requirements of Section 12M.2 of this Chapter shall be a material breach of the Contract. In such an event, in addition to any other remedies available to it under equity or law,



the City may terminate the Contract, bring a false claim action against the Broker pursuant to Chapter 6 or Chapter 21 of the Administrative Code, or debar the Broker.

**58. Graffiti Removal.** Graffiti is detrimental to the health, safety and welfare of the community in that it promotes a perception in the community that the laws protecting public and private property can be disregarded with impunity. This perception fosters a sense of disrespect of the law that results in an increase in crime; degrades the community and leads to urban blight; is detrimental to property values, business opportunities and the enjoyment of life; is inconsistent with the City's property maintenance goals and aesthetic standards; and results in additional graffiti and in other properties becoming the target of graffiti unless it is quickly removed from public and private property. Graffiti results in visual pollution and is a public nuisance. Graffiti must be abated as quickly as possible to avoid detrimental impacts on the City and County and its residents, and to prevent the further spread of graffiti. Broker shall remove all graffiti from any real property owned or leased by Broker in the City and County of San Francisco within forty eight (48) hours of the earlier of Broker's (a) discovery or notification of the graffiti or (b) receipt of notification of the graffiti from the Department of Public Works. This Section is not intended to require a Broker to breach any lease or other agreement that it may have concerning its use of the real property. The term "graffiti" means any inscription, word, figure, marking or design that is affixed, marked, etched, scratched, drawn or painted on any building, structure, fixture or other improvement, whether permanent or temporary, including by way of example only and without limitation, signs, banners, billboards and fencing surrounding construction sites, whether public or private, without the consent of the owner of the property or the owner's authorized agent, and which is visible from the public right-of-way. "Graffiti" shall not include: (1) any sign or banner that is authorized by, and in compliance with, the applicable requirements of the San Francisco Public Works Code, the San Francisco Planning Code or the San Francisco Building Code; or (2) any mural or other painting or marking on the property that is protected as a work of fine art under the California Art Preservation Act (California Civil Code Sections 987 et seq.) or as a work of visual art under the Federal Visual Artists Rights Act of 1990 (17 U.S.C. §§ 101 et seq.).

Any failure of Broker to comply with this Section of this Agreement shall constitute an Event of Default of this Agreement.

**59. Food Service Waste Reduction Requirements.** Broker agrees to comply fully with and be bound by all of the provisions of the Food Service Waste Reduction Ordinance, as set forth in San Francisco Environment Code Chapter 16, including the remedies provided, and implementing guidelines and rules. The provisions of Chapter 16 are incorporated herein by reference and made a part of this Agreement as though fully set forth. This provision is a material term of this Agreement. By entering into this Agreement, Broker agrees that if it breaches this provision, City will suffer actual damages that will be impractical or extremely difficult to determine; further, Broker agrees that the sum of one hundred dollars (\$100) liquidated damages for the first breach, two hundred dollars (\$200) liquidated damages for the second breach in the same year, and five hundred dollars (\$500) liquidated damages for subsequent breaches in the same year is reasonable estimate of the damage that City will incur based on the violation, established in light of the circumstances existing at the time this Agreement was made. Such amount shall not be considered a penalty, but rather agreed monetary damages sustained by City because of Broker's failure to comply with this provision.

**60. Slavery Era Disclosure**

a. Broker acknowledges that this contract shall not be binding upon the City until the Director of Administrative Services receives the affidavit required by the San Francisco Administrative Code's Chapter 12Y, "San Francisco Slavery Era Disclosure Ordinance."

b. In the event the Director of Administrative Services finds that Broker has failed to file an affidavit as required by Section 12Y.4 (a) and this Contract, or has willfully filed a false affidavit, the Broker shall be liable for liquidated damages in an amount equal to the Broker's net profit on the Contract, 10 percent of the total amount of the Contract, or \$1,000, whichever is greatest as determined by the Director of Administrative Services. Broker acknowledges and agrees that the liquidated damages assessed shall be payable to the City upon demand and may be set off against any monies due to the Broker from any Contract with the City.

c. Broker shall maintain records necessary for monitoring their compliance with this provision.

**61. Cooperative Drafting.** This Agreement has been drafted through a cooperative effort of both parties, and both parties have had an opportunity to have the Agreement reviewed and revised by legal counsel. No party shall be considered the drafter of this Agreement, and no presumption or rule that an ambiguity shall be construed against the party drafting the clause shall apply to the interpretation or enforcement of this Agreement.

**62. Included Appendices.** The following documents appended to this Agreement are incorporated by reference as if fully set out herein.

Appendix A: Federal Contract Requirements  
Appendix B: Services To Be Provided by Broker  
Appendix C: Calculation of Charges  
Appendix D: Central Subway Project Schedule

**63. Approval by Counterparts.** This Contract may be approved by counterpart signature pages, each of which is deemed an original and all of which shall be read together to constitute a single document. Counterpart signature pages shall be delivered by a party to the other party by telephone facsimile or email PDF.

*[Remainder of this page has been intentionally left blank.]*

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day first mentioned above.

**CITY**

San Francisco  
Municipal Transportation Agency

  
Edward D. Reiskin  
Director of Transportation**AUTHORIZED BY:**

MUNICIPAL TRANSPORTATION AGENCY  
BOARD OF DIRECTORS

Resolution No: 12-017

Adopted: 2/7/12

Attest: R. Boomer  
Roberta Boomer, Secretary to the  
SFMTA Board of Directors

**Approved as to Form:**

Dennis J. Herrera  
City Attorney

By: Robert K. Stone 1-24-2012  
Robert K. Stone  
Deputy City Attorney  
Doc no. as2012\1000387\00750398.doc

**BROKER**

Aon Risk Insurance Services West, Inc.

By signing this Agreement, I certify that I comply with the requirements of the Minimum Compensation Ordinance, which entitle Covered Employees to certain minimum hourly wages and compensated and uncompensated time off.

I have read and understood paragraph 35, the City's statement urging companies doing business in Northern Ireland to move towards resolving employment inequities, encouraging compliance with the MacBride Principles, and urging San Francisco companies to do business with corporations that abide by the MacBride Principles.

  
Regina M. Carter  
Managing Director  
Aon Risk Insurance Services West  
199 Fremont Street, 17th Floor  
San Francisco, CA 94105

City vendor number: 31438

## APPENDIX A

### FEDERAL TRANSPORTATION ADMINISTRATION REQUIREMENTS FOR FEDERALLY FUNDED PERSONAL SERVICES AND PROCUREMENT CONTRACTS

Broker shall comply with all applicable federal laws and regulations and FTA guidelines and requirements, including but not limited to the following.

#### 1. DEFINITIONS

A. **Approved Project Budget** means the most recent statement, approved by the Federal Transportation Administration (FTA), of the costs of the Project, the maximum amount of Federal assistance for which the City is currently eligible, the specific tasks (including specified contingencies) covered, and the estimated cost of each task.

B. **Broker** or **Broker** means the individual or entity awarded a third party contract financed in whole or in part with Federal assistance originally derived from FTA.

C. **Cooperative Agreement** means the instrument by which FTA awards Federal assistance to a specific Recipient to support a particular Project or Program, and in which FTA takes an active role or retains substantial control.

D. **Federal Transit Administration (FTA)** is an operating administration of the U.S. Department of Transportation.

E. **FTA Directive** includes any FTA circular, notice, order or guidance providing information about FTA's programs, application processing procedures, and Project management guidelines. In addition to FTA directives, certain U.S. DOT directives also apply to the Project.

F. **Grant Agreement** means the instrument by which FTA awards Federal assistance to a specific Recipient to support a particular Project, and in which FTA does not take an active role or retain substantial control, in accordance with 31 U.S.C. § 6304.

G. **Government** means the United States of America and any executive department or agency thereof.

H. **Project** means the task or set of tasks listed in the Approved Project Budget, and any modifications stated in the Conditions to the Grant Agreement or Cooperative Agreement applicable to the Project. In the case of the formula assistance program for urbanized areas, for elderly and persons with disabilities, and non-urbanized areas, 49 U.S.C. §§ 5307, 5310, and 5311, respectively, the term "Project" encompasses both "Program" and "each Project within the Program," as the context may require, to effectuate the requirements of the Grant Agreement or Cooperative Agreement.

I. **Recipient** means any entity that receives Federal assistance directly from FTA to accomplish the Project. The term "Recipient" includes each FTA "Grantee" as well as each FTA Recipient of a Cooperative Agreement. For the purpose of this Agreement, Recipient is the City.

J. **Secretary** means the U.S. DOT Secretary, including his or her duly authorized designee.

K. **Third Party Contract** means a contract or purchase order awarded by the Recipient to a vendor or contractor, financed in whole or in part with Federal assistance awarded by FTA.

L. **Third Party Subcontract** means a subcontract at any tier entered into by Broker or third party subcontractor, financed in whole or in part with Federal assistance originally derived from FTA.

M. **U.S. DOT** is the acronym for the U.S. Department of Transportation, including its operating administrations.

## **2. FEDERAL CHANGES**

Broker shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the Master Agreement between the City and FTA, as they may be amended or promulgated from time to time during the term of this Contract. Broker's failure to so comply shall constitute a material breach of this Contract.

## **3. ACCESS TO RECORDS**

A. The Broker agrees to provide the City and County of San Francisco, the FTA Administrator, the Comptroller General of the United States or any of their authorized representatives access to any books, documents, papers and records of the Broker which are directly pertinent to this Agreement for the purposes of making audits, examinations, excerpts and transcriptions.

B. The Broker agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

C. The Broker agrees to maintain all books, records, accounts and reports required under this Agreement for a period of not less than three years after the date of termination or expiration of this Agreement, except in the event of litigation or settlement of claims arising from the performance of this Agreement, in which case Broker agrees to maintain same until the City, the FTA Administrator, the Comptroller General, or any of their duly authorized representatives, have disposed of all such litigation, appeals, claims or exceptions related thereto. 49 C.F.R. 18.36(i) (11).

## **4. DEBARMENT AND SUSPENSION**

See Certification Regarding Debarment, Suspension, and Other Responsibility Matters.

## **5. NO FEDERAL GOVERNMENT OBLIGATIONS TO CONTRACTOR**

A. The City and Broker acknowledge and agree that, notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying contract, absent the express written consent by the Federal Government, the Federal Government is not a party to this Contract and shall not be subject to any obligations or liabilities to the City,

Broker, or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying contract.

B. The Broker agrees to include the above clause in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clause shall not be modified, except to identify the subcontractor who will be subject to its provisions.

## **6. CIVIL RIGHTS**

A. Nondiscrimination - In accordance with Title VI of the Civil Rights Act, as amended, 42 U.S.C. § 2000d, Section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, Section 202 of the Americans with Disabilities Act of 1990, 41 U.S.C. § 12132, and Federal transit law at 49 U.S.C. § 5332, the Broker agrees that it will not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, age, or disability. The Broker agrees to comply with applicable Federal implementing regulations and other implementing requirements FTA may issue, including, but not limited to, 49 C.F.R. § 26. The Broker shall also comply with the provisions of the SFMTA's Small Business Enterprise (SBE) Program for Professional and Technical Services.

B. Equal Employment Opportunity - The following equal employment opportunity requirements apply to the underlying contract:

1. Race, Color, Creed, National Origin, Sex - In accordance with Title VII of the Civil Rights Act, as amended, 42 U.S.C. § 2000e, and Federal transit laws at 49 U.S.C. § 5332, the Broker agrees to comply with all applicable equal employment opportunity requirements of U.S. Department of Labor (U.S. DOT) regulations, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor," 41 C.F.R. Parts 60 et seq., (which implement Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 U.S.C. § 2000e note), and with any applicable Federal statutes, executive orders, regulations, and Federal policies that may in the future affect construction activities undertaken in the course of the Project. The Broker agrees to take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, creed, national origin, sex, or age. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. In addition, the Broker agrees to comply with any implementing requirements FTA may issue.

2. Age - In accordance with Section 4 of the Age Discrimination in Employment Act of 1967, as amended, 29 U.S.C. § 623 and Federal transit law at 49 U.S.C. § 5332, the Broker agrees to refrain from discrimination against present and prospective employees for reason of age. In addition, the Broker agrees to comply with any implementing requirements FTA may issue.

3. Disabilities - In accordance with Section 102 of the Americans with Disabilities Act, as amended, 42 U.S.C. § 12112, the Broker agrees that it will comply with the requirements of U.S. Equal Employment Opportunity Commission, "Regulations to Implement the Equal Employment Provisions of the Americans with Disabilities Act," 29 C.F.R. Part 1630, pertaining

to employment of persons with disabilities. In addition, the Broker agrees to comply with any implementing requirements FTA may issue.

C. The Broker also agrees to include these requirements in each subcontract financed in whole or in part with Federal assistance provided by FTA, modified only if necessary to identify the affected parties.

## **7. ENERGY CONSERVATION REQUIREMENTS**

The Broker agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act.

## **8. CLEAN WATER REQUIREMENTS**

A. The Broker agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§ 1251 et seq. Broker agrees to report each violation of these requirements to the City and understands and agrees that the City will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA regional office.

B. The Broker also agrees to include these requirements in each subcontract exceeding \$100,000 financed in whole or in part with Federal assistance provided by FTA.

## **9. CLEAN AIR**

A. Broker agrees to comply with applicable standards, orders, or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. §§ 7401 et seq. The Broker agrees to report each violation to the City and understands and agrees that the City will, in turn, report each violation as required to assure notification to FTA and the appropriate EPA Regional Office.

B. The Broker also agrees to include these requirements in each subcontract exceeding \$100,000 financed in whole or in part with Federal assistance provided by FTA.

## **10. PRIVACY**

If Broker or its employees administer any system of records on behalf of the Federal Government, Broker and its employees agree to comply with the information restrictions and other applicable requirements of the Privacy Act of 1974, 5 U.S.C. § 552a (the Privacy Act). Specifically, Broker agrees to obtain the express consent of the Federal Government before the Broker or its employees operate a system of records on behalf of the Government. Broker acknowledges that the requirements of the Privacy Act, including the civil and criminal penalties for violations of the Privacy Act, apply to those individuals involved, and that failure to comply with the terms of the Privacy Act may result in termination of this Agreement. The Broker also agrees to include these requirements in each subcontract to administer any system of records on behalf of the Federal Government financed in whole or in part with Federal assistance provided by FTA.



**11. DRUG AND ALCOHOL TESTING**

To the extent Broker, its subcontractors or their employees perform a safety-sensitive function under the Agreement, Broker agrees to comply with, and assure compliance of its subcontractors, and their employees, with 49 U.S.C. § 5331, and FTA regulations, "Prevention of Alcohol Misuse and Prohibited Drug Use in Transit Operations," 49 C.F.R. Part 655.

**12. TERMINATION FOR CONVENIENCE OF City**

See Agreement Terms and Conditions.

**13. TERMINATION FOR DEFAULT**

See Agreement Terms and Conditions.

**14. BUY AMERICA**

The Broker agrees to comply with 49 U.S.C. 5323(j) and 49 C.F.R. Part 661, which provide that Federal funds may not be obligated unless steel, iron, and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. General waivers are listed in 49 C.F.R. 661.7, and include microcomputer equipment, software, and small purchases (\$100,000 or less) made with capital, operating, or planning funds. Separate requirements for rolling stock are set out at 49 U.S.C. 5323(j) (2) (C) and 49 C.F.R. 661.11. Rolling stock not subject to a general waiver must be manufactured in the United States and have a 60 percent domestic content.

**15. CARGO PREFERENCE – USE OF UNITED STATES FLAG VESSELS**

The Broker agrees: (a) to use privately owned United States-Flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to the underlying Agreement to the extent such vessels are available at fair and reasonable rates for United States-Flag commercial vessels; (b) to furnish within 20 working days following the date of loading for shipments originating within the United States or within 30 working days following the date of leading for shipments originating outside the United States, a legible copy of a rated, "on-board" commercial ocean bill-of-lading in English for each shipment of cargo described above to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590 and to the FTA recipient (through the Broker in the case of a subcontractor's bill-of-lading.); and (c) to include these requirements in all subcontracts issued pursuant to this Agreement when the subcontract may involve the transport of equipment, material, or commodities by ocean vessel.

**16. RECYCLED PRODUCTS**

The Broker agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6962), including, but not limited to, the regulatory provisions of 40 C.F.R. Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in Subpart B of 40 C.F.R. Part 247.



## **17. FALSE OR FRAUDULENT STATEMENTS AND CLAIMS**

A. The Broker acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. §§ 3801 et seq. and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31, apply to its actions pertaining to this Project. Upon execution of the underlying Agreement, the Broker certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying contract or the FTA-assisted project for which this contract work is being performed. In addition to other penalties that may be applicable, the Broker further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Broker to the extent the Federal Government deems appropriate.

B. The Broker also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. § 5307, the Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307(n)(1) on the Broker, to the extent the Federal Government deems appropriate.

C. The Broker agrees to include the above two clauses in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the subcontractor who will be subject to the provisions.

## **19. FLY AMERICA**

The Broker agrees to comply with 49 U.S.C. 40118 (the "Fly America" Act) in accordance with the General Services Administration's regulations at 41 C.F.R. Part 301-10, which provide that recipients and subrecipients of Federal funds and their contractors are required to use U.S. Flag air carriers for U.S. Government-financed international air travel and transportation of their personal effects or property, to the extent such service is available, unless travel by foreign air carrier is a matter of necessity, as defined by the Fly America Act. The Broker shall submit, if a foreign air carrier was used, an appropriate certification or memorandum adequately explaining why service by a U.S. flag air carrier was not available or why it was necessary to use a foreign air carrier and shall, in any event, provide a certificate of compliance with the Fly America requirements. The Broker agrees to include the requirements of this Section in all subcontracts that may involve international air transportation.

## **20. DISALLOWANCE**

If Broker claims or receives payment from City for a service, reimbursement for which is later disallowed by the United States Government or other government authority, Broker shall promptly refund the disallowed amount to City upon City's request. At its option, City may offset the amount disallowed from any payment due or to become due to Broker under this Agreement or any other Agreement. By executing this Agreement, Broker certifies that Broker is not suspended, debarred or otherwise excluded from participation in federal assistance programs. Broker acknowledges that this certification of eligibility to receive federal funds is a material terms of the Agreement.



**21. INCORPORATION OF FEDERAL TRANSIT ADMINISTRATION (FTA) TERMS**

The preceding provisions include, in part, certain Standard Terms and Conditions required by DOT, whether or not expressly set forth in the preceding contract provisions. All contractual provisions required by DOT, as set forth in FTA Circular 4220.1E, are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Agreement. The Broker shall not perform any act, fail to perform any act, or refuse to comply with any (name of grantee) requests which would cause (name of grantee) to be in violation of the FTA terms and conditions.

*[Remainder of this page intentionally left blank.]*

## **APPENDIX B SERVICES TO BE PROVIDED BY BROKER**

### **I. Background:**

Barnard Impregilo Healy ("BIH" or "Contractor"), the contractor selected by the SFMTA for the construction of the tunnels under SFMTA Contract CS-156, and Marsh (BIH's insurance broker) have proposed to meet the \$500 Million general liability requirement of Contract CS-156 through a layered insurance program. Under that proposed insurance program, BIH would provide as primary (first layer) coverage \$200 Million in project specific general liability insurance. The City would then procure a Project Specific Rolling \$150 Million in excess liability insurance "secondary", which would be a second layer of insurance excess to the \$200 Million project specific policy provided by BIH. This layer would be rolling to cover the tunnel contract as well as the three station contracts (Moscone, Chinatown and Union Square/Market Street). Under its proposed program, BIH would also provide \$150 Million in excess liability insurance as a third layer of coverage, excess to the primary (\$200 Million) and secondary (\$150 Million) layers.

### **II. Broker's Services - Overview**

As described herein, at no additional cost to the City, Broker shall provide insurance broker services, advice, assistance and other consulting services as described below to the SFMTA concerning the procurement, placement, implementation, and servicing of a Project Specific Rolling excess Liability insurance program for the Central Subway Project.

- A. Broker shall review its evaluation of the risks associated with the construction of the Central Subway Project tunnels and three underground (subway) stations, and advise the SFMTA as to the scope and limits of insurance coverage required to mitigate those risks.
- B. Broker shall review all construction contractor policies covering the construction of the CSP tunnel and the three subway stations to:
  - 1. ensure that the Contractor's primary Liability Insurance policy is appropriate and adequate to meet the City's needs, per the Contract requirements
  - 2. ensure the Contractor's primary program allows the Project Specific Rolling excess liability layers can follow and be utilized as a rolling excess liability program for the construction of the Moscone, Union Square/Market Street, and Chinatown subway stations.

### **III. General Requirements**

In performing services under this Agreement, Broker shall comply with the following general requirements.

**A. Tasks**

1. Broker shall act as an independent insurance advisor to the SFMTA for the Central Subway Project ("CSP" or "Project") and proactively provide ongoing unbiased professional advice and recommendations that benefit the SFMTA and the City.
2. Broker shall proactively provide ongoing review and analysis of insurance programs for the Project and identification of risk transfer and risk financing options.
3. Broker shall be familiar with:
  - a. The coverages provided by all relevant insurance policies and documents covering the CSP, including policies procured by the City and policies and other coverage provided by construction contractors for the CSP.
  - b. The exposures of the City arising from the CSP.
4. Broker shall assure that insurance policies procured under this Agreement are placed in a timely manner, without lapses in coverage periods, with reputable and financially responsible insurers.
5. Broker shall service insurance policies placed for the City related to the construction of the CSP, including processing all changes and endorsements and verifying the accuracy of invoices within a reasonable time.
6. Broker shall provide to the City early warning of rate and coverage changes or renewal problems through a mutually agreeable process. Broker shall promptly advise the SFMTA and City's Risk Manager of any changes in exposure during the policy term that would require revisions to existing insurance coverages. Upon request of the City, but at least once a year, Broker shall provide a comprehensive report that reviews the coverages placed under this Agreement.
7. Broker shall continually monitor CSP operations and Project loss exposures and make any appropriate recommendations for coverage changes or new coverages.
8. Broker shall answer questions and obtain answers from underwriters for policy coverage questions. Broker shall on reasonable notice meet with SFMTA and City Risk Management staff, CSP contractors and consultants, City Boards, City committees, and/or staff of City departments when requested.
9. Provide consultation service and written reports as normally expected of a professional broker to a large client including Risk Management-related training and online resource development, related to this type of policy.

10. Provide assistance with claims as requested by City. Assist in analyzing loss exposures arising from the CSP, and determine the appropriate risk management alternatives, including types, availability, cost and extent of coverages that should be considered.

## **B. Policy Review**

1. Review policies and other documents in detail within 14 days of receipt of the documents to check the wording and accuracy of each policy, binder, certificate, endorsement or other document received from insurers to ensure that the intended coverage is provided, and all coverage, terms and conditions, and other wording is complete and accurate, and in compliance with financial arrangements and administrative procedures acceptable to City.
2. Obtain revisions needed to achieve compliance with coverage request. Timely forward to the City the original policies with a sheet attached bearing the signature of the person responsible for compliance review.
3. Provide a timeline for issuance of policy forms prior to issuance of premium invoice and provide sufficient copies of policies in both hard copy and digital media (or via secure online sources) to City Risk Management and SFMTA.
4. Provide copy of the policies, upon request by the Contractor or the City.

## **C. Policy Amendments**

1. Process requests for additions or deletions to policies within five business days of receipt.
2. Provide City with copies of initial correspondence to the insurers. Follow up every two weeks from request date until the insurer has handled request.
3. Advise in writing of any changes to insurance policy(ies) within 14 days of Broker's receipt of notice or other knowledge of the change.

## **D. Marketing**

1. Monitor expiration dates of policies and provide City written notification at least 180 days prior to expiration, including a description of information needed to process the renewal.
2. Work with the SFMTA to develop and implement a marketing strategy, including identifying potential markets, for program renewals within agreed timelines.
3. Develop underwriting information and assist in gathering and organizing exposure and loss data for replacement of policies, including completing applications as necessary.
4. Provide actuarial and statistical analysis of loss and expense data to assist in the establishment of premium, and targets for various layers of risk.

5. Work with carriers to design policies and programs most advantageous to the City for coverage of exposures, policy form, exclusions, deductibles, self-insured retentions, coordination with other policies, costs and other pertinent factors.
6. Advise of and include SFMTA representatives in marketing meetings with prospective carriers.
7. Market renewal coverages for City by obtaining timely and competitive quotations from available and responsible insurers.
8. Provide indications to City at least 90 days prior to insurance policy expiration unless otherwise approved by City.
9. When more than one market is approached for a line of coverage, provide SFMTA with copies of declination letters and all premium quotations received with a summary of coverages explaining deficiencies or benefits of the quote compared to the recommended insurance program.
10. Provide quotations for specialized types of insurance, as requested by City.

#### **E. Claims**

1. Assist City departments and staff, as necessary, with filing claims on assigned insured programs.
2. Promptly notify City of any losses or accidents reported to Broker and work with internal or outside claims adjustors as necessary.
3. Represent the interests of City and its departments in policy interpretation and other negotiations with insurance carriers.
4. Assist City with review of claim reserves, and represent City to the insurer with regard to requested explanation or reduction of reserve amounts. Follow-up with insurer every 30 days until resolution of any reserve reduction requests are accomplished or until claim is closed.
5. For all lines of insurance where loss runs are not otherwise available, provide regular (e.g. quarterly) loss runs indicating the member name, claim status, amount paid, reserves, expected outcomes of cases, and other summary information.
6. Review all quarterly loss runs for all claims on all coverages. Evaluate loss history for trends or other indicators that might dictate changes in coverage strategy. Identify any relevant issues and advise City in writing.
7. Provide annual summaries by policy year for each of the last five years indicating total number of losses by type for each line of coverage and showing earned premium, incurred losses and loss ratio.

#### **F. Certificates of Insurance and Brokers Endorsements**

Broker shall issue certificates of insurance and Broker's endorsements of coverage within three (3) business days following the date of SFMTA request.

### **G. Billing**

1. As directed by City, issue invoices to SFMTA for premiums due for insurance.
2. Maintain appropriate accounting of amounts due, receipts, and payments to insurers.
3. Process Final Audits for each policy.

### **H. Legal Compliance**

1. Comply with all State and Federal laws and regulations pertaining to insurance brokers licensed in the State of California.

### **J. Stewardship**

At least 180 days prior to program anniversary, provide City with a written annual service summary for the policy year to include:

1. A schedule of coverage showing nature of coverage, limits, deductibles, insurer, policy number, premium and other relevant information.
2. Summary of team servicing this account.
3. Anticipated renewal terms and conditions and other indications of market conditions, trends and anticipated changes.
4. Identified problem areas such as claim handling, safety hazards, insurer financial problems, etc.
5. Recommendations for improved program design.
6. Services performed for the current year and planned for the next year.
7. Accounting of all income received on this account.

### **K. Additional Services**

The Scope of Work under this Agreement may be modified through negotiation and by written and signed addendum.



## APPENDIX C CALCULATION OF CHARGES

Note: The fees schedule and other compensation listed in the final Contract will be based on the selected Proposer's price bid submitted with its Proposal. The City anticipates that the compensation provisions of the final Contract will set out terms substantially similar to the following:

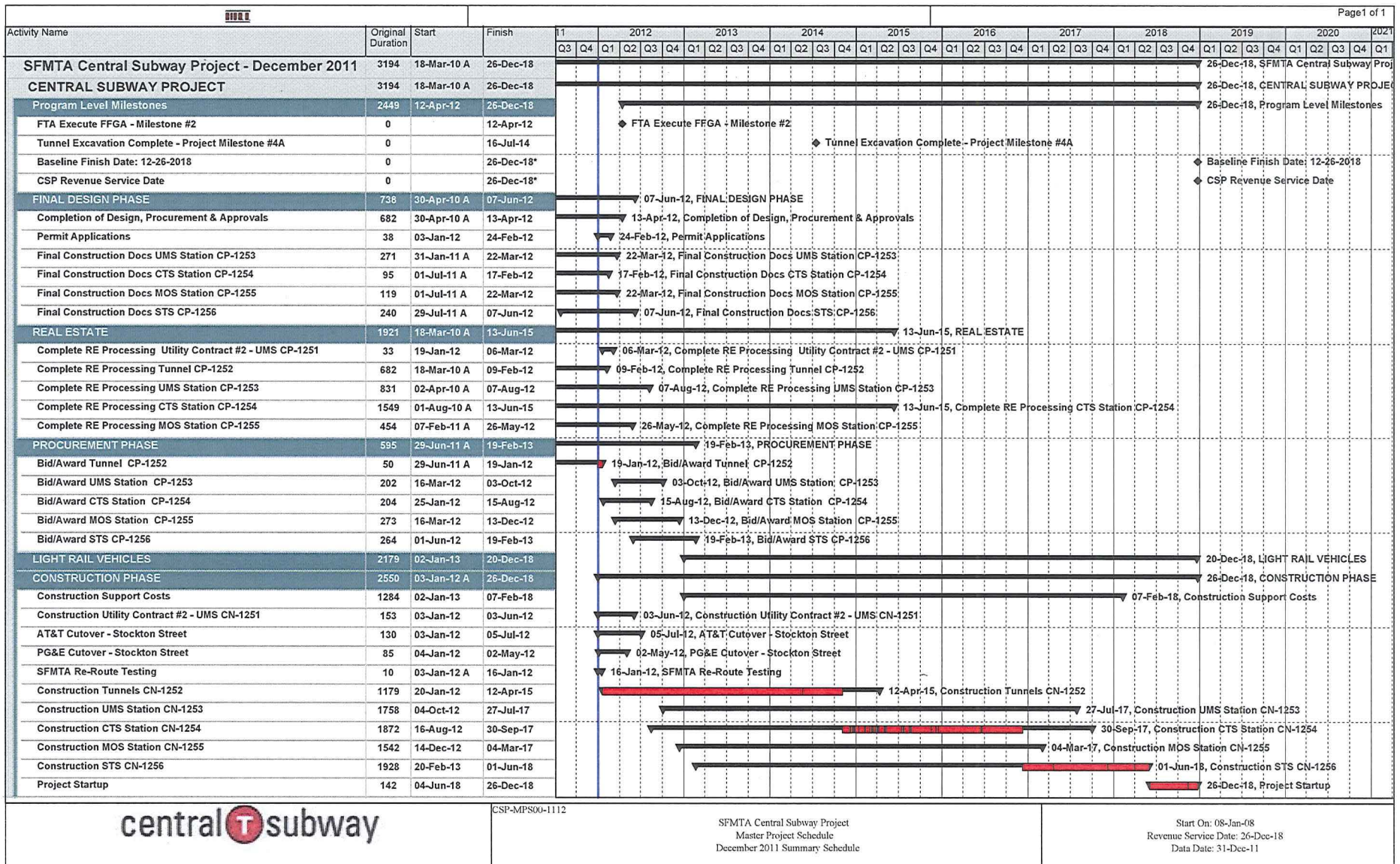
- 1. Total Amount.** The total amount of this Contract, inclusive of all broker's fees, administrative costs and charges, insurance premiums paid through Broker and other charges for all services provided by Broker, shall not exceed, Nine Million Eight Hundred Eight Thousand Seven Hundred Fifty Dollars (\$9,808,750).
- 2. Fees.** As compensation for all services provided under this Agreement, including but not limited to program planning, marketing, placement, implementation and servicing of insurance policies, the SFMTA shall pay Broker standard commissions to be included in the Cost of Premiums. Broker shall disclose the amounts and percentages of its fees as provided in Sections 5.4, 5.5. and 5.6 of the Contract.
- 3. Invoices.** Invoices furnished by Broker under this Contract must be in a form acceptable to the Controller, and must include the Contract Progress Payment Authorization number. All amounts paid by City to Broker shall be subject to audit by City.
- 4. Payment.** Payment shall be made by City to Broker at the address specified in the section entitled "Notices."
- 5. Cost of Premiums.** Total cost for insurance provided under this Agreement, including all Brokers fees, Surplus Lines taxes and government fees, shall not exceed Nine Million Eight Hundred Eight Thousand Seven Hundred Fifty Dollars (\$9,808,750,000).
- 6. Taxes.** The aforesaid amounts for the Premiums specified in this Contract are inclusive of all federal, state and local sales taxes, use, excise, receipts, gross income and other similar taxes and governmental charges.
- 7. Late Payments.** In no event shall City be liable for interest or late charges for any late payments.
- 8. Commissions.** Broker's Fees set out herein shall be full and complete compensation for all Program services for the insurance procured under this Contract. Broker and its officers, agents and employees shall not accept or receive any additional commissions or payments from insurance companies, agents or affiliates as a result of or in relation to any excess liability, or other insurance contract for the said insurance coverages. .  
  
If agreements with insurers require Broker to receive commissions in regard to the coverages provided under this Agreement, Broker will promptly notify City of such commissions and will credit an amount equal to the excess received and retained against any other amount owing to Broker.
- 9. Other Service Providers.** City may chose to use a property appraiser, safety control service, structured settlement firm or other similar service provider in connection with the

insurance coverages Broker places for City or the services Broker provides to City. If City elects to use a service provider from which Broker or its corporate parents, subsidiaries or affiliates will receive any compensation directly or indirectly relating to the services City purchases from the provider, Broker will disclose additional information regarding that compensation to City before City makes a final decision to use the service provider.

*[Remainder of this page intentionally left blank.]*

**APPENDIX D  
CENTRAL SUBWAY PROJECT SCHEDULE**

Note: The final Central Subway Project Schedule on which this Contract will be based will be set out herein, subject to change by changes to the Project Schedule arising from changes in design or construction.



**AMENDMENT NO. 1**  
**TO**  
**AGREEMENT BETWEEN**

**CITY AND COUNTY OF SAN FRANCISCO**  
**MUNICIPAL TRANSPORTATION AGENCY**

**AND**

**AON RISK INSURANCE SERVICES WEST, INC.**

**FOR**

**INSURANCE BROKERAGE SERVICES for an OWNER'S CONTROLLED**  
**INSURANCE PROGRAM ("OCIP") to provide EXCESS LIABILITY INSURANCE**  
**for the**

**CENTRAL SUBWAY SEGMENT**

**(CONTRACT CS-163-1)**

**CITY AND COUNTY OF SAN FRANCISCO  
MUNICIPAL TRANSPORTATION AGENCY**

**AMENDMENT NO. 1**

**TO**

**THE AGREEMENT BETWEEN THE CITY AND COUNTY OF SAN FRANCISCO  
MUNICIPAL TRANSPORTATION AGENCY  
AND  
AON RISK INSURANCE SERVICES WEST, INC.  
FOR  
INSURANCE BROKERAGE SERVICES FOR AN OWNER'S CONTROLLED INSURANCE PROGRAM  
("OCIP") TO  
PROVIDE EXCESS LIABILITY INSURANCE FOR THE CENTRAL SUBWAY PROJECT**

This Amendment No. 1 is made this 3rd day of August, 2012, in the City and County of San Francisco, State of California, by and between: Aon Risk Insurance Services West, Inc. ("Broker"), and the City and County of San Francisco, a municipal corporation ("City"), acting by and through its Municipal Transportation Agency ("SFMTA")

**RECITALS**

- A. On February 7, 2012, the SFMTAB adopted Resolution No. 12-017, which authorized the Director of Transportation to execute Contract No. CS-136-1 between City and Broker for Insurance Brokerage Services for an Owner's Controlled Insurance Program ("OCIP") to provide Excess Liability Insurance for the Central Subway Project ("Agreement"), in an amount not to exceed \$9,808,750.
- B. The parties wish to amend the Agreement to allow payment of services to more than one division of the Aon organization.

Now, THEREFORE, the parties agree as follows:

**1. Section 7 Payment; Invoice Format is amended to read as follows:**

**7. Payment; Invoice Format.**

7.1. Invoices furnished by Broker under this Agreement must be in a form acceptable to the Controller, and must include a unique invoice number. All amounts paid by City to Broker shall be subject to audit by City. Payment shall be made by City to Broker at the address specified in Section 25 ("Notices to the Parties and City Liaison)."

7.2. Invoices furnished by the Broker under this Agreement must identify the division of Aon to which the City is to make payment. If an invoice does not specify another division of Aon, the City shall make payment to:

Aon Risk Insurance Services West, Inc. (default)  
City Vendor Number 31438.

Payment will be made to:

Aon Bermuda LTD  
City Vendor Number 86470

when that payee is designated on the invoice.

7.3 Payment by the City to any division of Aon designated in an Aon invoice shall satisfy the City's payment obligation for the services and insurance billed under that invoice. Designation of any division of Aon as the payee for an invoice shall not relieve Aon, as a party to this Agreement, of its obligations and duties under this Agreement.

2. **There is no additional cost or time necessitated from this Amendment.**
3. **Remaining terms and conditions of the Agreement remain the same.**

IN WITNESS WHEREOF, each party has duly executed this First Amendment to the Agreement as of the date first referenced above.

**CITY**


Municipal Transportation Agency

for   
Edward D. Reiskin  
Director of Transportation

**BROKER**

  
Regina M. Carter  
Managing Director  
Aon Risk Insurance Services West, Inc.  
199 Fremont Street, 17<sup>th</sup> Floor  
San Francisco, CA 94105

Approved as to Form:  
Dennis J. Herrera  
City Attorney

By:   
Robert K. Stone  
Deputy City Attorney

**AMENDMENT NO. 2**

**TO**

**AGREEMENT BETWEEN**

**CITY AND COUNTY OF SAN FRANCISCO**

**MUNICIPAL TRANSPORTATION AGENCY**

**AND**

**AON RISK INSURANCE SERVICES WEST, INC.**

**FOR**

**INSURANCE BROKERAGE SERVICES for an OWNER'S CONTROLLED INSURANCE**

**PROGRAM ("OCIP") to provide EXCESS LIABILITY INSURANCE for the**

**CENTRAL SUBWAY SEGMENT**

**(CONTRACT CS-163-1)**



**CITY AND COUNTY OF SAN FRANCISCO  
MUNICIPAL TRANSPORTATION AGENCY**

**AMENDMENT NO. 2**

**TO**

**THE AGREEMENT BETWEEN THE CITY AND COUNTY OF SAN FRANCISCO  
MUNICIPAL TRANSPORTATION AGENCY  
AND  
AON RISK INSURANCE SERVICES WEST, INC.  
FOR  
INSURANCE BROKERAGE SERVICES FOR AN OWNER'S CONTROLLED  
INSURANCE PROGRAM ("OCIP") TO  
PROVIDE EXCESS LIABILITY INSURANCE FOR THE CENTRAL SUBWAY  
PROJECT**

This Amendment No. 2 is made this \_\_\_\_\_ day of \_\_\_\_\_, 2012, in the City and County of San Francisco, State of California, by and between: Aon Risk Insurance Services West, Inc. ("Broker"), and the City and County of San Francisco, a municipal corporation ("City"), acting by and through its Municipal Transportation Agency ("SFMTA")

**RECITALS**

- A. On February 7, 2012, the SFMTA Board of Directors adopted Resolution No. 12-017, which authorized the Director of Transportation to execute Contract No. CS-136-1 between City and Broker for Insurance Brokerage Services for an Owner's Controlled Insurance Program ("OCIP") to provide Excess Liability Insurance for the Central Subway Project ("Agreement"), in an amount not to exceed \$9,808,750.
- B. On August 3, 2012, the parties executed Amendment No. 1 to allow payment of services to more than one division of the Aon organization.
- C. The parties wish to amend the Agreement to allow providing additional Excess Liability Insurance for the Central Subway Project.

Now, THEREFORE, the parties agree as follows:

**1. Section 5.2 of Agreement is deleted and replaced in its entirety with the following:**

5.2. In no event shall the City's total expenditure (inclusive of all premiums, broker's fees, brokers' commissions, Surplus Lines Taxes and fees, and government fees for insurance coverage, and other charges and fees) for insurance secured and services provided by Broker under this Agreement exceed Nine Million Eight Hundred Eight Thousand Seven Hundred Fifty Dollars (\$9,808,750) for liability insurance coverage of \$150 Million in excess of \$200 Million. In addition, in no event shall the City's total expenditure (inclusive of all premiums, broker's fees, brokers' commissions, Surplus Lines Taxes and fees, and government fees for insurance coverage, and other charges and fees) for insurance secured and services provided by Broker under this Agreement exceed Eight Million Two Hundred Eight Thousand Dollars (\$8,280,000) for liability insurance coverage \$150 Million in excess of \$50 Million. The total

cost to the City for the insurance coverage described above shall not exceed Eighteen Million Eighty-Eight Thousand Seven Hundred Fifty Dollars (\$18,088,750). Each component of the Broker's compensation and the breakdown of costs associated with this Agreement appear in Appendix C, "Calculation of Charges," attached hereto and incorporated by reference as though fully set forth herein.

**2. I. Background of APPENDIX B of the Agreement is deleted and replaced in its entirety with the following:**

**I. Background:**

- A. Barnard Impregilo Healy ("BIH" or "Contractor"), the contractor selected by the SFMTA for the construction of the tunnels under SFMTA Contract CS-156, and Marsh (BIH's insurance broker) have met the \$500 Million general liability requirement of Contract CS-156 through a layered insurance program. Under that insurance program, BIH provides as primary (first layer) coverage \$200 Million in project specific general liability insurance. The City has procured a Project Specific Rolling \$150 Million in excess liability insurance "secondary", which would be a second layer of insurance excess to the \$200 Million project specific policy provided by BIH. This BIH also provides \$150 Million in excess liability insurance as a third layer of coverage, excess to the primary (\$200 Million) and secondary (\$150 Million) layers. The new excess layer will act as a second excess layer to cover general liability arising from the construction of the stations, surface work, track, and systems for the Central Subway, which will be constructed under a single consolidated contract.
- B. In the course of bidding separate contracts for the construction of the Chinatown and the Union Square/Market Street Stations, bidders reported and Broker confirmed that the cost of the \$200 Million general liability insurance specified in the contracts to be provided by the construction contractor was unreasonably high and there was little availability in the market for the primary coverage of that amount. To reduce project construction costs and encourage more contractors to bid, the SFMTA has consolidated all remaining construction contracts for the Central Subway Program into Contract 1300. The SFMTA desires and Broker agrees to maintain the insurance program described in Section I.A., above for the Contract 1252 (for construction of the tunnels), but as to Contract No. 1300 the required contractor's primary general liability limits will be reduced to \$50 Million which the contractor may satisfy by its corporate policy or a project specific policy. The rolling \$150 Million excess liability policy that is a first layer of excess coverage for the tunnel will provide secondary excess coverage for the Contract 1300, and the SFMTA, through the Broker, will procure an additional excess liability policy that will be excess to the contractor's primary \$50 Million policy. Broker shall procure, place and bind such insurance policies as necessary to meet the aforesaid program requirements from insurers and on forms acceptable to the SFMTA and the City's Risk Management Division.

- 3. **There is an \$8,280,000 cost increase and no additional time necessitated from this Amendment.**
- 4. **Remaining terms and conditions of the Agreement remain the same.**
- 5. **This agreement is not valid absent approval by the Board of Supervisors.**

IN WITNESS WHEREOF, each party has duly executed this First Amendment to the Agreement as of the date first referenced above.

**CITY**

Municipal Transportation Agency



Edward D. Reiskin  
Director of Transportation

**BROKER**



Regina M. Carter  
Managing Director  
Aon Risk Insurance Services West, Inc.  
199 Fremont Street, 17<sup>th</sup> Floor  
San Francisco, CA 94105

Authorized By:  
Municipal Transportation Agency

Resolution No. 12-135

Adopted: 11/6/12

Attest:

By: R. Boomer

Approved as to Form:  
Dennis J. Herrera  
City Attorney

By: Robert K. Stone 11-30-12

Robert K. Stone  
Deputy City Attorney

**AMENDMENT NO. 3**

**TO**

**AGREEMENT BETWEEN**

**CITY AND COUNTY OF SAN FRANCISCO**

**MUNICIPAL TRANSPORTATION AGENCY**

**AND**

**AON RISK INSURANCE SERVICES WEST, INC.**

**FOR**

**INSURANCE BROKERAGE SERVICES for an OWNER'S CONTROLLED**

**INSURANCE**

**PROGRAM ("OCIP") to provide EXCESS LIABILITY INSURANCE for the**

**CENTRAL SUBWAY PROJECT**

**(CONTRACT CS-163-1)**

**CITY AND COUNTY OF SAN FRANCISCO  
MUNICIPAL TRANSPORTATION AGENCY**

**AMENDMENT NO. 3**

**TO**

**THE AGREEMENT BETWEEN THE CITY AND COUNTY OF SAN FRANCISCO  
MUNICIPAL TRANSPORTATION AGENCY  
AND  
AON RISK INSURANCE SERVICES WEST, INC.  
FOR  
INSURANCE BROKERAGE SERVICES FOR AN OWNER'S CONTROLLED  
INSURANCE PROGRAM ("OCIP") TO  
PROVIDE EXCESS LIABILITY INSURANCE FOR THE CENTRAL SUBWAY  
PROJECT**

This Amendment no. 3 is made this 23<sup>rd</sup> day of ~~April~~ <sup>June</sup>, 2014, in the City and County of San Francisco, State of California, by and between: Aon Risk Insurance Services West, Inc. ("Broker"), and the City and County of San Francisco, a municipal corporation ("City"), acting by and through its Municipal Transportation Agency ("SFMTA")

**RECITALS**

WHEREAS, On February 7, 2012, the SFMTA Board of Directors adopted Resolution No. 12-017, which authorized the Director of Transportation to execute Contract No. CS-163-1 between SFMTA and Broker for Insurance Brokerage Services for an Owner's Controlled Insurance Program ("OCIP") to provide Excess Liability Insurance for the Central Subway Project ("Agreement"), in an amount not-to-exceed \$9,808,750 and for a term of eight years, actual premium cost adjusted based on final bid costs of the covered contract work; and

WHEREAS, On August 3, 2012, the parties executed Amendment No. 1 to allow payment of services to more than one division of the Aon organization; and

WHEREAS, On November 6, 2012, the SFMTA Board of Directors adopted Resolution No. 12-135, which authorized the Director of Transportation to execute Amendment No. 2 to the Agreement to provide additional excess insurance coverage for the Central Subway Program and to bind each layer of additional excess insurance coverage for a total amount not-to-exceed \$8,280,000; for a total contract amount not-to-exceed \$18,088,750; and

WHEREAS, On May 21, 2013, the SFMTA awarded Contract 1300 for the construction of stations, trackway and systems for the Central Subway to Tutor Perini in an amount of \$839,676,400, which amount increased the value of the contract work covered by the excess insurance policies provided by Aon, and thereby triggered a net increase in the premium for those policies in the amount of \$684,382, which is now due;

NOW, THEREFORE, THE PARTIES AGREE AS FOLLOWS:

- 1. Section 5.2 of Agreement is deleted and replaced in its entirety with the following:**

5.2 (a) In no event shall the City's total expenditure (inclusive of all premiums, broker's fees, broker's commissions, Surplus Lines Taxes and fees, and government fees for insurance coverage, and other changes and fees) for insurance secured and services provided by Broker under this Agreement exceed **Ten Million Eight Hundred Seventy Eight Thousand Three Hundred Thirty Two Dollars (\$10,878,332)** for liability insurance coverage of \$150 Million in excess of \$200 Million.

(b) In addition, in no event shall the City's total expenditure (inclusive of all premiums, broker's fees, broker's commissions, Surplus Lines Taxes and fees, and government fees for insurance coverage, and other changes and fees) for insurance secured and services provided by Broker under this Agreement exceed **Seven Million Eight Hundred Ninety Four Thousand Eight Hundred Dollars (\$7,894,800)** for liability insurance coverage \$150 Million in excess of \$50 Million.

(c) The total cost to the City for the insurance coverage described above shall not exceed **Eighteen Million Seven Hundred Seventy Three Thousand One Hundred Thirty Two Dollars (\$18,773,132)**. Each component of the Broker's compensation and the breakdown of costs associated with this Agreement appear in Appendix C, "Calculation of Charges", attached hereto and incorporated by reference as though fully set forth herein.

2. The contract amount is increased by \$684,382 for payment of additional premium due to additional covered construction contract value. All other terms and conditions of the Agreement remain unchanged.

IN WITNESS WHEREOF, each party has duly executed this Third Amendment to the Agreement as of the date first referenced above.

**CITY**


Municipal Transportation Agency

  
\_\_\_\_\_  
Edward D. Reiskin  
Director of Transportation

**BROKER**

  
\_\_\_\_\_  
Billy Deeb  
Director, Public Entities  
Aon Risk Insurance Services West, Inc.  
199 Fremont Street, Suite 1500  
San Francisco, CA 94105

Approved as to Form:  
Dennis J. Herrera  
City Attorney

By:  4-8-14  
\_\_\_\_\_  
Robert K. Stone  
Deputy City Attorney

**CS-163-1**  
**APPENDIX C**  
**CALCULATION OF CHARGES**

Note: The fees schedule and other compensation listed in the final Contract will be based on the selected Proposer's price bid submitted with its Proposal. The City anticipates that the compensation provisions of the final Contract will set out terms substantially similar to the following:

- 1. Total Amount.** The total amount of this Contract, inclusive of all broker's fees, administrative costs and charges, insurance premiums paid through Broker and other charges for services provided by the Broker, shall not exceed, Eighteen Million Seven Hundred Seventy Three Thousand One Hundred Thirty Two Dollars (\$18,773,132).
- 2. Fees.** As compensation for all services provided under this Agreement, including but not limited to program planning, marketing, placement, implementation and servicing of insurance policies, the SFMTA shall pay Broker standard commissions to be included in the Cost of Premiums. Broker shall disclose the amounts and percentages of its fees as provided in Sections 5.4. 5.5 and 5.6 of the Contract.
- 3. Invoices.** Invoices furnished by Broker under this Contract must be in a form acceptable to the Controller, and must include the Contract Progress Payment Authorization number. All amounts paid by City to Broker shall be subject to audit by the City.
- 4. Payment.** Payment shall be made by City to Broker at the address specified in the section entitled "Notices."
- 5. Cost of Premiums.** Total cost for insurance provided under this Agreement, including all Brokers fees, Surplus Lines taxes and government fees, shall not exceed Eighteen Million Seven Hundred Seventy Three Thousand One Hundred Thirty Two Dollars (\$18,773,132).
- 6. Taxes.** The aforesaid amounts for the Premiums specified in the Contract are inclusive of all federal, state and local sales taxes, use, excise, receipts, gross income and other similar taxes and governmental charges.
- 7. Late Payments.** In no event shall the City be liable for interest or late charges for any late payments.



- 8. Commissions.** Broker fees set out herein shall be full and complete compensation for all Program services for the insurance procured under this Contract. Broker and its officers, agents and employees shall not accept or receive any additional commissions or payments from insurance companies, agents or affiliates as a result or in relation to any excess liability, or other insurance contract for the said insurance coverages.

If agreements with insurers require Broker to receive commissions in regard to the coverages provided under this Agreement, Broker will promptly notify City of such commissions and will credit an amount equal to the excess received and retained against any other amount owing to Broker.

- 9. Other Service Providers.** City may choose to use a property appraiser, safety control service, structured settlement firm or other similar service provider in connection with the insurance coverages Broker places for City or the services Broker provides to the City. If City elects to use a service provider from which Broker or its corporate parents, subsidiaries or affiliates will receive any compensation directly or indirectly relating to the services City purchases from the provider, Broker will disclose additional information regarding that compensation to City before City makes a final decision to use the service provider.

*[Remainder of this page intentionally left blank.]*



**AMENDMENT NO. 4**

**TO**

**AGREEMENT BETWEEN**

**CITY AND COUNTY OF SAN FRANCISCO**

**MUNICIPAL TRANSPORTATION AGENCY**

**AND**

**AON RISK INSURANCE SERVICES WEST, INC.**

**FOR**

**INSURANCE BROKERAGE SERVICES for an OWNER'S CONTROLLED**

**INSURANCE PROGRAM ("OCIP") to provide EXCESS LIABILITY INSURANCE**

**for the**

**CENTRAL SUBWAY PROJECT**

**(CONTRACT CS-163-1)**

**CITY AND COUNTY OF SAN FRANCISCO  
MUNICIPAL TRANSPORTATION AGENCY**

**AMENDMENT NO. 4**

**TO**

**THE AGREEMENT BETWEEN THE CITY AND COUNTY OF SAN FRANCISCO  
MUNICIPAL TRANSPORTATION AGENCY**

**AND**

**AON RISK INSURANCE SERVICES WEST, INC.**

**FOR**

**INSURANCE BROKERAGE SERVICES FOR AN OWNER'S CONTROLLED  
INSURANCE PROGRAM ("OCIP") TO  
PROVIDE EXCESS LIABILITY INSURANCE FOR THE CENTRAL SUBWAY  
PROJECT**

This Amendment No. 4 is made this 29<sup>th</sup> day of October, 2018, in the City and County of San Francisco, State of California, by and between: Aon Risk Insurance Services West, Inc. ("Broker"), and the City and County of San Francisco, a municipal corporation ("City"), acting by and through its Municipal Transportation Agency ("SFMTA")

**RECITALS**

WHEREAS, On February 7, 2012, the SFMTA Board of Directors adopted Resolution No. 12-017, which authorized the Director of Transportation to execute Contract No. CS-136-1 between SFMTA and Broker for Insurance Brokerage Services for an Owner's Controlled Insurance Program ("OCIP") to provide Excess Liability Insurance for the Central Subway Project ("Agreement"), in an amount not to exceed \$9,808,750 and for a term of eight years, actual premium cost adjusted based on final bid costs of the covered contract work; and

WHEREAS, On August 3, 2012, the parties executed Amendment No. 1 to allow payment of services to more than one division of the Aon organization; and

WHEREAS, On November 6, 2012 the SFMTA Board of Directors adopted Resolution No. 12-135, which authorized the Director of Transportation to execute Amendment No. 2 to the Agreement to provide additional excess insurance coverage for the Central Subway Program and to bind each layer of additional excess insurance coverage for a total amount not-to-exceed \$8,280,000; for a total contract amount not-to-exceed \$18,088,750; and

WHEREAS, On May 21, 2013, the SFMTA awarded Contract 1300 for the construction of stations, trackway and systems for the Central Subway to Tutor Perini in an amount of \$839,676,400, which amount increased the value of the contract work covered by the excess insurance policies provided by Aon, and thereby triggered a net increase in the premium for those policies in the amount of \$684,382.

WHEREAS, Due to staff misunderstanding of the Director of Transportation's authority to approve contracts, Amendment No. 3 was not presented to the SFMTA Board of Directors for approval, nor to the Board of Supervisors for approval; and,

WHEREAS, Construction of the Central Subway Project has been delayed 118 calendar days beyond the revised substantial completion date, and Amendment No. 4 to the Contract CS-163 increases the contract by \$6,321,304 to extend the excess insurance coverage; and,

WHEREAS, the parties wish to further amend the Agreement to extend the term of the Agreement from June 25, 2018 to June 24, 2020.

**Now, THEREFORE, the parties agree to amend the Contract as follows:**

- A. Section 2 of the Contract, Term and Expiration of the Agreement is deleted and replaced in its entirety with the following:

2.1 Subject to Section 1, the term of this Agreement shall be for a period of ten (10) years commencing on the Effective Date of the Agreement, excluding Broker's obligations for completed operations claims services

2.2 Prior to expiration of this Agreement, Broker shall commence and perform, with diligence, all actions necessary on the part of Broker to effect the termination of this Agreement and to minimize the liability of Broker and City to third parties as a result of expiration. Further, Broker shall perform all actions necessary for the uninterrupted continuance of insurance policies secured pursuant to this Agreement with the City and/or through an alternative Broker of the City's choosing. All such actions shall be subject to the prior approval of City. Such actions shall include, without limitation those listed in Section 21.2 of this Agreement. The Term may be extended upon agreement in writing by Broker and SFMTA in one-year increments. However, the expiration of this Contract does not relieve Broker of its responsibilities to provide closeout services as required under the Contract.

- B. Section 5.2 of Agreement

5.2 (a) In no event shall the City's total expenditure (inclusive of all premiums, broker's fees, broker's commissions, Surplus Line Taxes and fees, and government fees for insurance coverage, and other changes and fees) for insurance secured and services provided by Broker under this Agreement exceed **Fourteen Million One Hundred Fifty One Thousand Eight Hundred Thirty Seven Dollars (\$14,151,837)** for liability insurance coverage of \$150 Million in excess of \$200 Million.


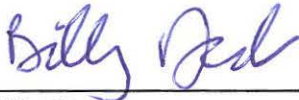
(b) In addition, in no event shall the City's total expenditure (inclusive of all premiums, broker's fees, broker's commissions, Surplus Line Taxes and fees, and government fees for insurance coverage, and other changes and fees) for insurance secured and services provided by Broker under this Agreement exceed **Ten Million Nine Hundred Forty Two Thousand Five Hundred Ninety Nine Dollars (\$10,942,599)** for liability insurance coverage \$150 Million in excess of \$50 Million.

(c) The total cost to the City for the insurance coverage described above shall not exceed **Twenty Five Million Ninety Four Thousand Four Hundred Thirty Six Dollars (\$25,094,436)**. Each component of the Broker's compensation and the breakdown of costs associated with this Agreement appear in Appendix C, "Calculation of Charges", attached hereto and incorporated by reference as though fully set forth herein.

- C. By signing below, the signatories warrant that they each have the authority to sign this modification to the contract and bind the respective party he or she represents.

*The remainder of this page has been intentionally left blank.*

IN WITNESS WHEREOF, each party has duly executed this First Amendment to the Agreement as of the date first referenced above.

CITY	BROKER
<div data-bbox="337 514 522 577"></div> <div data-bbox="207 592 540 663">Edward D. Reiskin Director of Transportation</div> <div data-bbox="207 806 634 875">Authorized By: Municipal Transportation Agency</div> <div data-bbox="207 903 743 951">Resolution No. <u>180918-130</u></div> <div data-bbox="207 955 626 1016">Adopted: <u>9/18/2018</u></div> <div data-bbox="207 1052 300 1083">Attest:</div> <div data-bbox="207 1087 618 1157">By: <u>R. Boomer</u></div> <div data-bbox="207 1262 487 1367">Approved as to Form: Dennis J. Herrera City Attorney</div> <div data-bbox="207 1396 732 1577">By: <u>Robert K. Stone</u> Robert K. Stone Deputy City Attorney</div>	<div data-bbox="808 499 1104 598"></div> <div data-bbox="782 592 1281 768">Billy Deeb Director, Public Entities Aon Risk Insurance Services West, Inc. 199 Fremont Street, 17<sup>th</sup> Floor San Francisco, CA 94105</div>

**CS-163-1**  
**APPENDIX C**  
**CALCULATION OF CHARGES**

Note: The fees schedule and other compensation listed in the final Contract will be based on the selected Proposer's price bid submitted with its Proposal. The City anticipates that the compensation provisions of the final Contract will set out terms substantially similar to the following:

- 1. Total Amount.** The total amount of this Contract, inclusive of all broker's fees, administrative costs and charges, insurance premiums paid through Broker and other charges for services provided by the Broker, shall not exceed, Twenty Five Million Ninety Four Thousand Four Hundred Thirty Six Dollars (\$25,094,436).
- 2. Fees.** As compensation for all services provided under this Agreement, including but not limited to program planning, marketing, placement, implementation and servicing of insurance policies, the SFMTA shall pay Broker standard commissions to be included in the Cost of Premiums. Broker shall disclose the amounts and percentages of its fees as provided in Sections 5.4, 5.5 and 5.6 of the Contract.
- 3. Invoices.** Invoices furnished by Broker under this Contract must be in a form acceptable to the Controller, and must include the Contract Progress Payment Authorization number. All amounts paid by City to Broker shall be subject to audit by the City.
- 4. Payment.** Payment shall be made by City to Broker at the address specified in the section entitled "Notices."
- 5. Cost of Premiums.** Total cost for insurance provided under this Agreement, including all Brokers fees, Surplus Lines taxes and government fees, shall not exceed Twenty Five Million Ninety Four Thousand Four Hundred Thirty Six Dollars (\$25,094,436).
- 6. Taxes.** The aforesaid amounts for the Premiums specified in this Contract are inclusive of all federal, state and local sales taxes, use, excise, receipts, gross income and other similar taxes and governmental charges.
- 7. Late Payments.** In no event shall the City be liable for interest or late charges for any late payments.
- 8. Commissions.** Broker Fees set out herein shall be full and complete compensation for all Program services for the insurance procured under this Contract. Broker and its officers, agents and employees shall not accept or receive any additional commissions or payments from insurance companies, agents or affiliates as a result or in relation to any excess liability, or other insurance contract for the said insurance coverages.

If agreements with insurers require Broker to receive commissions in regard to the coverages provided under this Agreement, Broker will promptly notify City of such commissions and will credit an amount equal to the excess received and retained against any other amount owing to Broker.

9. **Other Service Providers.** City may choose to use a property appraiser, safety control service, structured settlement firm or other similar service provider in connection with the insurance coverages Broker places for City or the services Broker provides to the City. If City elects to use a service provider from which Broker or its corporate parents, subsidiaries or affiliates will receive any compensation directly or indirectly relating to the services City purchases from the provider, Broker will disclose additional information regarding that compensation to City before City makes a final decision to use the service provider.

SAN FRANCISCO  
MUNICIPAL TRANSPORTATION AGENCY  
BOARD OF DIRECTORS

RESOLUTION No. 12-017

WHEREAS, The Final Environmental Impact Statement/Environment Impact Report (Final EIR/EIR) for the two-phase Third Street Light Rail Project (Project) was completed in November 1998; and,

WHEREAS, The former Public Transportation Commission approved Resolution No. 99-009 on January 19, 1999, which adopted the environmental findings pursuant to the California Environmental Quality Act (CEQA) for the Project, including mitigation measures as set forth in the Project's Final Environmental Impact Report and Mitigation Monitoring Report; and,

WHEREAS, Design and construction of the 1.7-mile Central Subway (Central Subway Project) is Phase 2 of the Third Street Light Rail Transit Project; and,

WHEREAS, The anticipated complexity of the Central Subway, including tunneling and cut-and-cover construction, in proximity to sensitive urban structures and facilities in congested urban areas, poses significant construction challenges to the City; and,

WHEREAS, The SFMTA Board of Directors adopted Resolution No. 10-130 on October 19, 2010 authorizing advertisement of a Request for Proposals for Contract No. CS-163, Brokerage Services for an Owner Controlled Insurance Program (OCIP) for the Central Subway Project with; and,

WHEREAS, The SFMTA desires to obtain \$150 million excess liability coverage in excess of \$200 million for the tunnel and 3 stations contracts to be acquired through a traditional construction contractor insurance procurement; and,

WHEREAS, The SFMTA desires to retain the services of the highest ranked broker for Task One – OCIP Insurance, Aon Risk Insurance Service West, Inc. (Broker), to obtain the excess liability insurance; and,

WHEREAS, The funding for services under this Contract is from federal, state and local sources; and,

WHEREAS, Civil Service Commission approval for contracts resulting from Request of Proposal Contract No. CS-163 was obtained by the SFMTA on June 20, 2010 under Civil Service Approval No. 4117-10/11; and,


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WHEREAS, Contract No. CS-163-1 will assist SFMTA in meeting the Strategic Plan Objective No. 4.2 -- to ensure the efficient and effective use of resources; now, therefore, be it

RESOLVED, That the San Francisco Municipal Transportation Agency Board of Directors authorizes the Director of Transportation or his designee to execute Contract No. CS-163-1, Insurance Brokerage Services for an Owner's Controlled Insurance Program to provide Excess Liability Insurance for the Central Subway Project with Aon Risk Insurance Services West, Inc. and to bind each layer of excess insurance coverage for the Central Subway Project for a total amount not to exceed \$9,808,750 and for a term of eight years.

I certify that the foregoing resolution was adopted by the San Francisco Municipal Transportation Agency Board of Directors at its meeting of February 7, 2012.

  
Secretary to the Board of Directors  
San Francisco Municipal Transportation Agency

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SAN FRANCISCO  
MUNICIPAL TRANSPORTATION AGENCY  
BOARD OF DIRECTORS

RESOLUTION No. 12-135

WHEREAS, The Final Environmental Impact Statement/Environment Impact Report (Final EIS/EIR) for the two-phase Third Street Light Rail Project (the “Project”) was completed in November 1998; and,

WHEREAS, The former Public Transportation Commission approved Resolution No. 99-009 on January 19, 1999, which adopted the environmental findings pursuant to the California Environmental Quality Act (CEQA) for the Project, including mitigation measures as set forth in the Project’s Final Environmental Impact Report and Mitigation Monitoring Report; and,

WHEREAS, Design and construction of the 1.7-mile Central Subway is Phase 2 of the Third Street Light Rail Transit Project; and,

WHEREAS, The SFMTA Board of Directors adopted Resolution No. 12-017 on February 7, 2012 authorizing the Director of Transportation or his designee to execute Contract No. CS-163-1, Insurance Brokerage Services for an Owner Controlled Insurance Program to provide Excess Liability Insurance for the Central Subway Project with Aon Risk Insurance Services West, Inc. (Broker) and to bind each layer of excess insurance coverage for the Central Subway Project for a total amount not to exceed \$9,808,750 and for a term of eight years; and,

WHEREAS, The SFMTA obtained \$150 million liability coverage in excess of \$200 million insurance coverage provided by the contractors for the tunnel and stations contracts; and,

WHEREAS, The SFMTA has consolidated the construction of the three stations, surface work, track and systems for the Central Subway into a single construction contract; and

WHEREAS, The SFMTA desires to restructure the insurance program for the construction of the Central Subway's three stations to reduce the required contractor primary coverage to \$50,000,000 and supplement the existing \$150,000,000 excess liability insurance coverage with an additional \$150,000,000 excess coverage for the stations contract to be acquired through a traditional construction contractor insurance procurement; and,

WHEREAS, The SFMTA desires to authorize Aon Risk Insurance Service West, Inc., to obtain the additional excess liability insurance; and,

WHEREAS, The funding for services under this Contract is from federal, state and local sources; and,

WHEREAS, Civil Service Commission approval for contracts resulting from Request of Proposal Contract No. CS-163-1 was obtained by the SFMTA on June 20, 2010 under Civil Service Approval No. 4117-10/11; and,

WHEREAS, Contract No. CS-163-1 will assist SFMTA in meeting the Strategic Plan Objective No. 3.3 Allocate capital resources effectively; and

WHEREAS, Execution of this Amendment is contingent upon approval of the Board of Supervisors; now, therefore, be it

RESOLVED, That the San Francisco Municipal Transportation Agency Board of Directors authorizes the Director of Transportation or his designee to execute Amendment No. 2 to Contract No. CS-163-1, Insurance Brokerage Services for an Owner Controlled Insurance Program (OCIP) to provide Excess Liability Insurance for the Central Subway Project with Aon Risk Insurance Services West, Inc. and to bind each layer of additional excess insurance coverage for the Central Subway Project for a total amount not to exceed \$8,280,000 for the additional insurance; for a total contract amount not to exceed \$18,088,750; and be it

FURTHER RESOLVED, That the SFMTA Board of Directors requests the Board of Supervisors to approve this Amendment No. 2 to Contract No. CS-163-1 in the amount and for the reasons stated herein.

I certify that the foregoing resolution was adopted by the San Francisco Municipal Transportation Agency Board of Directors at its meeting of November 6, 2012.



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Secretary to the Board of Directors  
San Francisco Municipal Transportation Agency

SAN FRANCISCO  
MUNICIPAL TRANSPORTATION AGENCY  
BOARD OF DIRECTORS

RESOLUTION No. 180918-130

WHEREAS, On February 7, 2012, the SFMTA Board of Directors approved Contract No. CS-163-1 (Aon Contract), Insurance Brokerage Services for an Owner's Controlled Insurance Program (OCIP), between the SFMTA and Aon Risk Insurance Services West, Inc. (Aon), in an amount not-to-exceed \$9,808,750 and for a term of eight years, with actual insurance premium charges to be adjusted based on contract costs and construction period of the covered contract work; and,

WHEREAS, The OCIP provides excess liability insurance coverage (OCIP) to cover catastrophic losses arising from the construction of the Central Subway Project, which is Phase 2 of the Third Street Light Rail Transit Project (Project) that exceed the Project contractors' liability insurance policies; and,

WHEREAS, Barnard Impregilo Healy (Barnard) is the contractor for the construction of the Project tunnels, under Contract No. 1252. The OCIP provides \$150 million in coverage over Barnard's own \$350 million policies, for total coverage of \$500 million; and,

WHEREAS, Tutor Perini Corporation (Tutor) is the contractor for the construction of the Project stations, trackway, and control systems under Contract No. 1300. The OCIP provides \$150 million in coverage over Tutor's own \$50 million policy, for total coverage of \$200 million; and,

WHEREAS, The SFMTA pays the premiums (charges) for the OCIP through Aon, which as the OCIP insurance broker, procures the insurance policies for the OCIP from 16 underwriters; and,

WHEREAS, The premiums for the OCIP are based on the value of the construction contracts and the period of active construction. The Aon Contract has been modified twice before, which has increased the total amount of the Aon Contract by \$8,280,000, for a total contract amount not to exceed \$18,088,750. Amendment Nos. 3 and 4 increase the contract amount by \$684,382 and \$6,321,304, respectively, for additional premium due and arising from increases to construction contract amounts and extension of construction time. Amendments Nos. 3 and 4 each require Board of Supervisors' approval under Charter Section 9.118(b) because each amendment exceeds \$500,000; and,

WHEREAS, On August 3, 2012, the Director of Transportation approved Amendment No. 1 to the Aon Contract to allow payment for premium and broker services to more than one division of the Aon organization; and,

WHEREAS, On November 6, 2012, the SFMTA Board of Directors approved Amendment No. 2 to the Aon Contract to provide additional excess insurance coverage for the Central Subway Program under the OCIP, and to bind each layer of additional excess insurance coverage for a total amount not-to-exceed \$8,280,000; and,

WHEREAS, On May 21, 2013, the SFMTA awarded Contract 1300 for the construction of stations, trackway and systems for the Central Subway to Tutor Perini Corporation in an amount not to exceed \$839,676,400, which amount increased the value of the contract work covered by the OCIP, and thereby triggered a net increase in the premium for the OCIP policies in the amount of \$684,382, paid through an increase of that amount to the Aon Contract; and,

WHEREAS, Amendment No. 3 to the Contract requires approval by the Board of Supervisors under Charter Section 9.118(b), as the original contract was subject to the Board of Supervisors approval and the value of the amendment exceeds \$500,000; and,

WHEREAS, Due to staff misunderstanding of the Director of Transportation's authority to approve contracts, Amendment No. 3 was not timely presented to the SFMTA Board of Directors for approval, and was not timely presented to the Board of Supervisors for approval; and,

WHEREAS, Amendment No. 4 to the Contract requires approval by the Board of Supervisors under Charter Section 9.118(b), as the original contract was subject to the Board of Supervisors approval and the value of the amendment exceeds \$500,000; and,

WHEREAS, The Central Subway Final Supplemental Environmental Impact Statement / Supplemental Environmental Impact Report (Central Subway SEIS/SEIR) evaluated the environmental impacts of the Central Subway project, including construction of the subway stations; on August 7, 2008, the San Francisco Planning Commission certified the Final SEIR (Case No. 1996.281E); on August 19, 2008, the SFMTA Board of Directors approved Resolution 08-150 adopting Central Subway Project Alternative 3B as the Locally Preferred Alternative, the CEQA Findings, Statement of Overriding Considerations, and the Mitigation Monitoring and Reporting Plan; and

WHEREAS, Amendment No. 3 and Amendment No. 4, as described above, fall within the scope of the Final SEIS/SEIR; and

WHEREAS, The Central Subway SEIS/SEIR is on file with the SFMTA Board of Directors, may be found in the records of the Planning Department at 1650 Mission Street in San Francisco, and is incorporated herein by reference; therefore be it,


RESOLVED, That the SFMTA Board has reviewed and considered the Central Subway SEIS/SEIR and record as a whole, and finds that the Central Subway SEIS/SEIR is adequate for the Board's use as the decision-making body for the actions taken herein relative to construction of the Project, and incorporates the CEQA findings by this reference as though set forth in this Resolution; and be it

RESOLVED, The SFMTA Board of Directors approves retroactively Amendment No. 3 to Contract CS-163-1 Insurance Brokerage Services for an Owner's Controlled Insurance Program, to provide Excess Liability Insurance for the Central Subway Project, with Aon Risk Insurance Services West, Inc., to increase the contract amount by \$684,382 for payment of additional premium due to additional covered construction contract value, for a total contract amount not to exceed \$18,773,132; and be it further

RESOLVED, The SFMTA Board of Directors approves Amendment No. 4 to Contract CS-163-1 Insurance Brokerage Services for an Owner's Controlled Insurance Program, to provide Excess Liability Insurance for the Central Subway Project, with Aon Risk Insurance Services West, Inc., to increase the contract amount by \$6,321,304 for payment of additional premium due to increased construction time and construction costs, for a total contract amount not to exceed \$25,094,436; and be it further

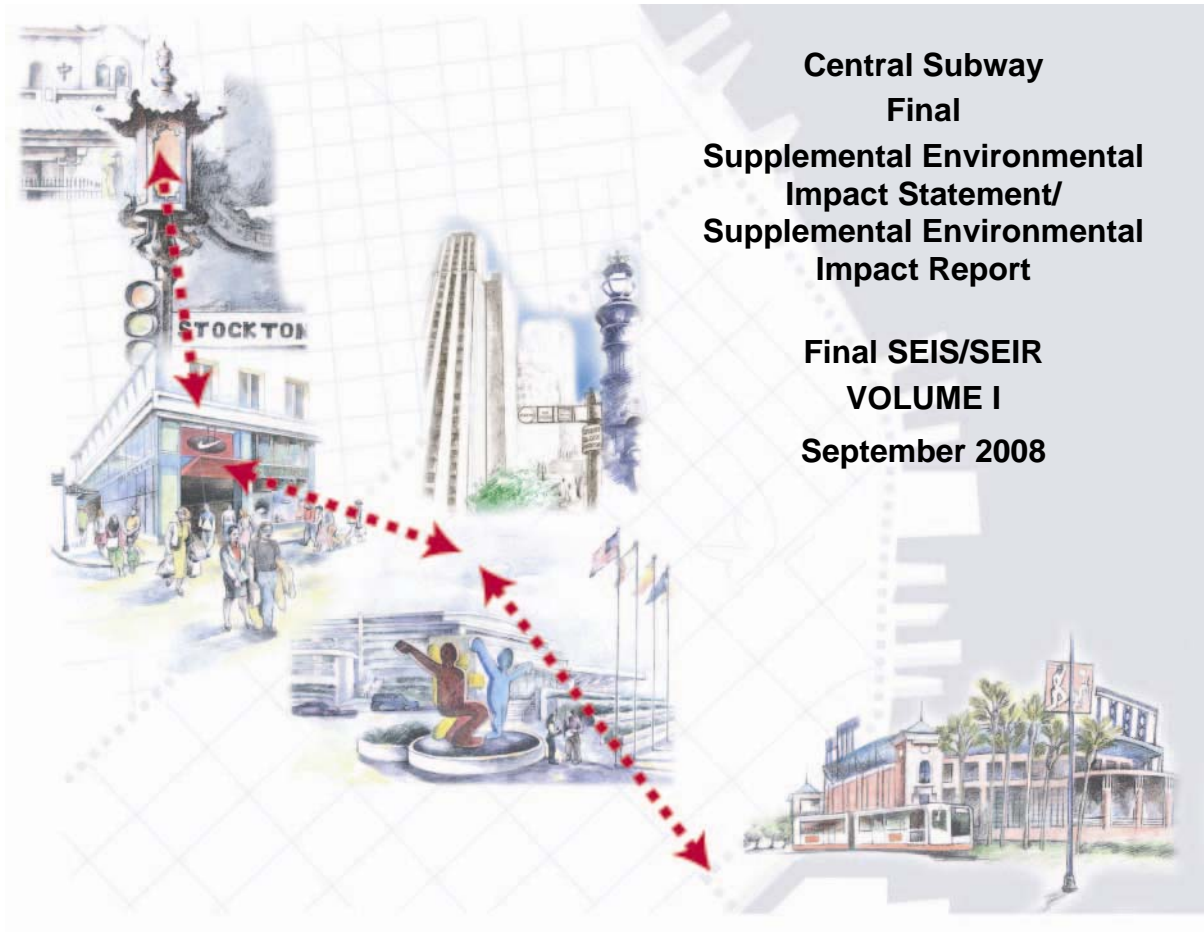
RESOLVED, The SFMTA Board of Directors requests that the Board of Supervisors' approve retroactively Amendment No. 3 and approve Amendment No. 4 to Contract CS-163-1 Insurance Brokerage Services for an Owner's Controlled Insurance Program, to provide Excess Liability Insurance for the Central Subway Project, with Aon Risk Insurance Services West, Inc., to increase the contract amount by \$684,382 and \$6,321,304, respectively, for payment of additional premium due to increased construction time and contract costs, for a total amended contract amount not to exceed \$25,094,436.

I certify that the foregoing resolution was adopted by the San Francisco Municipal Transportation Agency Board of Directors at its meeting of September 18, 2018.

  
\_\_\_\_\_  
Secretary to the Board of Directors  
San Francisco Municipal Transportation Agency



Connecting people. Connecting communities.



**Central Subway  
Final  
Supplemental Environmental  
Impact Statement/  
Supplemental Environmental  
Impact Report**

**Final SEIS/SEIR  
VOLUME I  
September 2008**

**FEDERAL TRANSIT ADMINISTRATION  
U.S. DEPARTMENT OF TRANSPORTATION**

**CITY AND COUNTY OF SAN FRANCISCO  
PLANNING DEPARTMENT**

Case No. 96.281E  
State Clearinghouse No. #96102097

**FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT/  
FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT**

for the

**CENTRAL SUBWAY/THIRD STREET LIGHT RAIL PHASE 2  
IN THE CITY AND COUNTY OF SAN FRANCISCO**

prepared by the

**U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL TRANSIT ADMINISTRATION**

and the

**CITY AND COUNTY OF SAN FRANCISCO PLANNING DEPARTMENT**

Pursuant to


National Environmental Policy Act (42 USC 94332) 49 USC Chapter 53, 49 USC 9303, 16 USC 9470,  
23 CFR Part 771, 23 CFR Part 450, Executive Order 12898 Section 6002 SAFETEA-LU, 40 CFR parts 1500-1508,  
and California Environmental Quality Act, PRC 21000 *et seq.*; and the State of California CEQA Guidelines,  
California Administrative Code, 15000 *et seq.*

**FEDERAL TRANSIT ADMINISTRATION**

  
\_\_\_\_\_  
Leslie T. Rogers  
Region IX Administrator  
Federal Transit Administration

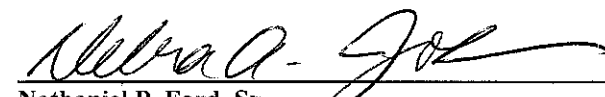
Date: SEP 23 2008

**SAN FRANCISCO PLANNING DEPARTMENT**

  
\_\_\_\_\_  
William Wycko  
Acting Environmental Review Officer  
San Francisco Planning Department

Date: June 19, 2008

**SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY**

  
\_\_\_\_\_  
for Nathaniel P. Ford, Sr.  
Executive Director/CEO  
San Francisco Municipal Transportation Agency

Date: 06.13.08



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**ABSTRACT:** This Supplemental EIS/EIR describes and summarizes the environmental and transportation impacts, along with measures to improve, avoid, minimize or mitigate impacts for the Central Subway Project Alternatives, that would be Phase 2 of the Third Street Light Rail (T-Third Line) connecting Visitation Valley, Bayview/Hunters Point and Mission Bay with the downtown retail district and Chinatown in San Francisco, California. The term ‘supplemental’ is used for this environmental document because it tiers off of a previous EIS/EIR for the two-phase Third Street Light Rail Project that was evaluated under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) (Case No. 96.281E) in 1998. The Phase 1 Initial Operating Segment (IOS), now the T-Third Line, opened for operation in April of 2007. The San Francisco Municipal Transportation agency (MTA) is the Project Sponsor.

This document for the Phase 2 Central Subway updates information in the 1998 EIS/EIR for the Study Area and focuses on changes to the Project that have occurred since the certification of the Final EIS/EIR. These changes include: a new double-track segment along Fourth and Stockton Streets between Brannan and Market Streets as an alternative to use of Third, Harrison, Kearny, and Geary Streets; extension of the planning horizon year from 2015 to 2030; the addition of above ground ventilation shafts for tunnel segments and stations; the use of off-street access to stations; a deep tunnel under Market Street; and the potential extension of a construction tunnel to the north end of the Project near Washington Square under Columbus Avenue for removing the tunnel boring machine. Three alternatives are evaluated in this SEIS/SEIR for the Central Subway Project:

- Alternative 1 - No Project/Transportation Systems Management, developed in conformance with NEPA and CEQA guidelines to represent a baseline for comparison with build alternatives. This alternative includes the T-Third Line and associated bus changes for the Phase 1 Third Street Light Rail Project.
- Alternative 2 - Enhanced EIS/EIR Alignment, as analyzed in the 1998 FEIS/FEIR, that would use King, Third, Harrison, Kearny, and Geary Streets as well as Fourth and Stockton Streets, with a shallow tunnel crossing of Market Street and four subway stations at Moscone, Market Street, Union Square and Chinatown, and a surface platform at Third and King Streets. The enhancements to this original alternative include: above-ground ventilation shafts to meet fire code, off-sidewalk station entries to minimize pedestrian congestion on busy downtown sidewalks, and the provision of a closed-barrier fare system.
- Alternative 3 – The Fourth/Stockton Alignment was developed during preliminary engineering and community outreach to avoid or minimize potential impacts identified in the 1998 FEIS/FEIR for the Central Subway phase of the Third Street Light Rail Project. This alternative would operate exclusively on Fourth and Stockton Streets, avoiding impacts along Third, Harrison, Kearny, and Geary Streets, and would include a deep (rather than shallow) tunnel under Market Street to minimize conflicts with a major sewer line. Two design options are included in this alternative; Option A with a double-track portal on Fourth Street between Townsend and Brannan Streets and three subway stations at Moscone, Union Square/Market Street, and Chinatown (the entrance between Sacramento and Clay Streets on the east side of Stockton Street, adjacent to Hang Ah Alley and Willie “Woo Woo” Wong park/playground), and Option B with a double-track portal on Fourth Street between Bryant and Harrison Streets to reduce the length of the tunnel, and a surface platform on Fourth Street at Brannan Street to serve local residents, and subway stations at Moscone, Union Square/Market Street and Chinatown. The primary entrance to the Union Square station for Option B would be on the Geary Street side of the plaza rather than the Stockton Street side; and vent shafts, ~~but~~ would be in the Ellis/O’Farrell garage rather than the plaza, minimizing impacts to the plaza-park. The Chinatown Station entrance for Option B would be located on the west side of Stockton Street between-at the corner of Clay and Washington Streets, and would not affect Willie “Woo Woo” Wong Playground. Alternative 3 also includes a construction tunnel extension to Columbus Avenue near Washington Square Park for purposes of extraction of the tunnel boring machine.

Impacts discussed in this SEIS/SEIR include: displacement of businesses and residences; removal of on-street parking at stations and along the surface portion of the alignments; removal of parking in three garages for vent shafts; use of a small portion of Union Square plaza for a station entry; degraded traffic service levels at intersections along Third and Fourth Streets where the surface alignments would be located; potential affects to historic architectural properties and historic districts adjacent to the tunnel portals and station entries; impacts to archaeological resources; and construction related impacts (localized noise, vibration, traffic, visual affects) for an estimated five to six year construction period. As required for CEQA, mitigation measures are described for all impacts determined to be significant to reduce them to less-than-significant. Unavoidable impacts are described for: traffic at Third and King, Fourth and King, Fourth and Harrison, and Sixth and Brannan Streets; displacement of affordable housing units; and for prehistoric archaeological resources during construction and potential impacts to potentially eligible historic architectural buildings and Districts in the Chinatown and Union Square station areas Historic District. Impacts to Section 4(f) properties meet the criteria for a “de minimis” finding.

For additional information concerning this document, contact:

Mr. Ray Sukys, Office of Program Management  
U.S. Department of Transportation  
Federal Transit Administration, Region IX  
201 Mission Street, Suite 1650  
San Francisco, 94105  
(415) 744-3133

Ms. Joan A. Kugler  
Planning Department  
City and County of San Francisco  
1650 Mission Street, Suite 400  
San Francisco, CA 94103  
(415) 575-6925

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## **PREFACE**

This Final Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report (SEIS/SEIR) is presented in two volumes: Volume I is the SEIS/SEIR with text changes resulting from responses to comments on the Draft SEIS/SEIR, and from the Public Hearing, and also includes Staff Initiated Changes between the Draft and Final SEIS/SEIR. Volume II includes copies of all comment letters on the Draft SEIS/SEIR, copies of comment forms from the Public Hearings, and the transcript from the Public Hearing. Each comment letter and form is followed by responses to comments. The staff-initiated text changes follow by Chapter of the SEIS/SEIR. Text additions are noted by an underline and text deletions are noted by a ~~striketrough~~. The two volumes constitute the Final SEIS/SEIR.

The SEIS/SEIR is prepared pursuant to the requirements of both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). There are a number of differences between the guidelines for CEQA and NEPA that affect reporting in this document. CEQA provides an Initial Study Checklist (Appendix G of the State CEQA guidelines) that describes thresholds for determining significance for environmental topics. These thresholds along with other City requirements were used throughout the analysis and the levels are shown in Chapter 7.0, Table 7-1, CEQA Significance Criteria. CEQA requires identification of and mitigation for significant adverse impacts in an EIR, while under NEPA, measures to avoid, minimize or mitigate affects are considered for all of the adverse impacts of a project, regardless of significance. The affected environment or existing conditions are described in Chapter 4.0, while in Chapter 5.0 of this combined NEPA/CEQA document, operational and cumulative impacts are described for each of the alternatives regardless of whether they would be considered significant under CEQA and mitigation measures are described wherever practicable to reduce identified adverse impacts. Construction methods and construction-related impacts and mitigation measures are described in Chapter 6.0. Specific discussion of the level of impact significance before and after mitigation and or improvement measures, as well as a summary of unavoidable significant impacts, growth-inducing impacts, and cumulative impacts in accordance with CEQA is provided in Chapter 7.0.

Another important difference between CEQA and NEPA is that CEQA only considers impacts to the physical environment, while NEPA includes impacts to the human environment, such as socioeconomic impacts and environmental justice. These NEPA topics are included in Chapters 4.0, 5.0 and 6.0, while the topics that relate only to CEQA are addressed in Chapter 7.0.

For Department of Transportation projects, as is the case for the Central Subway because it would need the approval of the Federal Transit Administration (FTA) to qualify for federal New Starts funding, the SEIS must also address the financial feasibility of the project, including a revenue analysis, a cost

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analysis, and a cash flow analysis. This information is included in a separate Chapter 8.0 of this SEIS/SEIR. Environmental documents for New Starts transportation projects must also evaluate, or compare, all alternatives for mobility, environmental benefits, operating efficiencies, cost effectiveness, transit supportive land use, and local financial commitment (Chapter 9.0).

Federal regulations require that transportation projects must address potential impacts to public parks and recreation areas and significant historic resources or wildlife/waterfowl refuges as part of a Section 4(f) analysis in the EIS. Because of potential impacts to Union Square, Willie “Woo Woo” Wong playground, Washington Square park and historic resources in Chinatown, a Section 4(f) Report is included as Chapter 10.0. Concurrence with a “de minimis” finding for impacts to Union Square Park by the Recreation and Parks Commission is attached as Appendix J. This satisfies the Section 4(f) requirement for the Project.

Technical studies, which were prepared as part of the environmental analysis for the Central Subway Project, are available for review by appointment at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, California.

**FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT/  
SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT (SEIS/SEIR)**

**VOLUME I**

(See page xv for Table of Contents, Volume II)

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## **S.0 EXECUTIVE SUMMARY**

### **S.1 INTRODUCTION**

The San Francisco Municipal Transportation Agency (MTA) is proposing the Central Subway Project (Project), as the second phase of the Third Street Light Rail Project that was evaluated under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) in the Third Street Light Rail Project Final Environmental Impact Study and Final Environmental Impact Report (FEIS/FEIR) (Case No. 96.281E) in 1998. The Federal Transit Administration (FTA) issued a Record of Decision (ROD) for the Third Street Light Rail Project and the San Francisco Public Transportation Commission (PTC) approved the Project in 1999. The PTC was the predecessor policy board to the San Francisco Municipal Transportation Agency (MTA), which now oversees the San Francisco Municipal Railway (Muni) and the Department of Parking and Traffic (DPT). The Phase 1 Initial Operating Segment (IOS) opened for service in spring of 2007.<sup>1</sup> The IOS is now referred to as the T-Third Line.

This Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report (SEIS/SEIR) updates information in the Central Subway Project Study Area and focuses on changes to the Central Subway portion of the Third Street Light Rail Project that have occurred since the certification of the 1998 FEIS/FEIR. Proposed changes to the Central Subway portion of the Light Rail Project include: a new segment along Fourth and Stockton Streets between Brannan and Geary Streets as an alternative to use of Third, Harrison, Kearny, and Geary Streets; extension of the planning horizon year from 2015 to 2030; the addition of above ground ventilation shafts for tunnel segments and stations; the use of off-street access to stations; a deep tunnel under Market Street; and the potential extension of a construction tunnel under Stockton Street and Columbus Avenue to the north end of the Project near Washington Square for removing the Tunnel Boring Machine (TBM).

This SEIS/SEIR evaluates three alternatives for the Central Subway Project: a No Project/Transportation Systems Management (TSM) Alternative; an Enhanced EIS/EIR Alternative with an alignment along both Third and Fourth Streets south of Market Street and a shallow tunnel under Market Street, as in the original 1998 FEIS/FEIR; and a Fourth/Stockton Street Alternative with a deep tunnel under Market Street and two design options.

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<sup>1</sup> The 1998 FEIS/FEIR used *Initial Operation Segment* to define the Phase 1 portion of the Third Street Light Rail Project. This Phase of the project initiated passenger service in April 2007 and is now referred to as the *T-Third Line*. This Supplemental SEIS/SEIR uses *T-Third Line* with reference to the Phase 1 segment, where appropriate.

## **S.2 PROJECT PURPOSE AND NEED**

### **S.2.1 PURPOSE OF PROPOSED ACTION**

As the Project Sponsor, MTA's objective for the proposed Project is to complete the second phase of the Third Street Light Rail Project by providing Muni transit service improvements from the present terminus of the T-Third Line at Fourth and King Streets through South of Market, Downtown and Chinatown in the Central Subway Corridor. MTA is seeking federal funding assistance to construct the proposed Central Subway Project. Phase 1 of the Third Street Light Rail Project was originally included in the Metropolitan Transportation Commission Regional Transportation Plan (RTP) as a locally-funded Project. The Phase 1 T-Third line was supported primarily by Proposition B local sales tax revenues; over \$300 million in 1997 dollars. In 2001, the Phase 2 Central Subway was incorporated into the RTP as a Project eligible for federal funds. The funding plan included a combination of local, regional and federal funds for implementation of the two Project phases and noted that an updated cost estimate would be provided for the Central Subway following selection of the Locally Preferred Alternative (LPA) by the Municipal Transportation Agency (MTA).

The Federal Transit Administration (FTA) action is to determine if the preferred alternative for the Central Subway Project meets their transit investment objectives and whether to recommend federal funding for the Project as part of the New Starts Program.

The FTA makes major transit funding decisions through a process designed to aid in the selection of transit solutions for the region. Through this process, FTA identifies transit investments that:

- Achieve transit service and mobility goals, while minimizing social, economic, and environmental impacts;
- Increase transit use and reduce travel time at a reasonable cost;
- Link public transportation investments with land use planning and community revitalization;
- Have strong public and political support and compatibility with local, regional, and state planning initiatives; and
- Enhance and preserve the environment, particularly in terms of reduced air and noise pollution and congestion relief.

### S.2.2 NEED FOR TRANSPORTATION IMPROVEMENTS IN THE CORRIDOR

The Central Subway Project would help to address mobility and transit deficiencies by improving connections to communities in the northeastern and southeastern parts of the City and improving reliability of transit services. Transit deficiencies include those that exist at present and those that are anticipated to exist during the 20-year plus planning horizon (2030). The Central Subway Project is also intended to serve as a key infrastructure improvement to help ease congestion in the Study Area; improve transit service to the large transit-dependent population that resides along the Corridor; accommodate the increasing number of residents in the South of Market area; and serve mobility needs for the new jobs that are expected to be created in the Study Area.

For the Central Subway Project, transit accessibility along the Corridor is particularly critical as the population has a higher degree of transit dependency (72 percent of households along the Central Subway Corridor are without a vehicle compared to 29 percent citywide) and higher unemployment rates than other parts of the City (9 percent unemployed in the Central Subway Corridor versus 4.6 percent citywide unemployment).

### S.2.3 PROJECT GOALS AND OBJECTIVES

The seven principal goals that Muni identified for the phased Third Street Light Rail Project to guide the evaluation of alternatives are still applicable to the Phase 2 Central Subway Project. They are:

1. Travel and Mobility Goal Improve Muni service reliability in the Central subway Corridor, as part of the Third Street Light Rail Corridor, thereby enhancing the mobility of Corridor residents, business people and visitors.
2. Equity Goal Bring transit service in the Corridor to the level and quality of service available in other sections of the City and improve the inadequate connections with other transit lines serving the region.
3. Economic Revitalization/Development Goal Design transportation improvements that support economic revitalization and development initiatives within the Corridor.
4. Transit-supportive Land Use Goal Ensure compatibility with City land use plans and policies and transportation improvements so that transit ridership can be maximized and the number of auto trips reduced.
5. Environmental Goal Provide transit improvements that enhance and preserve the social and physical environment and minimize potential negative impacts during construction and operation of the line.
6. Financial Goal Implement transit improvements that provide for the efficient use of limited financial resources.

7. Community Acceptance and Political Support Goal Provide a transportation system that reflects the needs and desires of Corridor residents and business people and is compatible with the City's planning initiatives.

Objectives include: increasing transit ridership; improving service reliability; reducing 2030 travel time; improving transit operating speed in downtown and South of Market; enhancing the opportunity to expand Muni's Light Rail System; improving access to downtown employment opportunities; improving access to Chinatown; maintaining auto and truck access in the commercial core; maintaining adequate transit and vehicular circulation in the commercial core; providing opportunities for revitalization in the commercial core; enhancing urban design in the commercial core; supporting the coordination of land use and transportation planning; serving major activity centers in the Corridor; minimizing permanent displacement of homes and businesses; minimizing impacts on parklands/cultural resources; minimizing air quality impacts; minimizing adverse construction impacts; providing beneficial environmental impact to the community; developing a viable financial plan to cover total capital costs for the alternatives; developing a viable financial plan to cover total annual operating and maintenance costs; maximizing transit operating efficiency while accommodating 2030 travel demand; gaining community support for the preferred investment strategy; gaining City Commission and elected officials support for the preferred investment strategy; and gaining support from appropriate regional, state and federal agencies.

### **S.3 ALTERNATIVES**

This document analyzes three alternatives for the Central Subway. The alternatives are summarized in Table S-1 and Figure S-1 and described in further detail below.

**Alternative 1 - No Project/TSM** was developed in conformance with California Environmental Quality Act (CEQA) Guidelines and National Environmental Policy Act (NEPA) requirements. The T-Third Line (Phase 1 of the Third Street Light Rail Project) and associated bus changes implemented in April 2007 are included in this alternative as are the funded projects programmed in the Regional Transportation Plan and the Muni Short Range Transit Plan. This alternative would not fully accommodate 2030 projected travel demand.

Since implementation of the T-Third line, the Project Purpose and Need have not changed. Bus service is already provided at three minute frequencies or better for much of the Central Subway Corridor and the streets, particularly Stockton Street, are operating at capacity. As a result, additional bus service would not be a viable TSM alternative. Introduction of a Bus Rapid Transit facility as a TSM Alternative would

**TABLE S-1**  
**SUMMARY OF CENTRAL SUBWAY ALTERNATIVES**

<b>Characteristic</b>	<b>Alternative 1 - No Project/TSM</b>	<b>Alternative 2 - EIS/EIR Enhanced Alignment</b>	<b>Alternative 3A - Fourth/Stockton Alignment Option A</b>	<b>Alternative 3B - Fourth/Stockton Alignment Option B</b>
Length in Miles	N/A	1.75 miles	1.7 miles	1.7 miles
Number of Stations	N/A	4 subway + 1 surface	3 subway	3 subway + 1 surface
Platform Configuration	N/A	Two level stacked at Moscone and Union Square; Single level side at Market Street and Chinatown	Single level Center Platforms	Single Level Center Platforms
2030 Weekday Ridership T-Third Line	<del>60,030</del> <u>24,600</u>	<del>89,790</del> <u>76,300</u>	<del>88,840</del> <u>77,600</u>	<del>99,230</del> <u>76,600</u>
<u>Central Subway Net New Transit Riders</u>	--	<u>21,000</u>	<u>19,000</u>	<u>18,400</u>
Transit Travel Time in Minutes (Fourth/King to Chinatown Station in 2030)	17.0	7.0	4.6	6.3
Construction Duration	N/A	6 years	6 years	5.5 years
Subway Construction Methods	N/A	Portal to Moscone Station – SXM. Moscone to Union Square – SXM, Cut-and- Cover. Union Square to north of Chinatown - SEM.	Portal to Brannan Street – Cut-and- Cover Brannan Street to Chinatown – TBM. North of Chinatown – SEM or TBM. North Beach – TBM.	Portal to Union Square/Market Street – TBM. Union Square/Market Street to Chinatown – TBM and SEM. North of Chinatown – SEM or TBM. North Beach – TBM.
Note: SXM – Special Excavation Method; SEM – Sequential Excavation Method; TBM – Tunnel Boring Machine N/A = Not Applicable <u>Ridership is defined as the number of passenger boardings.</u> Source: PB/Wong 2007				

not meet the Project goals and objectives as it would increase rather than reduce congestion on surface streets. Therefore, the No Project and TSM Alternative are combined for this SEIS/SEIR.



The No Project/TSM Alternative has a projected weekday ridership of ~~60,030~~ 24,600 passengers for 2030 on the T-Third Line. The transit travel time between Fourth and King Streets and Chinatown would be 17.0 minutes in 2030.

**FIGURE S-1**  
**CENTRAL SUBWAY BUILD ALTERNATIVES**



**ALTERNATIVE 2: Enhanced EIS/EIR Alignment**



**ALTERNATIVE 3 (Option A LPA): Fourth/Stockton Alignment**



**ALTERNATIVE 3 (Option B Modified LPA): Fourth/Stockton Alignment**

Source: PB/Wong  
 Not to scale

**Alternative 2 – Enhanced EIS/EIR Alignment**, as analyzed in the 1998 FEIS/FEIR, uses Third, Fourth, Harrison, Kearny, Geary, and Stockton Streets. It crosses Market Street in a shallow subway and includes a surface platform on Third Street at King Street and four subway stations (Moscone, Market, Union Square and Chinatown). Enhancements to the original FEIS/FEIR alternative include above-ground emergency ventilation shafts, off-sidewalk station entries where feasible, and the provision of a closed barrier fare system.

In the Enhanced EIS/EIR Alignment, the 1.75 mile light rail service would operate between Fourth and King Streets and Stockton and Jackson Streets. North of King Street, the rail would travel in a surface configuration northbound on Third Street and southbound on Fourth Street, transitioning to subway operation at two-single track portals located between Brannan and Bryant Streets. The service would operate independent of the existing Muni Metro Market Street subway.

This alternative follows the 1998 FEIS/FEIR Alignment, but also incorporates design changes to meet current fire codes, new Muni fare collection policy, and pedestrian access and circulation issues. Above-ground emergency ventilation shafts would be located off-street rather than provided through an in-street ventilation system as originally planned. Most station entries have been moved off crowded sidewalks to private or public property and combined wherever possible with vent shafts. For the Enhanced EIS/EIR Alignment, one-car trains would operate as an independent line from the southern terminus in Visitacion Valley, via the existing T-Third alignment to Fourth and King Streets, and then via the Central Subway to the northern terminus in Chinatown. Stations would be two level stacked platforms at Moscone and Union Square and single level side platforms at Market Street and Chinatown. Platform lengths would be approximately 250 feet at all subway stations.

To make efficient use of the Central Subway, bus operations in the Corridor would be restructured. The Enhanced EIS/EIR Alignment bus system would be similar to the No Project/TSM Alternative including the extension of the 45-Union/Stockton trolley bus line from the Caltrain Terminal through Mission Bay and Potrero Hill to a new terminus at Third and 20th Streets and the rerouting of the 22-Fillmore trolley bus line along 16th, Third, and Mission Rock Streets to a terminus in Mission Bay. In both bus plans the 9X San Bruno Express and 30-Stockton lines would have five and nine-minute peak period frequencies respectively, which are the current peak headways for those lines. Changes from the No Project/TSM Alternative associated with the Enhanced EIS/EIR bus plan include the elimination of the 30-Stockton short line between Van Ness Avenue and North Point Street and the Caltrain Terminal at Fourth and Townsend Streets, and minor frequency adjustments.

The Enhanced EIS/EIR Alignment has a projected weekday ridership of ~~89,790~~ 76,300 passengers for the year 2030 on the T-Third Line. The transit travel time between Fourth and King Streets and Chinatown would be 7.0 minutes in 2030 or a 10 minute savings over the No Project/TSM Alternative.

**Alternative 3 – Fourth/Stockton Alignment** was developed as an alternative that would operate exclusively on Fourth and Stockton Streets with a deep tunnel (rather than shallow) crossing of Market Street. The Fourth/Stockton Alignment would start as a double-track surface line at Fourth and King Streets and would proceed north along Fourth Street to a portal where it would transition from surface to subway operation. For Option A, the portal would be located between Townsend and Brannan Streets and between Bryant and Harrison Streets for Option B. It would continue north under Fourth and Stockton Streets as a double-track operation to a terminus in the vicinity of Stockton and Jackson Streets. The pedestrian connection to the Market Street Subway would be at the BART/Muni Metro Powell Street Station.

The 30-Stockton and 45-Union/Stockton trolley bus lines would continue operation on the east side of Fourth Street, south of Bryant Street, to the bus terminal east of Fourth Street on Townsend Street. Existing bus stops would be retained on Fourth Street, just north of Bryant Street, but the island stop at Brannan Street would be moved from the north to the south side of the street. No major overhead wire relocations would be necessary under this option.

As in the case of the Enhanced EIS/EIR Alignment, above-ground emergency ventilation shafts are proposed to be located in off-street locations and, wherever feasible, station access is located off-sidewalk in property to be acquired by Muni. Fare gates are provided at the mezzanine level for all stations. The location and number of stations varies for the two design options.

There is a construction variant for this alternative to extend the tunnel another 2,000 feet north of Jackson Street to facilitate construction and extraction of the Tunnel Boring Machine (TBM). In this approach the tunnel would continue north on Stockton Street to a temporary shaft on Columbus Avenue near Washington Square Park where the TBM would be extracted and construction equipment and materials could be delivered.

#### Alternative 3A

This alternative was selected as the Locally Preferred Alternative (LPA) by the MTA Board at its meeting of June 7, 2005, but was replaced by Alternative 3B as the LPA by MTA Board action on February 19, 2008. It would extend 1.7 miles north from the T-Third line terminus at Fourth and King Streets via Fourth and Stockton Streets to the Central Subway terminus in Chinatown. After stopping at the

existing T-Third line station platform on Fourth Street at King Street, LRVs would continue north on Fourth Street in a semi-exclusive double-track median to a portal between Townsend and Brannan

Streets. This option would include three subway stations at Moscone, Union Square/Market Street, and Chinatown.

The subway station platforms would be ~~200-250~~ feet in length (~~compared with 250 feet in similar to~~ Alternative 2) and ~~narrower in~~ of varying widths and ~~but~~ would accommodate ~~two-three~~ car trains using high-floor LRVs. To accommodate access via Union Square and the Powell Station at Market Street, the Union Square/Market Street Station would have a much longer layout than the Moscone and Chinatown Stations. Like Alternative 2, this alternative would accommodate fare gates and ticket vending machines (TVMs) and a closed barrier fare collection system. All subway station platforms are on one level with a center platform and a mezzanine (concourse) level above the platform.

Alternative 3A has a projected weekday ridership of ~~88,840~~ 77,600 passengers for 2030 on the T-Third Line. The transit travel time between Fourth and King Streets and Chinatown would be 4.6 minutes in 2030 or a 12.4 minute savings over the No Project/TSM Alternative.

#### Alternative 3B

This alternative was selected as the LPA by the MTA Board on February 19, 2008, replacing 3A. Fourth/Stockton Alignment Option B would extend 1.7 miles north from the T-Third line terminus at Fourth and King Streets via Fourth and Stockton Streets to the Central Subway terminus in Chinatown. After stopping at the existing T-Third station platform on Fourth at King Streets, light rail would continue north on Fourth Street to a double-track portal between Bryant and Harrison Streets under I-80. There would be one surface station on Fourth Street, north of Brannan Street, and three subway stations at Moscone, Union Square/Market Street, and Chinatown. The subway platforms would be 200 feet in length (compared to 250 feet in Alternative 3A) and 26 feet in width and would accommodate two-car trains using high-floor LRVs.

LRVs would operate between Fourth and King Streets to the portal under I-80 in a semi-exclusive double-track right-of-way, separated from adjacent traffic by six-inch curbs. Alternatively, LRVs would operate between Fourth and King Street to the portal under I-80 in mixed-flow, with trains and vehicles sharing the double-track right-of-way. This latter approach would increase the availability of parking, address traffic circulation issues, and enhance the streetscape with median landscaping.

Alternative 3B has a projected weekday ridership of ~~99,230~~ 76,600 passengers for 2030 on the T-Third Line. The transit travel time between Fourth and King Streets and Chinatown would be 6.3 minutes in 2030 or a 10.7 minute savings over the No Project/TSM Alternative.

**Construction Methods and Duration**

The Central Subway requires a number of underground structures, including guideway tunnels, stations, tail tracks, rail crossovers, and emergency cross-passages. These structures would be constructed in a

variety of geologic conditions, ranging from rock to soft ground, and would be located adjacent to existing structures and utilities that are sensitive to ground movements. Available geologic information for the alternative Central Subway alignments indicates the tunnels would encounter highly variable conditions ranging from saturated sand, silt and clays to weathered and highly fractured sandstone and siltstone bedrock of the Franciscan Formation. Mixed-face conditions (i.e., rock and soil in the excavation face) are expected where the tunnels transition into and out of the bedrock. To deal with the different alignment and profile options and the varying geologic and groundwater conditions, several different tunnel construction methods are being considered, including excavation by Tunnel Boring Machine (TBM), cut-and-cover (C&C), and sequential excavation methods (SEM). Another method referred to as the Special Excavation Method (SXM) was introduced in the 1998 FEIS/FEIR.

The construction methods used in each of the Alternatives is summarized in Table S-1. Because of the different construction methods, the construction time would vary by alternative. Construction of Alternatives 2 and 3A would take approximately six years to complete and construction of Alternative 3B would be reduced to approximately 5.5 years.

### S.3.1 DEVELOPMENT AND SELECTION OF ALTERNATIVES

The 1998 FEIS/FEIR proposed a Central Subway Downtown alignment with a shallow crossing of the BART/Muni Metro subway at Third Street with a pedestrian connection to the BART/Muni Montgomery Street Station. At the time the alternative was conceived, a shallow excavation method was thought to be the most cost-effective construction approach. It was concluded that there was sufficient room above the BART/Muni Subway at Third and Market Streets to accommodate a shallow crossing. A shallow crossing at Fourth and Market Streets was not considered because of conflicts with the Powell Street Station structure. Because of a concern about the impact of surface construction and the circuitous alignment required for a shallow alignment, the Central Subway design team recommended consideration of a deep (rather than a shallow) crossing of Market Street at Third Street that would go under the existing Muni Metro and BART subway tunnels using Tunnel Boring Machines (TBMs).<sup>2</sup>

In addition, studies were performed to evaluate several alternative portal locations in the South of Market area.<sup>3</sup> The findings from the station design, construction methodology, portal location, and other studies were discussed at seven public meetings and five Third Street Light Rail Community Advisory Group (CAG) meetings in 2004. The portal options and Project construction methods were presented to the public in an August 2004 meeting. The options included: (1) a single-portal on Third Street between

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<sup>2</sup> San Francisco Municipal Railway, "Recommended Tunnel Construction Methods Report," March 16, 2004.

<sup>3</sup> San Francisco Municipal Railway, "Portal and Surface Station Locations Study," December 23, 2004



Townsend and Brannan Streets, one block south of the original location, with a single portal remaining on Fourth Street between Brannan and Bryant Streets; and, (2) a double-track portal on Fourth Street between Townsend and Brannan Streets that used a two-track alignment via Third, Fourth, Harrison, Kearny, Geary Streets and Stockton Streets. The public preference was for a double-portal on Fourth Street. Members of the public also suggested a Fourth Street alignment, which was possible using a deep crossing at Fourth/Stockton and Market Streets.

The “Special Alignment and Validation Studies,” finalized in June 2005, evaluated a Fourth/Stockton Alignment with a double track portal on Fourth Street between Townsend and Brannan Streets and a deep crossing below the BART/Muni Metro Market Street subway at Fourth Street.<sup>4</sup> It maintained the Chinatown Station on Stockton Street ~~in the vicinity of Clay and Washington Streets~~ at Clay Street, combined the Union Square/Market Street Stations with northern entries in the vicinity of Union Square and southern entries using BART/Muni Metro Powell Street Station entrances; and relocated the Moscone Station to Fourth Street between Howard and Folsom Streets. The Fourth/Stockton Alignment had improvements in transit and vehicular travel time and localized traffic circulation, particularly on Third Street. This alignment, ~~with~~ using a Tunnel Boring Machine (TBM), also reduced surface-related construction impacts as compared to the shallow construction method proposed for the 1998 FEIS/FEIR alignment.

The station locations and the northern boundary of the ~~Phase~~ Phase 2, Central Subway were initially established as part of the Third Street Light Rail planning process and were analyzed in the 1998 EIS/EIR. Early in the Phase 2 planning process, studies were undertaken to evaluate options for moving many of the station entrances out of sidewalk locations to outside the public right-of-way. As a result of these efforts, off-sidewalk subway station entrances were identified for the Enhanced EIS/EIR Alternative and incorporated into the Fourth/Stockton Alignment Option A.

Based on results from these studies, the MTA approved the designation of the Fourth/Stockton Alignment as the Locally Preferred Alternative (LPA) on June 7, 2005. This designation allowed the Fourth/Stockton Alignment, rather than the 1998 FEIS/FEIR Alignment, to be evaluated as the LPA in the FTA New Starts Program. After the publication of the NOP in June 2005, a Fourth/Stockton Alignment Option B was developed based on public input, and design studies and to reduce the costs of the Project. This option reduced the size of the stations and provided new station entrance options for Union Square/Market Street and a new station location and entrance options for Chinatown. On February

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<sup>4</sup> San Francisco Municipal Railway, “Special Alignment and Validation Studies,” June 30, 2005.

19, 2008, subsequent to publication of the Draft SEIS/SEIR, the MTA Board voted to replace Alternative 3A with Alternative 3B as the LPA.

### S.3.4 OPERATING STATISTICS FOR THE CENTRAL SUBWAY, NO PROJECT/TSM ALTERNATIVES

Table S-2 shows the comparative operating statistics for the existing transit service, the future 2030 transit service under the No Project/TSM Alternative and the three Build Alternatives. The Light Rail and bus operating plans would be the same for all Build Alternatives. All Alternatives would require four additional LRVs (three peak LRVs and one spare) beyond the requirements for the No Project/TSM Alternative. Muni's total LRV fleet size, including spares, would be 175 LRVs though the peak demand would vary from ~~127-130~~ 139-142 LRVs by alternative. The diesel bus fleet would ~~remain the same as~~ increase by 23 buses from the existing condition in 2030 for all alternatives, but ~~and No Project/TSM fleets, with the same peak demand would not change.~~ The trolley bus fleet would ~~remain the same~~ increase by five buses in 2030, but peak demand would be reduced by six trolleys over existing conditions and by eleven trolleys over No Project/TSM with the Project.

**TABLE S-2**  
**ANNUAL OPERATING STATISTICS**

Alternative	Peak Headways 9-X Line <sup>2</sup>	Diesel/Trolley Peak Demand (Systemwide Fleet size) <sup>1</sup>	Total Annual Diesel/Trolley Bus Hours (Systemwide) <sup>1</sup>	Peak Headways T-Third <sup>2</sup>	LRV Fleet Peak Demand <sup>3</sup> (Systemwide Fleet size) <sup>4,3</sup>	Total Annual LRV Car Hours T-Line (Systemwide)
Existing (2007) T-Third	5 minutes	377 (495-473) diesel buses; 225 (333-331) trolley buses	2,592,230	9 minutes	<del>118-119</del> (151) LRVs	<del>84,800</del> <del>109,400</del> <del>(568,500)</del> <del>(570,200)</del>
No Project/TSM (2030)	5 minutes	377 (495) diesel buses; 230 (333-336) trolley buses	2,622,030	7 minutes	<del>129-137</del> (171) LRVs	<del>80,400</del> <del>117,000</del> <del>(609,500)</del> <del>(602,700)</del>
Enhanced EIS/EIR Alignment (2030)	5 minutes	377 (495) diesel buses; 219 (333-336) trolley buses	2,545,630	<del>5-6</del> minutes	<del>130-142</del> (175) LRVs	<del>87,500</del> <del>83,900</del> <del>(591,200)<sup>3</sup></del> <del>(621,800)<sup>3</sup></del>
Fourth/Stockton Alignment Option A (2030)	5 minutes	377 (495) diesel buses; 219 (333-336) trolley buses	2,545,630	<del>5-6</del> minutes	<del>127-139</del> (175) LRVs	<del>78,000</del> <del>76,700</del> <del>(581,700)<sup>3</sup></del> <del>(614,500)<sup>3</sup></del>
Fourth/Stockton Alignment Option B (2030)	5 minutes	377 (495) diesel buses; 219 (333-336) trolley buses	2,545,630	<del>5-6</del> minutes	<del>130-140</del> (175) LRVs	<del>86,400</del> <del>78,000</del> <del>(590,100)<sup>3</sup></del> <del>(615,900)<sup>3</sup></del>
Notes: <sup>1</sup> Source for 2007 bus equipment demand and bus hours is the Muni 2006-2025 Short Range Transit Plan, December 2005 and Dan Rosen, MTA, May 2007. <u>Revised Dan Rosen, MTA, January 2008.</u> <sup>2</sup> Headway refers to the time between transit vehicles on a given line. <sup>3</sup> Assumes one-car trains operating in the peak for the Central Subway on both the long and short lines <u>and two car trains on the very short line.</u>						

### S.3.5 CAPITAL COST SUMMARY

The capital cost methodology follows the current FTA guidelines. Systemwide estimates were developed for train control, communications, transit vehicles, and the electrification system. Site-specific detailed

conceptual engineering was used to develop capital costs for the proposed stations. Cost data was based on previous local light rail projects and similar projects nationwide. The capital cost estimates account for engineering and management, contingency, and Project reserve. Escalation factors were applied to the Project costs to account for ~~recent~~ escalation trends experienced in major transportation infrastructure projects to arrive at 2007 Year-of-Expenditure (YOE) costs. See Table S-3 for a summary of the capital costs by Alternative.

**TABLE S-3**  
**CAPITAL COST SUMMARY (\$MILLIONS)**

	<b>2007 Alternative 2</b>	<b>2007 Alternative 3A<sup>1</sup></b>	<b>2007 Alternative 3B<sup>1</sup></b>
Guideway & Track Elements	\$364	\$248	\$244
Station, Stops, Terminals, Intermodals	\$376	\$376	\$325
Site Work & Special Conditions	\$94	\$70	\$47
Systems	\$118	\$110	\$94
<b>Construction Subtotal</b>	<b>\$952</b>	<b>\$804</b>	<b>\$710</b>
ROW, Land, Existing Improvements	\$15	\$20	\$20
Vehicles	\$21	\$21	\$21
Professional Services	\$229	\$202	\$188
Unallocated Contingency	\$97	\$84	\$75
<b>Total</b>	<b>\$1,345</b>	<b>\$1,131</b>	<b>\$1,014</b>
Escalation	\$340	\$276	\$221
<b>Year of Expenditure Total</b>	<b>\$1,685</b>	<b>\$1,407</b>	<b>\$1,235</b>
<sup>1</sup> Costs for Alternatives 3A and 3B do not include the North Beach Construction Variant, which is estimated to costs \$54 million in <u>Year of Expenditure (YOE)</u> dollars. Source: PB/Wong 2007			

As indicated in the total capital cost for the Enhanced EIS/EIR Alignment, including the purchase of four additional LRVs (3 peak and 1 float vehicle) to accommodate 2030 demand is estimated at \$1,345 billion (\$1,685 billion in Year of Expenditure (YOE)). The total capital cost for the Central Subway Fourth/Stockton Alignment Option A is estimated at \$1.131 billion (\$1,407 billion in YOE) and the total capital cost for the Fourth/Stockton Alignment Option B is estimated at \$1.014 billion (\$1,235 billion in YOE).

### S.3.6. OPERATING AND MAINTENANCE COST SUMMARY

The Operating and Maintenance (O&M) cost model was developed based on Muni's actual operating expenses for fiscal year 2005/2006. O&M cost calculations accounted for the level of Muni service provided for the No Project/TSM Alternative, the Enhanced EIS/EIR Alignment, and the Fourth/Stockton Alignment Options A and B. For each alternative, bus and light rail variables related to route miles,

service frequencies, and travel times were derived from engineering and travel demand requirements. See Chapter 7.0 for a detailed description of cost estimation methodology.

Operations inputs, such as revenue miles and hours per mode, were calculated independently using operating plans developed specifically for the Central Subway Project.

Table S-4 summarizes the ~~total~~ annual operating and maintenance costs for the Muni system, broken out by vehicle type, for each alternative.

**TABLE S-4**  
**OPERATING OPERATING AND MAINTENANCE COST SUMMARY**  
**(MILLIONS \$ / YEAR OF OPERATING EXPENSES)**

	No Project	Alternative 2	Alternative 3A	Alternative 3B
2016	<del>\$707.9</del> <u>\$852.61</u>	<del>\$693.4</del> <u>\$852.73</u>	<del>\$693.0</del> <u>\$849.65</u>	<del>\$693.2</del> <u>\$849.41</u>
2030	<del>\$1,145.9</del> <u>\$1,261.49</u>	<del>\$1,122.3</del> <u>\$1,262.13</u>	<del>\$1,121.7</del> <u>\$1,257.77</u>	<del>\$1,122.1</del> <u>\$1,258.31</u>
<b>Increment Over No Project/TSM</b>				
2016	N/A	<del>(\$14.3)</del> <u>\$0.11</u>	<del>(\$14.9)</del> <u>(\$2.96)</u>	<del>(\$14.7)</del> <u>(\$3.20)</u>
2030	N/A	<del>(\$23.6)</del> <u>\$0.64</u>	<del>(\$24.2)</del> <u>(\$3.72)</u>	<del>(\$23.8)</del> <u>(\$3.18)</u>
Source: MTA, May 2007-AECOM Consult Inc. April, 2008.				

## S.4 TRANSPORTATION ANALYSIS

Section S.4.1 provides a summary of major transportation impacts (transit, traffic freight, parking pedestrian, bicycle, and emergency access) for the Project Alternatives.

### S.4.1 SUMMARY OF GENERAL TRANSPORTATION FINDINGS

#### Transit Demand

Table S-5 presents the existing and 2030 weekday transit ridership estimates for the corridor. Currently about ~~92,870 person~~ 93,300 transit trips are made in the Corridor each weekday. Substantial increases in population and employment are projected in the future in the Study Area. By 2030, it is estimated that transit ridership would increase to somewhere between ~~147,450~~ 142,600 to ~~162,610~~ 145,200 passengers in the Corridor depending on the Alternative. Without implementation of the rail service in the Central Subway Corridor, transit ridership would be constrained as the transit trip between the Visitacion Valley and Chinatown would take longer and would be less reliable.

**TABLE S-5**  
**ESTIMATED WEEKDAY TRANSIT RIDERSHIP**  
**EXISTING AND 2030 CONDITIONS**

LRT/BUS LINE	2000	2030 NO PROJECT/TSM	2030 ENHANCED EIS/EIR ALIGNMENT	2030 FOURTH / STOCKTON ALIGNMENT OPTION A (LPA)	2030 FOURTH / STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)
<b>CORRIDOR BOARDINGS</b>					
RAIL					
T Long Line <sup>1</sup>	n/a	<del>60,030</del> <u>24,600</u> <sup>4</sup>	<del>59,710</del> <u>44,500</u>	<del>60,670</del> <u>45,800</u>	<del>65,830</del> <u>44,900</u>
T Short Line	n/a	n/a	<del>30,080</del> <u>18,900</u>	<del>28,170</del> <u>19,000</u>	<del>33,400</del> <u>18,900</u>
T-Third Very Short Line	n/a	n/a	<u>12,900</u>	<u>12,800</u>	<u>12,800</u>
<b>Subtotal</b>		<b><del>60,030</del> <u>24,600</u></b>	<b><del>89,790</del> <u>76,300</u></b>	<b><del>88,840</del> <u>77,600</u></b>	<b><del>99,230</del> <u>76,600</u></b>
BUS					
Line 15 <sup>2</sup>	<del>31,130</del> <u>28,300</u>	n/a	n/a	n/a	n/a
Lines 9X, 9AX, 9BX	<del>9,320</del> <u>10,600</u>	<del>29,560</del> <u>23,000</u>	<del>30,790</del> <u>22,300</u>	<del>30,760</del> <u>20,800</u>	<del>24,770</del> <u>21,200</u>
Lines 30, 45 <sup>3</sup>	<del>52,420</del> <u>54,400</u>	<del>57,860</del> <u>76,600</u>	<del>42,030</del> <u>46,600</u>	<del>42,510</del> <u>44,800</u>	<del>38,290</del> <u>44,800</u>
<b>Subtotal</b>	<b><del>92,870</del> <u>93,300</u></b>	<b><del>87,420</del> <u>99,600</u></b>	<b><del>72,820</del> <u>68,900</u></b>	<b><del>73,270</del> <u>65,600</u></b>	<b><del>63,060</del> <u>66,000</u></b>
<b>TOTAL IN CORRIDOR:</b>	<b><del>92,870</del> <u>93,300</u></b>	<b><del>147,450</del> <u>124,200</u></b>	<b><del>162,610</del> <u>145,200</u></b>	<b><del>162,110</del> <u>143,200</u></b>	<b><del>162,290</del> <u>142,600</u></b>
Increase Over Existing:	0	<del>54,580</del> <u>30,900</u>	<del>69,740</del> <u>51,900</u>	<del>69,240</del> <u>49,900</u>	<del>69,420</del> <u>49,300</u>
<b>Increase Over No Project/TSM:</b>	<b>0</b>	<b>0</b>	<b><del>15,160</del> <u>21,000</u></b>	<b><del>14,660</del> <u>19,000</u></b>	<b><del>14,840</del> <u>18,400</u></b>
Notes: <sup>1</sup> Central Subways T-Third long-line to Visitacion Valley, and T-Third short-line to 18 <sup>th</sup> and Third Streets, and T-Third very short line to Fourth and Townsend Streets. <sup>2</sup> Line 15-Third shifts to 9X San Bruno. <sup>3</sup> 45 Extended into Mission Bay n/a Not Applicable Ridership is defined as the number of passengers boarding. Source: San Francisco Model, January 2007. Revised 2008.					

### Transit Travel Times

As traffic demand grows in the future, the resulting increased congestion and delays would result in longer bus travel times and less service reliability. By 2030, Muni patrons on surface bus routes would experience longer travel times (17.0 minutes) when compared to existing conditions (11.8 minutes) as shown in Table S-6. The introduction of light rail in exclusive or semi-exclusive in the Central Subway Corridor would reduce the travel times for Muni patrons to between ~~5.0~~ 4.6 and 7.0 minutes as noted for the Build Alternatives.



**Traffic Volumes and Intersection Levels of Service**

Traffic volumes are projected to increase on almost all of the key streets serving the Study Area by 2030 as a result of continued regional and Corridor wide population and employment growth. As a result of the increase in traffic volumes, a greater number of intersections would experience congestion and delays.

**TABLE S-6**  
**IN-VEHICLE TRAVEL TIMES FOR SELECTED TRANSIT TRIPS**  
**EXISTING AND 2030 CONDITIONS**

TRANSIT TRAVEL TIME (minutes)					
ORIGIN- DESTINATION	2000	2030 NO PROJECT / TSM ALIGNMENT	2030 ENHANCED EIS/EIR ALIGNMENT	2030 FOURTH / STOCKTON ALIGNMENT OPTION A (LPA)	2030 FOURTH / STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)
Fourth/King – Chinatown Station <sup>1</sup>	11.8	17.0	7.0	4.6	6.3
Notes: <sup>1</sup> The Chinatown Station is at Stockton/Clay for the Enhanced EIS/EIR and Fourth/Stockton Alignment Option A (LPA) Alternatives, and at Stockton/Washington for the Fourth/Stockton Option B (Modified LPA) Alternative. Source: PB/Wong, April 2007.					

In 2030, under the No Project/TSM Alternative three of the five Study Area intersections (~~Third/Fourth/King Streets, Fourth/Harrison Streets, and Sixth/Brannan Streets~~) would operate at LOS E or F in the a.m. and p.m. peak hour ~~and three intersections (Third/King Streets, Fourth/King Streets, and Sixth/Brannan Streets) would operate at LOS F in the p.m. peak hour.~~ While most of these intersections already operate at LOS E or F as they serve as the major access points to the regional freeway system, the traffic delays would increase in the future. For the No Project/TSM Alternative, the ~~Fourth and Harrison~~ Third and King Streets intersection would degrade from LOS ~~B-D~~ to LOS E in the a.m. peak hour. ~~Implementation of striping changes at the Fourth/Harrison intersection would mitigate these adverse impacts.~~

Implementation of the Enhanced EIS/EIR Alignment would reduce traffic delays on Fourth Street in the a.m. peak hour, but would increase delays experienced by motorists at the Third and King Streets and Sixth and Brannan Streets intersections when compared to the No Project/TSM Alternative. The intersection of Third and King Streets would degrade from LOS ~~D-E~~ to LOS F in the a.m. peak hour as a result of the implementation of this alternative and the Sixth and Brannan Streets intersection would continue to operate at LOS F. During the p.m. peak hour, the Third and King, ~~Fourth and King~~, and Sixth and Brannan Streets intersections would all continue to operate at LOS F, but with increased delays.

Implementation of either the Fourth/Stockton Alignment Option A or Option B rather than the Enhanced EIS/EIR Alignment would alleviate some of the delays on Third Street, but result in greater delays on Fourth Street. The Third and King and Sixth and Brannan Streets intersections under Alternatives 3A or 3B would operate as LOS F during the a.m. (a degradation from LOS ~~D-E~~ at Third/King Streets resulting from the Project) and p.m. peak hour (continued LOS F operation) while the Fourth and King Streets

intersection would continue to operate at LOS E during the a.m. peak hour and LOS F during the p.m. peak hour. The intersection of Fourth and Harrison Streets would degrade from LOS B-C to LOS F for ~~Alternative 3B in the a.m. peak hour and from LOS B~~ to LOS E for Alternative 3A and to LOS F for Alternative 3B in the p.m. peak hour.

### **Freight Movements**

With the implementation of the Project, the removal of parking along the surface alignment and at the station entrances and portal location would impact freight loading for adjacent businesses and residences, for example, at 601 Fourth Street under Alternative 3A. While additional truck loading spaces would be provided on surface streets adjacent to the Corridor along Third and Fourth Streets, existing loading zones in the Union Square and Chinatown station areas would be expected to accommodate the freight delivery and loading needs in the areas where on-street yellow zones are eliminated.

Stockton Street is a mix of on-street metered parking, on-street loading zones, and bus zones. In some blocks, between Market and Sutter Street, on-street parking and loading has been removed completely to accommodate the flow of traffic, access to the public parking garages, and bus stops. The on-street loading spaces in both Union Square and Chinatown are important to servicing the adjacent retailers as off-street loading docks are limited.

On Columbus Avenue, between Union and Powell Streets, there are no off-street loading spaces.

### **Parking**

On-street and off-street parking would be affected with the implementation of each of the Build Alternatives along the segments of the Corridor that would have surface light rail operations and where station entrances and vent shafts are proposed to be located in off-street parking garages. For the Enhanced EIS/EIR Alternative, 111 on-street parking spaces would be removed on Third Street between King and Bryant; on Fourth Street between Townsend and Harrison Streets; and on Stockton Street between Geary and Post Streets and Clay and Washington Streets. In addition this alternative would eliminate 59 off-street parking spaces in the Hearst and Union Square parking garages. The Fourth/Stockton Alignment Option A would eliminate 29 on-street parking spaces on the blocks of Fourth and Stockton Streets on the street segments identified above and 29 off-street parking spaces in the Union Square parking garage. The Fourth/Stockton Alignment Option B would eliminate 82 on-street parking spaces under the semi-exclusive option and ~~84~~79 parking spaces under the mixed-flow option (this option also retains some off-peak spaces on Fourth Street) in the Fourth and Stockton

Street segments identified above. In addition, this alternative would potentially eliminate 3 parking spaces on the north side of Ellis Street to accommodate an expansion of the station access/egress at One Stockton Street (the Apple Store) and a total of 59 off-street parking spaces from the Ellis/O'Farrell and Union Square parking garages.

**Pedestrian**

Though pedestrian volumes are heavy on many of the sidewalks in the Moscone, Union Square, and Chinatown districts, the sidewalks located at the proposed station entrances are currently operating at a LOS A. Under each of the alternatives, sidewalk reductions would need to be implemented at the following locations: Market Street and Union Square Stations for the Enhanced EIS/EIR Alignment; Moscone and Union Square/Market Street Stations for the Fourth/Stockton Alignment Option A; and Union Square/Market Street Station for the Fourth/Stockton Alignment Option B. Even with these sidewalk reductions,

the pedestrian level of service would continue to be LOS A. Under Alternative 3B, the pedestrian level of service would be reduced to LOS B, at the Chinatown Station, as a result of the increase in pedestrian activity rather than a reduction of effective sidewalk width.

### **Bicycle**

Bicycle routes #11 on Second Street and #19 on Fifth Street and the improvements proposed along these routes to accommodate bicyclists could be affected by the Project implementation. The diversion of traffic to Second and Fifth Streets from Third and Fourth Streets as the result of increased delays in the future that would be compounded by the introduction of surface rail operations could affect bicycle travel on these two bicycle routes. Implementation of the proposed bicycle improvements on these streets would protect bicycle travel in the future.

### **Emergency Vehicle Access**

The implementation of surface rails operations along Fourth Street would potentially impact the circulation and accessibility of fire trucks leaving Fire Station #8 located on Bluxome Street. The rail median would be designed so as to preserve the ability for fire trucks to cross the median to travel on Fourth Street so as to minimize the impacts on emergency response times.

### **Construction**

Construction of the Central Subway Project would temporarily affect transit service, traffic flows, freight movements and delivery activities, on-street parking, and pedestrian and bicycle circulation. There would also be a temporary increase in truck traffic along the light rail alignment as a result of truck traffic associated with the removal of excavated soils and backfill around the guideway and station areas and delivery of materials. The impacts would not be significant and improvement measures such as detour routes, exclusive bus zones, short-term parking limits, maintenance of sidewalks, and provisions for emergency vehicles would alleviate the adverse impacts.

## **S. 5 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES**

A summary of the significant environmental impacts and mitigation measures for the Project Alternatives are presented in Table S-7. The potentially significant impacts are briefly summarized below for the Build Alternatives and the No Project/TSM Alternative.

TABLE S-7

## SUMMARY OF SIGNIFICANT ENVIRONMENTAL IMPACTS

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
<b>TRANSPORTATION Traffic</b> Operation/Cumulative	<p><i>Significant Impacts:</i> Increases in traffic congestion and delays would occur in 2030 at all of the five intersections evaluated as a result of cumulative traffic growth. <del>Third/King (a.m. peak only), Streets intersection would degrade from LOS E to LOS F in the a.m. peak hour and would continue to operate at LOS F in the p.m. peak hour.</del> Fourth/King, and Sixth/Brannan Streets intersections would continue to operate at LOS E or F conditions in the a.m. and p.m. peak hours. <del>The intersection of Fourth and Harrison Streets would degrade from LOS B to LOS E when compared to the existing conditions.</del></p> <p><i>Mitigation Measure:</i> Restriping the southbound curb lane of Fourth Street to accommodate a shared through/right turn lane to Harrison Street would mitigate the impacts to LOS B resulting in a less than significant impact.</p>	<p><i>Significant Impacts:</i> Increases in traffic congestion and delays would occur in 2030 at three out of the five intersections evaluated. The Project would have a significant traffic impact at the Third/King Streets intersection in the a.m. peak hour due to degradation in LOS from <del>D-E</del> to F when compared to the No Project/TSM Alternative and a cumulatively considerable contribution to the cumulative traffic impacts at the Sixth/Brannan Streets intersection during the p.m. peak hour in 2030.</p> <p><i>Significant environmental effects which can not be avoided:</i> The traffic impacts at Third/King and Sixth/Brannan Streets intersections could not be reasonably mitigated to a less-than-significant level.</p>	<p><i>Significant Impacts:</i> Increases in traffic congestion and delays would occur in 2030 at three out of the five intersections evaluated. The Project would have a significant traffic impact at the Third/King Streets intersection in the a.m. peak hour due to a degradation in LOS from <del>D-E</del> to F and at the Fourth/Harrison Streets intersection in the p.m. peak hour due to a degradation in LOS from C to E when compared to the No Project/TSM Alternative. This alternative would have a cumulatively considerable contribution to the adverse cumulative traffic impacts at the King Street intersections with Third and Fourth Streets and the Fourth/Harrison Streets intersection during the p.m. peak hour in 2030.</p> <p><i>Mitigation Measure:</i> Restriping the southbound curb lane of Fourth Street to accommodate a shared through/right-turn lane to Harrison Street would mitigate</p>	<p><i>Significant Impacts:</i> 1. Same as Alternative 3A, except the Project would also have a significant impact at the <del>Fourth/Harrison Streets intersection during the a.m. peak hour when compared to the No Project/TSM Alternative and a cumulatively considerable impact on the cumulative traffic impacts at the King Street and Third Streets intersection during a.m. peak hour and the Fourth/Harrison Streets intersection during the p.m. peak hour in 2030.</del></p> <p>2. In addition, the portal at Fourth Street under I-80 may restrict access to the proposed bus storage facility at Perry Street and large truck movements onto Stillman Street.</p> <p><i>Mitigation Measures:</i> Same as Alternative 3A, in addition SFMTA will explore options design modifications to the portal location with Caltrans, the TJPA, and Golden Gate Transit that will permit bus access to Perry Street and truck access to Stillman Street that</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
	<p><i>Significant environmental effects which can not be avoided:</i></p> <p><del>None of the remaining traffic impacts could be reasonably mitigated. The traffic impacts at Third/King, Fourth/King, and Sixth/Brannan Streets intersections could not be reasonably mitigated to a less-than-significant level.</del></p>		<p>the impacts to LOS B resulting in a less-than-significant impact.</p> <p><i>Significant environmental effects which can not be avoided:</i></p> <p>The traffic impacts at the Third/King and Fourth/King Streets intersections could not be reasonably mitigated to a less- than-significant level.</p>	<p><del>will to</del>-reduce the impacts to a less-than-significant level.</p> <p><i>Significant environmental effects which can not be avoided:</i></p> <p>Same as Alternative 3A.</p>
Freight and Loading Construction				<p><i>Significant Impacts:</i></p> <p>Cumulative construction impacts could occur on the block bounded by Perry, Third, Stillman, and Fourth Streets due to sequential construction of the I-80 retrofit, Golden Gate Transit bus storage facility, and the Central Subway projects.</p> <p><i>Mitigation Measures:</i></p> <p>DPT will work with the property and business owners on Perry and Stillman Streets to develop temporary detour routes for traffic to maintain property access during construction.</p> <p>With the implementation of this mitigation measure, the construction freight and loading impacts on this block would be</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
				mitigated to a less-than-significant level.
<b>SOCIOECONOMIC (Population and Housing)</b> Operation/Cumulative		<p><u>Significant Impacts:</u> Acquisition of one parcel for the Chinatown Station would cause the displacement of 10 small businesses <del>and one or two residential units</del> in a predominantly minority and low income neighborhood.</p> <p><u>Mitigation Measures:</u> Redevelop the Chinatown Station site with affordable housing units above the station and ground floor retail where possible.</p> <p><u>Significant environmental effects which can not be avoided:</u> The construction of new <del>affordable housing units/ground floor retail</del> would not mitigate to a less-than-significant level the disruption to existing <del>residents</del> and small businesses associated with the temporary dislocation as new units are constructed.</p>	<p><u>Significant Impacts:</u> Same as Alternative 2.</p> <p><u>Mitigation Measures:</u> Same as Alternative 2.</p> <p><u>Significant environmental effects which can not be avoided:</u> Same as Alternative 2.</p>	<p><u>Significant Impacts:</u> Acquisition of one parcel for the Chinatown Station would cause the displacement of 8 small businesses and 17 residential units in a predominantly minority and low income neighborhood.</p> <p><u>Mitigation Measures:</u> Same as Alternative 2.</p> <p><u>Significant environmental effects which can not be avoided:</u> Same as Alternative 2, <u>except the loss of affordable housing would not mitigate to a less-than significant level the disruption to existing residents as well as businesses.</u></p>
<b>CULTURAL RESOURCES</b> <b>Archaeological</b> Construction		<p><u>Significant Impacts:</u> 1. One known prehistoric archaeological resource (CA-SFR-2) may be impacted as a result of construction trenching on Third Street, between Folsom and Bryant Streets.</p>	<p><u>Significant Impacts:</u> 1. At least 6 locations were identified in this alignment as sensitive for the presence of prehistoric archaeological resources. 2. One known historical</p>	<p><u>Significant Impacts:</u> Same as Alternative 3A, except 13 locations have been identified along the alignment, where historical archaeological resources may be uncovered during construction.</p>



Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>2. At least 14 locations were identified in this alignment as sensitive for the presence of prehistoric archaeological resources.</p> <p>3. Six locations where historical archaeological resources might be uncovered were identified in the alignment.</p> <p><i>Mitigation Measures:</i></p> <p>1. Consistent with the SHPO Programmatic Agreement and the MOU with the City, MTA would work with a qualified archaeologist to ensure that all state and federal regulations regarding Native American concerns are enforced.</p> <p>2. Limited subsurface testing in identified archaeologically sensitive areas shall be conducted once an alignment has been selected.</p> <p>3. During construction, archaeological monitoring shall be conducted in those sections of the alignment identified in the HCASR and through pre-construction testing as moderately to highly sensitive for prehistoric and historic-era archaeological deposits.</p> <p>4. Upon completion of archaeological field investigations, a comprehensive technical report shall be prepared</p>	<p>archaeological resource (CA-SFR-137H) may be impacted as a result of the placement of a construction yard in this alignment.</p> <p>3. Fifteen locations where historical archaeological resources might be uncovered were identified in the alignment.</p> <p><i>Mitigation Measures:</i></p> <p>Same as Alternative 2.</p>	<p><i>Mitigation Measures:</i></p> <p>Same as Alternative 2.</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>for approval by the San Francisco Environmental Review Officer and SHPO that describes the archaeological findings and interpretations in accordance with state and federal guidelines.</p> <p>5. If unanticipated cultural deposits are found during subsurface construction, soil disturbing activities in the vicinity of the find shall be halted until a qualified archaeologist can assess the discovery and make recommendations for evaluation and appropriate treatment in keeping with adopted regulations and policies.</p> <p><i>Significant environmental effects which can not be avoided:</i></p> <p>There is no absolute assurance that the impacts to archaeological resources can be mitigated to a less-than-significant level.</p>		
<b>Historic Architectural Resources</b> Construction		<p><i>Significant Impacts:</i></p> <ol style="list-style-type: none"> <li>1. One historical architectural resource located at 814-828 Stockton Street that is contributory to the Chinatown Historic District would be demolished to construct the Chinatown Station. Removal of this building would have an adverse effect on the Historic District.</li> <li>2. 34 historical architectural</li> </ol>	<p><i>Significant Impacts:</i></p> <p>Same as Alternative 2, except 25 (34 if the North Beach Construction Variant is implemented) historical architectural resources have the potential for temporary construction effects from ground-borne vibration or visual disturbance.</p> <p><i>Mitigation Measures:</i></p>	<p><i>Significant Impacts:</i></p> <ol style="list-style-type: none"> <li>1. One historical architectural resource located at 933-949 Stockton Street that is contributory to the Chinatown Historic District would be demolished to construct the Chinatown Station. This would have an adverse effect on the Historic District.</li> <li>2. 25 historical architectural resources along the alignment</li> </ol>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>resources along the alignment could potentially be affected by temporary construction-related ground-borne vibration or visual impacts.</p> <p><i>Mitigation Measures:</i></p> <ol style="list-style-type: none"> <li>1. Partial preservation of 814-828 Stockton Street or incorporation of elements of 814-828 Stockton Street into the design of the new station building; salvage significant architectural features from the building for conservation into a historical display or exhibit in the new Chinatown station or in museums; and/or develop a permanent interpretive display for public use on the T-Third line cars or station walls.</li> </ol> <p><i>Significant environmental effects which can not be avoided:</i></p> <p>Implementation of these mitigation measures would not reduce the impacts to historical resources to a less-than-significant level; significant adverse impacts to historic resources and the Historic District would occur.</p> <p><i>Improvement Measures:</i></p> <ol style="list-style-type: none"> <li>1. If the 814-828 Stockton Street building is demolished, perform a</li> </ol>	Same as Alternative 2.	<p>could potentially be impacted by construction-related ground-borne vibration and visual disturbance.</p> <p><i>Mitigation Measures:</i></p> <p>Same as Alternative 2, except the historic resource is 933-949 Stockton Street.</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>Historic American Buildings Survey/Historic American engineering Record documentation.</p> <p>2. Pre-drilling for pile installation in areas that would employ secant piles with ground-supporting walls in the cut-and-cover areas would reduce the potential effects of vibration.</p> <p>3. Vibration monitoring of historic structures adjacent to tunnels and portals will be specified in the construction documents to ensure that historic properties do not sustain damage during construction. Vibration impacts would be mitigated to a less-than-significant level. If a mitigation monitoring plan provides the following:</p> <p>a. The contractor will be responsible for the protection of vibration-sensitive historic building structures that are within 200 feet of any construction activity.</p> <p>b. The maximum peak particle vibration (PPV) velocity level, in any direction, at any of these historic structures should not exceed 0.12 inches/second for any length of time.</p> <p>c. The Contractor will be required to perform periodic vibration monitoring at the closest structure to ground</p>		

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>disturbing construction activities, such as tunneling and station excavation, using approved seismographs.</p> <p>d. If at any time the construction activity exceeds this level, that activity will immediately be halted until such time as an alternative construction method can be identified that would result in lower vibration levels.</p>		
Operation		<p><i>Significant Impacts:</i></p> <p>1. Construction of a new station in Chinatown on a site occupied by an historic structure would create a visual break in the cohesive grouping of contextually-related buildings resulting in potential adverse impacts to the Chinatown Historic District.</p> <p><i>Mitigation Measures:</i></p> <p>Same as outlined for Construction impacts above.</p> <p><i>Significant environmental effects which can not be avoided:</i></p> <p>Implementation of these mitigation measures would not reduce the impacts to historical resources to a less-than-significant level; significant adverse impacts to historic resources would occur.</p>	<p><i>Significant Impacts:</i></p> <p>Same as Alternative 2.</p> <p><i>Mitigation Measures:</i></p> <p>Same as Alternative 2.</p> <p><i>Significant environmental effects which can not be avoided:</i></p> <p>Same as Alternative 2.</p> <p><i>Improvement Measures:</i></p> <p>Same as Alternative 2.</p>	<p><i>Significant Impacts:</i></p> <p>Same as Alternative 2.</p> <p><i>Mitigation Measures:</i></p> <p>Same as Alternative 2.</p> <p><i>Significant environmental effects which can not be avoided:</i></p> <p>Same as Alternative 2.</p> <p><i>Improvement Measures:</i></p> <p>Same as Alternative 2.</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
<b>GEOLOGY AND SEISMICITY</b> Construction		<p><i>Significant Impacts:</i></p> <ol style="list-style-type: none"> <li>1. Construction period settlement could cause damage to existing building foundations, subsurface utilities, and surface improvements.</li> <li>2. Construction of the shallow subway crossing over the BART tunnel would be expected to result in reduction of ground loads and upward displacement of the BART/Muni Metro tunnels.</li> </ol> <p><i>Mitigation Measures:</i></p> <ol style="list-style-type: none"> <li>1. Provisions such as concrete diaphragm walls to support the excavation and instrumentation to monitor settlement and deformation would be used to ensure that structures adjacent to tunnel alignments are not affected by excavations.</li> <li>2. Tunnel construction methods that minimize ground movement, such as pressure-faced TBMs, Sequential Excavation Method, and ground improvement techniques such as compensation grouting, jet grouting or underpinning will be used.</li> <li>3. Rigorous geomechanical instrumentation would be used to monitor underground excavation and grouting or underpinning will be employed to avoid</li> </ol>	<p><i>Significant Impacts:</i></p> <p>Same as Alternative 2, except the use of TBMs for deep tunnel construction would minimize the impact to BART/Muni Metro tunnels. <u>Similar to Alternative 2, the construction of a deep tunnel could result in the potential downward displacement of the BART structures.</u></p> <p><i>Mitigation Measures:</i></p> <p>Same as Alternative 2.</p>	<p><i>Significant Impacts:</i></p> <p>Same as Alternative-2 <u>3A</u>.</p> <p><i>Mitigation Measures:</i></p> <p>Same as Alternative 2.</p>

<b>Environmental Area/Impacts</b>	<b>Alternative 1 -No Project/TSM</b>	<b>Alternative 2 - EIS/EIR Enhanced Alignment</b>	<b>Alternative 3A - Fourth/Stockton Alignment Option A</b>	<b>Alternative 3B - Fourth/Stockton Alignment Option B</b>
		<p>displacement of structures.</p> <p>4. Automated ground movement monitoring will be used to detect distortion on the BART/Muni Metro tunnels and grout pipes will be placed prior to tunnel excavation to allow immediate injection of compensation grouting to replace ground losses if deformation exceeds established thresholds.</p> <p>With the implementation of these mitigation measures the impacts would be less-than-significant.</p>		
<b>HYDROLOGY AND WATER QUALITY</b> Construction		<p><i>Significant Impacts:</i> Construction activities at the Union Square Station could increase or otherwise disrupt flow of ground water to the Powell Street Station.</p> <p><i>Mitigation Measures:</i> Watertight shoring and fully waterproof station structures will be designed and constructed to avoid compounding ground water inflows to the Powell Street Station.</p> <p>With the implementation of these mitigation measures, the impacts would be less-than-significant.</p>	<p><i>Significant Impacts:</i> Same as Alternative 2.</p> <p><i>Mitigation Measures:</i> Same as Alternative 2.</p>	<p><i>Significant Impacts:</i> Same as Alternative 2.</p> <p><i>Mitigation Measures:</i> Same as Alternative 2.</p>
<b>HAZARDOUS MATERIALS</b>		<p><i>Significant Impacts:</i> 1. Previous subsurface soils</p>	<i>Significant Impacts:</i>	<i>Significant Impacts:</i>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
Construction		<p>investigations indicate the potential for exposure of site workers and the public to potentially hazardous materials, including metals, volatile organic compounds (VOCs), and semi-VOCs, during site excavation or transport of excavated soil materials (35,000 cubic yards) which would be disposed of at a Class I facility. Servicing and fueling of diesel-powered construction equipment on-site could result in exposure to lubricants, diesel fuel, antifreeze, motor oils, degreasing agents, and other hazardous materials. Properties landside of the 1851 highwater mark that are not subject to Article 20 would have potential for exposure to hazardous materials.</p> <p><i>Mitigation Measures:</i> Implementation of mitigation measures similar to those required for properties under the jurisdiction of Article 20: preparation of a Site History Report; Soil Quality Investigation, including a Soils Analysis Report and a Site Mitigation Report (SMR); description of Environmental Conditions; Health and Safety Plan (HSP); Guidelines for the Management and Disposal of Excavated Soils; and a</p>	<p>Same as Alternative 2.</p> <p><i>Mitigation Measures:</i> Same as Alternative 2.</p>	<p>Same as Alternative 2.</p> <p><i>Mitigation Measures:</i> Same as Alternative 2.</p>



Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>Certification Statement that confirms that no mitigation is required or the SMR would mitigate the risks to the environment of human health and safety.</p> <p>This measure would ensure that the project impacts are mitigated to a less-than-significant level.</p>		
<p><b>NOISE AND VIBRATION</b></p> <p>Construction</p>		<p><i>Significant Impacts:</i></p> <p>Historic buildings within 200 feet of a construction area may be subject to adverse vibration impacts if the maximum peak particle vibration (PPV) velocity level in any direction exceeds 0.12 inches/second for any length of time.</p> <p><i>Mitigation Measures:</i></p> <ol style="list-style-type: none"> <li>1. The Contractor shall be required to perform periodic vibration monitoring using approved seismographs at the historic structure closest to the construction activity. If the construction activity exceeds a 0.12 inches/second level, the construction activity shall be immediately halted until an alternative construction method that would result in lower vibration levels can be identified.</li> <li>2. During final design engineering, a more detailed construction noise and vibration</li> </ol>	<p><i>Significant Impacts:</i></p> <p>Same as Alternative 2.</p> <p><i>Mitigation Measures:</i></p> <p>Same as Alternative 2.</p>	<p><i>Significant Impacts:</i></p> <p>Same as Alternative 2.</p> <p><i>Mitigation Measures:</i></p> <p>Same as Alternative 2.</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>analysis will be prepared to address construction staging areas, tunnel portals, cut-and-cover construction, and underground mining and excavation operations.</p> <p>Implementation of these mitigation measures would reduce the impacts to a less-than-significant level.</p>		
Operation/Cumulative		<p><i>Significant Impacts:</i></p> <p>The FTA vibration criteria of 72 VdB would be exceeded at one residential building at 570 Fourth Street at Freelon Alley and the FTA ground-borne noise criteria of 35 dBA would be exceeded at two residential buildings at 527 and 529 Third Street. All locations have residential development over ground-floor commercial.</p> <p><i>Mitigation Measures:</i></p> <p>Vibration propagation testing will be conducted at these locations during final engineering to determine the predicted impacts and finalize the mitigation measures. MTA will select one of the following mitigation measures during final design of the project: high resilience (soft) direct fixation fasteners for</p>	<p><i>Significant Impacts:</i></p> <p>The FTA vibration criteria of 72 VdB would be exceeded at one residential building at 570 Fourth Street at Freelon Alley.</p> <p><i>Mitigation Measures:</i></p> <p>Mitigation measure same as Alternative 2.</p>	<p><i>Significant Impacts:</i></p> <p>Impacts same as Alternative 3A.</p> <p><i>Mitigation Measures:</i></p> <p>Mitigation measure same as Alternative 2.</p>

<b>Environmental Area/Impacts</b>	<b>Alternative 1 -No Project/TSM</b>	<b>Alternative 2 - EIS/EIR Enhanced Alignment</b>	<b>Alternative 3A - Fourth/Stockton Alignment Option A</b>	<b>Alternative 3B - Fourth/Stockton Alignment Option B</b>
		embedded track and in underground subway tunnels or ballast mat for ballast and tie track.  Implementation of these measures would reduce the impacts to a less-than-significant level.		

### S.5.1 CENTRAL SUBWAY BUILD ALTERNATIVES

Implementation of the Build Alternatives would result in significant impacts as noted below:

- traffic impacts in 2030 at the following locations: Fourth/Harrison Streets intersection (~~No Project/TSM Alternative – LOS B to LOS E in a.m. peak hour~~, Alternative 3A, LOS ~~B-C~~ to LOS E in a.p.m. peak hour, and Alternative 3B – LOS ~~B-C~~ to LOS F in a.m. and p.m. peak hour) and Third/King Streets intersection (Alternatives 2, 3A, and 3B – LOS ~~D-E~~ to LOS F in a.m. peak hour) all as a result of project implementation. Considerable contribution to cumulative impacts would occur at the Sixth and Brannan Streets intersection in the p.m. peak hour (Alternative 2); the Fourth and Harrison Streets intersection during the p.m. peak hour (Alternatives 3A and 3B); the Third and King and Fourth and King Streets intersections during the p.m. peak hour for Alternatives 3A and 3B; and during the a.m. peak hour at the Third/King Streets intersection for Alternative 3B.
- displacement of 10 small businesses (10 or fewer employees) ~~and 1 or 2 residential units~~ for Alternatives 2 and 3A and displacement of 8 small businesses (10 or fewer employees) and 17 residential units (which would require a Planning Code amendment) for Alternative 3B in the predominantly minority and low-income Chinatown neighborhood;
- potential disruption to one known prehistoric archaeological resources during construction of Alternative 2;
- potential disruption to locations identified as sensitive to the presence of prehistoric archaeological resources (14 for Alternative 2 and 6 for Alternatives 3A and 3B);
- potential disruption to one known historic archaeological resources during construction of Alternatives 3A and 3B);
- potential disruption to locations where historical archaeological resources might be uncovered (6 for Alternative 2, 15 for Alternative 3A, and 13 for Alternative 3B);
- demolition of one historic resource in Chinatown for each of the Build Alternatives (814-828 Stockton Street for Alternatives 2 and 3A and 933-949 Stockton Street for Alternative 3B) out of the total 371 contributory historic buildings in the proposed Chinatown Historic District which would create a visual break in the cohesive grouping of these contextually-related buildings;

- potential disruption to historic architectural resources along the alignment by construction-related ground-borne vibration (34 resources in Alternative 2, 25 resources in Alternatives 3A, and 3B);
- construction period settlement could cause damage to existing building foundation, subsurface utilities, and surface improvements such as roads and sidewalks;
- construction activities and design of the Union Square or Union Square/Market Street Station could alter ground water flows at the Powell Street Station that require daily pumping.
- potential for exposure of workers and the public to potentially hazardous materials during site excavation or transport of excavated soils or servicing of diesel-powered construction equipment on-site on properties landside of the 1851 highwater mark not subject to Article 20;
- exceedance of FTA vibration criteria at one residential building located at 570 Fourth Street for all Build Alternatives; and
- exceedance of FTA ground-borne noise criteria at two residential buildings located at 527 and 529 Third Street under Alternative 2.

All of these impacts, except those related to traffic, residential and small business displacement, archaeological resources, and historical architectural resources could be reduced to a less-than-significant level by implementing mitigation measures as identified in Table S-7. No feasible mitigation measures have been identified for mitigating significant impacts at any of the identified intersections except at Fourth and Harrison Streets, therefore there would be significant environmental effects which could not be avoided. The impact on archaeological resources would be considered significant environmental effects which can not be avoided because there is no assurance as to the level of mitigation for the unidentified resources. The business and residential displacement associated with each of the Build Alternatives would be considered adverse impacts. The impacts would be mitigated through, the required adherence to state and federal regulations on the acquisition of parcels and relocation of businesses and residences, but would still be considered significant effects because of the disruption to and dislocation of low income households.

Each of the Build Alternatives would also require use of Union Square plaza for station entrances and for vent shaft placements (Alternative 2 and 3A only). It has been determined that this use of

the plaza would not be considered a significant impact and a de ~~minus~~-minimis finding for impact on Section 4(f) resources is anticipated for Alternative 3B has been concurred with by the Recreation and Parks Commission (see Appendix J) to satisfy Section 4(f) requirements.

#### S.5.2 NO PROJECT/TSM ALTERNATIVE

The No Project/TSM Alternative would not have any of the construction-related impacts associated with the Build Alternatives, but it would result in increased future congestion at some locations, reduced transit service reliability, increased transit travel times, increased energy consumption, and increased air pollution when compared to the Build Alternatives.

### S.6 FINANCIAL FEASIBILITY

#### S.6.1 ANALYSIS OF FINANCIAL CAPACITY FOR THE NO BUILD/TSM AND CENTRAL SUBWAY ALTERNATIVES

The U.S. Department of Transportation Section 5309 New Starts program administered by the Federal Transit Administration (FTA) provides discretionary capital grants for construction of new fixed guideway systems or extensions to existing fixed guideway systems. To receive a New Starts grant, projects must complete a planning and project development process that consists of Alternatives Analysis, Preliminary Engineering, and Final Design phases. The funding program is discretionary and highly competitive, with funding decisions made on the basis of New Starts Criteria specified in law and regulation. Near the completion of Final Design, highly-rated projects are eligible to receive a Full Funding Grant Agreement (FFGA), which defines the scope of the project, specifies requirements with which the project sponsor must comply to receive New Starts funds, identifies the multi-year federal financial commitment to the project, and signals federal intent to seek the specified amounts of funding through future appropriations.

The MTA is seeking \$762.2 million in Section 5309 New Starts funding. The MTA started receiving New Starts funds for the Central Subway Project in FY 2003. To date, the MTA has received \$45.3 million in New Starts funds as follows: \$1.5 million in 2003; \$8.9 million in 2004; \$9.9 million in 2005; and \$25 million in 2006. These funds were allocated for preliminary engineering and environmental review.

Table S-3 presents the total capital cost estimates for the Build Alternatives by construction elements, right of way, vehicles and soft costs. Preliminary estimates predict that the Central Subway will begin construction in 2010 and start revenue service in 2016.

### Comparative Capital Costs

Alternative 3A would extend light-rail service along Fourth Street as a semi-exclusive double-track surface line for a short distance from the T-Third Line terminus, and it would soon transition to a subway (tunnel), which would be used for the majority of the Project's 1.7-mile length. Three underground subway stations are included in this alternative, and four additional light-rail vehicles (LRVs) are required beyond the No Project/TSM Alternative.

Alternative 3B is similar to Alternative 3A, but it has a shorter tunnel (with a longer surface line), four stations (the fourth is a surface platform), four LRVs more than No Project/TSM Alternative, and a shorter (one-year less) construction period. Tunnel sections and subway stations are typically more expensive to construct than surface lines and surface platforms. Alternative 3B also evaluates two sub-options with mixed-flow or semi-exclusive rail operation on the surface of Fourth Street.

Costs for Alternative 2, were derived from original cost estimates for the shallow tunnel under Market Street. This alternative also includes: operation of a surface line on both Third and Fourth Streets with a portal on each street; five stations (four underground and one surface); and four addition LRVs over the No Project/TSM Alternative

### Comparative O&M Costs

The projected incremental operating costs for both the IOS and Central Subway Projects are summarized in Table S-4 in year-of-expenditure dollars (YOES). The 2016 figures represent the cost at the startup of the Central Subway operations, while the 2030 figures are for a selected forecast year. The increase in cost over time reflects an assumed inflation rate of ~~3.5~~2.3 percent.

Due to a faster and more direct alignment, Alternative 3A creates an annual reduction of ~~2,400~~40,300 LRV car hours on the Central Subway Corridor and a system-wide annual ~~reduction~~increase of ~~27,800~~11,900 car hours when compared to the No Project/TSM Alternative. Alternative 3A would also reduce the number of system-wide annual bus hours by 76,400. Alternative 3B would save the same number of annual bus hours, however, it would ~~increase~~reduce the annual LRV car hours by ~~6,000~~39,000 on the Central Subway Corridor, while ~~reducing~~increasing by ~~19,400~~13,200 the system-wide LRV hours compared to the No Project/TSM Alternative. Alternative 2 ~~yields~~would result in an annual ~~increase~~decrease of ~~7,100~~33,100 LRV car hours, a system-wide annual ~~reduction~~increase of ~~18,300~~19,100 car hours, and would reduce the number of system-wide annual bus hours by 76,400 when compared

to the No Project/TSM Alternative.



A total of ~~\$432.2~~ \$473 million in state and local capital funding has been committed to the Central Subway Project. In addition, the MTA is currently seeking \$762.2 million in federal “New Starts” funding, for a total of ~~\$1,194.4~~ \$1,235 million in capital funding identified for the Project (see Table S-8). ~~Additional regional and state funding is being pursued to eliminate the funding shortfall.~~

**TABLE S-8****CENTRAL SUBWAY CAPITAL FUNDING PLAN (\$MILLIONS)**

<b>Source</b>	<b>Amount</b>
Federal-5309 New Starts	\$762
State	\$306
Local	<del>\$126</del> 167
<b>Total</b>	<b><del>\$1,194</del></b> <b><u>\$1,235</u></b>
Source: MTA Central Subway FY2008 New Starts Financial Plan.	

**S.7 EVALUATION OF ALTERNATIVES**

The Section 5309 New Starts criteria provide FTA with a consistent framework for evaluating major transit investments seeking federal discretionary funding under the Section 5309 New Starts program. FTA uses an analytical method in which New Start Projects are analyzed against several evaluation criteria and results are displayed and reported annually (see Table S-9).<sup>5</sup> This method is also used to evaluate the alternatives/transit options relative to local goals and objectives. No attempt has been made to provide an overall ranking or single index combining all measures. The community and its decision-makers can apply their own values in weighing the importance of the various measures and selecting a Preferred Investment Strategy. The evaluation completed for the SEIS/SEIR will not necessarily conform to the evaluation by FTA that compares New Start projects nationwide for purposes of recommending projects to Congress for funding.

The local evaluation is summarized by performance ratings assigned to alternatives. Performance ratings were assigned to each alternative based on how well the alternative meets the objective. In some cases there is a clear distinction between alternatives, while in others no clear distinction may exist. The ratings may be adjusted in order to account for significant environmental impacts,

<sup>5</sup> Updated analysis was prepared for Alternative 3B (Modified Local Preferred Alternative) only and was included in the August 2007 New Starts Report.

or other criteria, which make a particular alternative significantly more or less desirable than the other.

Using these evaluation criteria, Alternative 3B has the best performance of all alternatives followed by Alternative 3A and Alternative 2. All Build Alternatives perform well for mobility improvements, operating efficiencies, and financial commitment when compared to the No Project/TSM Alternative, with the highest marks for Alternative 3B. While all of the transit

**TABLE S-9**  
**SUMMARY OF MOBILITY IMPROVEMENTS EVALUATION**

Performance Measures	No Project/TSM Alternative	Central Subway Alternatives		
		Enhanced EIS/EIR Alignment	Fourth/Stockton Alignment Option A	Fourth/Stockton Alignment Option B
<b>MOBILITY IMPROVEMENTS</b>				
<b>FTA Performance Measures</b>				
Hours of Transportation User Benefits	○	●	●●	●●
Low Income Households Served	●	●	●	●
Employment Near Stations	●	●	●	●
<b>Local Performance Measures</b>				
Daily Linked Transit Trips	○	●	●●	●●
Exclusive ROW for Transit	○	●	●	●
Travel Time Between Selected Origins & Destinations	○	●	●	●
Average Operating Speed for Transit	●	●	●	●
Compatibility with SFTA's <i>Four-Corridor Plan</i>	○	●	●	●
<b>ENVIRONMENTAL BENEFITS</b>				
<b>FTA Performance Measures</b>				
Change in Regional Air Pollutant Emissions	○	●	●	●
Change in Greenhouse Gases	○	●	●	●
Change in Regional Energy Consumption	○	●	○	●
EPA Air Quality Designation	○	○	○	○
<b>Local Performance Measures</b>				
Partial and Full Property Acquisitions	●	●●	●●	○
Affected Parkland/Cultural Sites	●	●	●	●
Visual, Noise, and Vibration	●	●	●	●
Displaced Parking During Construction	●	●○	●●	●●
<b>OPERATING EFFICIENCIES</b>				
<b>FTA Performance Measures</b>				
Systemwide Operating Cost per Passenger Mile <sup>(1)</sup>	\$0.57 \$1.24	\$0.58 \$1.25	\$0.57 \$1.24	\$0.57 \$1.24
<b>Local Performance Measures</b>				

Performance Measures	No Project/TSM Alternative	Central Subway Alternatives		
		Enhanced EIS/EIR Alignment	Fourth/Stockton Alignment Option A	Fourth/Stockton Alignment Option B
Systemwide Operating Cost per Passenger <sup>(1)</sup>	<del>\$1.82</del> <u>\$2.34</u>	<del>\$1.63</del> <u>\$2.31</u>	<del>\$1.56</del> <u>\$2.29</u>	<del>\$1.52</del> <u>\$2.29</u>
Bus Operating Cost per Revenue Bus Hour <sup>(2)</sup>	<del>\$254.00</del> <u>\$140.02</u>	<del>\$209.00</del> <u>\$140.34</u>	<del>\$209.00</del> <u>\$140.32</u>	<del>\$209.00</del> <u>\$140.32</u>
Light Rail Operating Cost per Revenue Train Hour <sup>(2)</sup>	<del>\$303.00</del> <u>\$248.20</u>	<del>\$298.00</del> <u>\$260.32</u>	<del>\$305.00</del> <u>\$259.98</u>	<del>\$299.00</del> <u>\$259.84</u>
<b>COST EFFECTIVENESS</b>				
<b>FTA Performance Measures</b>				
Incremental Cost per Hour of Transportation System User Benefit	--	<del>\$33.58</del> <u>\$30.31</u>	<del>\$22.73</del> <u>\$21.12</u>	<del>\$18.36</del> <u>\$21.24</u>
<b>TRANSIT SUPPORTIVE LAND USE AND FUTURE PATTERNS</b>				
<b>FTA Performance Measures</b>				
Existing Land Use	●	●	●	●
Transit Supportive Plans and Policies	●	●	●	●
Performance and Impacts of Policies	●	●	●	●
Other Land Use Considerations	●	●	●	●
<b>Local Performance Measures</b>				
Compatible with City and Area Plans	○	●	●	●
Support Revitalization Opportunities along the Central Subway Corridor Adjacent to Transit Stops/Stations	○	●	●	●
Project Serves Major Activity Centers	●	●	●	●
<b>OTHER LOCAL CRITERIA</b>				
Travel Time from Fourth/King to Market/Third/Fourth	○	<del>●</del> <u>○</u>	●	<del>●</del> <u>○</u>
Travel Time from Fourth/King to Stockton/Washington	○	○	●	●
Parking supply and on-street loading zones on or near Third/Fourth Streets and Stockton Street	●	○	●	○
Community Acceptance and Political Support	○	○	●	●
<b>LOCAL FINANCIAL COMMITMENT</b>				
<b>FTA Performance Measures</b>				
Stability and Reliability of Capital Financing Plan	--	●	●	●
Stability and Reliability of Operating Financing Plan	○	○	○	○
Local Share to Project Costs	--	●	●	●
Capital Costs Compared to Funding	--	○	○	<del>○</del> <u>●</u>
Operating Costs Compared to Funding	○	●	●	●
● -High, ● -Medium High, ○ -Medium, ○ -Medium Low, ○ -Low				

investment strategies are supportive of desired land use patterns, the Build Alternatives go further than the No Project/TSM Alternative toward implementing desired City policy and providing opportunities for revitalization along the Central Subway Corridor.

Implementation of the Central Subway Project Build Alternatives would introduce some environmental impacts that do not exist for the No Project/TSM Alternative, but improvements to air quality and energy consumption would also occur with the implementation of the Build Alternatives, particularly Alternative 3B.

## **S.8 AREAS OF CONTROVERSY/ISSUES TO BE RESOLVED**

Topics of concern raised by the public during the environmental review of the Central Subway Alternatives include: loss of on-street parking; loss of loading zones adjacent to businesses; local access concerns, displacement of affordable housing and small businesses, vibration impacts to older buildings, and noise during construction.

## **S.9 COMMUNITY INVOLVEMENT**

Over the past several years, many public meetings have been held to solicit input to the Project. The MTA established a Community Advisory Group (CAG) early in the planning process to provide input to the identification and selection of design options for the Third Street Light Rail Project and to help select the options to carry forward for environmental review. The CAG is composed of a broad cross-section of stakeholder groups from the six primary neighborhoods in the Third Street Corridor: Visitacion Valley, Bayview Hunters Point, Potrero Hill, South of Market, and Chinatown/Downtown. The CAG has met six times since December of 2003 to discuss the Central Subway phase of the Project.

A Notice of Preparation (NOP) and Notice of Scoping Meeting were mailed in June 2005 and a Public Scoping meeting was held in June 2005. Four public informational meetings were also held. In September 2006, a revised Notice of Preparation was mailed. A revised NOP was sent out because a number of property owners did not receive the June 2005 notice and the Project description had changed. To ensure that the NOP was received by the appropriate recipients, the notice was mailed to the following:

- All residents within the 300-foot boundary of the proposed Project alignment, including the North Beach construction variant;

- All property owners within the 300-foot alignment, including the North Beach construction variant as listed with the San Francisco Assessor's Office;
- The citywide Central Subway mailing list; and
- The San Francisco Department of Planning's Standard Environmental Impact Report mailing list.

In October 2006, a series of community meetings were held along the alignment to update the public on the new Fourth/Stockton Alignment as the Central Subway Locally Preferred Alternative (LPA). Since the mailing of the NOP, the Central Subway team has also held over a dozen community meetings in addition to the stakeholder meetings conducted by the executive team members and staff.

#### **S.10 AGENCY COORDINATION AND APPROVALS REQUIRED**

Permits and approvals involving local, state, and federal agencies will be required prior to Project implementation. A list of these major approvals is provided in Table S-10.

**TABLE S-10**  
**AGENCY APPROVALS**

Agency	Approval or Permit
Department of Interior	Section 4(f) approval or “de minimis” finding by FTA.
Advisory Council on Historic Preservation	Approval of Memorandum of Agreement (MOA) describing procedures for protection of and mitigation of impacts to historic and cultural resources pursuant to Section 106 of the National Historic Preservation Act and 36 CFR 800.
California State Historic Preservation Officer (SHPO)	Finding of Effect Determination.
California Public Utilities Commission (CPUC)	Permits required for all at-grade or grade-separated railroad, highway, and street crossings as well as pedestrian crossings of light rail and railroad tracks; public hearings before the CPUC may also be required; a formal application to conform with CPUC Rules of Practice and Procedure (CPUC Code Section 1200) is required; a formal application requesting permission to deviate from the established CPUC General Order (G.O.) standard (such as those regarding the height requirements for overhead wires) must be submitted and approved by the CPUC.
Caltrans	Access Control Properties Review. Permit to Encroach on Caltrans Right-of-Way.
Metropolitan Transportation Commission (MTC) and California Transportation Commission	Consistency with RTP and STIP.
Bay Area Rapid Transit District (BART)	<del>Amendment of Consistency with the 1986 Muni/BART Joint use Station Maintenance Agreement, First Supplement for Powell Street station entries, and execution of the 2008 Station Improvement Coordination Plan.</del>
Regional Water Quality Control Board	General Construction Activity Stormwater Permit.
Bay Area Air Quality Management District (BAAQMD)	Conformity determination.
San Francisco Public Utilities Commission	Batch Industrial Wastewater Discharge Permit required for dewatering affluent discharge to the combined sewer system providing the quality of the effluent meets the NPDES General Permit discharge standards.
San Francisco Municipal Transportation Agency	Approve Project. Request from FTA a “Letter of No Prejudice” for New Starts federal funding. Approval required for surface street changes, traffic operation changes, traffic control measures, and on-street parking changes.
San Francisco Department of Public Health	Review and acceptance of site remediation plan in Maher Ordinance Area – Article 20.
San Francisco Planning Commission	General Plan Review/Referral for all aspects of project which occur in public rights-of-way, and amendments to appropriate portions of General Plan, Transportation Element, and Planning Code.
San Francisco Landmarks Preservation Advisory Board	Section 106 Review and Approval of Historical Architectural Report and SEIS/SEIR.
San Francisco Department of Public Works	Approval required for construction in streets and changes to sidewalk widths.
San Francisco Redevelopment Commission	Project review required for portions within existing Redevelopment Project Areas and, if adopted by the Board of Supervisors, within the proposed Redevelopment Areas. No approvals are needed for constructing light rail.
San Francisco Department of Recreation and Parks	Section 4(f) “de minimis” approval. Prop. K review and approval for shadow analysis. <del>Long term encroachment permits for Union Square plaza.</del>
San Francisco Arts Commission	Approval of the Public Arts Element and Civic Design.
San Francisco Board of Supervisors	Approval of General Plan and Planning Code amendments. Adoption of Redevelopment Plan amendments. Approval of property acquisitions, including eminent domain. Approvals required for use of City rights-of-way and Park property.
San Francisco County Transportation Authority	Review and inclusion of the Project in the Countywide Transportation Plan and Capital Improvement Program of the Congestion Management Program for San Francisco funding.





## 1.0 PURPOSE AND NEED

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The San Francisco Municipal Transportation Agency (MTA) is proposing the Central Subway Project (Project), as the second phase of the Third Street Light Rail Project that was evaluated under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) in the Third Street Light Rail Project FEIS/FEIR (Case No. 96.281E) in 1998. The Federal Transit Administration (FTA) issued a Record of Decision (ROD) for the Third Street Light Rail Project in 1999 and the San Francisco Public Transportation Commission (PTC) approved the Project. The PTC was the predecessor policy board to the San Francisco Municipal Transportation Agency (MTA), which now oversees the San Francisco Municipal Railway (Muni) and the Department of Parking and Traffic (DPT). The Phase 1 Initial Operating Segment (IOS) opened for service in spring of 2007.<sup>1</sup> This Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report (SEIS/SEIR) updates information in the Central Subway Project Study Area and focuses on changes to the Central Subway portion of the Third Street Light Rail Project that have occurred since the certification of the 1998 Final Environmental Impact ~~Study Statement~~ and Final Environmental Impact Report (FEIS/FEIR). Proposed changes to the Central Subway portion of the light rail project include: a new segment along Fourth Street between ~~Brannan~~-Harrison and Market Streets and along Stockton Street between Market and Geary Streets as an alternative to use of Third, Harrison, Kearny, and Geary Streets; extension of the planning horizon year from 2015 to 2030; the addition of above ground ventilation shafts for tunnel segments and stations; the use of off-street access to stations; a deep tunnel under Market Street; a closed barrier fare system; and the potential extension of a construction tunnel under Stockton Street and Columbus Avenue to the north end of the Project near Washington Square for removing the Tunnel Boring Machine (TBM).

This SEIS/SEIR evaluates three alternatives for Phase 2 of the Third Street Light Rail Project, which are described in detail in Section 2.0 of this document. Briefly, the Central Subway alternatives are:

- **Alternative 1 – No Project/Transportation Systems Management (TSM)**, developed in conformance with California Environmental Quality Act (CEQA) Guidelines and National Environmental Policy Act (NEPA) requirements, includes only the funded projects programmed in

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<sup>1</sup> The 1998 FEIS/FEIR used *Initial Operation Segment* to define the Phase 1 portion of the Third Street Light Rail Project. This Phase of the project initiated passenger service in April 2007 and is now referred to as the *T-Third Line*. This Supplemental SEIS/SEIR uses *T-Third Line* with reference to the Phase 1 segment, where appropriate.

the Regional Transportation Plan.<sup>2</sup> The T-Third Line (Phase 1 of the Third Street Light Rail Project) and associated bus changes are included in this alternative.

- **Alternative 2 – Enhanced EIS/EIR Alignment**, as analyzed in the 1998 FEIS/FEIR, uses King, Third, Harrison, Kearny, and Geary Streets as well as Fourth and Stockton Streets, crosses Market Street in a shallow subway at Third Street (Base Case), and includes a surface platform on Third Street at King Street and four subway stations (Moscone, Market, Union Square and Chinatown). Enhancements to the original FEIS/FEIR alternative include above-ground emergency ventilation shafts, off-sidewalk station entries where feasible, and the provision of a closed barrier fare system.
- **Alternative 3 – Fourth/Stockton Alignment** was developed as an alternative that would operate exclusively on Fourth and Stockton Streets with a deep tunnel crossing of Market Street. Two design options for this alternative are being evaluated:
  - Option A (Locally Preferred Alternative or LPA) has a double-track portal on Fourth Street between Townsend and Brannan Streets and three subway stations (Moscone, Union Square/Market Street, and Chinatown), and;
  - Option B (Modified LPA) has a double-track portal on Fourth Street between Bryant and Harrison Streets, a surface platform on Fourth Street at Brannan Street, and three subway stations (Moscone, Union Square/Market Street, and Chinatown). Option B includes semi-exclusive and mixed-flow suboptions of the light rail surface operation on Fourth Street, with trains either physically separated from vehicle traffic (except at intersections and surface stations) or trains and vehicles sharing a lane with an embedded trackway.

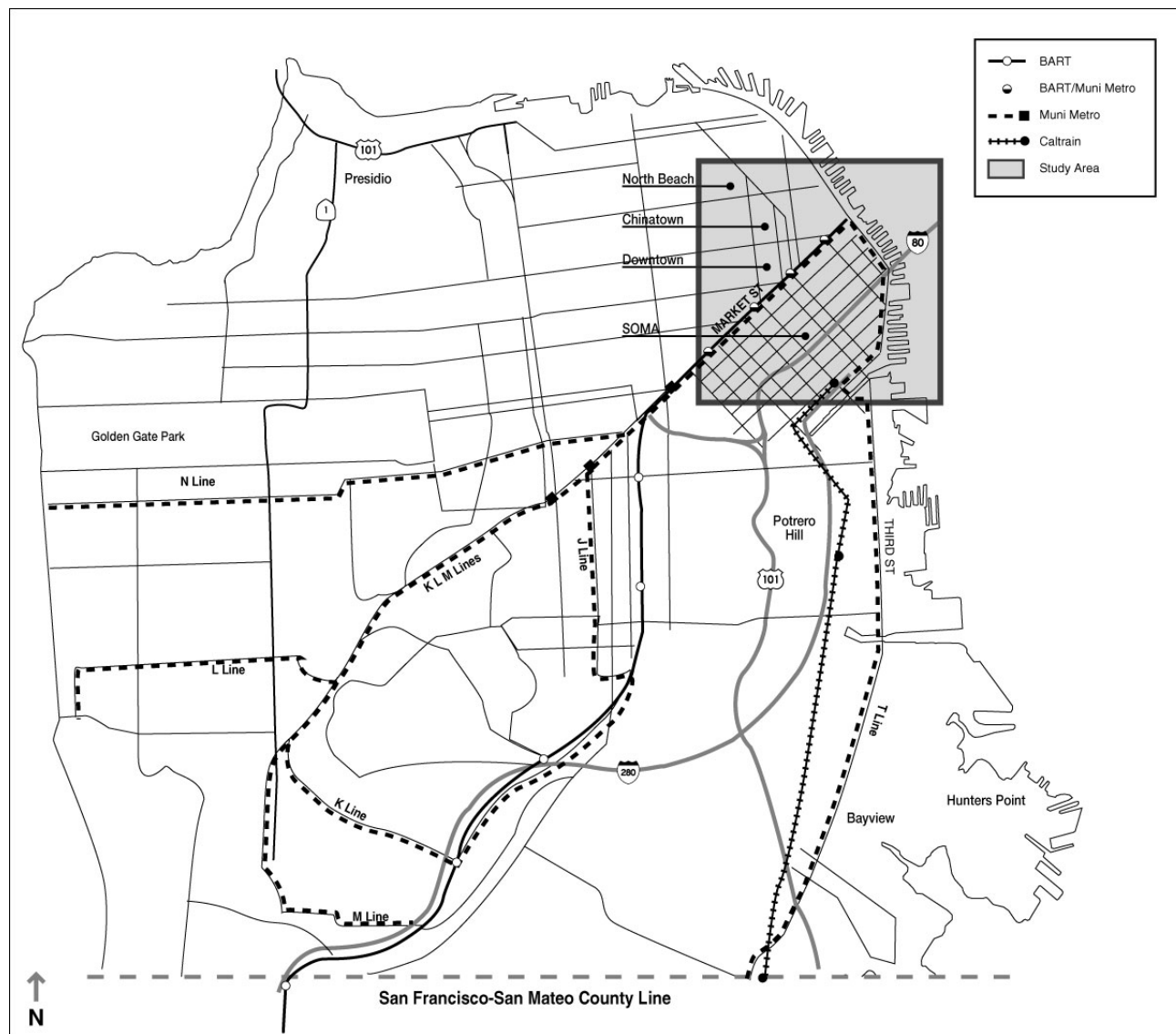
## 1.1 CORRIDOR LOCATION

The location of the Central Subway Corridor (Corridor) is shown in Figure 1-1. The Study Area extends from South of Market Street along Third and Fourth Streets near King Street, across Market Street to Geary and Stockton Streets in the Downtown, along Stockton Street in Chinatown, and includes a portion of North Beach along Columbus Avenue north of Union Street. The Corridor, which is approximately 1.7 miles long, is located in the northeastern quadrant of San Francisco. It is the northern end of the 7.1-mile Third Street Light Rail Corridor that would extend from Visitacion Valley to Chinatown. The 5.4-

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<sup>2</sup> Transportation Systems Management or TSM refers to relatively low-cost capital improvements intended to serve Project objectives without requiring a major capital investment, e.g. improvements to bus service rather than a rail investment.

**FIGURE 1-1**  
**CENTRAL SUBWAY STUDY AREA LOCATION**



Source: PB/Wong  
 Not to scale

mile T-Third Line (Phase 1 of the Third Street Light Rail Project) opened in April 2007, connecting Downtown with Mission Bay, Potrero Hill, the Central Waterfront, Bayview Hunters Point, and Visitacion Valley.

## 1.2 PURPOSE OF PROPOSED ACTION

As the Project Sponsor, MTA's objective for the proposed Project is to complete the second phase of the Third Street Light Rail Project and provide Muni transit improvements in the Central Subway Corridor. MTA is seeking federal funding assistance to construct the proposed Central Subway Project. In 2003

MTA began conceptual engineering on the 1998 Phase 2 Central Subway alignment that used Third, Harrison, Kearny, and Geary Streets, as well as Fourth and Stockton Streets, and included a shallow tunnel crossing of Market Street at Third Street. In response to a series of community meetings and two years of engineering and design refinement efforts, a new alignment was identified to avoid, minimize, or mitigate potential impacts described in the 1998 FEIS/FEIR. On June 8, 2005, the MTA Board designated the new alignment, that was entirely located on Fourth and Stockton Streets, as the Central Subway Locally Preferred Alternative (LPA). This alternative was developed to avoid surface impacts along Third, Harrison, Kearny, and Geary Streets and to use a deep tunnel crossing of Market Street to avoid the existing sewer system on Mission Street. In June 2005 the City circulated a Notice of Preparation (NOP) to notify the public of the preparation of a Supplemental EIS/EIR (SEIS/SEIR) to evaluate the Central Subway alternatives (Appendix B). After the SEIS/SEIR is completed and the San Francisco Planning Commission has certified the SEIR, the FTA will determine if the preferred alternative meets their transit investment objectives and decide whether to recommend federal funding for the Project. Transit investment objectives include:

- Achieve transit service and mobility goals, while minimizing social, economic, and environmental impacts;
- Increase transit use and reduce travel time at a reasonable cost;
- Link public transportation investments with land use planning and community revitalization;
- Have strong public and political support and compatibility with local, regional, and state planning initiatives; and
- Enhance and preserve the environment, particularly in terms of reduced air and noise pollution and congestion relief.

Once the FTA issues a Record of Decision (ROD), the City and County of San Francisco (City) will consider approval of the Project, as well as commitment of local funds to implement the preferred alternative.

### **1.3 NEED FOR TRANSPORTATION IMPROVEMENTS IN THE CORRIDOR**

The Central Subway Project would help to address mobility and transit deficiencies by improving connections to communities in the northeastern and southeastern part of the City and improving reliability of transit services. Transit deficiencies include those that exist at present and those that are anticipated to exist during the 20-year plus planning horizon (2030). The Central Subway Project is also intended to

serve as a key infrastructure improvement to help ease congestion in the Study Area; improve transit service to the large transit-dependent population that resides along the Corridor; accommodate the increasing number of residents in the South of Market area; and serve mobility needs for the new jobs that are expected to be created in the Study Area. The transportation deficiencies and Project needs are further described below.

### 1.3.1 MUNI SERVICE RELIABILITY PROBLEMS IN THE CENTRAL SUBWAY CORRIDOR

The primary bus lines currently serving the Central Subway Corridor are the 9-San Bruno, 30-Stockton and 45-Union/Stockton. These lines traverse the dense and congested streets in North Beach, Chinatown and the Financial Districts of Downtown San Francisco (Downtown) before traveling into the South of Market, Mission Bay, Bayview, and Visitacion Valley districts. These lines connect with the T-Third Line at Market Street and at King and Fourth Streets. Buses caught in traffic congestion often provide unreliable service in and around the Downtown area. Currently, passengers may experience overcrowding and extended wait times between buses, as well as slower operating speeds and increased travel times. This situation is projected to worsen as traffic along the Corridor increases to projected 2030 levels.

### 1.3.2 INADEQUATE CONNECTIVITY BETWEEN CORRIDOR TRANSIT LINES AND OTHER TRANSIT SERVICES

As employment and activity centers continue to develop and disperse throughout the Bay Area and as that trend continues to 2030, it will become increasingly important to provide efficient connections from the Central Subway and the Third Street Corridor to transit lines serving all parts of San Francisco and the region. The Third Street Light Rail Project was intended to address the inequality of transit connections to the Muni Metro rail system and to regional transit services such as BART and Caltrain perceived by residents of the corridor. High unemployment rates for the Bayview and Visitacion Valley residents made the need for improved transit connections to regional employment centers particularly critical. Economic vitality was also a key issue for Chinatown residents and businesses that experienced reduced accessibility as a result of the removal of the Embarcadero Freeway following the 1989 earthquake.

For the Phase 2 Central Subway Project, transit accessibility along the Corridor is particularly critical as the population has a higher degree of transit dependency (72 percent of households along the Central Subway Corridor are without a vehicle compared to 29 percent citywide) and higher unemployment rates than other parts of the City (9 percent unemployed in the Central Subway Corridor versus 4.6 percent citywide unemployment).<sup>3</sup> The Phase 2 Central Subway also provides the opportunity for future

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<sup>3</sup> 2000 U.S. Census Data

connections to other key transit corridors, such as Geary and North Beach, identified in the 1995 *Four Corridor Plan*.<sup>4</sup>

### 1.3.3 PROJECTED INCREASES IN 2030 TRANSIT AND AUTO TRAVEL DEMAND IN THE CORRIDOR

As presented in Table 1-1, an ~~55-84~~ percent increase in Central Subway Corridor population and a ~~26-19~~ percent increase in the Central Subway Corridor employment is projected by 2030 (see also Figure 1-2). In contrast, in the North Beach area to the immediate north of the Central Subway Corridor, population is expected to decline by 13 percent, while the employment is projected to increase by only six percent.<sup>5</sup> The rate of population increase in the Central Subway Corridor is far greater than the City as a whole, which is expecting a 20 percent population increase. The ~~26-19~~ percent employment increase in the Central Subway Corridor is slightly lower than the projected citywide employment growth of 28 percent over the same period. Much of the population and employment growth would result from ongoing development in the Mission Bay Area, and projected development in the South of Market Area, which the Central Subway Project would traverse.

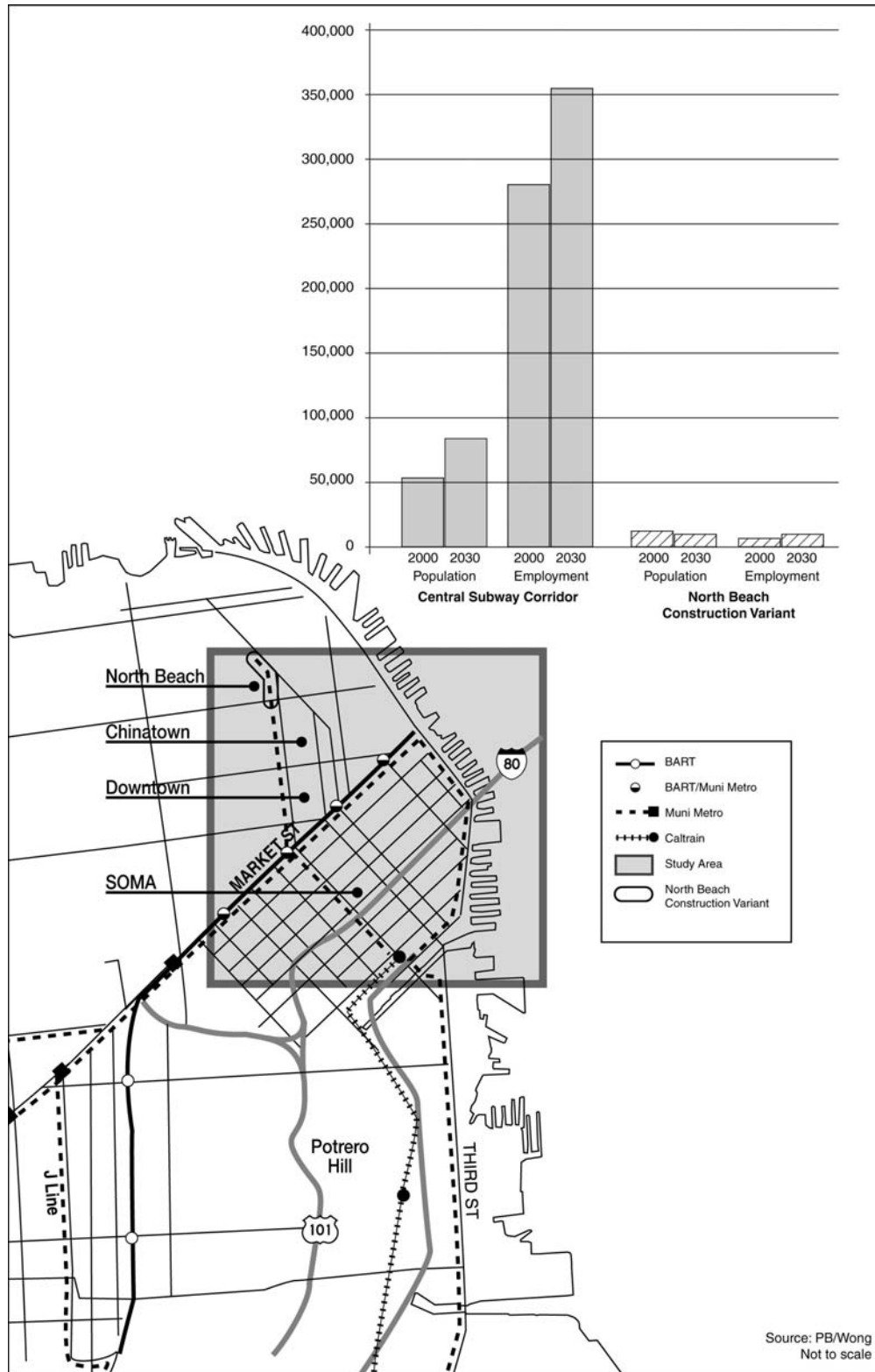
**TABLE 1-1**  
**POPULATION AND EMPLOYMENT PROJECTIONS**  
**2000 AND 2030**

Population					Employment			
Area	2000	2030	Difference	% Change	2000	2030	Difference	% Change
Central Subway Corridor	52,160	<del>80,690</del> 96,040	<del>28,530</del> 43,880	<del>55%</del> 84%	280,690	<del>352,490</del> 335,030	<del>71,800</del> 54,340	<del>26%</del> 19%
North Beach Variant	12,120	10,510	(1,610)	(13.3%)	6,100	6,490	390	6.4%
SF	776,730	935,050	158,320	20%	636,670	815,680	179,010	28.0%
Source: San Francisco County Transportation Authority Model, based on Transportation Analysis Zone (TAZ) data derived from 2000 Census Tract information.								
Note: Central Subway is defined by the MTC Travel Analysis Zones (and Census Tracts) that are included in the Study Area identified in Figure 1-2. This includes Census Tracts 113, 114, 117, 118, 119, 121, 123, 125, 176.01, 176.02, 178, 179.01, and 180. The North Beach Tunnel Construction Variant is defined by the MTC Transportation Analysis Zones and Census Tracts 106 and 107. There are minor differences between TAZ and Census Tract information.								

<sup>4</sup> San Francisco Transportation Authority, *Four Corridor Plan*, June 1995.

<sup>5</sup> North Beach would not be served by the Central Subway. A construction variant is being considered that would extend the tunnel to North Beach to remove tunneling machines.

**FIGURE 1 – 2**  
**STUDY AREA POPULATION AND EMPLOYMENT**



Development resulting from other plans that have recently been adopted or are still in the planning phase, may also create increased travel demand in the Corridor.

These plans are:

- Mid-Market Redevelopment Plan
- Eastern Neighborhood Community Plan (which includes the East South of Market Area)
- Proposed Transit Center District Plan (Transbay Terminal) and the Fourth/King Railyards Plan <sup>6</sup>

In addition, the Bayview and Hunters Point neighborhoods served by the T-Third Line (Phase 1 of the Third Street Light Rail Project), to the south of the Central Subway Project, will continue to grow and increase trips in the Central Subway Corridor. More information about these development proposals and the Redevelopment Plan is presented in Section 4.1, Land Use.

The rapid growth in the Central Subway Corridor would affect travel demand correspondingly. Table 1-2 indicates that daily trips in the Corridor are expected to increase by 20 percent by 2030. For Mission Bay, total trips would increase by over 381 percent by 2030 given the present development scenario. In combination with the increase in trip generation expected to occur in the Third Street Corridor and south of the City, travel demand in the southeastern and northeastern parts of the City, if not accommodated on transit, would compound congested conditions on freeways and surface streets in eastern San Francisco. In addition, the increased travel demand would create a greater demand for Downtown parking, which is constrained in accordance with the City's Transit First Policy.

**TABLE 1-2**  
**COMPARISON OF 2000 AND 2030 DAILY PERSON TRIPS**

Area	2000	2030	Difference	% Change
Central Subway	1,095,270	1,314,630	219,360	20%
Mission Bay	35,900	172,620	136,720	381%
SF	4,868,620	5,813,730	945,110	19%
Note: Transit patronage estimates used the San Francisco County Transportation Authority travel demand model (San Francisco Model). Population and employment assumptions are based on ABAG Projections, 2003. Source: San Francisco Transportation Authority Travel Demand Model and Joe Castiglione, February 2007.				

<sup>6</sup> In December, 2006, the San Francisco Planning Department initiated planning for the Transit Center District Plan and the Fourth/King Railyards. The Transit Center District Plan will recommend new planning policies and controls for land use, urban form, design, and public improvements for the area around the Transbay Terminal. The Fourth/King Railyards Plan will produce policies, conceptual site plans, and implementation strategies for air-rights development of the rail yards at the Caltrain Terminal.



### 1.3.4 PROJECTED INCREASES IN 2030 TRAFFIC CONGESTION IN THE CORRIDOR

As a result of the projected population and employment growth along the Central Subway and Third Street Corridors, traffic congestion on major highways and arterials, particularly Highway 80, Highway 280, and Third Street is expected to increase substantially. In the 2030 p.m. peak period, the intersections at Third and King Streets, Fourth and King Streets, and Sixth and Brannan Streets would all operate at Level of Service (LOS) F, with the average seconds of delay increasing considerably at each of these intersections resulting in longer queues (see Figure 1-3). The anticipated congestion will lengthen current operating times for transit in the Corridor, where major trunk lines currently travel in mixed traffic through Downtown and Chinatown.

### 1.3.5 INTEGRATION OF TRANSPORTATION IMPROVEMENTS WITH COMMUNITY REVITALIZATION ALONG THE CENTRAL SUBWAY CORRIDOR

The Chinatown commercial district along Stockton Street, includes many small neighborhood-serving shops and services. The loss of the Embarcadero Freeway, damaged by the 1989 Loma Prieta Earthquake, severed connections to and from Chinatown via the regional roadway network. This reduction in vehicular access has had an affect on the economic vitality of Chinatown and prompted community leaders to advocate for transit and other access improvements to the area. The Central Subway Project is seen as a key to reestablishing a high level of regional and citywide access to Chinatown and also providing an opportunity to reinvigorate Stockton Street. The *Chinatown Area Plan* of the City's *General Plan* addresses this problem by calling for the integration of transit- and pedestrian-oriented improvements in Chinatown.<sup>7</sup>

There are similar goals of integrating transit with commercial and residential activities along Fourth Street, as documented in the October 2006 Draft *East SOMA Area Plan*.<sup>8</sup> The draft Plan recommends policies that would support conservation and development of the neighborhood with a goal to improve the physical environment and create a more livable neighborhood. This includes the improvement and expansion of transit connections. Specifically, the Plan acknowledges the possibility of a Central Subway Project on Fourth Street, requesting consideration of a stop on Fourth Street between Brannan and Bryant Street. This stop would support new development anticipated in the *East SOMA Area Plan*.

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<sup>7</sup> San Francisco Planning Department, Chinatown Area Plan, last revision July, 1995.

<sup>8</sup> San Francisco Planning Department, *Draft East SOMA Area Plan*, October 3, 2006.

**FIGURE 1-3****CENTRAL SUBWAY AND THIRD STREET CORRIDOR PROJECTED 2030 LEVEL OF SERVICE (LOS) AT VARIOUS LOCATIONS**

Source: PB/Wong  
Not to scale

**1.3.6 AIR QUALITY ISSUES**

The San Francisco Bay Area Air Basin is designated as a state non-attainment area and as a marginal federal non-attainment area for ozone.<sup>9</sup> The Bay Area Air Quality Management District (BAAQMD) in cooperation with the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG) has prepared the Bay Area 2005 Ozone Strategy to meet the State requirements. The strategy includes measures that encourage cities and counties in the air basin to develop and implement local plans, policies, and programs to reduce automobile use and to improve air quality. San Francisco has also adopted a “Climate Action Plan” to reduce greenhouse gas emissions (chiefly carbon dioxide) that includes goals for reducing vehicle trips by encouraging a shift to alternative modes, including public transit.

## 1.4 PROJECT GOALS AND OBJECTIVES

The goals and objectives for the Central Subway Project are based on the goals originally established in the *Bayshore Transit Study for the Third Street Light Rail Project*.<sup>10</sup> These goals are also consistent with the San Francisco *Downtown Plan* and *General Plan* and the San Francisco County Transportation Authority’s *Four Corridor Plan*.<sup>11, 12</sup> They also conform to FTA guidelines for evaluating the worthiness of proposed major transit capital investment projects. Prior to 1991, FTA evaluated major transit investment projects primarily on their cost effectiveness and their degree of local financial support. The FTA guidelines have been subsequently updated as part of the 1991 federal Intermodal Surface Transportation and Efficiency Act (ISTEA) and the 2005 SAFETEA-LU to include performance measures as major considerations in the evaluation of proposed capital investment for transit projects. Further modifications to FTA guidelines were initiated in 1997 and again in 2006 as part of the Section 5309 New Starts Criteria. The guidelines added access and mobility improvements, environmental benefits (particularly air quality and energy use reduction), cost-effectiveness, transit system operating efficiencies, such as changes in operating cost per passenger mile, transit-supportive land use, promotion of economic development, and local financial commitment. Measures are developed for each criterion for the purpose of comparing project alternatives.

The seven principal goals, that Muni identified for the overall Third Street Light Rail Project to guide the evaluation of alternatives, are still applicable to the Phase 2 Central Subway Project. They are:

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<sup>9</sup> Designation as a non-attainment area means that state and/or federal air quality standards have not been met. Based on data collected at Bay Area air quality monitoring stations by the California Air Resources Board, the EPA classified the Bay Area as a marginal non-attainment area for federal ozone eight-hour standards on April, 15, 2004.

<sup>10</sup> San Francisco Municipal Railway, *Bayshore Transit Study Final Report*; December 1993. Available in Project File 96.281E at the San Francisco Planning Department, 1650 Mission Street, San Francisco.

<sup>11</sup> San Francisco Planning Department, *General Plan*, San Francisco Planning Department, *Downtown Plan*, last amendment May, 2005.

<sup>12</sup> San Francisco Transportation Authority, June 1995, *Four Corridor Plan*; available for review in Project File 96.281E at the San Francisco Planning Department, 1650 Mission Street, San Francisco.

1. Travel and Mobility Goal Improve transit service to, from, and within the Central Subway Corridor, thereby enhancing the mobility of Central Subway Corridor residents, business people and visitors.
2. Equity Goal. Bring transit service in the Central Subway Corridor to the level and quality of service available in other sections of the City.
3. Economic Revitalization/Development Goal Design transportation improvements that support economic revitalization and development initiatives within the South of Market, Downtown and Chinatown Study Area.
4. Transit-supportive Land Use Goal Ensure compatibility with City land use plans and policies and transportation improvements so that transit ridership can be maximized and the number of auto trips reduced.
5. Environmental Goal Provide transit improvements that enhance and preserve the social and physical environment and minimize potential negative impacts during construction and operation of the line.
6. Financial Goal Implement transit improvements that provide for the efficient use of limited financial resources and are cost-effective.
7. Community Acceptance and Political Support Goal Provide a transportation system that reflects the needs and desires of Central Subway Corridor residents and business people and is compatible with the City's planning initiatives.

Each goal has associated objectives, presented in Table 1-3. These goals and objectives are consistent with those presented in the 1998 FEIS/FEIR, but have been revised to specifically focus on the Central Subway Project. The objectives can be measured by employing evaluation criteria that: 1) are quantitative rather than qualitative, to the extent possible; 2) use publicly available information generated as part of this environmental evaluation or from previous related studies; 3) provide perspective on the magnitude of potential impacts as well as the differences between the alternatives; and 4) are expressed in terms that can be understood by decision-makers and the general public.

The evaluation of the Central Subway Alternatives using these goals and objectives for comparison is presented in Chapter 9.0.

**TABLE 1-3**  
**GOALS AND OBJECTIVES SUMMARY**

TRAVEL AND MOBILITY GOAL
<b>Objective 1: Increase Transit Ridership</b>
Criteria: comparison of daily linked transit trips and percent changes in transit boardings and passenger-miles

**TABLE 1-3**  
**GOALS AND OBJECTIVES SUMMARY**

traveled per transit market
<b>Objective 2: Improve Service Reliability</b> Criteria: exclusive or semi-exclusive rights-of-way for transit
<b>Objective 3: Reduce 2030 Transit Travel Time</b> Criteria: travel time comparisons between selected origin-destination pairs
<b>Objective 4: Improve Transit Operating Speed in Downtown/South of Market</b> Criteria: average operating speed for transit improved
<b>Objective 5: Enhance the Opportunity to Expand Muni's Light Rail System</b> Criteria: compatibility with the San Francisco Transportation Authority's Four-Corridor Plan
<b>EQUITY GOAL</b>
<b>Objective 1: Improve Access to Downtown Employment Opportunities</b> Central Subway Criteria: comparison of travel time from Fourth/King to Market/Third/Fourth
<b>Objective 2: Improve Access to Chinatown</b> Central Subway Criteria: comparison of travel time between Fourth/King and Stockton/Washington
<b>ECONOMIC REVITALIZATION GOAL</b>
<b>Central Subway Objective 1: Maintain Auto and Truck Access along the Central Subway Corridor</b> Central Subway Criteria: curb parking supply and on-street loading zones on or near Third/Fourth Street and Stockton Street maintained
<b>Central Subway Objective 2: Maintain Adequate Transit and Vehicular Circulation in the Fourth Street and Chinatown (Stockton Street) Commercial Districts</b> Central Subway Criteria: maintain Stockton Street peak period level of service and average transit operating speed
<b>Central Subway Objective 3: Opportunities for Revitalization along the Central Subway Corridor Adjacent to Transit Stops</b> Central Subway Criteria: identify locations for redevelopment opportunities adjacent to transit stops
<b>Central Subway Objective 4: Enhance Urban Design/Streetscape Improvements along Third and Fourth Streets in South of Market</b> Central Subway Criteria: identify areas for urban design/landscape treatments in the Third and Fourth Street commercial areas
<b>TRANSIT-SUPPORTIVE LAND USE GOAL</b>
<b>Objective 1: Support the Coordination of Land Use and Transportation Planning</b> Criteria: compliance with city-wide and area-specific land use plans related to the corridor
<b>Objective 2: Serves Major Activity Centers in the Corridor</b> Criteria: number of activity centers having direct access to transit

<b>ENVIRONMENTAL GOAL</b>
<b>Objective 1: Minimize Permanent Displacement of Homes and Businesses</b> Criteria: number of property acquisitions that displace homes or businesses
<b>Objective 2: Minimize Impacts on Parklands/Cultural Resources</b> Criteria: number of affected sites
<b>Objective 3: Minimize Air Quality Impacts</b> Criteria: pollutants pounds per day
<b>Objective 4: Minimize Adverse Construction Impacts</b> Criteria: number and length of time of blocked streets/blocked truck access/displaced parking
<b>Objective 5: Provide Environmental Benefits to the Community</b> Criteria: number of environmental benefits identified
<b>FINANCIAL GOAL</b>
<b>Objective 1: Develop a Viable Financial Plan to Cover Total Capital Costs for the Alternatives</b> Criteria: capital costs compared with available and projected capital funding
<b>Objective 2: Develop a Viable Financial Plan to Cover Total Annual Operating/Maintenance Costs (System-wide)</b> Criteria: annual operating/maintenance costs compared with available and projected local funding
<b>Objective 3: Maximize Transit Operating Efficiency While Accommodating 2030 Demand</b> Criteria: operating cost per passenger (linked trips), per bus-hour, and per train-hour
<b>COMMUNITY ACCEPTANCE GOAL</b>
<b>Objective 1: Gain Community Support for the Preferred Investment Strategy</b>
<b>Objective 2: Gain City Support for the Preferred Investment Strategy</b>
<b>Objective 3: Gain Support from Appropriate Regional, State, and Federal Agencies</b>

## 2.0 ALTERNATIVES

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Under the National Environmental Policy Act (NEPA) an EIS should provide a full and fair discussion of significant impacts and inform decision-makers and the public of reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment (40 C.F.R. 1502.1). The Alternative's Section of the document shall: "a) rigorously explore and objectively evaluate all reasonable alternatives and, for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated" and "b) devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits." (Source: 43 FR 55994, 1978, CEQ Regulations Section 1502.14)

Under the California Environmental Quality Act (CEQA), an EIR should focus on those alternatives that are capable of avoiding or substantially lessening any significant effects of the project (Public Resources Code 21002.1; CEQA Guidelines 15126.6). Under both NEPA and CEQA, the alternatives considered should meet the Purpose and Need as defined in Section 1.0.

The proposed Central Subway Build Alternatives are shown in Figure 2-1. This chapter describes these alternatives and the development process and screening of alternatives by the community and local agency representatives.

### 2.1 ALTERNATIVES TO BE ANALYZED IN THE SEIS/SEIR

On June 7, 2005, the Municipal Transportation Agency (MTA) designated the Fourth/Stockton Alignment with a combined double-track portal on Fourth Street between Townsend and Brannan Streets as the Locally Preferred Alternative (Alternative 3A). In response to public input during the 2005 Scoping process and technical recommendations from a Peer Review Panel, and in order to reduce the cost of the project, a new design (Alternative 3B) was subsequently developed for the Fourth/Stockton Alignment. The three alternatives to be analyzed, including design options, are summarized below.

- **Alternative 1 - No Project/TSM:** Includes the projects programmed in the financially constrained Regional Transportation Plan (RTP) including the T-Third Line (formerly Initial Operating Segment - IOS) and associated bus changes. This alternative is required as part of the environmental document by both NEPA and CEQA.
- **Alternative 2 - Enhanced EIS/EIR Alignment:** This alternative is the same alignment along King, Third, Harrison, Fourth, Kearny, Geary, and Stockton Streets as presented in the 1998 FEIS/FEIR with a shallow subway crossing of Market Street at Third Street, modified to include the addition of

**FIGURE 2-1**  
**CENTRAL SUBWAY BUILD ALTERNATIVES**



**ALTERNATIVE 2: Enhanced EIS/EIR Alignment**



**ALTERNATIVE 3 (Option A LPA): Fourth/Stockton Alignment**



**ALTERNATIVE 3 (Option B Modified LPA): Fourth/Stockton Alignment**

Source: PB/Wong  
 Not to scale



above-ground emergency ventilation shafts, off-sidewalk subway station entries, and the provision of a closed barrier fare system. This alternative includes one surface platform at Third and King Streets and four subway stations at Moscone, Market Street, Union Square, and Chinatown.

- **Alternative 3 - Fourth/Stockton Alignment:** This alignment would be exclusively on Fourth and Stockton Streets with a deep subway crossing of Market Street and two design options:
  - Option A (LPA) with a double-track portal on Fourth Street between Townsend and Brannan Streets and three subway stations at Moscone, Union Square/Market Street, and Chinatown, or
  - Option B (Modified LPA) with a double-track portal on Fourth Street between Bryant and Harrison Streets, three subway stations at Moscone, Union Square/Market Street, and Chinatown and a surface platform on Fourth Street just north of Brannan Street. This option also evaluates two sub-options with mixed-flow or semi-exclusive rail operation on the surface of Fourth Street.

On February 19, 2008, the MTA, subsequent to publication of the Draft SEIS/SEIR, endorsed Alternative 3B as the LPA.

#### 2.1.1 ALTERNATIVE 1 - NO PROJECT/TSM

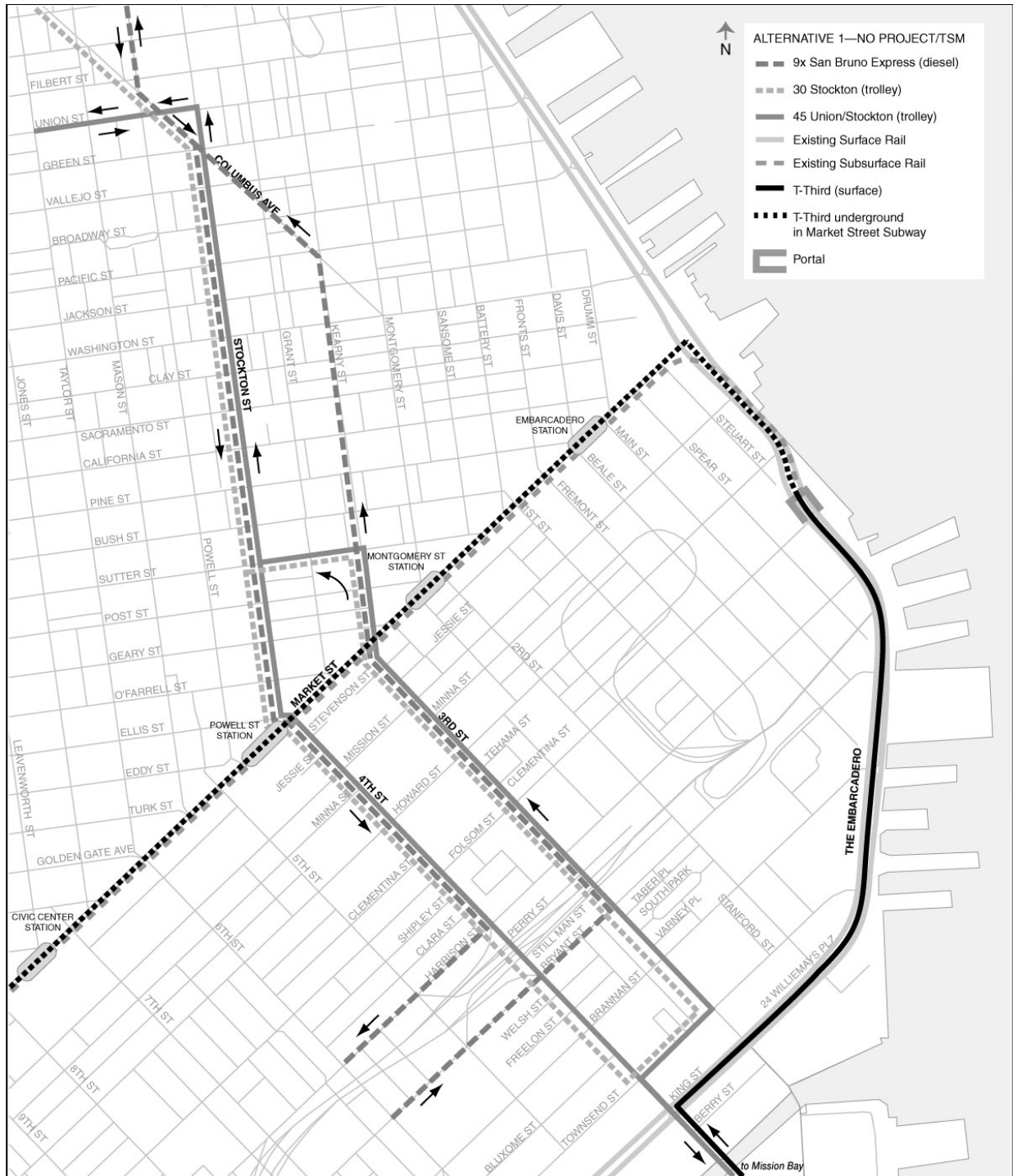
This alternative serves as a 2030 Baseline for comparison with other alternatives. It includes the following key elements that are proposed to be in place by 2030 (see Figure 2-2):

- programmed projects in the approved and financially constrained Regional Transportation Plan (RTP);
- operation of the T-Third line, which opened for passenger service in April 2007 as an extension of the ~~Castro Shuttle~~ K-Ingleside to Visitacion Valley, with associated restructured bus service in Visitacion Valley at the south end of the corridor and bus connections in Chinatown/North Beach at the north end;
- extension of the N-Judah from its existing terminus at Caltrain at King and Fourth Streets to an existing turnaround loop at 18th, Illinois, and 19th Streets, to provide additional service to the UCSF and Mission Bay development.

A No Project Alternative and a No Build/TSM Alternative were independently analyzed in the 1998 FEIS/FEIR. The No Build/TSM Alternative was different from the No Project Alternative and assumed that bus service would increase by about 80 percent by 2015 to meet demand. Among other bus changes, increased frequencies on the 15-Third diesel bus line and a new 15-Third short line between Chinatown

and the Central Waterfront were proposed. (The 15-Third bus was discontinued in April 2007.) A new bus maintenance facility to accommodate an additional 27 diesel coaches and 6 trolley coaches was also part of the 1998 No Build/TSM Alternative.

**FIGURE 2-2**  
**ALTERNATIVE 1 – NO PROJECT/TSM**



Since implementation of the T-Third line, the Project Purpose and Need have not changed. As bus service is already provided at three minute frequencies or better for much of the Central Subway Corridor and the streets, particularly Stockton Street, are operating at capacity, it would be difficult to introduce additional bus service as a viable TSM alternative. The No Project and TSM Alternative are combined for this SEIS/SEIR.

In conformance with CEQA guidelines, the No Project/TSM Alternative represents the scenario in which the existing transportation system remains unchanged except for the modifications that are already programmed to be implemented in the Third Street/Central Subway Corridor. The 2030 No Project/TSM Alternative, therefore, includes the existing roadway system, the existing Muni route network, fleet size and mix, facilities, and service frequencies (except those as noted below) and the projects programmed in the Muni Short Range Transit Plan and the RTP. The existing roadway system, Muni route network and fleet characteristics are described in Section 3.0.

The No Build/TSM Alternative includes the following bus service frequency changes that would be implemented by 2030 in conjunction with the introduction of the T-Third line service:

- **30-Stockton long line** (terminus at Beach and Broderick Streets):
  - Weekday, midday service frequencies would be improved from nine to seven and a half minutes, and evening service frequencies would be improved from twelve to ten minutes;
  - Saturday, service frequencies would be improved in the evening from twelve to nine minutes;
- **30-Stockton short line** (terminus at Van Ness Avenue and North Point Street):
  - Weekday, midday service frequencies would be reduced from a range of four to five minutes to seven and a half minutes, p.m. peak service frequencies would be reduced from a range of four to five minutes to nine minutes, and evening service frequencies would be improved from twelve to ten minutes;
  - Saturday, service frequencies would be reduced in the midday from a range of three to six minutes to six minutes, and improved in the evening from twelve to nine minutes;
  - Sunday, midday service frequencies that now range from four to eight minutes would be set at six minutes, while evening frequencies would be improved from twelve to nine minutes;

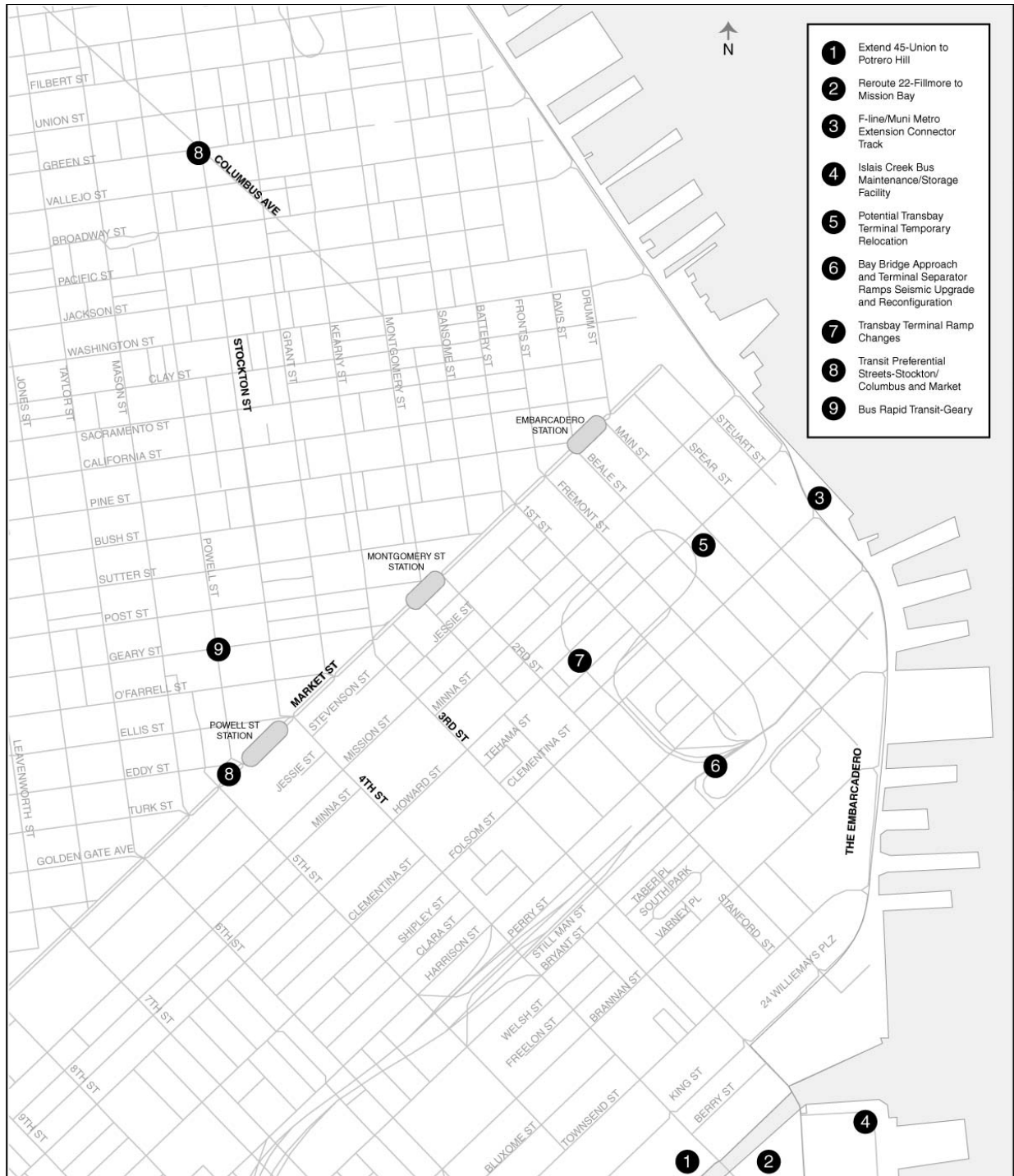
- **45-Union/Stockton line:**

- Weekday, a.m. and p.m. peak service would be improved from nine to eight minutes, and evening service frequencies would be improved from fifteen to ten minutes;
- Sunday, service frequencies would be reduced in the evening from twelve to fifteen minutes.

### **Programmed Transit and Roadway Improvements**

Transit improvements currently under construction or planned for the future will be in place by the time that the Project is implemented. These improvements are part of the base transit network for the No Project/TSM Alternative and all of the Build Alternatives. These improvements include: new fare gates in the Market Street Subway, the construction of the new Metro East Light Rail Facility (scheduled for completion in 2008), and the replacement of existing facilities and equipment at the end of their life cycle. Other Muni service improvements that are programmed for implementation in the Central Subway Corridor are identified in the Short Range Transit Plan and/or the RTP and are part of the No Project/TSM Alternative. They are listed below, and those located in the Downtown area north of Mission Bay, are indicated in Figure 2-3.

- 45-Union/Stockton and 22-Fillmore: When demand warrants, the 45-Union/Stockton trolley bus line will be extended from Fourth and Townsend Streets through Mission Bay and Potrero Hill to a new terminus at Third and 20th Streets, replacing 22-Fillmore service in Potrero Hill. At the same time, the 22-Fillmore will be rerouted through Potrero Hill along 16th Street to Third Street, in accordance with the Mission Bay Plan. This extension of trolley service will serve the new Mission Bay and UCSF development.
- F-line/Muni Metro Extension Connector Track. As part of the Mid-Embarcadero Roadway project, a connector track was installed in the median of The Embarcadero roadway from south of the Ferry Building to Folsom Street. The connector track links the F-line with the Muni Metro Extension. This new track permits F-line vehicles to operate to the Giants Ballpark, however, no regular service is planned at this time.
- Bus Rapid Transit (BRT). The Geary Corridor is one of the identified corridors for BRT implementation and planning work is underway.
- Transit Preferential Streets (TPS) Improvements. Corridors identified for TPS improvements are Stockton Street/Columbus Avenue and Market Street.

**FIGURE 2-3****NO PROJECT/TSM ALTERNATIVES TRANSIT AND ROADWAY IMPROVEMENTS**

Source: PB/Wong  
Not to scale

- Islais Creek Bus Maintenance and Storage Facility. In 2008, Muni will begin construction of a new bus maintenance facility at Indiana and Tulare Streets to replace Kirkland Division. The \$73 million facility will be situated on a 5.3 acre site that can accommodate a maximum of 165 standard diesel buses. Running and heavy repair functions will be performed at this facility when it becomes operational in 2010.
- BART System Upgrades. This project would improve station access, expand station capacity, and introduce new vehicles to the BART core system to reduce existing system constraints. These projects will be incrementally implemented over the next 20 years.
- Transbay Terminal Muni Bus Facility Relocation. The Transbay Joint Powers Authority, an agency composed of representatives of the City, AC Transit, and CalTrain has approved a project to replace the Transbay Terminal at its existing site. The new facility would accommodate Muni buses as well as AC Transit, SamTrans, Golden Gate Transit and would be capable of accommodating a future Caltrain Peninsula Rail Service and possible high speed rail. During construction of the Transbay Terminal facility, Muni bus service would be temporarily relocated to a site south of Howard Street and between Main and Beale Streets. The first phase of the Transbay Terminal improvements is included in the Metropolitan Transportation Commission's RTP.

The No Project/TSM Alternative also includes roadway improvements in the Corridor that are underway or committed for implementation (refer to Figure 2-3). They are:

- Bay Bridge Approach and Terminal Separator Ramps. Caltrans is providing seismic upgrades to the Bay Bridge west approach structure and rebuilding the Terminal Separator ramps. Expected completion date is 2013.
- Integrated Transportation Management System (ITMS). The ITMS is operated by DPT's SFgo Program. Two of these corridors, Market Street and Mission Street, cross the Central Subway Project Corridor along Fourth Street. The SFgo Program is currently seeking funding to install fiber optic communication cable along the Market Street corridor, and the timetable for installation of the cable is dependent on when funding is secured. The Mission Street corridor has been planned but has not yet been programmed into any funding mechanism at this time. In addition, fiber optic communications cable would be installed along the Project Corridor on Fourth Street between Market and King Streets. The installation of fiber optics is also being considered along streets in the vicinity of Union Square to provide for changeable message signs in the Union Square Garage. Old

traffic signal equipment including controllers, cabinets, conduits, poles, and signal heads would be replaced at signalized intersections affected by the construction in the Corridor.

- Transbay Terminal Roadway Changes. The new Transbay Terminal facility will provide expanded bus and rail service in a new building on the site of the existing Transbay Terminal at First and Mission Streets. Included in the project improvements are new ramps linking the Transit Center to the Bay Bridge and to the planned off-site Bus Storage facilities.

#### 2.1.2 ALTERNATIVE 2 - ENHANCED EIS/EIR ALIGNMENT

In the Enhanced EIS/EIR Alignment, the 1.75 mile light rail service would operate between Fourth and King Streets and Stockton and Jackson Streets. North of the Fourth and King Street IOS surface platform, the rail would travel east ~~of~~ on King Street in a surface configuration and northbound on Third Street and southbound on Fourth Street, transitioning to a subway operation at portals located between Brannan and Bryant Streets. The service would operate independent of the existing Muni Metro Market Street subway (see Figure 2-4).

This alternative follows the 1998 EIS/EIR (Base Case) Alignment with its shallow crossing of Market Street at Third Street, but also incorporates design changes to meet current fire codes and new Muni fare collection policy. (See Alternative 2 profile in Figures 2-5 and 2-6.) In order to meet current fire codes, above-ground emergency ventilation shafts would be located in off-street right-of-way rather than provided through an in-street ventilation system as originally planned. To address public concerns about pedestrian access and space constraints, most subway station entries have been moved off crowded sidewalks to private or public property and combined wherever possible with vent shafts. A description of the Enhanced EIS/EIR Alignment is provided below.

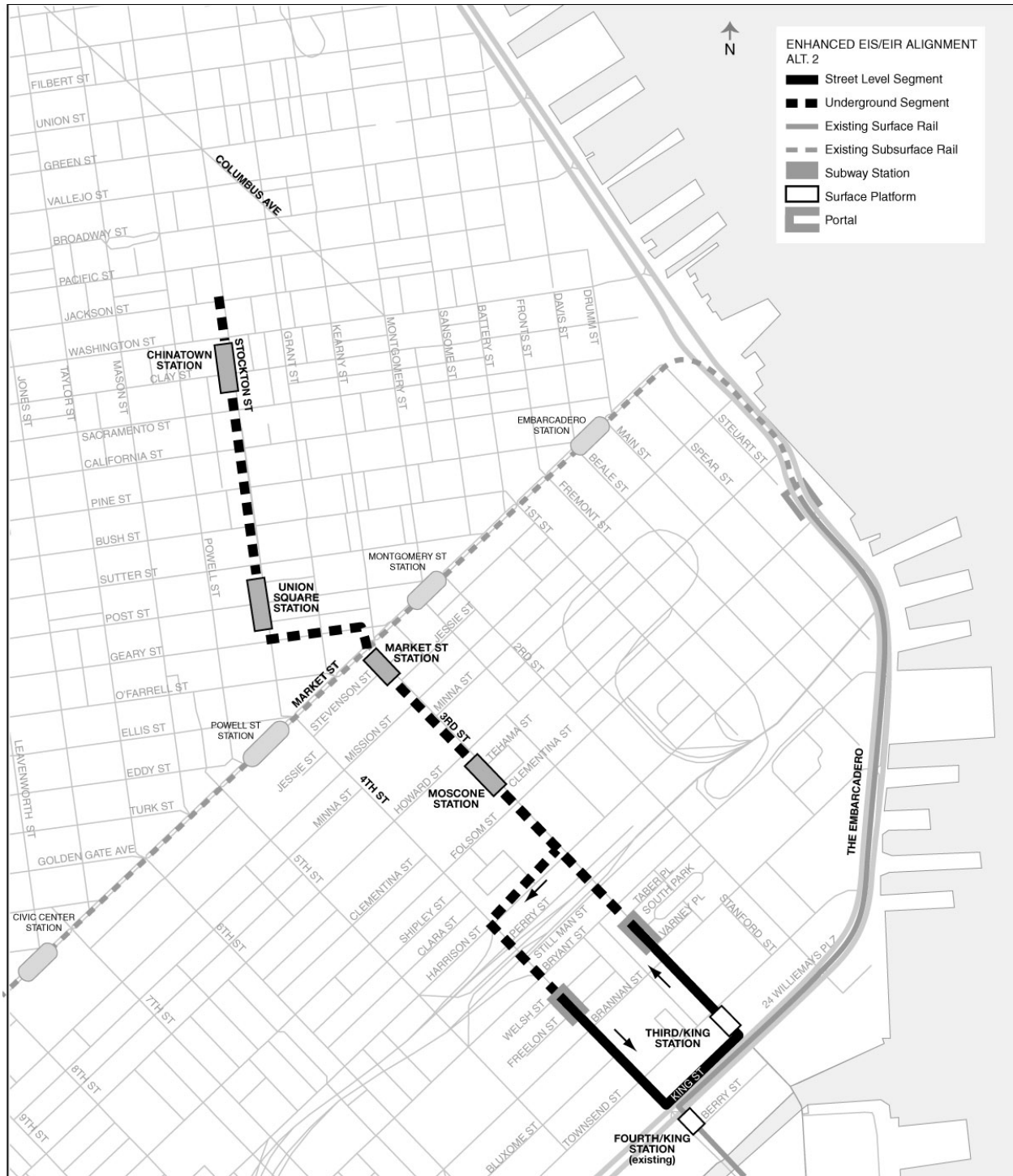
#### **Alignment – Alternative 2**

The Enhanced EIS/EIR Alignment would extend the T-Third line north of King Street on Third and Fourth Streets to single-track portals between Brannan and Bryant Streets. This alternative would include a surface station on Third Street across from the ballpark, and four subway stations at Moscone, Union Square, Market Street, and Chinatown.

After stopping at the existing station platform at Fourth and King Streets, light rail vehicles (LRVs) traveling northbound would turn right into the King Street median and follow the Muni Metro Extension tracks to Third Street (refer to Figure 2-4). At Third Street, the northbound track would curve left into

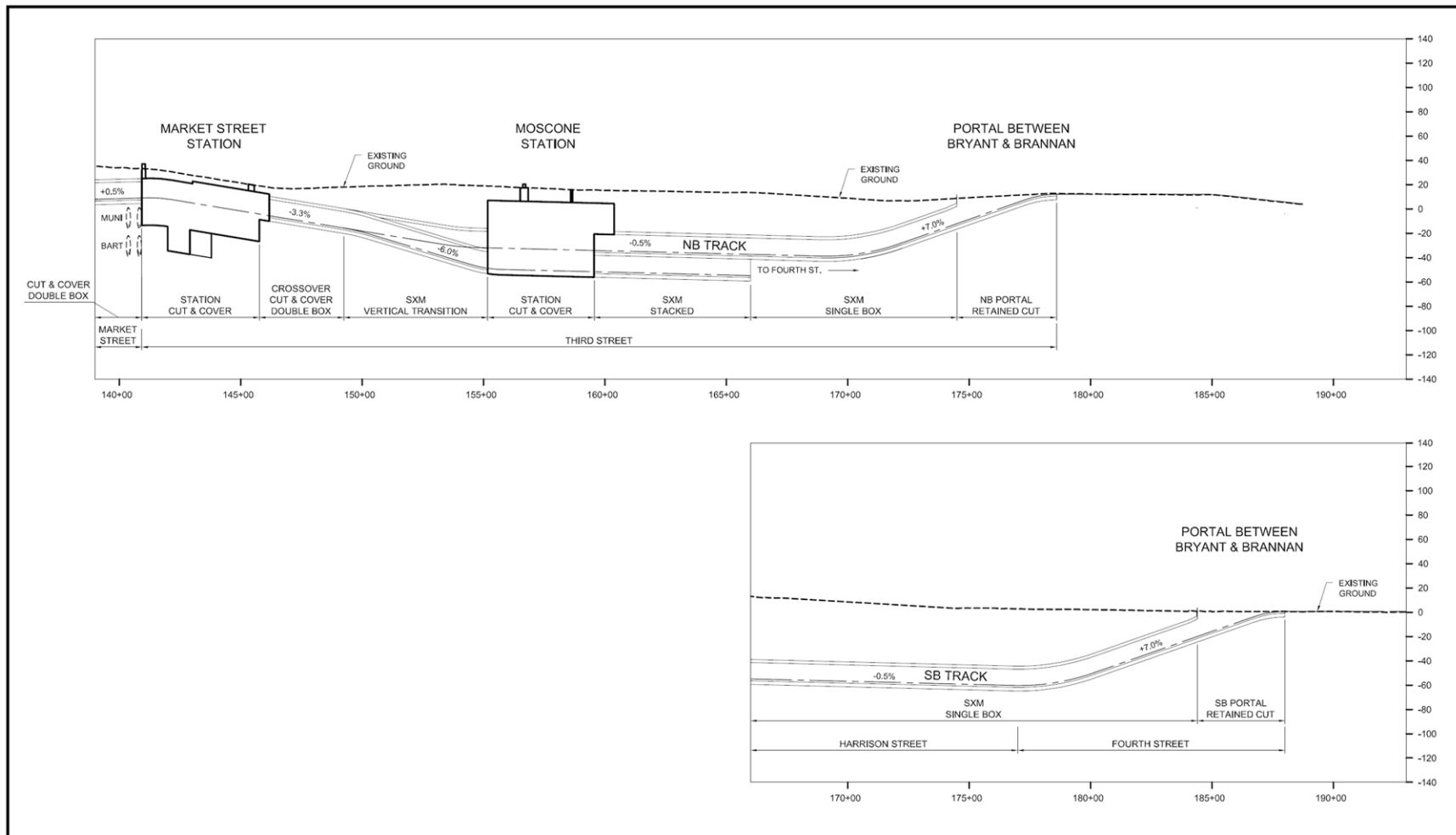


**FIGURE 2-4**  
**ALTERNATIVE 2 – ENHANCED EIS/EIR ALIGNMENT**

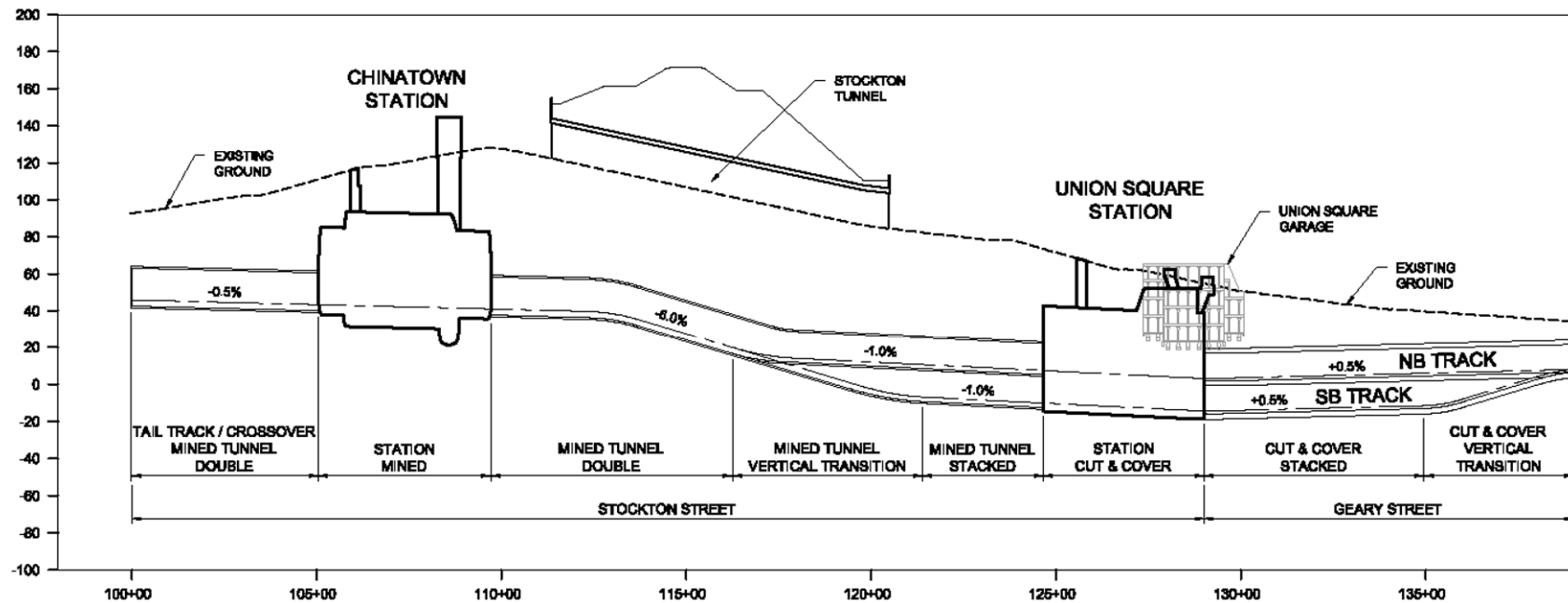


Source: PB/Wong  
 Not to scale

**FIGURE 2-5: ENHANCED EIS/EIR ALIGNMENT**  
**PROFILE BETWEEN FOURTH/KING AND MARKET/THIRD STREETS**



Source: PB Wong  
 Not to scale

**FIGURE 2-6: ENHANCED EIS/EIR ALIGNMENT****PROFILE BETWEEN MARKET/THIRD STREET AND STOCKTON/JACKSON STREETS**

Source: PB Wong  
Not to scale

the curb lane on the west side of Third Street, where a surface station serving the ballpark would be located.

Traffic signals would synchronize the left turn movement of LRVs with left-turning cars and trucks from King Street to Third Street.

North of King Street, LRVs would travel in a semi-exclusive right-of-way northbound on Third Street and southbound on Fourth Street. On Third Street between Townsend and Brannan Streets, the light rail track would be located to the west of three northbound traffic lanes. As LRVs shift into the center of Third Street, north of Brannan Street at the portal, the street configuration would transition to two northbound traffic lanes on each side of the light rail alignment. On Fourth Street between Bryant and Brannan, LRVs would operate with two southbound traffic lanes on each side of the light rail alignment. At Fourth and Townsend Streets, the track would shift slightly to the east to accommodate three southbound traffic lanes west of the tracks and one northbound right turn only traffic lane east of the tracks. The 30-Stockton and 45-Union/Stockton trolley bus lines would continue operation on the east side of Fourth Street, south of Bryant Street, to the Caltrain Terminal west of Fourth Street on Townsend Street. Existing trolley bus stops would be retained on Fourth Street just north of Bryant and Brannan Streets. No major overhead wire relocations would be necessary under this alternative. The bus loading zone would continue to be located on Townsend Street for northbound buses and on Fourth Street adjacent to the Caltrain Terminal for southbound buses. Up to 93 parking spaces would be eliminated between King and Bryant Streets, including 57 of the 92 spaces on Third Street and 36 of the 56 spaces on Fourth Street between Townsend and Bryant Streets. Parking on both sides of Third and Fourth Streets at the portals (Brannan to Bryant Streets) would be eliminated as would all parking on Third Street between King and Townsend Streets.

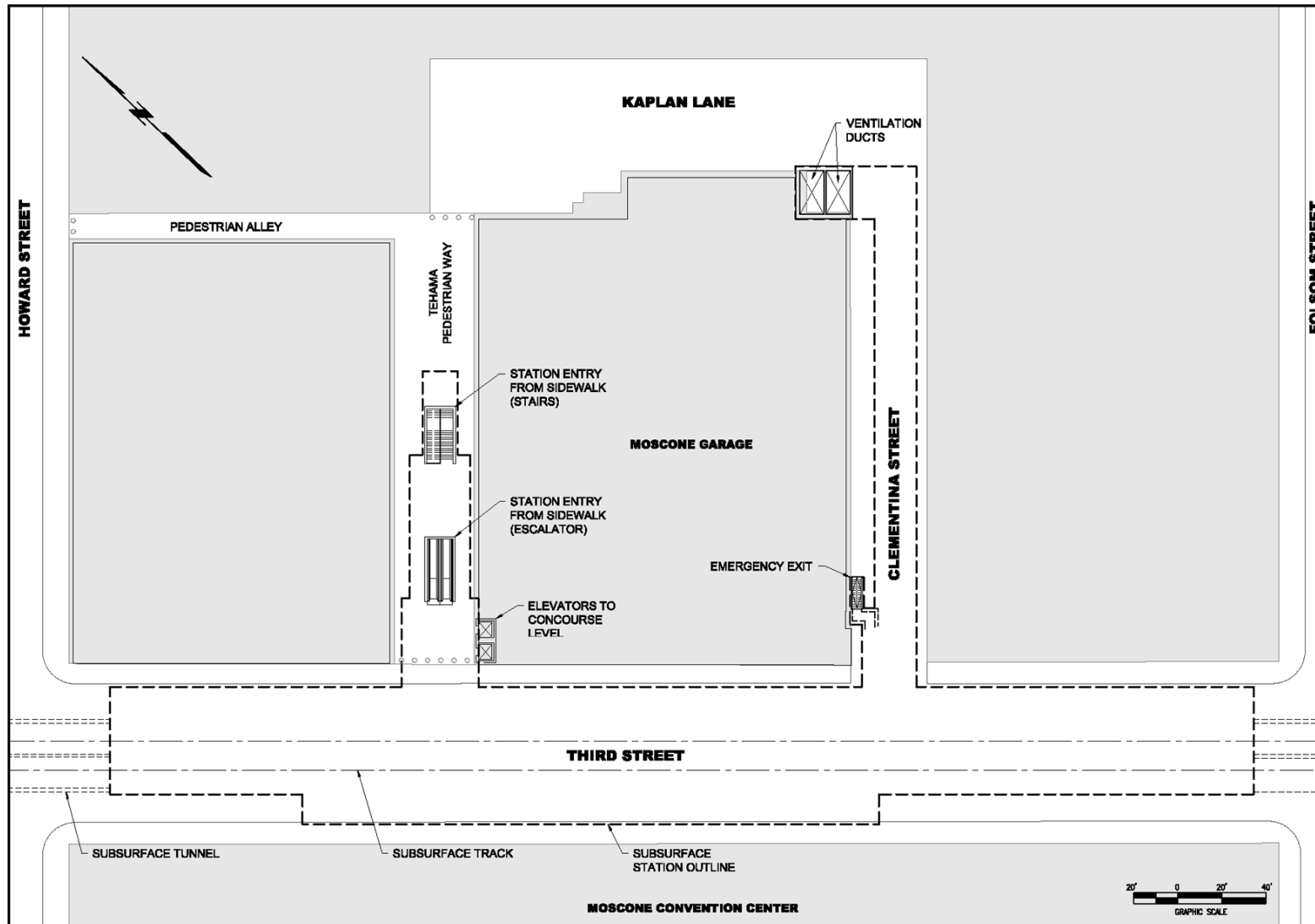
On Third Street, north of Brannan Street, the northbound tracks would enter the subway in a 410-foot long single-track portal structure located in the middle of the street. On Fourth Street, south of Bryant Street, the southbound tracks would exit the subway from a 360-foot single-track portal structure, also located in the street median. Two lanes of traffic would pass on each side of the 18-foot wide single-track portal on both Third and Fourth Streets. The northbound subway would continue under Third Street to Harrison Street. The southbound subway, which would link with the northbound subway at Third and Harrison Streets, would curve under the edge of the property at 425 Fourth Street (Assessor's Parcel #3762-112) bordering the south side of Harrison Street between Third and Fourth Streets, and then curve north from Harrison Street to Third Street under the property at 370 Third Street (Assessor's Parcel #3751-157) about 30 feet below the surface for northbound operations with the southbound tunnel

running below. Easements would be required under buildings at both locations. Deep (mined) tunneling would be used to avoid affecting the foundations of two buildings located above the subway on Third and Fourth Streets at Harrison Street.

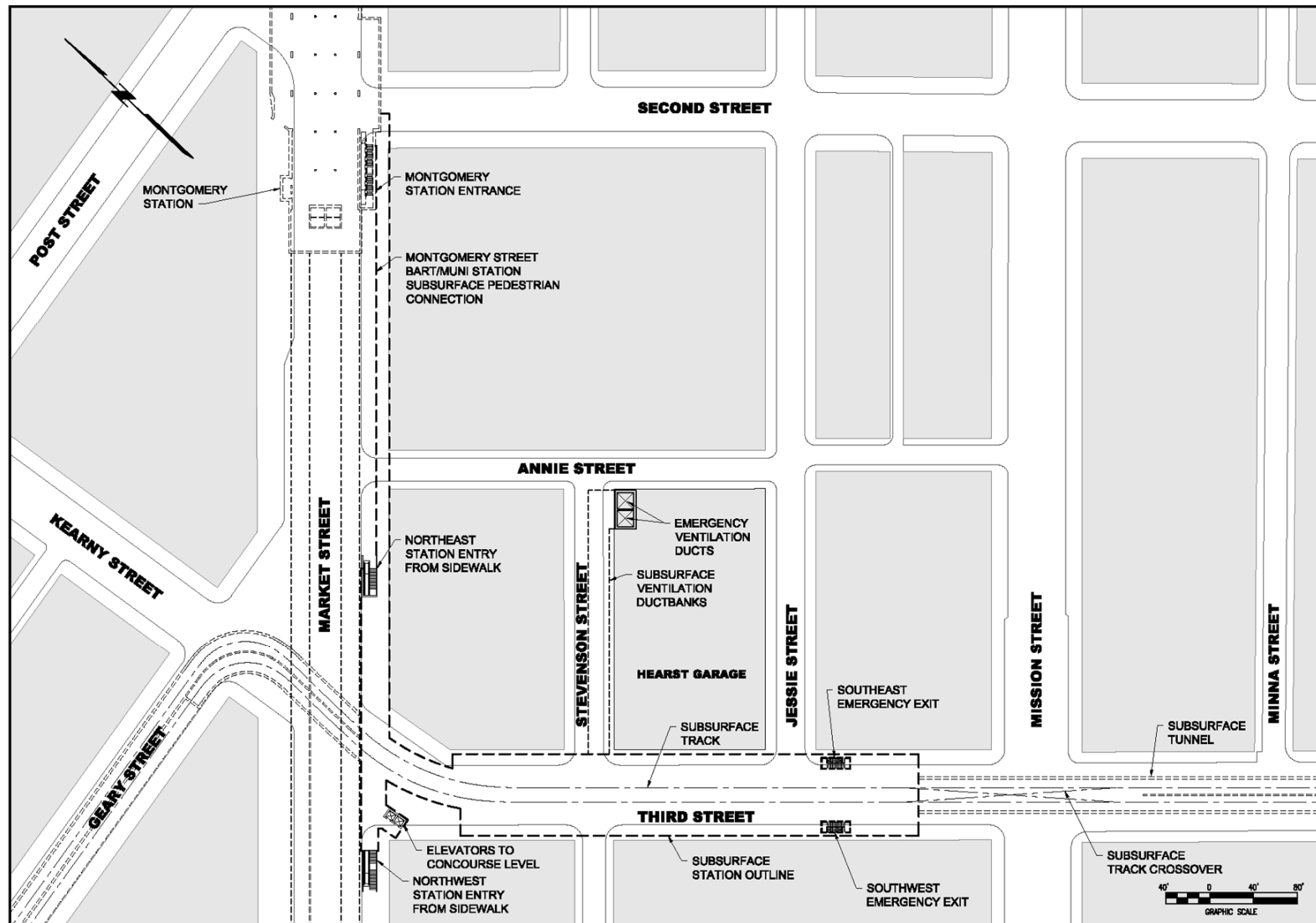
The northbound and southbound subways would converge at Third and Harrison Streets in a stacked configuration with the southbound track located below the northbound track. This configuration was provided to not preclude a future connection of the Central Subway with a possible future Geary subway line traveling under Geary, Kearny, and Third Streets and then east via Folsom Street to the vicinity of the Transbay Terminal. The Geary subway is not analyzed in the Central Subway SEIS/SEIR; the Geary project would be subject to an independent environmental analysis in the future should a project be defined and funding identified. The stacked configuration would continue under Third Street into the Moscone Station located between Folsom and Howard Streets (see Figure 2-7).

Northbound and southbound station platforms would be at two levels and would share a common ~~mezzanine (concourse)~~. Station access from the surface (stairs/escalators and one elevator) would be permitted only on the east side of Third Street because the presence of truck ramps leading to loading docks underneath the Moscone Center would preclude surface access on the west side of Third Street. The main station entrance (escalators and stairs) would be in the Tehama Pedestrian Way next to retail bays on the north side of the Moscone Garage. One elevator would be located near Third Street and Tehama Pedestrian Way in the northwest corner of the Moscone Garage. Emergency stairs would be provided by a hatch located in the sidewalk off Clementina Street near the southwest corner of the garage. There would be no direct access into the Moscone Center in order to comply with the facility's access control. Two emergency ventilation shafts would extend east of Third Street under Clementina Street, rising along the southeast exterior of the Moscone Garage to a height 16 feet above the garage roof.

Immediately north of Howard Street, the tracks would ascend and transition to a side-by-side configuration to permit a shallow crossing above the BART/Muni Metro Market Street Subway. The existing BART/Muni Metro Subway is composed of four 18-foot diameter steel plate lined tunnels. The Market Street Station would be located north of Mission Street (see Figure 2-8), linked by an approximately 440-foot long underground pedestrian concourse via Stevenson and Annie Streets to the Montgomery Street BART/Muni Metro Station.

**FIGURE 2-7: ENHANCED EIS/EIR ALIGNMENT - MOSCONE STATION**

Source: PB Wong

**FIGURE 2-8: ENHANCED EIS/EIR ALIGNMENT – MARKET STREET STATION**

Source: PB Wong

Construction of the Market Street Station would displace an eight-foot diameter trunk sewer line under Mission Street. The trunk sewer line could be relocated or abandoned or, in lieu of these options, a siphon and pump station could be installed under the Third/Mission intersection to force wastewater under the subway (refer to Section 2.2.2, Central Subway Alternative Construction Methods). The shallow configuration of the station would preclude construction of a mezzanine and ~~(concourse)~~ level above the platform. Instead, access would be provided from street level to a mezzanine and ~~(concourse)~~ under the platform level for fare payment, and then up to the platform level via subsurface escalators, stairs, and elevators. The main street entrances (escalators and stairs) would be located on the south side of Market Street just west and east of Third Street. Two elevators would be located on the southwest corner of Market and Third Streets next to the escalators and stairs. Two sets of emergency stairs would be provided by a hatch located in sidewalks on the west and east sides of Third Street just south of Jessie Street. Two emergency ventilation shafts would extend east of Third Street under Stevenson Street, rising at the northeast interior of the private Hearst garage at 45 Third Street (Assessors Parcel #3707-058) to a height 26 feet above the roofline. The vent shafts would displace about 30 parking spaces and would require an easement.

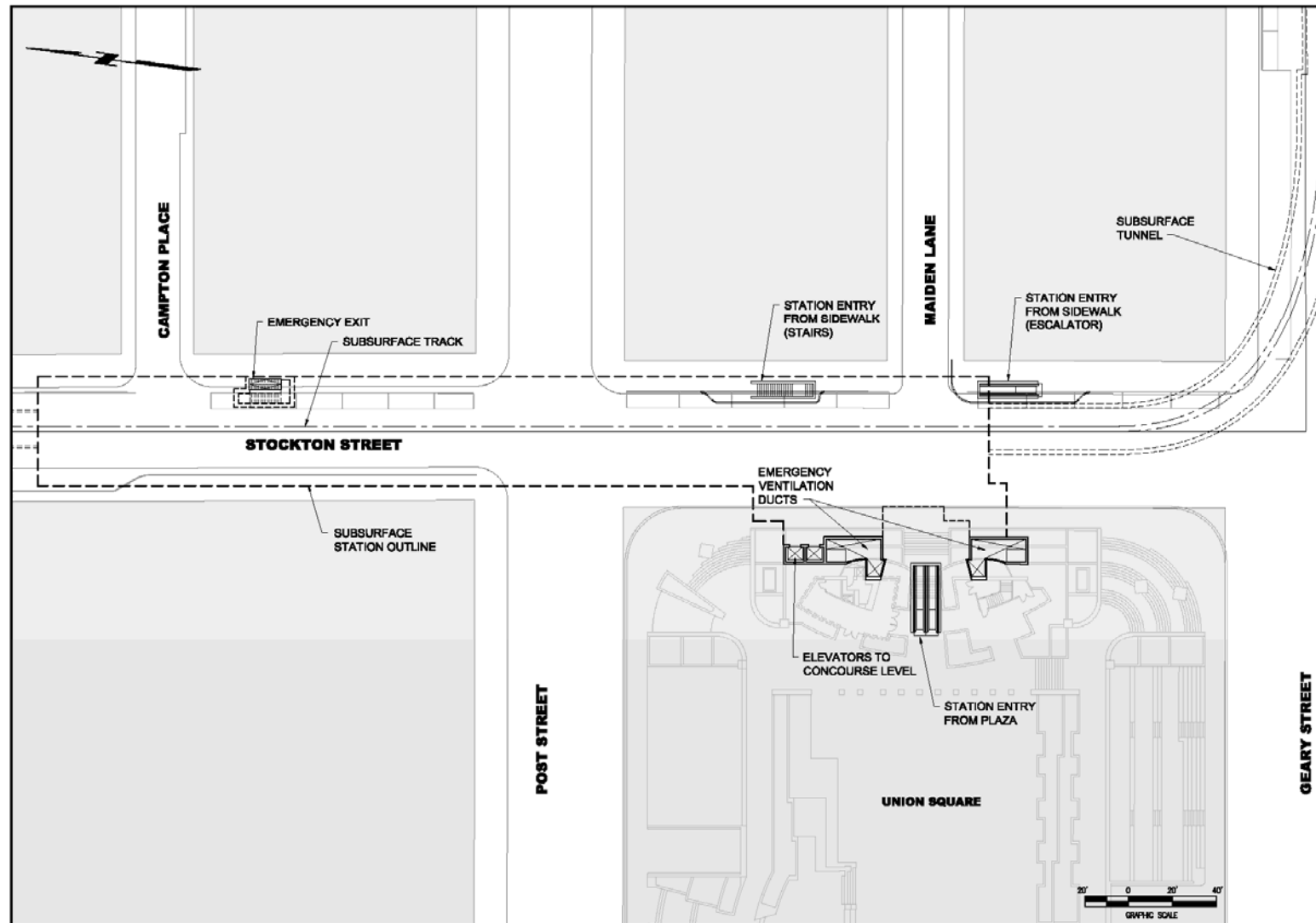
After crossing the Market Street Subway, the alignment would turn west under Geary Street and descend into a stacked configuration as shown in Figure 2-9. The stacked subway configuration is provided so as not to preclude a connection with a possible future Geary Street subway line traveling east and westbound from Union Square.<sup>1</sup> The stacked configuration would continue to Union Square Station, which would be located on Stockton Street between Geary and Sutter Streets. The stacked tunnels would affect the design of the Union Square Station, which would include a mezzanine and ~~(concourse)~~ and two platform levels (refer to Figure 2-9). The main pedestrian entry would be located on the east side of the Union Square Plaza near an existing pedestrian stairway and café. It would include escalators and stairs, rising from the sidewalk level at Stockton Street to the plaza entrance. Additional entries would be located in sidewalk bulb-outs on Stockton Street north (stairs) and south (escalators) of Maiden Lane. Emergency stairs would be provided by a hatch located in the sidewalk on the east side of Stockton Street just south of Campton Place. Two vent shafts would be integrated into the Union Square plaza terrace between the plaza café and the sidewalk on the west side of Stockton Street. Vent shafts would be located on either side of the escalators and stairs. The vent shafts would be about 11 feet high, but would

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<sup>1</sup> The possible future Geary subway project is not part of the Central Subway Project and is not analyzed in the Central Subway SEIS/SEIR. The Geary project would be subject to an independent environmental analysis in the future should a project be defined and funding identified.



**FIGURE 2-9: ENHANCED EIS/EIR ALIGNMENT - UNION SQUARE STATION**



Source: PB Wong

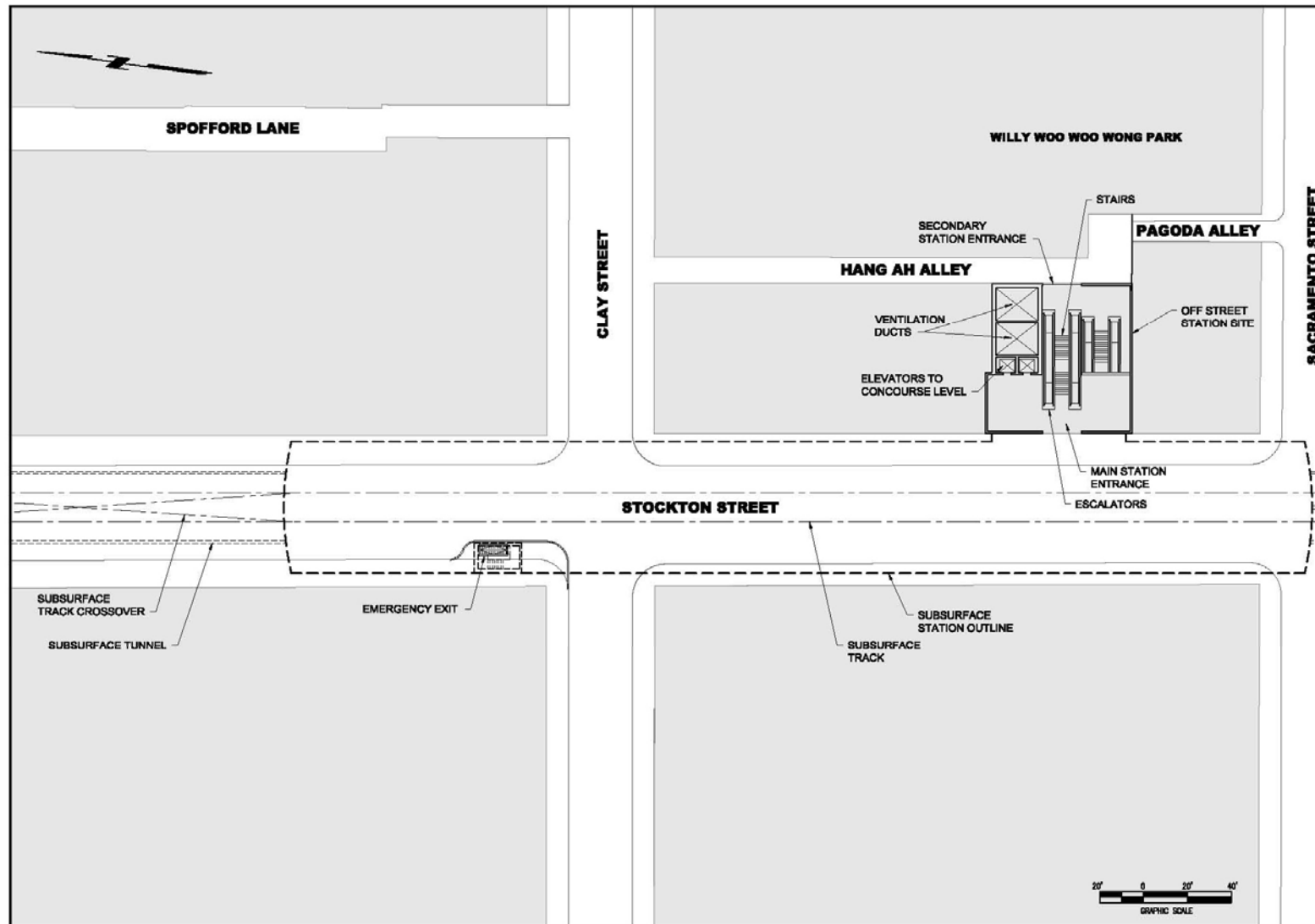
not rise above the plaza because of their location on the terrace grade. The emergency ventilation would be designed in cooperation with BART so as not to impact ventilation in the Powell Street Station. Two elevators would be located north of the northern-most vent shaft with access from the sidewalk on Stockton Street. These facilities would displace about 29 of the 985 parking spaces in the Union Square Garage. The bulb-out for the escalators on the east side of Stockton Street, south of Maiden Lane, would widen the sidewalk by about four feet and would extend a little over 50 feet, displacing two to three truck parking spaces. The bulb-out for the stairs on the east side of Stockton north of Maiden Lane would widen the sidewalk about five feet and would extend a little over 60 feet, displacing three truck parking spaces.

North of the Union Square Station, the subway would continue in a mined tunnel under Stockton Street. The north and southbound tunnels would transition to a side-by-side configuration before the Chinatown Station. The station would have side platforms, as well as a crossover and tail tracks required for operator layover. The northern terminus for the Central Subway would be in Chinatown at Stockton and Jackson Streets. The underground station, between Sacramento and Washington Streets on Stockton Street, would have a mezzanine and ~~(concourse)~~ and one platform level (see Figure 2-10). The main pedestrian entrance would be in a building that Muni would construct at 814-828 Stockton Street near Sacramento (Assessor's Parcel #0225-014) to accommodate escalators, stairs, two elevators, and two emergency ventilation shafts.

Construction of the station entrance would require acquisition of the parcel and relocation of ten businesses ~~and one to two residential units over the businesses~~. The Muni facility would require only one story; a structure of 40-feet in height was assumed on this parcel for this analysis. Transit-oriented development could be proposed as part of an independent project for this site in the future.<sup>2</sup> The maximum allowable height for this property is 65-feet; but, for the purposes of this SEIS/SEIR, it was assumed that Muni would restrict the building height to 40 feet as required to meet height limits in Prop K to minimize shadows on parks (Willy "Woo Woo" Wong Playground to the east of the station). The vent shafts would rise to a height 10 feet above the development roofline on the southeast end of the parcel near Pagoda Alley. Emergency stairs would be provided by a sidewalk hatch located in a bulb-out on the northwest corner of Stockton and Clay Streets. The bulb-out would widen the sidewalk by seven feet and would extend about 40 feet, eliminating one white loading zone and a red zone. A double

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<sup>2</sup> Any proposal for transit-oriented development on this site would be subject to independent environmental review once a specific proposal is defined.

**FIGURE 2-10: ENHANCED EIS/EIR ALIGNMENT - CHINATOWN STATION**

Source: PB/Wong  
Not to scale

crossover and twin storage tracks, capable of storing two 2-car trains, would extend beyond this subway station to Jackson Street.

### Station Locations – Alternative 2

The Enhanced EIS/EIR Alignment would have four subway stations and one surface station, as listed in Table 2-1. The surface station would be located on Third Street, north of King Street, to serve the ballpark. Subway station platforms would be about 250 feet in length, and 16 to 23 feet in width (depending on configuration as side platform or center platform), and would accommodate two-car trains using high-floor LRVs. All subway station designs include fare gates and ticket vending machines (TVMs) per new Muni policy; this specification requires longer station layouts and typically the need for a mezzanine and ~~{concourse}~~ level.

**TABLE 2-1**

**ALTERNATIVE 2 - ENHANCED EIS/EIR ALIGNMENT STATION LOCATIONS**

<b>Station</b>	<b>Type</b>	<b>Location</b>
King Street (northbound only)	Surface Station - Platform adjacent to Sidewalk	Third Street between King and Townsend Streets
Moscone	Underground - Two level stacked platform with a mezzanine <u>and</u> <del>{concourse}</del> level above the platform level.	Third Street between Folsom and Howard Streets
Market Street	Underground - Single level side platforms with a mezzanine <u>and</u> <del>{concourse}</del> level below the platform level.	Third Street between Mission and Market Streets
Union Square	Underground - Two level stacked platforms with a mezzanine <u>and</u> <del>{concourse}</del> level above the platform level.	Stockton Street between Geary and Sutter Streets
Chinatown	Underground - Single level side platforms with a mezzanine <u>and</u> <del>{concourse}</del> level above the platform level.	Stockton Street between Sacramento and Washington Streets

### Light Rail Operating Plan – Alternative 2

For the Enhanced EIS/EIR Alignment, one-car trains would operate as an independent line (not linked with Muni Metro) from the southern terminus in Visitacion Valley, via the existing T-Third alignment to Fourth and King Streets, and then via the Central Subway to the northern terminus in Chinatown. This service would be called the T-Third long line. The T-Third short line would extend from the Mission Bay Turnaround Loop (18th, Illinois, 19th, and Third Streets) to Chinatown, also operating with one-car trains and the T-Third very short line would operate from Fourth and Berry Streets to Chinatown. Service frequencies for each line would be ~~five~~ six minutes in the peak period and ten minutes during the

Midday, except for the short line. The ~~Castro Shuttle~~ K-Ingleside would be extended to operate as the T-Third line under the 2030 No

Project/TSM Alternative, but would operate as an independent line for the Enhanced EIS/EIR Alignment, using the 2006 configuration between Castro and Embarcadero Muni Metro Stations.

### **Bus Operating Plan – Alternative 2**

To make efficient use of the Central Subway, bus operations in the Corridor would be restructured. The Enhanced EIS/EIR Alignment bus system would be similar to the No Project/TSM Alternative including the extension of the 45-Union/Stockton trolley bus line from the Caltrain Terminal through Mission Bay and Potrero Hill to a new terminus at Third and 20th Streets and the rerouting of the 22-Fillmore trolley bus line along 16th, Third, and Mission Rock Streets to a terminus in Mission Bay. In both bus plans the 9X-San Bruno Express and 30-Stockton lines would have five and nine-minute peak period frequencies respectively, which are the current peak headways for those lines. Changes from the No Project/TSM Alternative associated with the Enhanced EIS/EIR bus plan include the elimination of the 30-Stockton short line between Van Ness Avenue and North Point Street and the Caltrain Terminal at Fourth and Townsend Streets, and minor frequency adjustments as noted below. All comparisons given below are to the No Project/TSM 2030 bus service.

- **30-Stockton long line:**
  - Weekday, midday service frequencies would be reduced from seven and a half to nine minutes;
  - Saturday, evening service frequencies would be reduced from nine to ten minutes;
  - Sunday service, which is currently provided only on the 30-Stockton short line, would be provided on the 30-Stockton long line. Sunday service frequencies would be reduced in the midday from six to seven minutes and reduced in the evening from nine to ten minutes.
- **30-Stockton short line:**
  - Service would be eliminated during the week and on weekends.
- **45-Union/Stockton line:**
  - Weekday, service frequencies would be reduced in peak periods from eight to nine minutes.

### **Operating Statistics – Alternative 2**

A summary of operating statistics for the Enhanced EIS/EIR Alignment is presented in Table 2-2. The frequency on the 9X-San Bruno Express bus line would remain unchanged at five minutes when compared with the No Project/TSM Alternative. Since the Enhanced EIS/EIR Alignment coincides with the routes for the 30-Stockton and 45-Union/Stockton lines south of Jackson Street, service hours for

**TABLE 2-2**  
**ANNUAL OPERATING STATISTICS**  
**ALTERNATIVE 2 - ENHANCED EIS/EIR ALIGNMENT**

Alternative	Peak Headways 9-X Line <sup>2</sup>	Diesel/Trolley Peak Demand (Systemwide Fleet size) <sup>1</sup>	Total Annual Diesel/Trolley Bus Hours (Systemwide) <sup>1</sup>	Peak Headways T-Third <sup>2</sup>	LRV Fleet Peak Demand <sup>3</sup> (Systemwide Fleet size) <sup>1,3</sup>	Total Annual LRV Car Hours T-Line (Systemwide)
Existing (2007) T-Third	5 minutes	377 (495-473) diesel buses; 225 (333-331) trolley buses	2,592,230	9 minutes	118-119 (151) LRVs	84,800 109,400 (568,500) (570,200)
No Project/TSM (2030)	5 minutes	377 (495) diesel buses; 230 (333-336) trolley buses	2,622,030	7 minutes	129-137 (171) LRVs	80,400 117,000 (609,500) (602,700)
Enhanced EIS/EIR Alignment (2030)	5 minutes	377 (495) diesel buses; 219 (333-336) trolley buses	2,545,630	5-6 minutes	130-142 (175) LRVs	87,500 83,900 (591,200) <sup>(3)</sup> (621,800) <sup>3</sup>
Notes: <sup>1</sup> Source for 2007 bus equipment demand and bus hours is the Muni 2006-2025 Short Range Transit Plan, December 2005 and Dan Rosen, MTA, May 2007. <u>Revised Dan Rosen, MTA, January 2008.</u> <sup>2</sup> Headway refers to the time between transit vehicles on a given line <sup>3</sup> Assumes one-car trains operating in the peak for the Central Subway on both the T-Third long and short lines and two-car trains on the T-Third very short line.						

these bus lines could be reduced where duplicate service occurs. The Enhanced EIS/EIR Alignment would reduce the peak demand requirements for the combined diesel and trolley fleets over No Project/TSM which would result in a systemwide annual reduction of bus hours by 76,400. Rail headways on T-Third line would improve from the current nine minutes under existing conditions to seven minutes in the No Project/TSM Alternative and to five-six minutes under the Enhanced EIS/EIR Alignment. The additional LRV route miles and service frequencies associated with the new Central Subway service would result in an annual increase-decrease of 7,100 33,100 LRV car hours on the Central Subway Corridor T-Third line, but a system-wide annual reduction of 48,300 19,100 car hours.

### Transit Fleet Requirements – Alternative 2

The Enhanced EIS/EIR Alignment would require four-six additional LRVs (three-five peak LRVs and one spare) compared to the No Project/TSM Alternative. Muni's total fleet size, including spares, would be 175 LRVs with 130-142 LRVs in the peak. The diesel bus fleet would be increased by 23 buses, but the and peak demand would remain the same as under the existing condition and the No Project/TSM Alternative. The trolley bus fleet would remain the same as under increase by five buses from the

existing conditions and ~~No Project/TSM Alternative~~ by 2030 for Alternative 2, but the peak demand would be reduced by six vehicles over existing conditions and eleven vehicles over No Project/TSM.<sup>3</sup>

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<sup>3</sup> San Francisco Municipal Railway, EIR Supplemental Final Revised *Light Rail and Bus Transit Operating Plan*, August 6, 2006.



### **Light Rail Maintenance Facility**

The Metro East LRV maintenance facility that was analyzed in the 1998 FEIS/FEIR is currently under construction as part of the T-Third line and is expected to become operational in the fall of 2008. It would be used to store and maintain the LRV fleet for the Enhanced EIS/EIR Alignment vehicles as well as for the T-Third line. It also provides a traction power substation facility. Traction Power Distribution System

The T-Third electric power distribution facilities would connect to the Central Subway (Enhanced EIS/EIR Alignment) facilities. The northerly most T-Third electric power substation on Illinois Street near Mariposa Street (analyzed as part of the 1998 FEIS/FEIR) could be used for back-up power as could the Muni Metro Extension electric power substation on King Street, east of Third Street. In addition, the Enhanced EIS/EIR Alignment would be constructed with overhead wire, feeder cable, and two new substations located within the station boxes (non-public areas) for the Moscone and Chinatown Stations.

### **Signaling and Communications System**

The Automatic Train Control System used for Muni Metro would be installed in the subway portion of the Central Subway Project to monitor and control train movements in the subway. The T-Third line, including the Central Subway segment, would operate independently from Muni Metro although it would share the existing control center at West Portal. The Enhanced EIS/EIR Alignment would also have fire suppression, ventilation, and emergency back-up generator systems linked to Central Control.

### **Fare Collection System in the Central Subway**

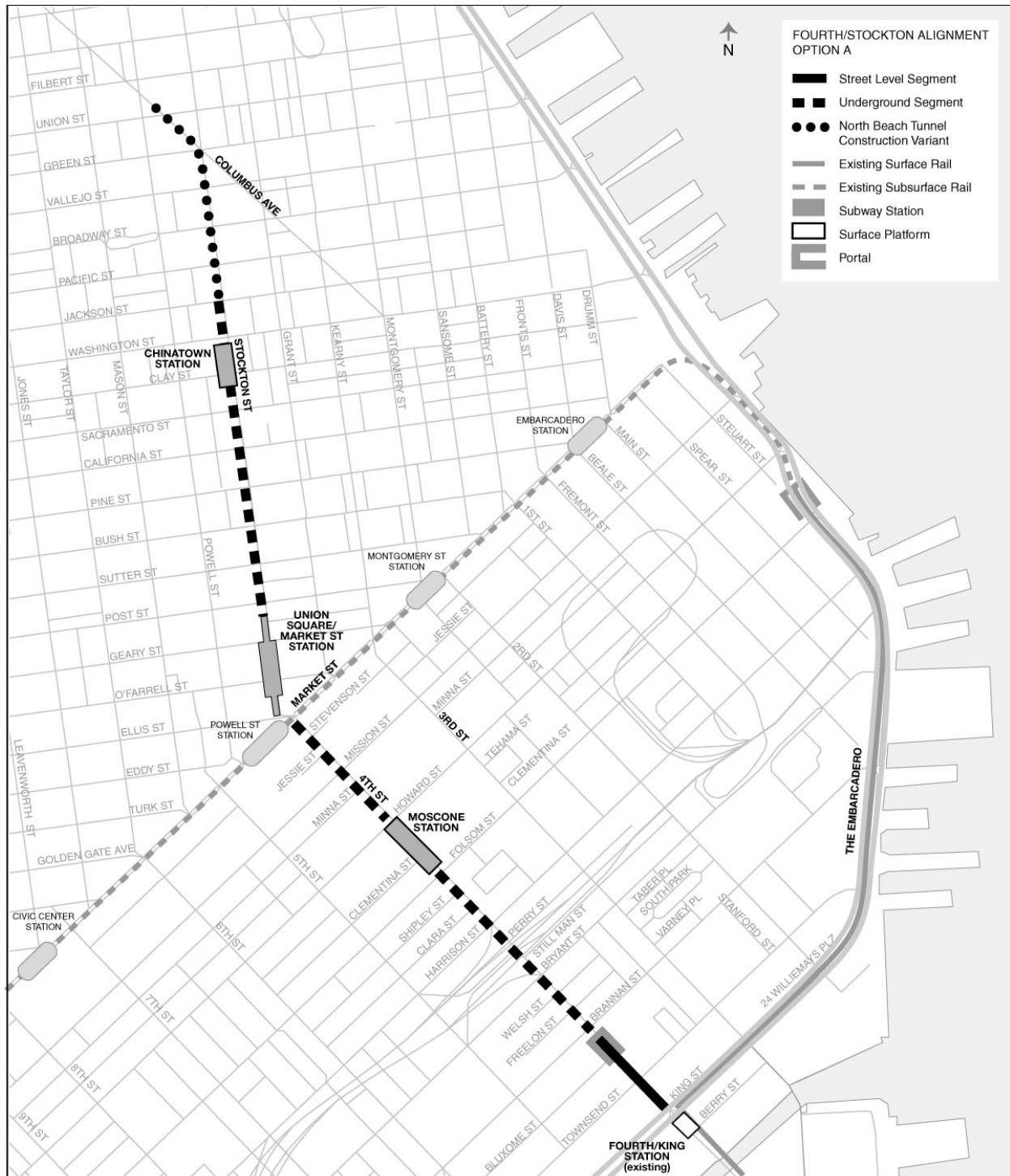
The Proof-of-Payment fare collection system on surface Third Street would be used for the Enhanced EIS/EIR Alignment. However, unlike the T-Third line surface operation, the subway platforms would be considered paid areas. In the subway stations, ticket vending machines and turnstiles similar to those installed at Muni Metro stations would facilitate fare collection.

#### **2.1.3 ALTERNATIVE 3 - FOURTH/STOCKTON ALIGNMENT**

The Fourth/Stockton Alignment would start as a double-track surface line at Fourth and King Streets and would proceed north along Fourth Street to a portal, at one of two possible locations, where it would transition from surface to subway operation. It would continue north under Fourth Street as a double-track operation to a terminus in the vicinity of Stockton and Jackson Streets (Figure 2-11). The

FIGURE 2-11

## ALTERNATIVE 3 -FOURTH STOCKTON ALIGNMENT OPTION A (LPA)



Source: PB/Wong  
Not to scale

pedestrian connection to the Market Street Subway would be at the BART/Muni Metro Powell Street Station.

There is a construction variant for this alternative to extend the running tunnels another 2,000 feet north of the Chinatown Station to facilitate construction and extraction of the tunnel boring machines. In this approach the tunnels would continue north on Stockton Street to a temporary shaft on Columbus Avenue near Washington Square Park where the tunnel boring machines would be extracted and construction equipment and materials could be delivered.

As in the case of the Enhanced EIS/EIR Alignment, above-ground emergency ventilation shafts are proposed to be located in off-street locations and, wherever feasible, station access is located off-sidewalk in property to be acquired by Muni. Fare gates are provided at the mezzanine level for all stations. The location and number of stations varies for the two design options described below.

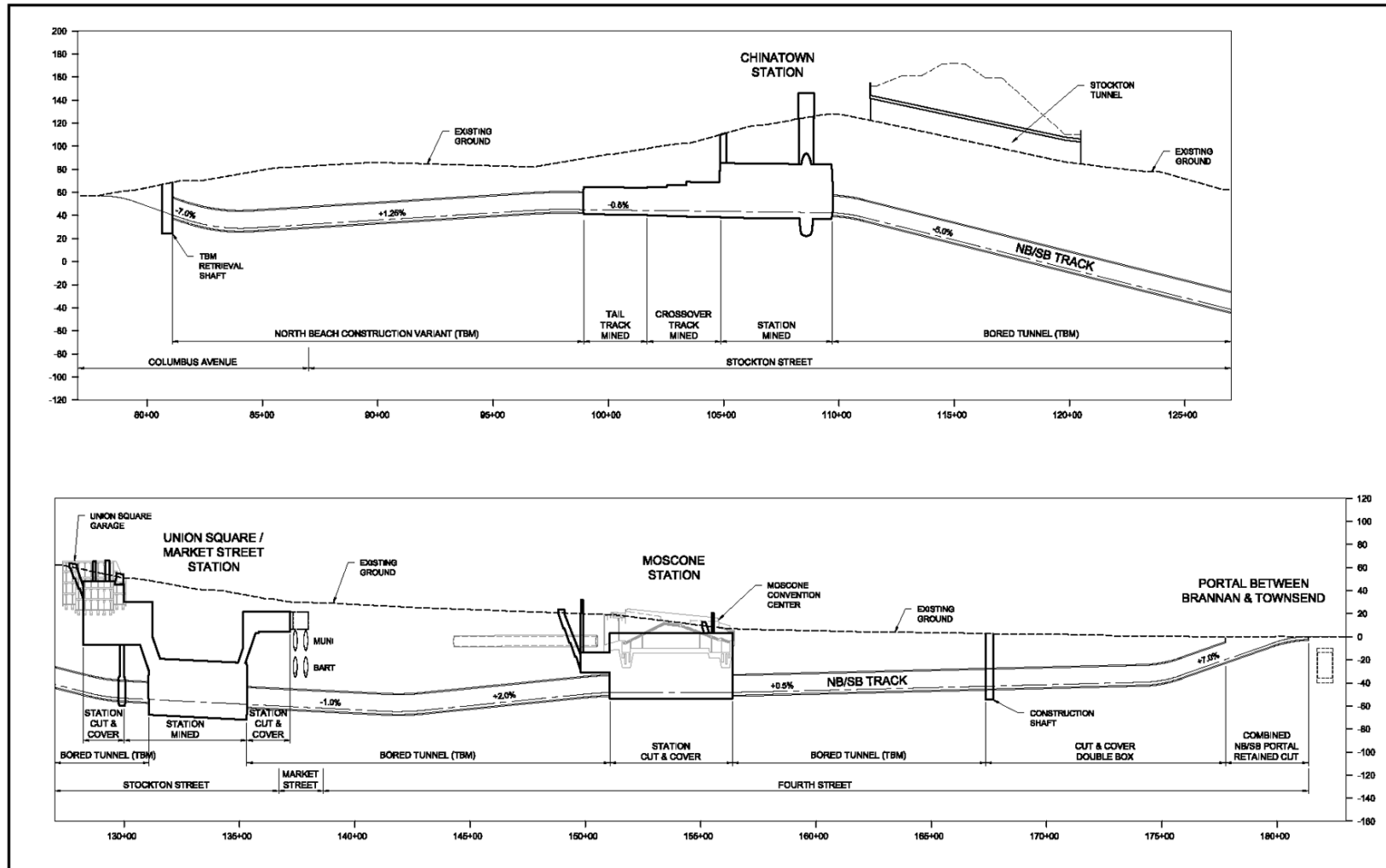
### **Alternative 3 – Fourth/Stockton Alignment Option A (LPA)**

#### Alignment – Alternative 3A

This alternative was selected as the Locally Preferred Alternative by the MTA Board at its meeting of June 7, 2005. It would extend 1.7 miles north from the T-Third line terminus at Fourth and King Streets via Fourth and Stockton Streets to the Central Subway terminus in Chinatown. After stopping at the T-Third line station platform on Fourth Street at King Street, LRVs would continue north on Fourth Street in a semi-exclusive double-track median to a portal between Townsend and Brannan Streets. This option would include three subway stations at Moscone, Union Square/Market Street, and Chinatown (see profile Figure 2-12). It would not have any operations on King, Harrison, Third, Kearny, or Geary Streets. The 30-Stockton and 45-Union/Stockton trolley bus lines would continue operation on the east side of Fourth Street, south of Bryant Street, to the bus terminal east of Fourth Street on Townsend Street. Existing bus stops would be retained on Fourth Street just north of Bryant Street, but the island stop at Brannan Street would be moved from the north to the south side of the street. No major overhead wire relocations would be necessary under this option.

On Fourth Street between King and Townsend Streets the track would shift slightly to the east to accommodate three southbound traffic lanes west of the trackway and one northbound right turn only traffic lane east of the tracks. At Townsend Street, the easterly lane would provide an exclusive right turn for northbound buses to facilitate use of the south side bus layover and loading zone near Fourth Street. Southbound buses would continue to use the layover and loading zone adjacent to the Caltrain

**FIGURE 2-12: FOURTH/STOCKTON ALIGNMENT OPTION A**  
**PROFILE BETWEEN FOURTH/KING AND STOCKTON/JACKSON STREETS**



Source: PB Wong  
 Not to scale

Terminal. There are no existing parking spaces in this segment so none would be eliminated with this lane configuration.

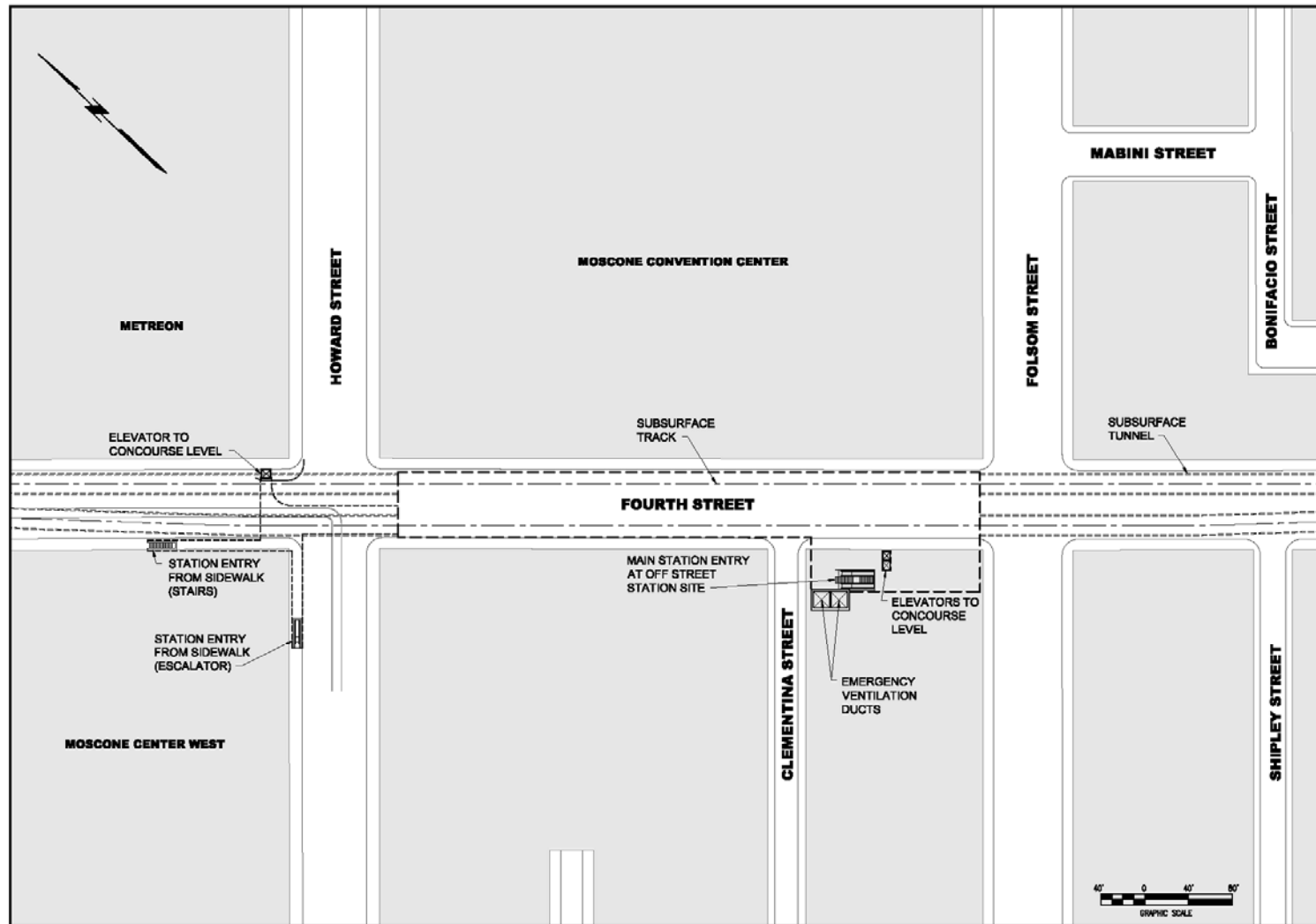
On Fourth Street between Townsend and Brannan Streets, the rail line would enter the subway through a 360-foot double-track portal structure. A Muni bus stop would be located in the median just north of the portal, but south of Bryant Street. There would be three southbound traffic lanes next to the 27.5-foot wide portal: two on the west side of the tracks and one on the east side of the tracks. Between Townsend and Brannan Streets, ~~eight~~ 18 parking spaces would be eliminated on Fourth Street. However, this loss would be partially offset by the creation of three new parking spaces from a bus zone on the west side of Fourth Street south of Brannan that would no longer be needed.

The subway would continue under Fourth Street to the Moscone Station (see Figure 2-13) between Folsom and Howard Streets. This station would have a mezzanine and ~~{concourse}~~ and one platform level that would serve both northbound and southbound trains. The main station entrance (escalators and stairs and two elevators) would be in an off-street property that Muni would acquire (at 266 Fourth Street, Assessor's Parcel # 3733-093), currently the site of a gas station. The Muni station facility would require only one story. However, for purposes of this environmental review, it is assumed the station entry would be located in a 40-foot high building, with a setback 85-foot tower as permitted under existing zoning. While Muni may propose transit-oriented development for the station site in the future, no specific proposal has been identified at this time. Development at this site would be the subject of an independent environmental review at such time as a specific proposal is submitted to the Planning Department.

The vent shafts would rise 26 feet above the development 40-foot roofline on the north end of the parcel or to a height of 66 feet. An additional stairway ~~set~~ would be located in the sidewalk on the west side of Fourth Street just north of Howard Street and an escalator on the north side of Howard Street, just west of Fourth Street. A third elevator would be located directly across the street on the east side of Fourth Street near the corner of Howard Street.

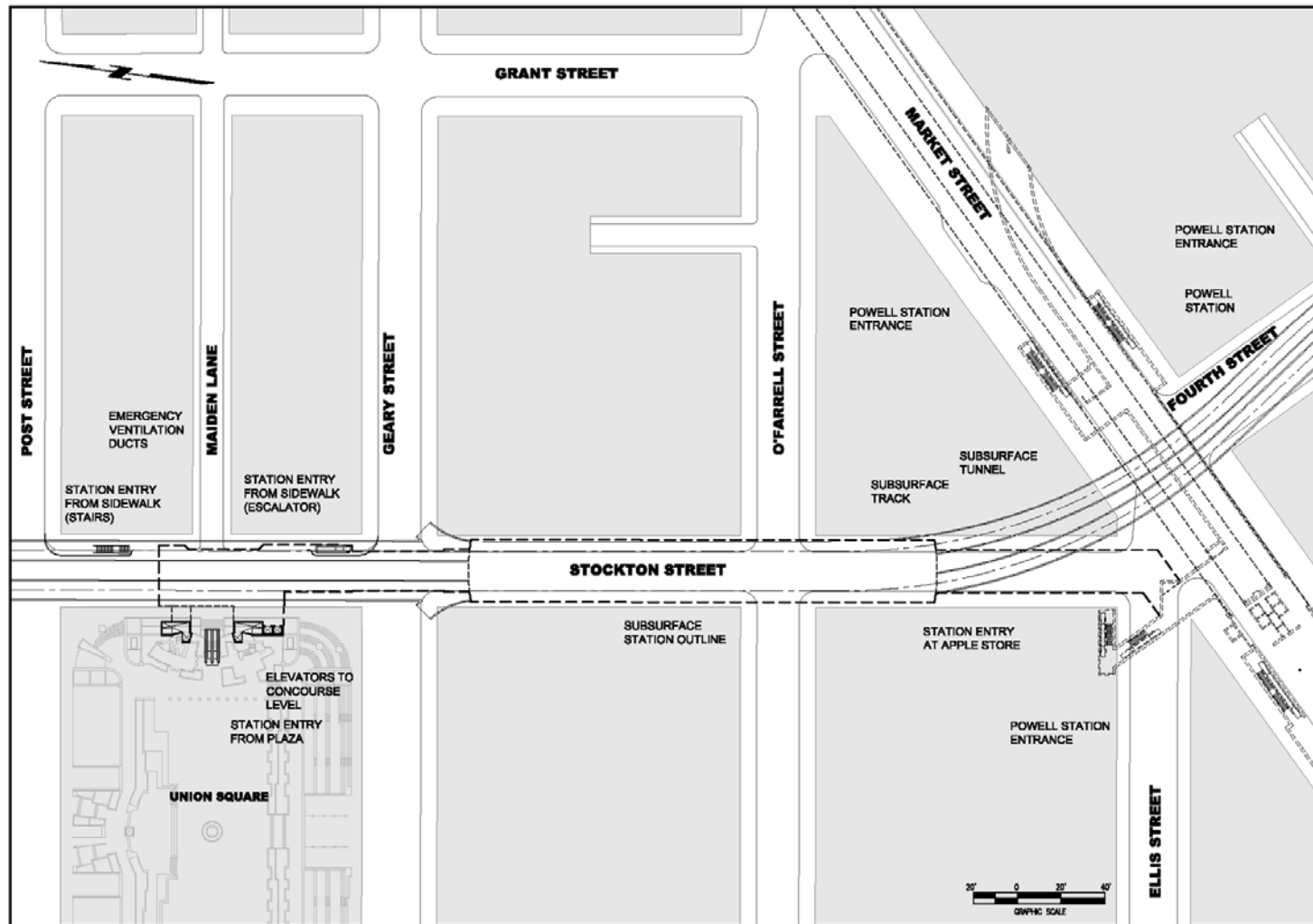
Immediately north of Howard Street, the alignment would descend and continue in a twin side-by-side tunnel configuration to permit a deep crossing of the Market Street Subway and an easement under buildings at 790-798 Market Street/2 Stockton Street (Assessor's Parcel 0328-002) (see Figure 2-14). A combined Union Square/Market Street Station would be located on Stockton Street between Maiden Lane and Market Street, with the station platform extending from just south of Geary Street to about 100 feet south of O'Farrell Street. The station would have a ~~common~~ mezzanine and ~~(concourse)~~ and one

center platform level that would serve both northbound and southbound trains. The south end of the Market Street/Union

**FIGURE 2-13: FOURTH/STOCKTON ALIGNMENT OPTION A - MOSCONE STATION**

Source: PB Wong

**FIGURE 2-14: FOURTH/STOCKTON ALIGNMENT OPTION A**  
**UNION SQUARE/MARKET STREET STATION**



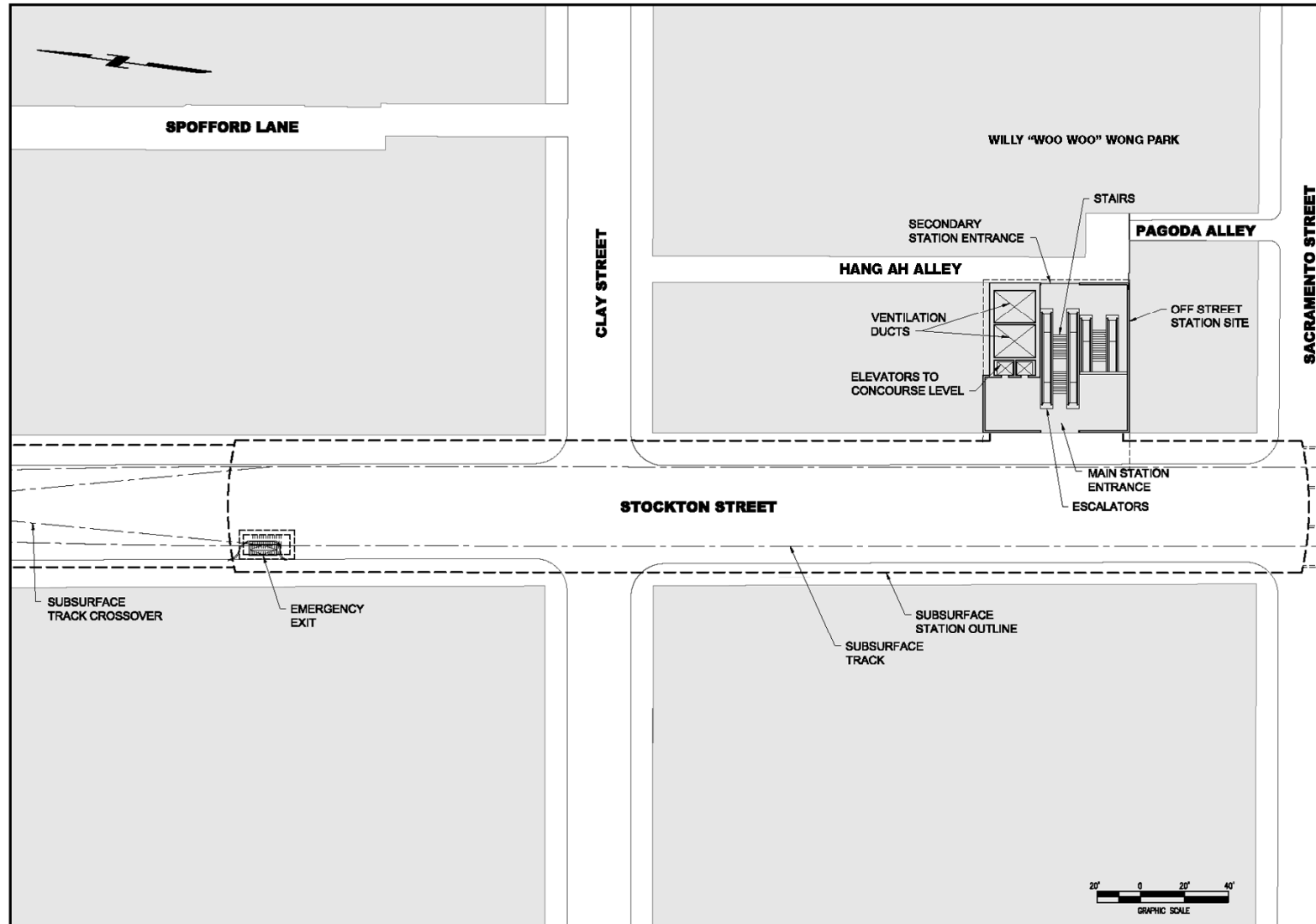
Source: PB Wong



Square Station would connect to the BART/Muni Metro Market Street Subway at the Powell Street Station using existing pedestrian entrances on Market Street and at the northwest corner entrance on Stockton and Ellis Streets.

At the north end of the station the main entrance would be located in the east side of the Union Square plaza near an existing stairway and café. It would include escalators and stairs, rising from the Stockton Street sidewalk to the plaza entrance. Two elevators would be located just south of the escalator/stair set. Additional entries would be located in sidewalk bulb-outs on Stockton Street north (stairs) and south (escalators) of Maiden Lane. No additional emergency stairs would be provided. Two vent shafts would be integrated into the plaza terrace between the plaza café and the sidewalk on the west side of Stockton Street. One vent shaft would be on either side of the escalators and stairs. The vent shafts would be about 11 feet high, but would not rise above the plaza because of their location on the terrace grade. The emergency ventilation would be designed in cooperation with BART so as not to impact ventilation in the Powell Street Station. The entry facilities would displace about 29 parking spaces of the 985 spaces in the Union Square Garage. The bulb-out for the escalators on the east side of Stockton Street south of Maiden Lane would widen the sidewalk by about 4 feet and would extend a little over 50 feet, displacing two to three truck parking spaces. The bulb-out for the stairs on the east side of Stockton Street, north of Maiden Lane, would widen the sidewalk about 5 feet and would extend a little over 60 feet, displacing three truck parking spaces.

North of Union Square, the subway would continue in twin-bored tunnels under Stockton in a side-by-side configuration to the Chinatown terminus. The Chinatown station would have a center platform with a crossover north of the platform and tail tracks for operator layover north of the crossover. Like the Enhanced EIS/EIR Alignment, the Chinatown Station for the Fourth/Stockton Alignment Option A would be on Stockton Street between Sacramento and Washington Streets (see Figure 2-15). It would have a mezzanine and ~~(concourse)~~ and one platform level for north and southbound trains. The main pedestrian entrance would be in a building that Muni would construct on Stockton near Sacramento (814-828 Stockton Street, Assessor's Parcel #0225-014) to accommodate escalators, stairs, two elevators, and two emergency ventilation shafts. Construction of the station entrance would require acquisition of the parcel and relocation of 10 businesses ~~and one to two residential units above the businesses~~. The Muni station facility would require only one story. However, for the purposes of this analysis it is assumed that a 40-foot high building consistent with Prop K would be constructed on the site. The maximum allowable height for this property is 65-feet, but Muni would restrict the building height on the site to 40

**FIGURE 2-15: FOURTH/STOCKTON ALIGNMENT OPTION A - CHINATOWN STATION**

Source: PB/Wong

feet to avoid casting additional shadows on the Willy “Woo Woo” Wong Playground to the east. As with other build alternatives, Muni may propose transit-oriented development on the station site in the future, but no specific proposal has been identified at this time. Development at the site would be the subject of an independent environmental review at such time as a specific proposal is submitted to the Planning Department. The vent shafts would rise 10 feet above the development roofline on the southeast end of the parcel near Pagoda Alley. Emergency stairs would be provided by a sidewalk hatch located in a bulb-out on the west side of Stockton Street near Washington Street. The bulb-out would widen the sidewalk by 7 feet and would extend about 24 feet in length, eliminating one parking stall.

A double crossover and twin storage tracks, capable of storing two ~~three~~-two-car trains, would extend north of this station to Jackson Street.

#### Station Locations – Alternative 3A

Fourth/Stockton Alignment Option A would have three subway stations (compared with four subway stations in Alternative 2) as listed in Table 2-3. The subway station platforms would be about 250 feet in length and 26 to 28 feet in width and would accommodate two-car trains using high-floor LRVs. The Union Square/Market Street Station has a much longer layout than the Moscone and Chinatown Stations. Like Alternative 2, this alternative would accommodate fare gates and ticket vending machines (TVMs) and a closed barrier fare collection system. All subway station platforms are on one level with a mezzanine and a concourse level above the platform.

**TABLE 2-3**

**CENTRAL SUBWAY FOURTH/STOCKTON ALIGNMENT OPTION A STATIONS**

<b>Station</b>	<b>Type</b>	<b>Location</b>
Moscone	Underground – Single level center platform with a mezzanine <del>and</del> {concourse} level above the platform level.	Fourth Street between Folsom and Howard Streets
Union Square/Market Street	Underground - Single level center platform with a mezzanine and concourse level above the platform level.	Stockton Street between Maiden Lane and Market Streets
Chinatown	Underground - Single level center platform and a mezzanine and concourse level above the platform level.	Stockton Street between Sacramento and Clay Streets

#### North Beach Tunnel Construction Variant

For both design options in Alternative 3, there is an option to extend the running tunnels north of the original EIS/EIR terminus in Chinatown for construction purposes. This construction variant is shown as an extension of Fourth/Stockton Alignment Option A under Stockton Street for approximately 2,000 feet

to a temporary construction shaft in the middle of Columbus Avenue near Washington Square in North Beach. Other options were evaluated and presented to the public, but the location on Columbus Avenue was considered the most technically viable.<sup>4</sup> The initial shaft would be 35 to 60 feet wide by 30 feet long, located in the middle lanes of Columbus Avenue between Union and Filbert Streets, and would occupy two traffic lanes. During the shaft construction period, estimated at five to six months, at least one northbound and one southbound traffic lane would be maintained at all times. Following excavation of the shaft, one half of the footprint would be decked over permanently. The remainder would be temporarily decked so the cover could be removed for construction activities. The latter shaft would be used to extract TBMs and could be used to deliver materials to Chinatown Station. TBM extraction is estimated to take about a week for each TBM. At the conclusion of TBM extraction and material delivery, the shaft would be permanently decked, leaving no surface impacts. The running tunnels would not be finished out with track and other facilities, but could be used to store materials.

#### Light Rail Operating Plan – Alternative 3A

Light rail operations would be the same as identified under the EIS/EIR Enhanced Alignment (Alternative 2) as described in Section 2.1.3.

#### Bus Operating Plan – Alternative 3A

To make efficient use of the Central Subway light rail line, bus operations in the Corridor would be restructured. The Fourth/Stockton Alignment Option A bus system would be the same as under the Enhanced EIS/EIR Alignment presented in Section 2.1.3.

#### Operating Statistics – Alternative 3A

A summary of operating statistics for Fourth/Stockton Alignment Option A is presented in Table 2-4. Operating statistics would be the same as the Enhanced EIS/EIR Alignment for the diesel and trolley bus fleet (see Section 2.1.3). Train headways on the T-Third line would improve from the current nine minutes under existing conditions to seven minutes in the No Project/TSM Alternative and to ~~five-six~~ minutes under the Fourth/Stockton Alignment Option A. Even though there is an increase in route miles and service frequencies associated with the new Central Subway service, the result is an annual reduction of ~~2,400-40,300~~ LRV car hours on the ~~Central Subway Corridor-T-Third line~~ and a system-wide annual reduction increase of ~~27,800~~ 11,900 car hours when compared to the No Project/TSM Alternative. This is a result of the more direct alignment and faster travel time for this alternative.

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<sup>4</sup> Other portal locations along Stockton Street and Union Street would have impacts to traffic and access to local businesses.

**TABLE 2-4**  
**ANNUAL OPERATING STATISTICS**  
**ALTERNATIVE 3 –FOURTH/STOCKTON ALIGNMENT OPTION A**

Alternative	Peak Headways 9-X Line <sup>2</sup>	Diesel/Trolley Peak Demand (Systemwide Fleet size) <sup>1</sup>	Total Annual Diesel/Trolley Bus Hours (Systemwide) <sup>1</sup>	Peak Headways T-Third <sup>2</sup>	LRV Fleet Peak Demand <sup>3</sup> (Systemwide Fleet size) <sup>1,3</sup>	Total Annual LRV Car Hours T-Line (Systemwide)
Existing (2007) T-Third	5 minutes	377 (495-473) diesel buses; 225 (333-331) trolley buses	2,592,230	9 minutes	418-119 (151) LRVs	84,800 109,400 (568,500) (570,200)
No Project/TSM (2030)	5 minutes	377 (495) diesel buses; 230 (333-336) trolley buses	2,622,030	7 minutes	429-137 (171) LRVs	80,400 117,000 (609,500) (602,700)
Fourth/Stockton Alignment Option A (2030)	5 minutes	377 (495) diesel buses; 219 (333-336) trolley buses	2,545,630	5-6 minutes	427-139 (175) LRVs	78,000 76,700 (581,700) <sup>(*)</sup> (614,600) <sup>3</sup>
Notes: <sup>1</sup> Source for 2007 bus equipment demand and bus hours is the Muni 2006-2025 Short Range Transit Plan, December 2005 and Dan Rosen, MTA, 2007. Revised Dan Rosen, MTA, January 2008. <sup>2</sup> Headway refers to the time between transit vehicles on a given line <sup>3</sup> Assumes one-car trains operating in the peak for the Central Subway on both the long and short lines and two-car trains on the T-Third very short line.						

#### Transit Fleet Requirements – Alternative 3A

Fourth/Stockton Alignment Option A would require ~~four~~ three additional LRVs (~~three~~ two plus one spare) beyond the 2030 LRV fleet requirements for the No Project/TSM Alternative. In this scenario, Muni's total LRV fleet size, including spares, would be 175 LRVs with ~~427~~ 139 LRVs in the peak period. The diesel bus fleet would ~~remain the same as the~~ under ~~increase by 30 buses from the existing conditions and No Project/TSM (2030) Alternative, in 2030, but with the same peak demand would not change.~~

The trolley bus fleet would ~~remain the same~~ increase by five buses, but peak demand would be reduced by six trolleys over existing conditions and by eleven trolleys over the No Project/TSM Alternative.<sup>5</sup>

<sup>5</sup> San Francisco Municipal Railway, *EIR Supplemental Final Revised Light Rail and Bus Transit Operating Plan*, August 6, 2006.

The light rail maintenance facility, traction power distribution system, signaling and communication system, and fare collection system previously described for Alternative 2 in Section 2.1.2 would also apply to Alternative 3A.

### **Alternative 3 – Fourth/Stockton Alignment Option B (Modified LPA)**

#### Alignment – Alternative 3B

Fourth/Stockton Alignment Option B would extend 1.7 miles north from the T-Third line terminus at Fourth and King Streets via Fourth and Stockton Streets to the Central Subway terminus in Chinatown. After stopping at the station platform on Fourth at King Streets, light rail would continue north on Fourth Street to a double-track portal between ~~Bryant~~ Perry and Harrison Streets under I-80 (see Figure 2-16).

There would also be three subway stations at Moscone, Union Square/Market Street, and Chinatown as in Fourth/Stockton Alignment Option A (see Figure 2-17).

In order to accommodate light rail south of the portal, Fourth Street would be converted from one-way southbound to two-way traffic. Overhead wire for the 30-Stockton and 45-Union/Stockton electric trolley bus lines would be relocated from the east to the west side of Fourth Street. Existing bus stops would be retained on Fourth Street, just north of Bryant Street, and on Fourth Street, just north of Brannan Street. The trolleys would continue on a new turnaround loop via Brannan, Fifth and Townsend Streets to the existing bus terminal and loading zone on Townsend Street, just east of Fourth Street.

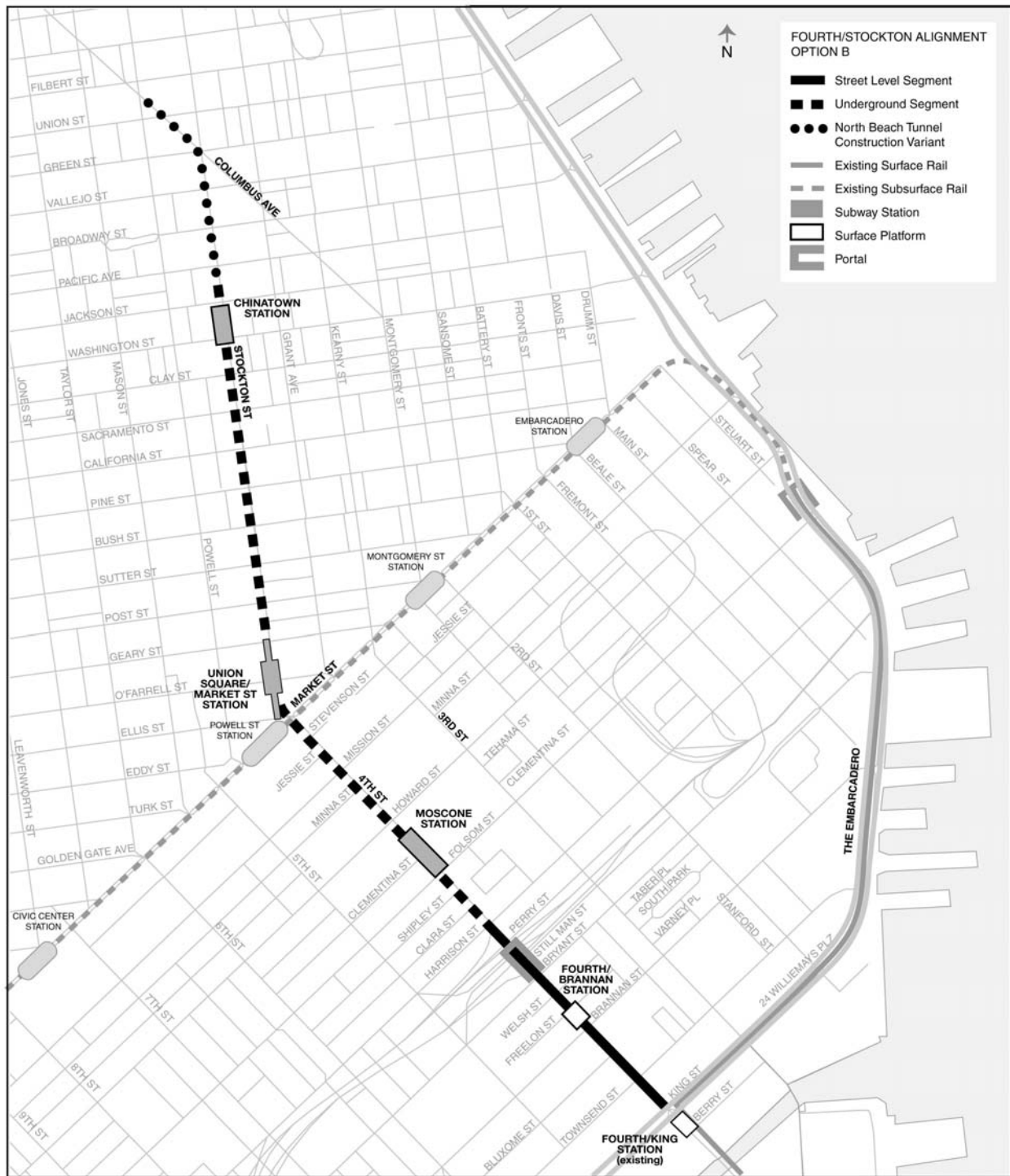
On Fourth Street, the LRVs would operate in one of two lane configuration sub-options: semi-exclusive or mixed-flow. In a semi-exclusive operation trains are physically separated from adjacent traffic except at intersections and at the surface station. In a mixed-flow operation trains and other vehicles share a trackway that is embedded in the street.

**Fourth Street Surface Operation: LRVs in Semi-Exclusive Right-of-Way.** This sub-option was developed to optimize Muni light rail and roadway operations. In this sub-option LRVs would operate between Fourth and King Streets to the portal under I-80 in a semi-exclusive double-track right-of-way, separated from adjacent traffic by six-inch curbs as shown in Figure 2-18. This sub-option would generally provide two southbound traffic lanes on Fourth Street.

Between King and Townsend Streets the tracks on Fourth Street would shift slightly to the east to accommodate three southbound traffic lanes west of the trackway and one northbound traffic lane east of the tracks. The street configuration from west to east would provide: a southbound right turn only traffic lane next to the Caltrain Terminal, two southbound traffic lanes, a semi-exclusive double-track median, and a northbound traffic lane. Bus loading zones would continue to be located on Townsend Street, just east of Fourth Street, for northbound buses and adjacent to the Caltrain Terminal for southbound buses.

FIGURE 2-16

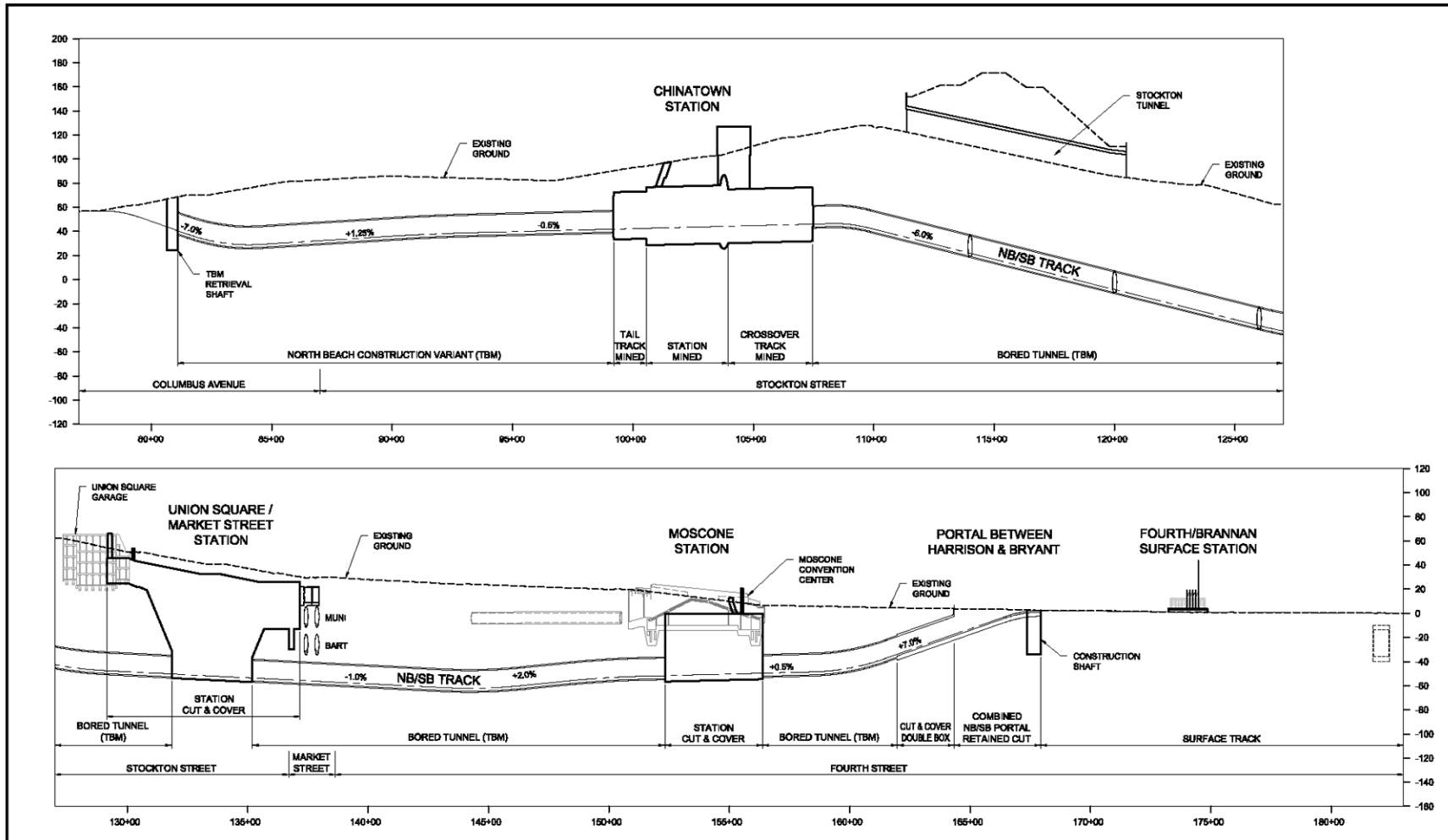
## ALTERNATIVE 3 –FOURTH/STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)



Source: PB/Wong  
 Not to scale  
 Revised 1/08

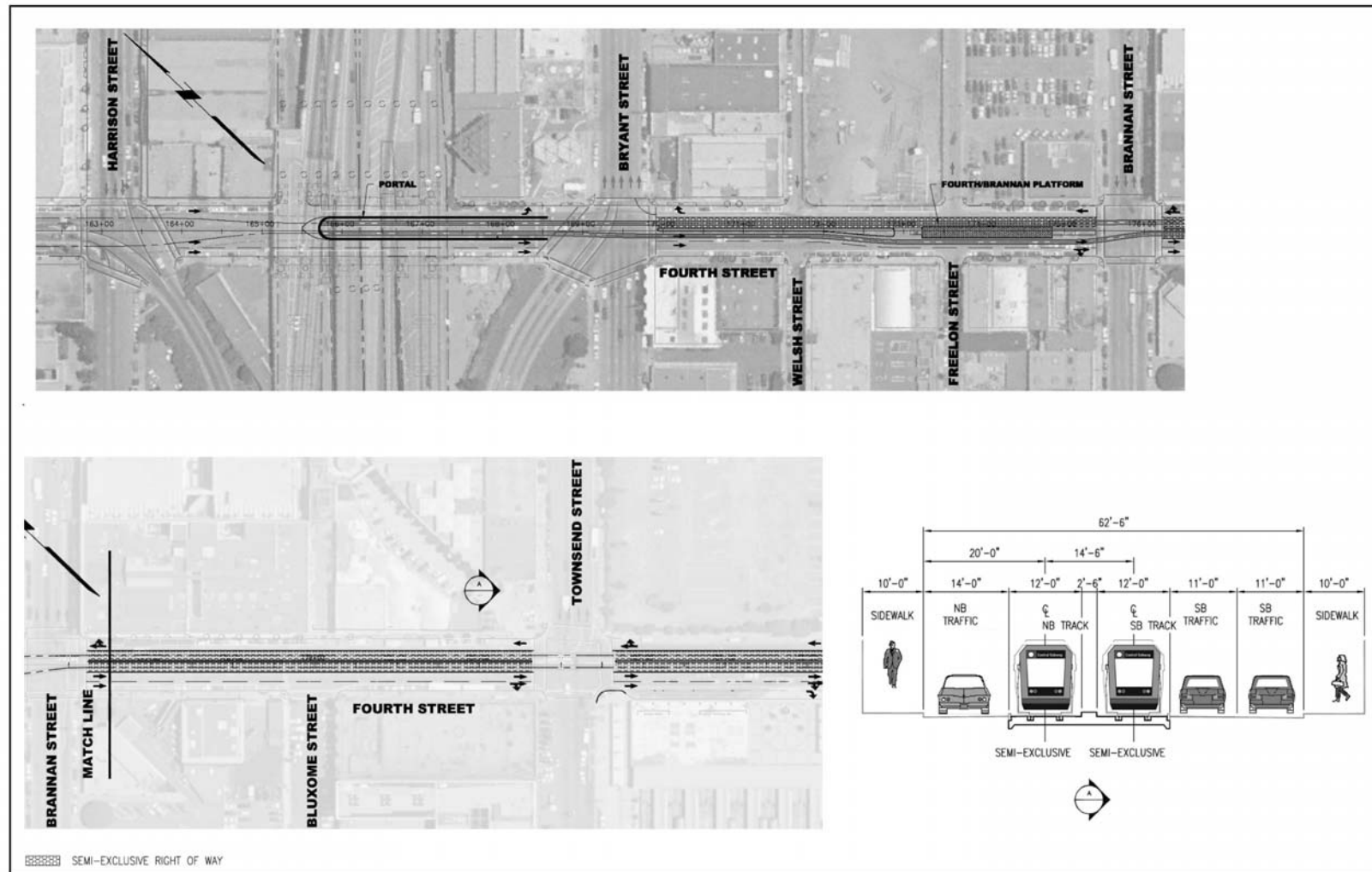


FIGURE 2-17: FOURTH/STOCKTON ALIGNMENT OPTION B PROFILE



Source: PB Wong  
Not to scale

**FIGURE 2-18: FOURTH/STOCKTON ALIGNMENT OPTION B CONFIGURATION ON FOURTH STREET  
SEMI-EXCLUSIVE RIGHT-OF-WAY**



Source: PB/Wong  
Not to scale  
Revised 1/08

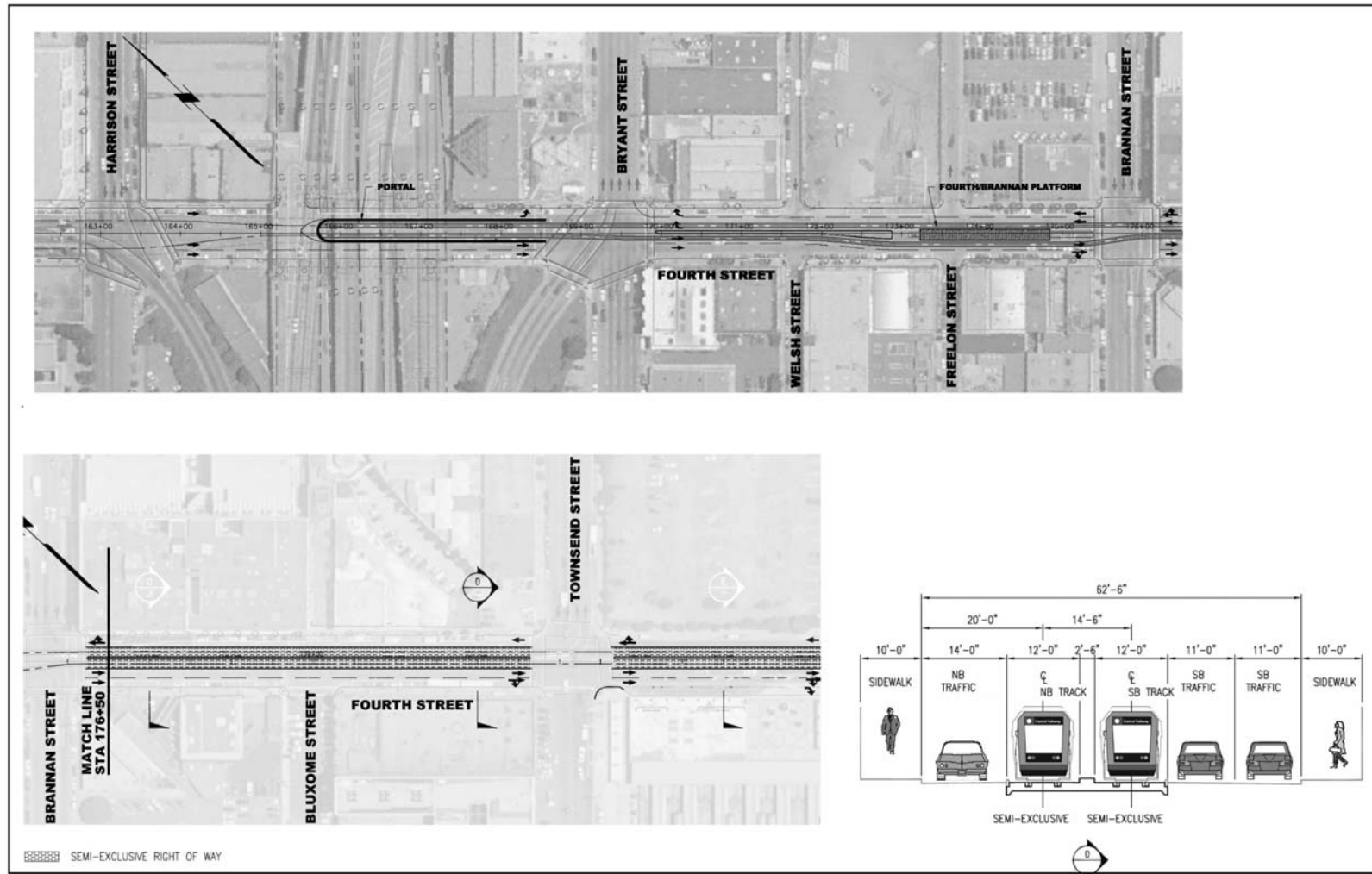
There are no existing parking spaces in this segment so none would be eliminated with this lane configuration sub-option.

On Fourth Street between Townsend and Brannan Streets, the rail line would continue semi-exclusive median operations. The street configuration from west to east would provide: two southbound traffic lanes, the semi-exclusive double-track median, and one northbound traffic lane. In this segment, ~~all~~ 18 out of 20 parking spaces on Fourth Street would be permanently eliminated. Just north of Brannan Street the tracks would spread to accommodate a center platform between Brannan and Freelon Streets. The street configuration from west to east would provide: a southbound traffic lane (vehicles only), a southbound mixed-flow trackway (vehicles and trains), a 14.5-foot platform, a northbound semi-exclusive trackway, and a northbound traffic lane (vehicles only) with a forced right turn at Bryant Street. The southbound trackway must be mixed-flow in this segment in order to maintain two lanes for southbound traffic. Between Brannan and Bryant Streets 29 out of 36 parking spaces on Fourth Street would be permanently eliminated.

North of the platform the tracks would come back together, crossing Bryant Street to a semi-exclusive right-of-way in the approach to the portal. The rail line would enter the subway portal in the median in a 360-foot retained cut located between Bryant and Harrison Streets. There would be three southbound traffic lanes next to the 27.5-foot portal entrance: two on the west side of the tracks and one on the east side of the tracks. Between Bryant and Harrison Streets, all of the 29 parking spaces on Fourth Street would be permanently eliminated.

**Fourth Street Surface Operation: LRVs in Mixed-Flow.** This sub-option was developed to increase the availability of parking, address traffic circulation issues, and enhance the streetscape with median landscaping. In this sub-option LRVs would operate between Fourth and King Street to the portal under I-80 in mixed-flow, with trains and vehicles sharing the double-track right-of-way. Three southbound traffic lanes would be provided during the peak between King and Bryant Streets. During the off-peak there would be two southbound lanes and parking on at least one side of the street. Between King and Townsend Streets, the LRVs would operate in mixed-flow, with trains and passenger vehicles using the trackway in both directions, in addition to three southbound traffic lanes and one northbound traffic lane for vehicular use only. The street configuration from west to east would provide: a southbound right turn only traffic lane next to the Caltrain Terminal (vehicles only), two southbound traffic lanes (vehicles only), a southbound mixed-flow trackway (vehicles and trains), a 6.5-foot planted median, a northbound mixed-flow trackway (vehicles and trains), and a northbound traffic lane (vehicles only) (see Figure 2-19). Bus loading zones would continue to be located on Townsend just east of Fourth Street for north-

**FIGURE 2-19: FOURTH/STOCKTON ALIGNMENT OPTION B CONFIGURATION ON FOURTH STREET  
MIXED RIGHT-OF-WAY**



Source: PB Wong  
Not to scale  
Revised 1/08

bound buses and adjacent to the Caltrain Terminal for southbound buses. There are no existing parking spaces in this segment so none would be eliminated with this lane configuration sub-option.

On Fourth Street between Townsend and Brannan Streets, the rail line would continue median mixed-flow operations. The street configuration from west to east would provide: a 10-foot southbound peak tow-away lane (parking midday and evenings), a southbound traffic lane (vehicles only), a southbound mixed-flow trackway (vehicles and trains) a 6.5-foot planted median, a northbound mixed-flow trackway (vehicles and trains), and northbound traffic lane (vehicles only). In this segment 5 parking spaces would be eliminated on the west side of Fourth Street during the peak, but retained midday/evenings; 15 parking spaces would be permanently eliminated on the east side of Fourth Street.

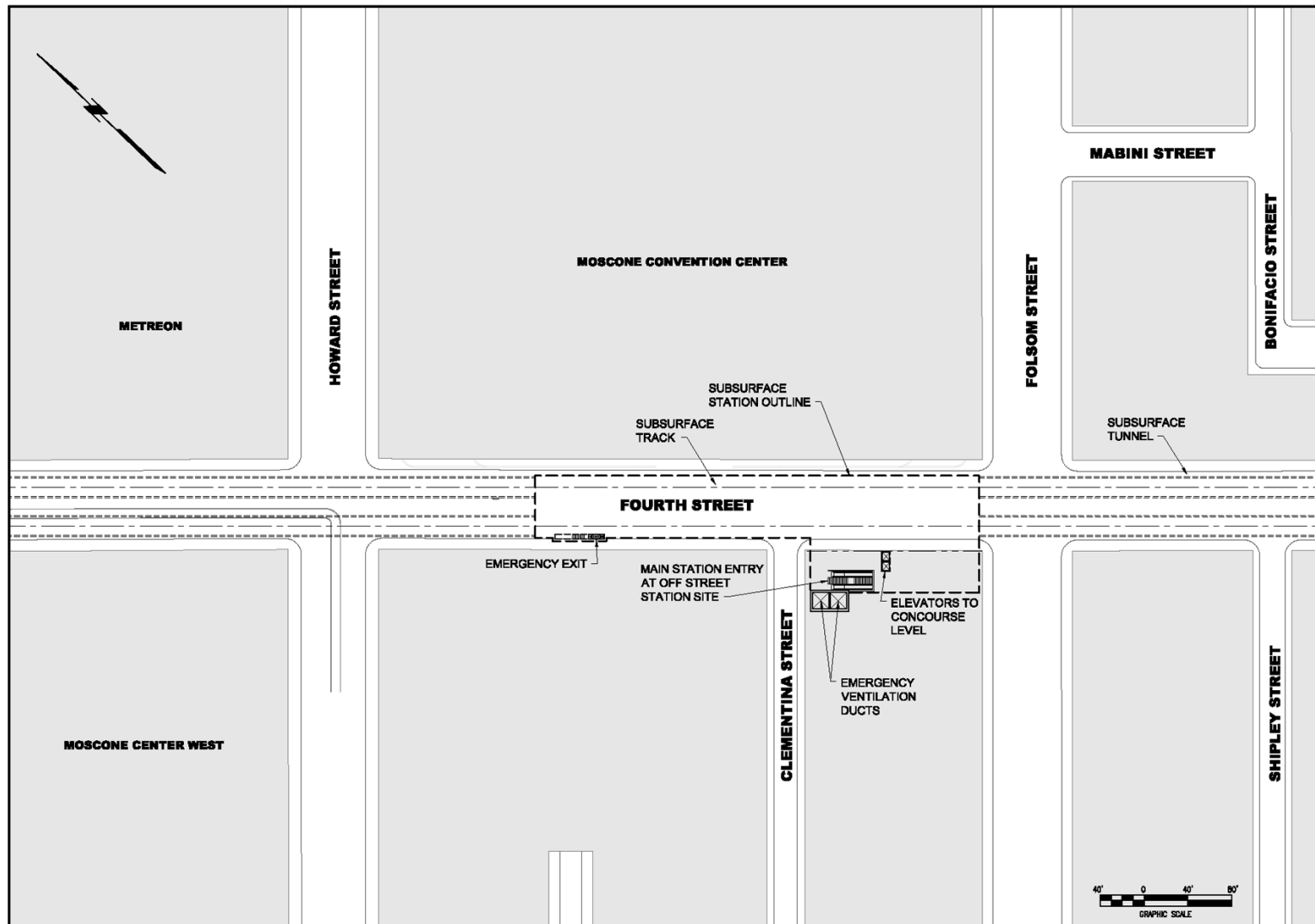
Just north of Brannan Street the tracks would spread to accommodate a center platform between Brannan and Freelon Streets. The street configuration from west to east would provide: a southbound traffic lane (vehicles only), a southbound mixed-flow trackway (vehicles and trains), a 15-foot platform, a northbound mixed-flow trackway (vehicles and trains), and a northbound traffic lane (vehicles only) with a forced right turn at Bryant Street. Between Brannan and Bryant Streets ~~33~~<sup>29</sup> out of 36 parking spaces on Fourth Street would be permanently eliminated. The surface platform displaces space for parking except the few spaces on the west side of Fourth Street, north of Freelon Street.

North of the platform, the tracks would come back together, crossing Bryant Street to a semi-exclusive right-of-way in the approach to the portal. The rail line would enter the subway portal in a 360-foot retained cut, located in the middle of the street between Bryant and Harrison Streets. There would be three southbound traffic lanes next to the 27.5-foot wide portal entrance: two on the west side of the tracks and one on the east side of the tracks. Between Bryant and Harrison Streets, all of the 29 parking spaces on Fourth Street would be permanently eliminated due to the portal structure.

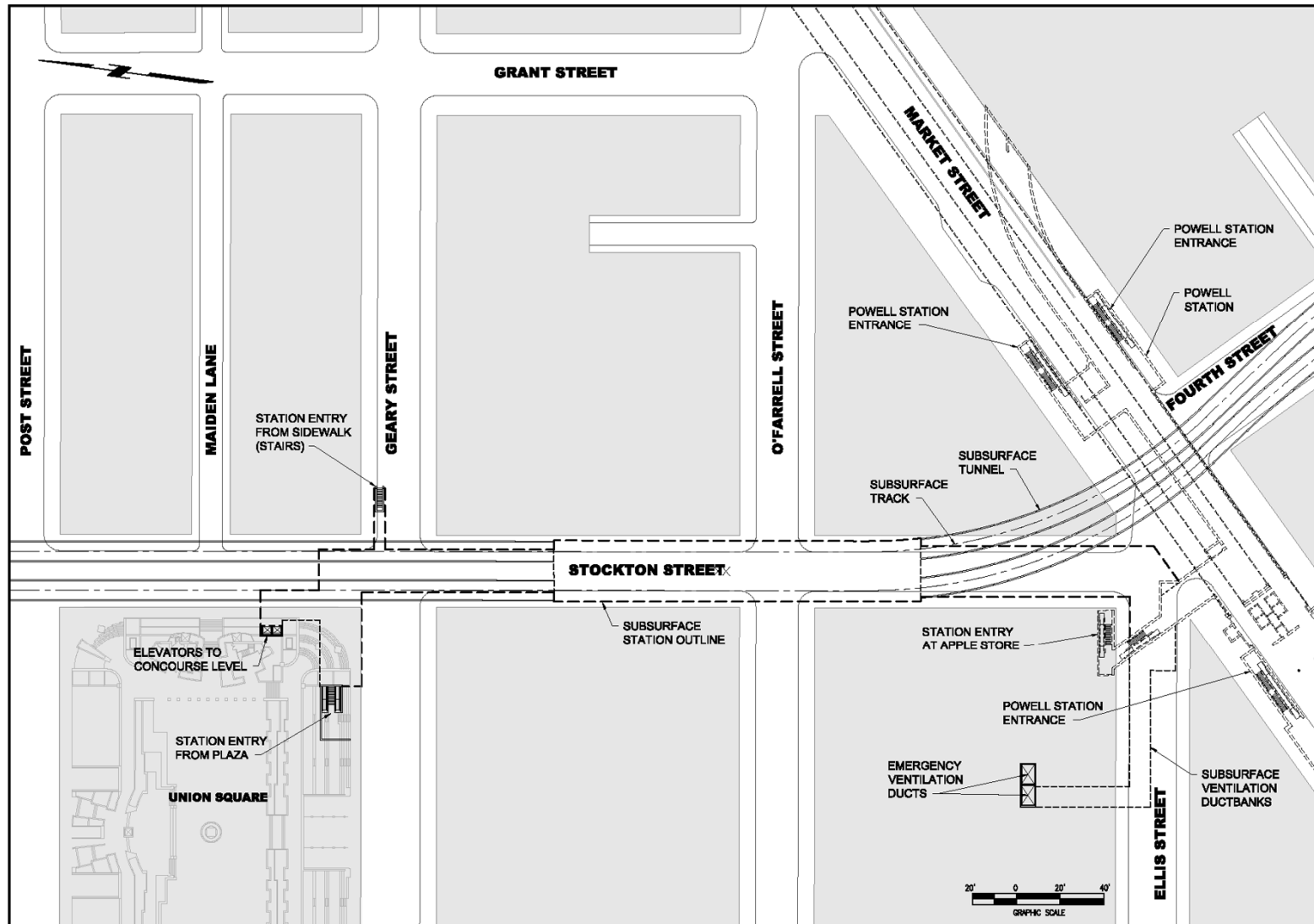
The subway for Alternative 3B would continue under Fourth Street to the Moscone Station located between Folsom and Howard Streets (see Figure 2-20), ~~the same as discussed for Alternative 3A on page 2-28.~~ Like Alternative 3A, this station would have mezzanine and concourse levels and a platform level that would serve both northbound and southbound trains. The main station entrance (escalators, stairs, and two elevators), would be in the off-street property at 266 Fourth Street. The station would be shorter than the one proposed in Alternative 3A and the emergency exit would be provided on the west side of Fourth Street mid-block between Folsom and Howard Streets.

Immediately north of Howard Street, the alignment would descend and continue in a side-by-side configuration to permit a deep crossing of the Market Street Subway and an easement under buildings at

790-798 Market Street/2 Stockton Street (Assessor's Parcel's #0328-002 and 37052-001 to 004). Different from Alternative 3A above, Alternative 3B would have a combined Union Square/Market Street Station located on Stockton between Geary and Market Streets, with a platform centered on O'Farrell Street (see Figure 2-21). It would have a common

**FIGURE 2-20: FOURTH/STOCKTON ALIGNMENT OPTION B - MOSCONE STATION**

Source: PB Wong

**FIGURE 2-21: FOURTH/STOCKTON ALIGNMENT OPTION B - UNION SQUARE/MARKET STREET STATION**

Source: PB Wong

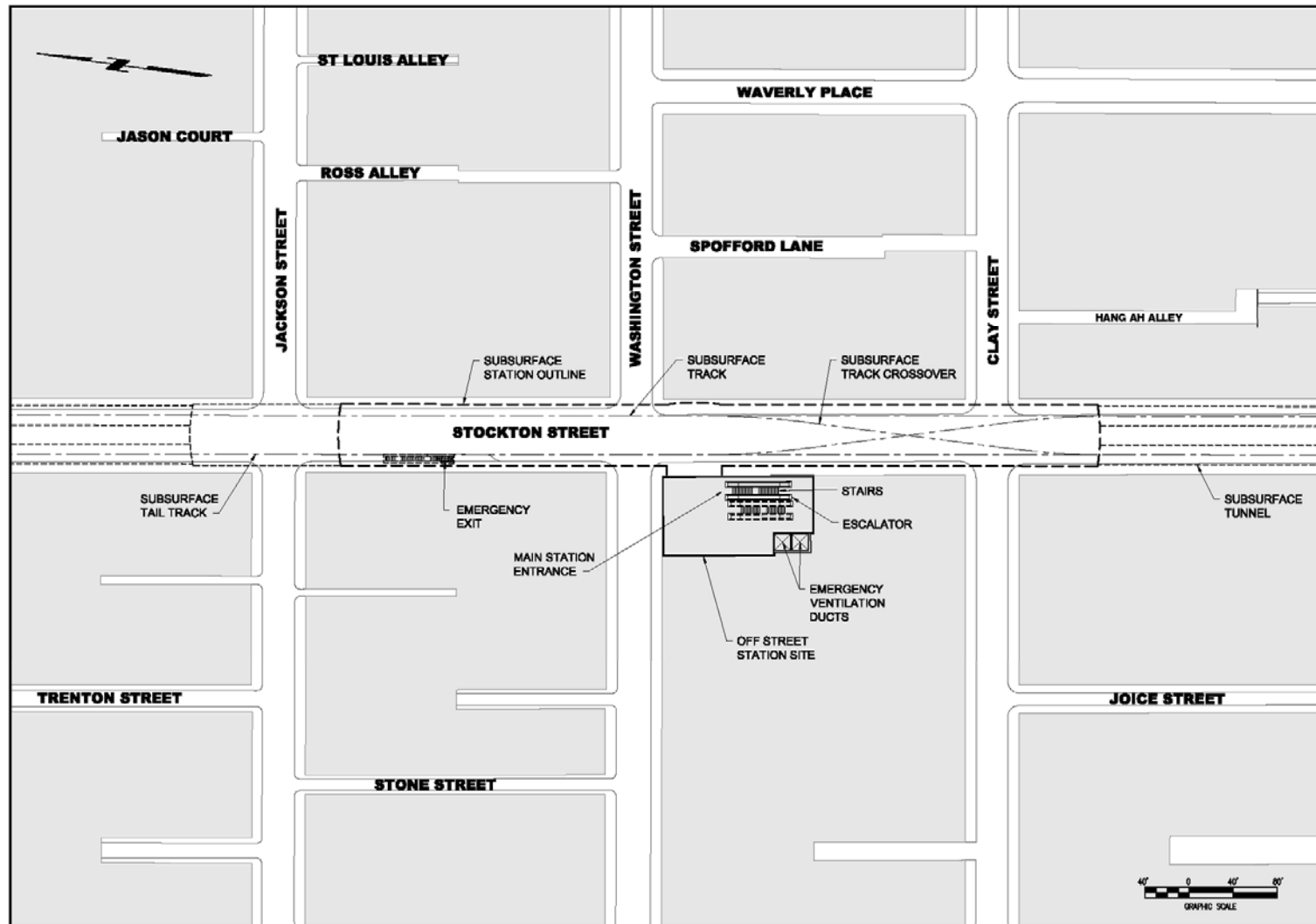


mezzanine and (~~concourse~~) and one platform level that would serve both northbound and southbound trains. The south end of the Market Street/Union Square Station would connect to the BART/Muni Metro Market Street Subways at the Powell Street Station using existing pedestrian entrances on Market Street and at the northwest corner entrance on Stockton and Ellis Streets. At the north end of the station the main entrance would be located at the southeast corner of Union Square on Geary Street just west of Stockton Street. The entry would include escalators and stairs. A site for as many as two elevators would be located off Stockton Street in the terrace near the corner at Geary Street. The station entrances would displace about 34 parking spaces in the Union Square Garage. A second set of stairs would be located in the sidewalk on the north side of Geary Street, just east of Stockton Street, behind an existing Muni bus stop. Widening of the existing station access/egress on the north side of Ellis Street at One Stockton Street (the Apple Store) may require a bulb-out of the sidewalk, which would result in the elimination of three parking spaces and an existing street tree. Two emergency ventilation shafts would extend west of Stockton Street under Ellis Street, rising inside the air-well of the Ellis/O'Farrell Garage at 123 O'Farrell Street to a height of 26 feet above the garage roof. The emergency ventilation would be designed in cooperation with BART so as not to impact ventilation in the Powell Street Station. These vents would displace about 25 parking spaces out of a total of 950 spaces in the Ellis/O'Farrell Garage.

North of the Union Square station, the subway would continue in a bored tunnel under Stockton in a side-by-side configuration to the Chinatown terminus. This would permit the location of a station with a center platform, as well as a double crossover of tracks for train return in the opposite direction south of the platform. Twin storage tracks, capable of storing two two-car trains, would extend north of the station, about 60 feet beyond Jackson Street. Different from both Alternatives 2 and 3A, the Chinatown Station for Fourth/Stockton Alignment Option B would be located on Stockton Street between ~~Washington~~ Clay and Jackson Streets (see Figure 2-22). It would have a mezzanine and (~~concourse~~) and one platform level for north and southbound trains. The main pedestrian entrance would be in a building that Muni would construct on the west side of Stockton Street south of Washington Street (933-~~935~~949 Stockton Street, Assessor's Parcel #0211-001) to accommodate escalators, stairs, two elevators, and two emergency ventilation shafts. Construction of the station entrance would require acquisition of the parcel and one building, and relocation of 8 businesses and 17 residential units that occupy the building. The Muni facility would require only one story. However, for the purposes of this analysis it is assumed to be part of a 65-foot high building as permitted under existing zoning. The vent shafts would rise 26 feet above the development roofline on the southwest end of the parcel. Emergency stairs would be provided by a sidewalk hatch located in an existing bulb-out on west side of Stockton Street between Washington

and Jackson Streets. The bulb-out would be extended slightly to an overall length of 38 feet, eliminating ~~about one~~ two parking spaces.

FIGURE 2-22: FOURTH/STOCKTON ALIGNMENT OPTION B - CHINATOWN STATION



Source: PB Wong

### Station Locations – Alternative 3B

Fourth Street Alignment Option 3B would have three subway stations and one surface station, as listed in Table 2-5. The surface station would be located on Fourth Street north of Brannan Street to serve emerging development in the area. The surface station would be between 14 and 15 feet in width. The subway station platforms would be about 200 feet in length (225 feet at Union Square/Market Street), ~~compared with 250 feet in Option 3A~~, and 26 feet in width to accommodate two-car trains using high-floor LRVs. All subway station designs would accommodate fare gates and ticket vending machines (TVMs) per new Muni policy. All subway station platforms are single level with a mezzanine and concourse level above to permit a deep crossing of Market Street.

**TABLE 2-5**

### **CENTRAL SUBWAY FOURTH/STOCKTON ALIGNMENT OPTION B STATION LOCATIONS**

<b>Station</b>	<b>Type</b>	<b>Location</b>
Brannan	Surface – Single Center Platform	Fourth Street between Brannan and Freelon Streets
Moscone	Underground – Single level center platform with a mezzanine <u>and</u> <del>concourse</del> level above platform level.	Fourth Street between Folsom and Howard Streets
Union Square/Market Street	Underground -Single level center platform with a mezzanine <u>and</u> <del>concourse</del> level above the platform level and a non-paid pedestrian level between Union Square and Market Street.	Stockton Street between Market and Geary Streets
Chinatown	Underground – Single level center platform and a mezzanine <u>and</u> <del>concourse</del> level above the platform level.	Stockton Street between Washington and Jackson Streets

### North Beach Tunnel Construction Variant – Alternative 3B

This variant would be the same as described above for Alternative 3A.

### Light Rail and Bus Operating Plan – Alternative 3B

For the Fourth/Stockton Alignment Option B, both the light rail and bus operating plans would be the same as for Alternative 3A and Alternative 2 as described in Section 2.1.2.

### Operating Statistics – Alternative 3B

The operating statistics for the diesel and trolley bus fleet for Central Subway Fourth Street Alignment Option B would be the same as Option A and the Enhanced EIS/EIR Alignment as described in Section 2.1.2. Table 2-6 summarizes the operating statistics for the Fourth/Stockton Alignment Option B. Rail headways on the T-Third line would improve from the current nine minutes under existing conditions to seven minutes in the No Project/TSM Alternative and to ~~five-six~~ six minutes under the Fourth/Stockton Alignment Option B (same as Option A). Even though there would be an increase in LRV route miles and service frequencies associated with the new Central Subway service, the result ~~is~~ would be an annual

**TABLE 2-6**  
**ANNUAL OPERATING STATISTICS FOR**  
**ALTERNATIVE 3 – FOURTH/STOCKTON ALIGNMENT OPTION B**

Alternative	Peak Headways 9-X Line <sup>2</sup>	Diesel/Trolley Peak Demand (Systemwide Fleet size) <sup>1</sup>	Total Annual Diesel/Trolley Bus Hours (Systemwide) <sup>1</sup>	Peak Headways T-Third <sup>2</sup>	LRV Fleet Peak Demand <sup>3</sup> (Systemwide Fleet size) <sup>1,3</sup>	Total Annual LRV Car Hours T-Line (Systemwide)
Existing (2007) T-Third	5 minutes	377 (495-473) diesel buses; 225 (333-331) trolley buses	2,592,230	9 minutes	418-119 (151) LRVs	84,800 109,400 (568,500) (570,200)
No Project/TSM (2030)	5 minutes	377 (495) diesel buses; 230 (333-336) trolley buses	2,622,030	7 minutes	429-137 (171) LRVs	80,400 117,000 (609,500) (602,700)
Fourth/Stockton Alignment Option B (2030)	5 minutes	377 (495) diesel buses; 219 (333-336) trolley buses	2,545,630	5-6 minutes	430-140 (175) LRVs	86,400 78,000 (590,100) <sup>3</sup> (615,900) <sup>3</sup>
Notes: <sup>1</sup> Source for 2007 bus equipment demand and bus hours is the Muni 2006-2025 Short Range Transit Plan, December 2005 and Dan Rosen, MTA, 2007. Revised Dan Rosen, January 2008. <sup>2</sup> Headway refers to the time between transit vehicles on a given line. <sup>3</sup> Assumes one-car trains operating in the peak for the Central Subway on both the long and short lines.						

reduction of ~~6,000~~ 39,000 LRV car hours (compared with ~~2,400~~ 40,300 LRV car hours for Option A) on the ~~Central Subway Corridor~~ T-Third line and a systemwide annual ~~reduction~~ increase of ~~19,400~~ 13,200 car hours, compared to the No Project/TSM Alternative and the ~~27,800~~ 11,900 car hours for Option A, which has ~~a more direct alignment~~ one fewer stations and a faster travel time.

#### Transit Fleet Requirements – Alternative 3B

Fourth/Stockton Alignment Option B would require four additional LRVs (three peak LRVs and one spare) beyond the 2030 requirements for the No Project/TSM Alternative. Muni's total LRV fleet size, including spares, would be 175 LRVs and ~~430~~ 140 LRVs in the peak period, the same as Option A. The diesel bus fleet would ~~remain the same as~~ increase by 23 buses from the existing condition in 2030, but ~~and No Project/TSM fleets, with the same peak demand~~ would remain the same. The trolley bus fleet would ~~remain the same~~ increase by five buses, but peak demand would be reduced by six trolleys over existing conditions and by eleven trolleys over No Project/TSM.<sup>6</sup>

The light rail maintenance facility, traction power distribution system, signaling and communication system and fare collection system previously described for Alternative 2 in Section 2.1.2 would also apply to Alternative 3B.

<sup>6</sup> San Francisco Municipal Railway, *EIR Supplemental Final Revised Light Rail and Bus Transit Operating Plan*, August 6, 2006.

## **2.2 CAPITAL COSTS**

### **2.2.1 CAPITAL COST SUMMARY**

The capital cost estimates were prepared for Alternative 2, Enhanced EIS/EIR Alignment; Alternative 3, Fourth/Stockton Option A, LPA; and Alternative 3, Fourth/Stockton Option B, Modified LPA; and cover all components of the Project from the Initial Operating Segment (IOS) northerly terminus at King and Fourth Streets to Chinatown and for the LPA (Option 3A and 3B) North Beach Construction Variant extending non-operating tunnels beyond Chinatown Station to a construction shaft located on Columbus Avenue.

The estimate was developed using the Federal Transit Administration (FTA) Guidelines for Preparation of a Capital Cost Estimate for New Starts Projects and is structured to follow the FTA Standard Cost Categories (FTA Standard Cost Categories for Major Capital Projects, Rev. 9, February 2007). The standard cost categories are shown in Table 2-7. Table 2-7 compares base capital costs in 2007 dollars (without escalation or finance charges).

Cost estimates for various components of the Project have been developed based on a breakdown of labor, permanent materials, construction materials, plant and equipment required to construct or install a component of the project, indirect costs and margin plus any additional subcontract costs and contingency. Included in the unit prices are cost allocations for utility relocation, mobilization/demobilization, traffic control, other sitework and special conditions, such as demolition, site clearance and disposal of contaminated ground. The capital cost estimate also has an allowance for public art at each of the stations. Prevailing labor rates used in building up the cost estimate are based upon Department of Industrial Relations Schedule of Labor Rates for Craftsmen in Northern California. Where appropriate, unit costs for some elements of the trackwork and systems installation are developed using historical data from MTA projects, including the IOS and other light rail projects around the country and location factored to the San Francisco area. All unit prices have been estimated in 2007 dollars.

Right-of-way and easement costs were provided by the City based on recent appraisals. Professional Services have been determined on a percentage of construction cost basis, including all subconsultants and engineering and administration by MTA. A design/estimating contingency allowance is included to cover design development, uncertain market conditions at the time of bids, and recognizes the preliminary engineering level of the project. The costs for four additional LRVs (three plus one spare vehicle) are based on recent MTA procurement costs. In accordance with FTA guidelines an unallocated

**TABLE 2-7**  
**CAPITAL COST SUMMARY (IN \$MILLIONS)**

	<b>2007 Alternative 2</b>	<b>2007 Alternative 3A<sup>1</sup></b>	<b>2007 Alternative 3B<sup>1</sup></b>
Guideway & Track Elements	\$364	\$248	\$244
Station, Stops, Terminals, Intermodals	\$376	\$376	\$325
Support Facilities: Yards, Shops, Admin. Bldgs.	--	--	--
Site Work & Special Conditions	\$94	\$70	\$47
Systems	\$118	\$110	\$94
<b>Construction Subtotal</b>	<b>\$952</b>	<b>\$804</b>	<b>\$710</b>
Row, Land, Existing Improvements	\$15	\$20	\$20
Vehicles	\$21	\$21	\$21
Professional Services	\$229	\$202	\$188
Unallocated Contingency	\$97	\$84	\$75
<b>Subtotal</b>	<b>\$1,345</b>	<b>\$1,131</b>	<b>\$1,014</b>
<sup>1</sup> Costs for Alternatives 3A and 3B do not include the North Beach Construction Variant which is estimated to cost \$54 million in YOE dollars. Source: PB/Wong 2007			

contingency is included in the capital costs to cover unexpected changes/additions in the work scope and unanticipated costs above and beyond the assumed normal rates that occur during construction.

The estimates are based on design/bid/ build delivery with contract packages as follows:

- Utility Relocations
- Tunnels including TBM Procurement
- Chinatown Station with Crossover and Tail Track
- Union Square/Market Street Station
- Moscone Station
- Surface Platform, and Trackwork, and Overhead Contact System
- Systems (Train Control, Traction Power, Communications and Overhead Contact System)

#### **Alternative 2 – Central Subway Enhanced EIS/EIR Alignment**

The original capital cost estimate for Alternative 2 was based upon an estimate for the EIS/EIR prepared in 2004 with enhancements added to the cost estimate in 2005. The costs indicated in Table 2-7 for Alternative 2 represent the base year estimate escalated to 2007 dollars in accordance with construction industry published escalation rates for the period 2004 to 2007. Adjustments were also made to the original 2004 estimate to reflect further definition of the project and consistency of unit prices with the later Alternative 3 estimates.

### Alternative 3A – Fourth/Stockton Alignment Option A (LPA)

The original capital cost estimate for Alternative 3A was based upon an estimate for the Project produced in 2005 and previously adjusted in 2006. The costs indicated in Table 2-7 for Alternative 3A represent the base year estimate escalated to 2007 dollars in accordance with construction industry published escalation rates for the period 2006 to 2007.

### Alternative 3B – Fourth/Stockton Alignment Option B (Modified LPA)

The capital cost estimate for Alternative 3B was based upon an estimate for the project produced in 2007.

## 2.3 OPERATING AND MAINTENANCE (O&M) COSTS

### 2.3.1 O&M COST ESTIMATION METHODOLOGY

The O&M cost model was developed based on Muni's actual operating expenses for fiscal year 2005/2006. O&M cost calculations accounted for the level of Muni service provided for the No Project/TSM Alternative, the Enhanced EIS/EIR Alignment, and the Fourth/Stockton Alignment Options A and B. For each alternative, bus and light rail variables related to route miles, service frequencies, and travel times were derived from engineering and travel demand requirements. See Chapter 8.0 for detailed description of cost estimation methodology.

Operations inputs, such as revenue miles and hours per mode, were calculated independently using operating plans developed specifically for the Central Subway Project.

### 2.3.2 O&M COST SUMMARY

Table 2-8 summarizes the total operating and maintenance costs for the Muni system, broken out by vehicle type, for each alternative.

**TABLE 2-8**  
**OPERATING AND MAINTENANCE COST SUMMARY**  
**(MILLIONS \$ / YEAR OF OPERATING EXPENSES)**

	No Project	Alternative 2	Alternative 3A	Alternative 3B
2016	\$707.9	\$693.4	\$693.0	\$693.2
2030	\$1,145.9	\$1,122.3	\$1,121.7	\$1,122.1
<b>Increment Over No Project/TSM</b>				
2016	N/A	(\$14.3)	(\$14.9)	(\$14.7)
2030	N/A	(\$23.6)	(\$24.2)	(\$23.8)
Source: MTA, May 2007.				



## 2.4 PROJECT DEVELOPMENT HISTORY

Ten alternatives, encompassing diesel and electric buses and light rail vehicles with varied alignments and operating scenarios were considered during a multi-phase planning and screening process that preceded preparation of the Third Street Light Rail Project Final EIS/EIR. Through the initial screening process the alternatives evaluated in the 1998 EIS/EIR were reduced to No Project, No Build/TSM with enhanced bus service to meet demand, and a two-phased Light Rail Build Alternative that included a 5.4-mile Initial Operating Segment (IOS), now referred to as the T-Third Line, and a 1.7-mile Central Subway Project as shown in Figure 2-29. In 1998, the San Francisco Planning Commission certified the Final EIS/EIR and the San Francisco Public Transportation Commission (predecessor to the MTA) approved design and construction of the Third Street Light Rail Project in two phases. In 1999, the FTA issued a Record of Decision for the IOS, Phase 1 of the Project. The T-Third Line opened for full revenue service in April 2007. The Phase 2 Central Subway Project was put on hold by the Commission in 1999 pending development of a viable financial plan and incorporation into the RTP.

The Phase 2 Central Subway 1998 FEIS/FEIR Project (known as the Base Case) has been eliminated as an alternative because it is no longer a feasible project due to changes in City fire codes related to the vent shaft placement and Muni fare collection policy changes. It is defined here only as a point of reference.

The Base Case would have operated on both Third and Fourth Streets, south of Market Street. The line would have started at Fourth and King Streets, the terminus of the T-Third Light Rail Project. It would have operated as a surface line running northbound on Third Street and southbound on Fourth Street. There would have been a surface station on Third Street at King Street. The rail line would have transitioned from surface to subway operation at portals located between Brannan and Bryant Streets for both the Third Street and Fourth Street segments. Just north of Harrison Street, the Fourth Street rail line would have turned east to converge with the Third Street line and would have operated double-track from this point north. There would have been two subway stations in this Third Street segment, one between Folsom and Howard Streets and the other just south of Market Street. The rail line would have crossed Market Street in a shallow subway above the BART and Muni tunnels and connected to Geary Street via Kearny Street. The Market Street Station also included a pedestrian connection to the Montgomery Station.

The line would have followed Geary Street to Stockton Street where it would have turned north and continued on Stockton Street to a terminus at Jackson Streets. The two subway stations in the north of

**FIGURE 2-29**  
**THIRD STREET LIGHT RAIL**  
**PHASE 1 INITIAL OPERATING SEGMENT AND PHASE 2 1998 FEIS/FEIR CENTRAL SUBWAY**



Market segment would have been located on Stockton Street at Union Square near Post Street and in Chinatown near Clay Street. All subway station entrances would have been located in public sidewalks. Station designs assumed Proof-of-Payment (POP) fare collection, which eliminated the need for fare gates, like those used on the Market Street Metro, at the mezzanine/concourse level.

During preparation of the Third Street Light Rail Project EIS/EIR in 1997, there was a formal screening process to determine which options should be carried forward for evaluation in the EIS/EIR. Four key decisions were formulated in this process and summarized in the *Design Options Screening Report, Working Paper #2*:<sup>7</sup>

- Decision 1. Which alignment sub-options should be selected for: 1) Mission Bay (Third/King or 16th/I-280/King); 2) the Central Subway (Stockton/Geary or Kearny); and 3) the Downtown Surface Route (Market Street/Transbay Terminal or Washington Street/Chinatown)?
- Decision 2. Which Downtown alignment should be selected: Option 1 - Market Street Subway (integrated with Muni Metro); Option 2 - a New Central Subway through Downtown to Chinatown; or Option 3 - a Downtown Surface Route?
- Decision 3. Which Third Street configuration should be selected: two lanes, one/two flexible lanes, or one lane? Which LRV type (high floor or low floor); station platform height and configuration; and station locations should be selected?
- Decision 4. Which site should be selected for the new LRV maintenance and storage facility (Mission Bay, Cargo Way, or the former Western Pacific Rail Yard) and should the new LRV maintenance facility and the LRV acquisitions be phased?

The four key decisions were discussed at a series of about 120 meetings between October 1996 and July 1997. Based on the input from the community meetings as well as input from the Project's Technical Advisory Committee and Community Advisory Group and City Commissions (Planning, Redevelopment, Port, and Parking and Traffic), the Public Transportation Commission (PTC) narrowed the design options to be carried forward in the EIS/EIR on July 8, 1997. For the Light Rail Alternative, the PTC eliminated the 16th/I-280/King alignment through Mission Bay, the Central Subway alignment via Kearny Street, and the Downtown Surface Route via Market or Washington Streets.

The Final EIS/EIR was completed in 1998. On June 23, 1998, the San Francisco Public Transportation Commission selected the Third Street Light Rail project as the Locally Preferred Alternative including the Phase I Initial Operating Segment (now T-Third Line) and the Phase 2 Central Subway. On January 19,

1999, the San Francisco Public Transportation Commission approved the two-phased Third Street Light Rail Project. The PTC also approved two traffic lanes in each direction along Third Street, a new rail maintenance and storage facility at the former Western Pacific rail yard site and use of high platforms along the T-Third line, explicitly rejecting the use of low platforms or a hybrid version (low level with a high boarding area) that were not compatible with Muni's existing high floor light rail vehicles or did not address accessibility concerns about having equal access at all doors. FTA issued a Record of Decision (ROD) on March 16, 1999, for the Phase 1 portion of the Project. Though no New Starts federal funds were used for the T-Third project phase, the ROD did permit acquisition of limited right-of-way for the Phase 2 Central Subway that was identified in the 1998 FEIS/FEIR. The ROD deferred approval of Phase 2 until the Central Subway was incorporated into the RTP and Project funding was identified.

The Phase 1 Third Street Light Rail Project was initially included in the MTC RTP as a locally-funded project. The IOS was supported by over \$300 million (1997 dollars) in Proposition B local sales tax revenues and other non-New Starts funds. In 2001, the Third Street Light Rail project, including the Phase 2 Central Subway, was incorporated into the RTP as a project eligible for federal funds. The funding plan included a combination of local, regional and federal funds for implementation of the two project phases and noted that an updated cost estimate would be provided for the Central Subway following selection of the Locally Preferred Alternative (LPA) by the MTA.

#### 2.4.1 PHASE 2 CENTRAL SUBWAY CONCEPTUAL DESIGN

At the time the 1998 EIS/EIR alternative was conceived, a shallow excavation method was thought to be the most cost-effective construction approach for crossing Market Street, as there was sufficient room above the BART/Muni Metro Subway at Third and Market Streets to accommodate a shallow crossing. A shallow crossing at Fourth and Market Streets was not considered because of conflicts with the Powell Street Station structure. Because of a concern about the impact of surface construction and the circuitous alignment required for a shallow alignment, the Central Subway design team subsequently recommended consideration of a deep (rather than a shallow) tunnel crossing of Market Street at Third Street that would go below the existing Muni Metro and BART tunnels using Tunnel Boring Machines (TBMs).<sup>8</sup>

Studies were also performed to evaluate several alternative surface-to-subway portal locations in the South of Market area.<sup>9</sup> The findings from the station design, construction methodology, portal location, and other studies were discussed at seven public meetings and five Third Street Light Rail Community Advisory Group (CAG) meetings beginning in 2003. The portal options and project construction

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<sup>7</sup> San Francisco Public Utilities Commission and Municipal Railway, *Design Options Screening Report Working Paper #2*, April 1997.

<sup>8</sup> San Francisco Municipal Railway, "Recommended Tunnel Construction Methods Report," March 16, 2004.

<sup>9</sup> San Francisco Municipal Railway, "Portal and Surface Station Locations Study," December 23, 2004

methods were presented to the public in an August 2004 meeting. The options included: (1) two portals, a single-track portal on Third Street between Townsend and Brannan Streets, one block south of the original location, with a single-track portal remaining on Fourth Street between Brannan and Bryant Streets or (2) a single double-track portal on Fourth Street between Townsend and Brannan Streets that used a two-track alignment via Harrison, Third, Kearny, Geary, and Stockton Streets. The prevailing public preference was for a single double-track portal on Fourth Street. Members of the public also suggested a Fourth Street alignment, which was possible using a deep crossing at Fourth and Market Streets. The meeting also discussed overall Project construction methods (TBM vs. Cut-and-cover/Special Excavation Method). The TBM concept was favorably received as an alternative to cut-and-cover since this approach reduces surface impacts such as noise, dust, and traffic effects and also reduces guideway construction time.

The “Special Alignment and Validation Studies,” finalized in June 2005, evaluated a Fourth/Stockton Alignment with a double-track portal on Fourth Street between Townsend and Brannan Streets and a deep crossing below the BART/Muni Metro Market Street subway at Fourth Street.<sup>10</sup> It maintained the Chinatown Station on Stockton Street in the vicinity of Clay Street, combined the Union Square and Market Street Stations with northern entries in the vicinity of Union Square and southern entries using BART/Muni Metro Powell Street Station entrances; and relocated the Moscone Station to Fourth Street between Howard and Folsom Streets. The Fourth/Stockton Alignment had improvements in transit and vehicular travel time and localized traffic circulation, particularly on Third Street. This alignment, which used TBM construction, also reduced surface-related construction impacts (noise, dust, traffic) as compared to the shallow construction method proposed for the 1998 EIS/EIR Alignment.

Based on results from these studies, the MTA approved the designation of the Fourth/Stockton Alignment as the Locally Preferred Alternative (LPA) on June 7, 2005. This designation allowed the Fourth/Stockton Alignment, rather than the 1998 EIS/EIR Alignment, to be evaluated as the LPA in the FTA New Starts Program. On February 19, 2008, the MTA, subsequent to publication of the Draft SEIS/SEIR, endorsed Alternative 3B as the LPA.

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<sup>10</sup> PB/Wong and San Francisco Municipal Railway, “Special Alignment and Validation Studies,” June 30, 2005.

#### 2.4.2 INITIATION OF SUPPLEMENTAL EIS/EIR

Preparation of an SEIS/SEIR was initiated in 2005 for the Phase 2 Central Subway refined alternatives.

A Notice of Preparation (NOP) identifying alternatives to be evaluated in the SEIR was sent to the

Governor's Office of Planning and Research, responsible and trustee agencies, the Central Subway mailing list, and Corridor residents and occupants within a 300-foot band of the proposed alignments on June 3, 2005. Legal notice was also published in the San Francisco Chronicle, ads were placed in five Chinese daily newspapers, and flyers posted along the proposed alignments. In addition, the alternatives were presented for public comment at an EIR Scoping meeting conducted by MTA and the San Francisco Planning Department on June 21, 2005. A Notice of Intent was not required for the Central Subway SEIS.

#### 2.4.3 MODIFICATIONS TO THE ALTERNATIVES

During the 2005 Central Subway Scoping Process, many comments regarding the proposed changes to the Phase 2 Central Subway were received. (See Section 11.0 Coordination.)

Subsequent to the Scoping Process, an updated Project construction cost estimate was prepared that exceeded the proposed budget for the Project. A panel of construction experts working with the Project design team undertook a cost reduction analysis to identify ways of reducing the cost of the Project without compromising its overall purpose and need. Surface alternatives along Third, Fourth, and Stockton Streets and continuing north to Fisherman's Wharf were evaluated as part of this process, but were rejected from further evaluation in the Draft SEIS/SEIR because they had fewer benefits in terms of service reliability and greater impacts on parking and traffic. Though the capital costs were less for a surface alternative than for a subway alternative, the surface alternatives only minimally met the project purpose and need and resulted in higher operation and maintenance costs.<sup>11</sup>

In response to public input during Scoping and recommendations from the cost reduction effort, a new option for the Fourth/Stockton Alignment design was identified. The original Fourth/Stockton Alignment was designated Option A (LPA) and a modified Fourth/Stockton Alignment, described below, was designated as Option B (Modified LPA). The changes incorporated into the Option B (Modified LPA) Alternative are summarized below.

- The portal was moved to a location under the I-80 Freeway on Fourth Street between Bryant and Harrison Streets;
- The number of southbound traffic lanes on Fourth Street between Harrison and Bryant Streets was reduced from four to three to accommodate the new portal location. In addition, the four southbound

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<sup>11</sup> PB/Wong for Muni, FINAL DRAFT, Task 1.72-01, Conceptual Alternative Downtown Rail Alignment Study Volume 1, Summary Report, Revision Oc, March 20,2006.

- lanes in the segment between Bryant and ~~King~~ Townsend Streets were reconfigured to two northbound and two southbound lanes. Two sub-options for the northbound and southbound light rail tracks were identified: operation in mixed-flow lanes or semi-exclusive right-of-way in the inner two lanes;
- The relocation of the portal from between Townsend and Brannan Streets to between Bryant and Harrison Streets allowed for an additional surface station on Fourth Street between Brannan and Bryant Streets. This station would be a center platform configuration with access from the Fourth and Brannan Streets intersection;
- The underground station platform lengths were reduced from 250 to 200 feet, and the platform widths were standardized at 26 feet to address cost concerns;



- The size of the combined Union Square/Market Street Station was reduced and the northerly pedestrian entry was moved to the southeast corner of Union Square at Geary and Stockton Streets;
- The Chinatown Station underground platform was moved a block north to Washington Street, a more central location in Chinatown, which would also result in a shallower and more easily accessible station with reduced station costs;
- Construction methods and phasing were changed to include the use of two rather than one TBM and to limit Union Square/Market Street Station construction to cut-and-cover as opposed to a combination of cut-and-cover and sequential excavation; and
- A construction variant extending tunnels north of the Chinatown terminus to the vicinity of Washington Square Park in North Beach was proposed to facilitate removal of the TBM following construction.

Following the first NOP in June 2005, Muni discovered that the NOP had not been distributed to property owners. Accordingly, on September 20, 2006, a revised NOP that presented details of Option B (Modified LPA) suggested by the public during the 2005 Scoping Process was sent to owners and occupants within a 300-foot band of the proposed Central Subway Project alignments. In addition, the revised NOP was sent to the San Francisco Planning Department's standard EIR distribution list and the 2,500-name Central Subway Project mailing list. The key comments received in response to the second NOP are summarized in Chapter 11.0 Coordination.

#### 2.4.4 SCREENING OF DESIGN OPTIONS/ALTERNATIVES NOT CARRIED FORWARD

##### **Alignment and Portal Location**

As mentioned in Section 2.4.1, the "Portal and Surface Station Locations Study" evaluated several surface-to-subway portal locations. The relocation of the single-track portal from between Bryant and Brannan Streets on Third Street to the block between Townsend and Brannan Streets, as well as having a double-track portal on Fourth Street between Townsend and Brannan Streets that would use an alignment via Harrison, Third, Kearny, and Geary Streets, and then transitioning back to Stockton Street were both eliminated from further consideration in the SEIS/SEIR because of traffic, parking and disruption to adjacent properties. A double-track portal on Fourth Street between Townsend and Brannan Streets was selected as a design to go forward with. These options were discussed at public meetings in the summer and fall of 2004. The double-track portal on Fourth Street between Townsend and Brannan is now a part of Alternative 3 - Fourth/Stockton Alignment Option A.

##### **Tunnel Construction Methods**

During conceptual engineering, a deep crossing of the BART/Muni Metro Market Street Subway at Third Street using a TBM to bore the northbound and southbound tunnels was considered for the Enhanced EIS/EIR Alignment. In this scheme the TBM would have been deployed between the single portals on Third and Fourth Streets and the intersection of Stockton and Geary Streets. This alignment would have passed under several properties between Third Street at Market Street and Stockton Street at Geary Street thus allowing for a straighter alignment compared to the surface construction alignment. From that point northward the Sequential Excavation Method (SEM) would have been used to reach the Chinatown terminus. The potential for incorporation of a deep Market Street crossing into the Enhanced EIS/EIR Alignment was evaluated in the “Special Alignment and Validation Studies.” The Third Street deep tunnel under Market Street was found to have a longer construction schedule and greater tunnel construction impacts to a sewer main, and higher costs, than a deep crossing on the Fourth/Stockton Alignment. These factors were discussed at public meetings in the summer and fall of 2004 and the deep crossing at Third and Market Streets was subsequently eliminated from further consideration in the Enhanced EIS/EIR Alignment when the Fourth/Stockton Alignment was selected as the LPA. A deep crossing of Market Street is proposed, as part of the Alternative 3 – Fourth/Stockton Alignment.

The use of a mega tunnel with a single large diameter bore for tunnels and stations was explored as an alternative to the twin tunnel construction method. Station access and ventilation shafts would be constructed via cut-and-cover techniques from the surface. The mega tunnel would require stacked stations that would push the platform levels to even greater depths. This tunneling concept was eliminated from further consideration because soil conditions are not optimal and settlement concerns would be greater with this approach, the larger TBM radii turns would impact more right-of-way requiring more costly right-of-way acquisition, and the platform depths would result in longer station access times for patrons. In addition, the deeper alignment under the BART/Muni Metro Market Street Subway would force the relocation of the Union Square/Market Street Station (UMS) for the Fourth/Stockton Alignment further north, creating a longer walk for passengers transferring to UMS from the BART/Muni Metro Powell Street Station.

### **Station Location**

The station locations and the northern boundary of the Phase 2, Central Subway were initially established early in the Third Street Light Rail planning process as part of the *Bayshore Transit Study* completed in 1993 and incorporated into the *Four Corridor Study* prepared by the San Francisco Transportation Authority in 1995. The northern limit of the Third Street Light Rail Corridor was originally at California Street (*Four Corridor Plan*) and was later extended to Jackson Street, the northern project boundary

analyzed in the 1998 EIS/EIR. The study limit of Jackson Street, established in the 1998 EIS/EIR, was important in distinguishing funding priorities for transportation corridors in the City and also for establishing the Project eligible for federal funding.

Under the 1998 EIS/EIR, all stations access points for the Project were provided in sidewalk areas within the public right-of-way. Early in the Phase 2 planning process for the Central Subway, station location and access studies were undertaken to evaluate the opportunities for locating station access points out of the public right-of-way to minimize disruption to the congested sidewalks and pedestrian traffic along the Project Corridor. At the same time, an alternative with a more direct alignment for the rail corridor, the Fourth/Stockton Alignment, was also being studied. When the NOP was issued in June 2005, off-street station locations had been incorporated in several locations into both the Enhanced EIS/EIR Alignment and the Fourth/Stockton Alignment. Further refinement of the station locations occurred between June of 2005 and summer of 2006 when the environmental process was reactivated. The northern boundary for the Project remained fixed at Jackson Street consistent with the 1998 EIS/EIR. Extending the Project boundaries northward would have required reinitiating the environmental process rather than preparation of a Supplemental EIS/EIR. The various station access points that were considered at each of the stations as part of this process are summarized below.

During conceptual engineering and public outreach discussed above, the San Francisco Planning Department and members of the public expressed concerns about the location of the Moscone Station on the Fourth/Stockton Alignment. Three locations for a Moscone Station were identified and discussed with the public at meetings in 2004 and 2005. The options included 1) Fourth Street between Howard and Folsom Streets, 2) Fourth Street between Folsom and Harrison Streets, and 3) Fourth Street between Howard and Folsom Streets with an additional subway station on Fourth Street south of Harrison Street. A member of the public and the cost reduction panel suggested a fourth option locating the station on Fourth Street between Mission and Howard Streets. The second and third options were developed in response to the Planning Department's concern about serving the anticipated development on Fourth Street, south of Harrison Street and north of the Fourth/King station. The second Moscone Station location on Fourth Street between Folsom and Harrison Streets was eliminated from further consideration in this SEIS/SEIR because of potential safety conflicts between vehicles and pedestrians at the freeway ramps and a lack of public support expressed at meetings in the summer and fall of 2004.<sup>12</sup> The third option was eliminated due to the cost of an additional subway station on Fourth Street between Brannan and Bryant Streets. However, when Fourth/Stockton Alignment Option B (Modified LPA) was

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<sup>12</sup> PB/Wong and San Francisco Municipal Railway, "Working Paper Task 1.60-11 Additional Station Location and Access Studies, Revision", May 24, 2005.

developed a surface station was added at that location. The fourth option between Mission and Howard Streets was eliminated due to the conflict with an ~~major~~ eight-foot diameter sewer transport line on Fourth Street in this area between Howard and Mission Streets, and station spacing concerns given the proximity of the Moscone Station between Mission and Howard Streets and a Union Square/Market Street Station between Market and Geary Streets. The sewer transport line was recently relocated to this block of Fourth Street specifically to provide a connection to Moscone Center, so moving the major sewer line is not feasible due to its size and service connection to Moscone Center. The eight-foot diameter of the sewer line, which would penetrate a station at this location, would preclude simple design solutions. In addition, shifting the station north to Mission Street would cause greater overlap of the Union Square/Market Street Station service areas and would create a service gap between the Fourth and King Station and Mission Street, thereby serving a smaller population and employment base in South of Market.

In Union Square, merchants expressed concerns in meetings held during 2004 and 2005 about the narrowing of sidewalks in the busy retail core and the potential impacts on businesses adjacent to subway entrances. The redesigned Union Square Plaza was identified for potential access to the Union Square Station for the Enhanced EIS/EIR Alignment and was favorably received by the business community and civic organizations. This station access proposal was incorporated into the Fourth/Stockton Alignment Option A and later refinements to Union Square Station access were incorporated into Alternative 3B.<sup>13, 14</sup>

Early in the process of exploring off-street locations for the Chinatown Station, the project team did a site walk of Chinatown with community members. Four potential off-site locations were identified for locating an entrance to the station centered on Clay Street: 1) the southwest corner of Stockton and Sacramento Streets intersection (777 Stockton Street); 2) the east side of Stockton Street north of Sacramento Street (814-828 Stockton Street); 3) the north side of Clay Street, west of the Stockton Street

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<sup>13</sup> Ibid.

<sup>14</sup> PB/Wong and San Francisco Municipal Railway, "Summary Report Task 1.60.4 Special Alignment and Validation Studies" Revision 0, June 30, 2005.

intersection (910-918 Clay Street); and 4) mid-block on the east side of Stockton Street between Jackson and Pacific Streets (site located in Ping Yuen Housing Complex at 799 Pacific). These sites were identified and evaluated based on factors such as building size and heights (one to two-story buildings were preferred to minimize neighborhood disruption), ability to accommodate station facilities and vent shafts (regulations governing vent shaft locations were updated to require off-sidewalk locations that discharge 10 feet above the adjacent surface), accessibility, constructability, business and residential displacement, development potential, possible environmental impacts, and consistency with Project boundaries established in the 1998 EIS/EIR. The 814-828 Stockton Street site emerged as the preferred site. The parking structure at 777 Stockton Street was eliminated from consideration because of its small size, which restricted the ability to accommodate the station entrance/exits and the vent shafts and to

retain existing residential uses on the property. The 910-918 Clay Street site was eliminated from further consideration also because of its small size, which restricted the ability to accommodate the station facilities and the vent shaft, the community organizations located in the building that would be affected, and because of its accessibility to Stockton Street. The steep grades on Clay Street, in combination with the distance from Stockton Street, made this site less accessible to subway patrons than others under consideration. The Ping Yuen site was eliminated due to its location two blocks away from the station and beyond the established Study Area limit established for the Project in the 1998 EIS/EIR and the northern limit distinguishing the corridor for funding priority in the *Four Corridor Plan*. Further restrictions on this site included: a 12-foot drop from street level to the site, no access for construction and staging areas, displacement of an existing child care center on the site, and impacts to residents of the public housing occupying the site.

In community meetings that were held subsequent to the publication of the initial NOP in 2005, the meeting participants suggested that the Chinatown station site be moved closer to the heart of the Chinatown business district. Based on further assessments and screening, two additional access points were evaluated at that time in conjunction with a subway station site between Clay and Washington Streets: the southwest corner of the Stockton and Washington Streets intersection (933-949 Stockton Street) and the east side of Stockton Street, south of Washington Street (944-960 Stockton Street). The 944-960 Stockton Street site was eliminated from further consideration as it only afforded limited access through the basement of the existing Mandarin Towers building constraining the amount of space available for station entrances/exits and vent shafts. Thus only the 933-949 Stockton Street site was incorporated into the Fourth/Stockton Alignment, Option B. Both the two story building at 933-949 Stockton Street, near Washington Street, and the two story building at 814-828 Stockton Street near Sacramento Street are being carried forward for analysis in the SEIS/SEIR.

## **2.5 ROLE OF THE SEIS/SEIR**

### **2.5.1 APPROVAL PROCESS**

The purpose of the SEIS/SEIR is to examine alternative transit improvements in the Central Subway Corridor in terms of their potential environmental and social-economic impacts and to compare the alternatives based on the following Project goals: 1) improve travel and mobility for transit riders; 2) improve transit access to employment opportunities and to other areas of the City and region; 3) enhance physical environment while minimizing adverse environmental impacts; 4) ensure compatibility with transit-supportive policies; 5) implement a financially feasible project; and 6) gain community acceptance and support from City officials.

In addition to describing potential adverse impacts and mitigation measures associated with each alternative, the Draft SEIS/SEIR describes the trade-offs among the No Project/TSM and the Central Subway Alternatives according to these goals. The information will be used by local decision makers and the FTA to determine which alternative would have the least environmental effects and would be the most cost-effective and beneficial to the community, which would have the strongest local support, and which would be within the financial capacity of the local project sponsor, MTA, to implement.

A 45-day public comment period on the Draft SEIS/SEIR allows the public and interested agencies the opportunity to cite concerns about the environmental analysis and evaluation of alternatives. The public comment period also offers the opportunity for the public to provide input to the MTA on the Locally Preferred Alternative (LPA). Following the selection of the ~~Preferred Investment Strategy~~ LPA, the Final SEIS/SEIR will be completed. The Final SEIS/SEIR will incorporate and provide a summary of the comments and responses received during the public review process for the Draft SEIS/SEIR, and may provide additional information on the LPA.

FTA and the San Francisco Planning Commission will review the Final SEIS/SEIR to determine if all issues and/or comments received on the Draft SEIS/SEIR have been addressed and if the document meets the requirements of the National Environmental Policy Act and California Environmental Quality Act, respectively. In addition, FTA will determine if interagency agreements, developed as committed project mitigation measures, have been completed. The Planning Commission will be asked to certify the Final SEIR as complete and fulfilling the requirements of CEQA.

After FTA's review is completed, a Draft Record of Decision is prepared. The Final SEIS will be submitted to the U.S. Environmental Protection Agency, which places a notice of availability of the Final SEIS for public review in the *Federal Register*. Additionally, the Final SEIS is distributed to agencies that have previously commented on the Draft SEIS/SEIR. No less than thirty days after the notice of availability is published in the *Federal Register*, FTA may sign the Record of Decision. The San Francisco MTA can then request from FTA a "Letter of No Prejudice," which states that local funds used to construct Phase 1 of the Third Street Light Rail Project may serve as a local match for New Starts federal funding for the Phase 2 Central Subway Project.

### 2.5.2 REQUIRED PERMITS AND APPROVALS

Permits and approvals involving local, state, and federal agencies will be required prior to Project implementation. A list of these major approvals is provided in Table 2-9.

TABLE 2-9 -AGENCY APPROVALS

Agency	Approval or Permit
Department of Interior	Section 4(f) approval.
Advisory Council on Historic Preservation	Approval of Memorandum of Agreement (MOA) describing procedures for protection of and mitigation of impacts to historic and cultural resources pursuant to Section 106 of the National Historic Preservation Act and 36 CFR 800.
California State Historic Preservation Officer (SHPO)	Finding of Effect Determination.
California Public Utilities Commission (CPUC)	Permits required for all at-grade or grade-separated railroad, highway, and street crossings as well as pedestrian crossings of light rail and railroad tracks; public hearings before the CPUC may also be required; a formal application to conform with CPUC Rules of Practice and Procedure (CPUC Code Section 1200) is required; a formal application requesting permission to deviate from the established CPUC General Order (G.O.) standard (such as those regarding the height requirements for overhead wires) must be submitted and approved by the CPUC.
Caltrans	Access Control Properties Review. Permit to Encroach on Caltrans Right-of-Way.
Metropolitan Transportation Commission (MTC) and California Transportation Commission	Consistency with RTP and STIP.
Bay Area Rapid Transit (BART)	<del>Amendment of Consistency with the 1986 Muni/BART Joint use Station Maintenance Agreement, First Supplement for Powell Street station entries, and execution of the 2008 Station Improvement Coordination Plan.</del>
Regional Water Quality Control Board	General Construction Activity Stormwater Permit.
Bay Area Air Quality Management District (BAAQMD)	Conformity determination.
San Francisco Public Utilities Commission	Batch Industrial Wastewater Discharge Permit required for dewatering affluent discharge to the combined sewer system providing the quality of the effluent meets the NPDES General Permit discharge standards.
San Francisco Municipal Transportation Agency	Approve Project. Request from FTA a "Letter of No Prejudice" for New Starts federal funding. Approval required for surface street changes, traffic operation changes, traffic control measures, and on-street parking changes.
San Francisco Department of Public Health	Review and acceptance of site remediation plan in Maher Ordinance Area – Article 20.
San Francisco Planning Commission	General Plan Review/Referral for all aspects of project which occur in public rights-of-way, and amendments to appropriate portions of General Plan, Transportation Element, and Planning Code.
San Francisco Landmarks Preservation Advisory Board	Section 106 Review and Approval, review of SEIS/SEIR and Historical Architectural Report.
San Francisco Department of Public Works	Approval required for construction in streets and changes to sidewalk widths.
San Francisco Redevelopment Commission	Project review required for portions within existing Redevelopment Project Areas and, if adopted by the Board of Supervisors, within the proposed Redevelopment Areas. No approvals are needed for constructing light rail.
San Francisco Department of Recreation and Parks	Section 4(f) de minimis approval. Prop. K review and approval for shadow analysis. <del>Long term encroachment permits for Union Square plaza.</del>
San Francisco Arts Commission	Approval of the Public Arts Element and Civic Design.
San Francisco Board of Supervisors	Approval of General Plan and Planning Code amendments. Adoption of Redevelopment Plan amendments. Approval of property acquisitions, including eminent domain. Approvals required for use of City rights-of-way and Park property.
San Francisco County Transportation Authority	Review and inclusion of the project in the Countywide Transportation Plan and Capital Improvement Program of the Congestion Management Program for San Francisco funding.





## **3.0 TRANSPORTATION ANALYSIS**

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This chapter of the SEIS/SEIR describes the existing transportation conditions in the Study Area and evaluates the potential environmental operational and cumulative impacts of each of the four Central Subway alternatives as described in Chapter 2.0. Mitigation measures that would reduce or avoid operational environmental impacts are also described. See Chapters 4.0 and 5.0 for a description of existing conditions and impacts associated with all other environmental categories. All construction impacts and mitigation measures are summarized in Chapter 6.0, Construction. See Chapter 7.0 for the CEQA determinations of significance for all environmental categories.

Consistent with CEQA, the San Francisco Planning Department considers mitigation measures when necessary and feasible in order to reduce or eliminate potentially significant environmental effects. Improvement measures may be recommended to further minimize the affects of impacts that are less-than-significant. Under NEPA and FTA procedures, mitigation measures may be recommended to address project-related adverse effects even if impacts would not necessarily be considered significant.<sup>1</sup> This section identifies mitigation measures intended to reduce Project impacts to comply with both CEQA and NEPA requirements. For CEQA purposes, Chapter 7.0 provides further distinction between mitigation and improvement measures.

### **3.1 AFFECTED ENVIRONMENT**

This section describes existing transit, traffic, freight, parking, non-motorized transportation, and emergency access conditions in the Central Subway Corridor (Corridor). For the purposes of transportation data collection and analysis, the Study Area is identified as the area generally within a two block radius of the Corridor, unless otherwise defined below. The Study Area would be bounded by the Mission Creek Channel to the south, Second and Montgomery Streets to the east, Columbus Avenue to the north, and Sixth and Taylor Streets to the west.

#### **3.1.1 TRANSIT**

This section provides a discussion of the existing local and regional transit systems serving the Central Subway.

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<sup>1</sup> Council on Environmental Quality, Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 Federal Register, 18026, 1981.

## Existing Muni Transit System

### Transit System

Muni provides 20-hour a day (5 a.m. to 1 a.m.), daily access to most locations within San Francisco with 24-hour a day daily service on 10 key trunk corridors. All of the 79 transit lines, except one which operates only weekends, operate seven days a week. Muni operates four modes of vehicles: diesel bus, trolley bus, rail (light rail vehicles/historic streetcars), and cable cars. Equipment demand by mode is shown in Table 3-1. In addition, Muni provides paratransit service by contract. The system carries approximately 216 million riders annually.

**TABLE 3-1**  
**2007 MUNI EQUIPMENT DEMAND BY MODE**

	<b>AM Peak Vehicle Demand</b>	<b>Revenue Vehicle Fleet<sup>2</sup></b>
Diesel Bus	377	495
Trolley Bus	225	333
Light Rail Vehicles (LRVs)	118	151
Historic Street Cars	17	26
Cable Cars <sup>1</sup>	26	40
Total	763	1,045
<sup>1</sup> Midday peak.		
<sup>2</sup> Plus an addition 45 diesel buses that compose a reserve fleet.		

Although the Muni route network is a modified grid that allows multi-destinational travel, approximately two-thirds of the 79 Muni routes are radial lines that travel from the neighborhoods to Downtown San Francisco. This includes 36 local and 16 express lines. In addition there are 13 cross-town lines that run north-south, east-west, or circumferential and 12 community service lines that fill in the gaps or serve areas of steep topography within the City. Also included are two special owl service routes (90, 91) that operate between the hours of 1 a.m. and 5 a.m. Late night service is also provided by eight regular routes on the L, N, 5, 14, 22, 24, 38, and 108 lines.

Transit service from the southern end of the Third Street Corridor to Downtown is provided by the new T-Third line. Including late night (Owl) bus service, transit along Third Street operates 24 hours a day. See Table 3-2 for a guide to hours of operation and frequency of transit service along the Third Street Light Rail Corridor. The new T-Third light rail line is an extension of the K-Ingleside line, which transitions from the K-Ingleside line to the T-Third line at the West Portal Station for inbound trains and

**TABLE 3-2**  
**GUIDE TO FREQUENCY OF SERVICE (AVERAGE TIME IN MINUTES)**

ROUTE NAME <sup>1</sup>	WEEKDAY						SATURDAY					SUNDAY				
	First	7-9 a.m.	9 a.m. - 4 p.m.	4-6 p.m.	Eve	Last	First	7-10 a.m.	10 a.m. - 6 p.m.	Eve	Last	First	7-10 a.m.	10 a.m. – 6 p.m.	Eve	Last
T-Third <sup>4</sup> (LRT)	5:28	9	10	9	12-20	11:54 p.m.	5:28	10	10	12-20	11:54 p.m.	5:28	10	10	12-20	11:54 p.m.
J-Church (LRT)	5:09	8	10	12	20	12:30 a.m.	5:36 a.m.	12	12	15-20	12:16 a.m.	5:36 a.m.	15	15	20	12:16 a.m.
K-Ingleside (LRT)	5:09	10	12	10	12-20	12:30 a.m.	4:47 a.m.	12	12	15-20	12:16 a.m.	4:47 a.m.	15	15	20	12:16 a.m.
L-Taraval (LRT)	Owl	7	10	7	12-20	Owl	Owl	10	10	15-20	Owl	Owl	12	12	15-20	Owl
M-Oceanview (LRT)	5:42	9	12	9	12-20	12:30 a.m.	5:35 a.m.	12	12	15-20	12:11 a.m.	5:35 a.m.	15	15	20	12:11 a.m.
N-Judah (LRT)	Owl	7	10	7	12-20	Owl	Owl	10	10	15-20	Owl	Owl	10	10	15-20	Owl
1-California (trolley bus)	5:22	3	6	3	15	1:25 a.m.	5:25 a.m.	15	6	30	1:20 a.m.	5:25 a.m.	15	6	30	1:20 a.m.
2-Clement (diesel bus)	5:17	10	20	10	--	7:18 p.m.	5:07 a.m.	15	15	--	7:18 p.m.	5:07 a.m.	15	15	--	7:18 p.m.
3-Jackson (trolley bus)	7:06	10	20	10	20	1:05 a.m.	5:22 a.m.	15	15	20	1:22 a.m.	5:22 a.m.	15	15	20	1:22 a.m.
4-Sutter (trolley bus)	4:59	15	--	25	--	--	--	--	--	--	--	--	--	--	--	--
9-San Bruno (diesel bus)	5:35	10	10	8	15	12:18 a.m.	6:10 a.m.	12	12	20	11:55 a.m.	6:10 a.m.	12	12	20	11:55 a.m.
9X-Third Express <sup>2</sup> (diesel bus)	7:07 a.m.	5	10	5	15	5:55 p.m.	9:31 a.m.	--	15	--	6:15 a.m.	9:31 a.m.	--	10	15-20	6:15 a.m.
9AX Third 'A' Express <sup>3</sup> (diesel bus)	6:43 a.m.	10	--	10	--	--	--	--	--	--	--	--	--	--	--	--
9BX Third 'B' Express <sup>4</sup> (diesel bus)	6:41 a.m.	10	--	10	--	--	--	--	--	--	--	--	--	--	--	--
10-Townsend (diesel bus)	5:47	10	20	10	30	7:02 p.m.	--	--	--	--	--	--	--	--	--	--
12-Folsom/Pacific	5:54	10	10	10	30	12:30 a.m.	6:00 a.m.	20	20	30	12:19 a.m.	6:00 a.m.	20	20	30	12:19 a.m.
20-Columbus	7:05	10-12	15	--	--	4:07 p.m.	--	--	--	--	--	--	--	--	--	--
30-Stockton long line <sup>4</sup> (trolley bus)	5:30 a.m.	9	9	9	12	1:06 a.m.	6:00 a.m.	10	6	12	1:06 a.m.	6:00	10	6	12	1:06

**TABLE 3-2**  
**GUIDE TO FREQUENCY OF SERVICE (AVERAGE TIME IN MINUTES)**

ROUTE NAME <sup>1</sup>	WEEKDAY						SATURDAY					SUNDAY				
	First	7-9 a.m.	9 a.m. - 4 p.m.	4-6 p.m.	Eve	Last	First	7-10 a.m.	10 a.m. - 6 p.m.	Eve	Last	First	7-10 a.m.	10 a.m. – 6 p.m.	Eve	Last
30-Stockton short line <sup>4</sup> (trolley bus)	Owl	9	4-5	4-5	12	Owl	Owl	10	3-6	12	Owl	Owl	20	4-8	12	Owl
38-Geary (diesel bus)	5:14 a.m.	15	15	15	20	12:07 a.m.	5:14 a.m.	15	14	15	12:44 a.m.	5:14 a.m.	15	14	15	12:44 a.m.
38L-Geary Limited (diesel bus)	6:00 a.m.	7	7	7	--	5:52 p.m.	8:40 a.m.	7	7	--	5:39 p.m.	--	--	--	--	--
45 Union/Stockton (trolley bus)	6:10 a.m.	9	9	9	15	1:02 a.m.	6:10 a.m.	15	12	15	1:30 a.m.	6:10	20	12	12	1:30
47-Van Ness (trolley bus)	6:00 a.m.	8	9	8	20	1:06 a.m.	6:14 a.m.	9	9	20	1:19 a.m.	6:14 a.m.	9	9	20	1:19 a.m.
91-Owl <sup>4</sup> (diesel bus)	12:15 a.m.	--	--	--	30	4:15 a.m.	12:15 a.m.	--	--	30	4:15 a.m.	--	--	--	--	

<sup>1</sup> All bus lines operate fully accessible vehicles. All light rail vehicles (LRVs) are fully accessible; but the T-Third is the only fully accessible rail line because it has high level platforms on the surface. The other light rail lines are fully accessible in the Market Street Subway but are accessible only at key stops on the surface.

<sup>2</sup> Reverse-peak direction service.

<sup>3</sup> Service operates peak-hour, peak-direction only.

<sup>4</sup> Late night service provided by the 91-Owl.

Source: San Francisco Municipal Railway

transitions from the T-Third line to the K-Ingleside line at Ferry Plaza for outbound trains. It has been extended to operate as the T-Third via The Embarcadero, King, Fourth, Owens, and Third Streets and Bayshore Boulevard to a temporary terminal in the middle of Bayshore Boulevard, just south of Sunnydale Avenue. It will eventually connect directly to the Caltrain Bayshore Station that straddles the county line between the cities of San Francisco and Brisbane. Most of the operation is in semi-exclusive right-of-way. The exception is the nine-block section in the Bayview Commercial Core, which operates in a mixed-flow configuration to retain parking in support of business revitalization. There are 18 light rail surface stations, with 8 center and 10 side platforms. All platforms are high level and most extend the length of a block between two intersections. The T-Third line operates between 5 a.m. and 1 a.m. with daytime service frequencies of 9 minutes during peak periods.

### Bus System

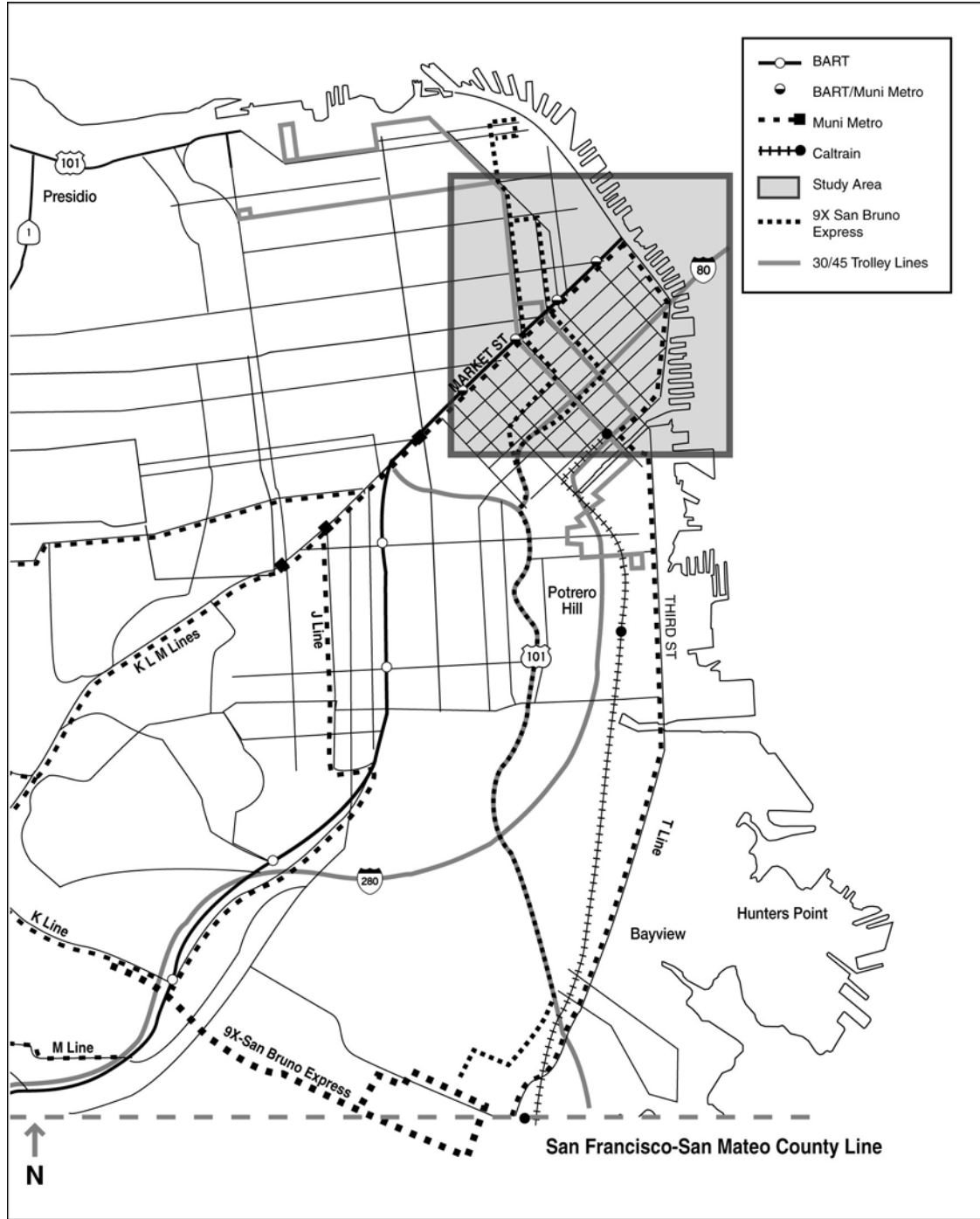
A detailed description of the Corridor's six primary bus routes and their current available capacity is provided below (see Figure 3-1). Vehicle design capacities are derived from the size of the vehicle and include the number of sitting and standing passengers. According to Muni, for both standard electric trolley coaches and diesel motor coaches, the design capacity for planning purposes is 63 passengers per vehicle; for articulated buses, the design capacity is 94 passengers per vehicle; and for light rail vehicles, the design capacity is 119 passengers. In order to determine the amount of bus capacity used at the maximum load point (the point where passenger demand is the highest) for each line, the number of peak hour passengers at the maximum load point was divided by the bus capacity (the number of vehicles x the design capacity per vehicle) during the peak hours.<sup>2</sup>

**9X-San Bruno Express.** This line operates 20-hours per day on weekday and weekends. It connects Fisherman's Wharf, North Beach and Chinatown districts (Broadway and Kearny/Stockton Streets) to Visitacion Valley, the Excelsior district, and City College (Phelan Loop) via North Point and Powell Streets, Columbus Avenue, Stockton and Kearny Streets, Third and Fourth Streets, Highway 101, San Bruno Avenue, Bayshore Boulevard, Geneva Avenue, and Ocean Avenue to Phelan Avenue. This line provides service to the Powell and Montgomery BART/Muni Metro stations. During the a.m. peak hour, the maximum load point occurs at Stockton and Sutter Streets in the southbound (outbound) direction, with about 55 percent of the available capacity used. During the p.m. peak hour, the maximum load point occurs at the same location in the southbound (outbound) direction, with the bus line operating at over 58 percent of capacity. About 63 percent of the route's 8,100 daily boardings occur north of Highway 101.

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<sup>2</sup> Passenger and number of vehicle information were based on Muni bus monitoring data for FY 05/06. Ridership data has not yet been collected for the service changes implemented in April 2007.

**FIGURE 3-1**  
**EXISTING MUNI ROUTES SERVING THE STUDY AREA**



Source: PB Wong  
Not to scale

**9AX-San Bruno 'A' Express.** This line operates 20-hours per day weekdays and weekends. It connects the North Beach and Chinatown districts (Broadway and Stockton Street) to the Excelsior district (Geneva/Mission Streets) and City College (Phelan Loop) via Stockton and Kearny Streets, Third and Fourth Streets, Highway 101, San Bruno Avenue, Bayshore Boulevard, Geneva Avenue, and Ocean Avenue to Phelan Avenue. Like the 9X-San Bruno, this line provides service to the Powell and Montgomery BART/Muni Metro stations. During the a.m. peak hour, the maximum load point occurs at Bayshore Boulevard and Carroll Avenue, with the bus line operating at almost 117 percent of capacity. During the p.m. peak hour, the maximum load point occurs at Stockton and Sutter Streets, with the bus line operating at about 108 percent of capacity. About 57 percent of the route's 2,800 daily boardings occur north of Highway 101.

**9BX-San Bruno 'B' Express.** This line operates on the same weekday schedule (no weekend service) as the 9X and 9AX and operates along the same route as the 9X. During the a.m. peak hour, the maximum load point occurs at Bayshore Boulevard and Arleta Avenue, with the bus line operating at about 83 percent of capacity. It also operates at about 98 percent of capacity during the p.m. peak hour, when the maximum load point occurs at Stockton and Sutter Streets. About 62 percent of the route's 2,100 daily boardings occur north of Highway 101.

**30-Stockton.** This line connects the Marina district (Beach/Broderick Streets) to the Caltrain Terminal (Fourth/Townsend Streets) via Chestnut Street, North Point Street, Columbus Avenue, Stockton Street, and Fourth Street to Townsend Street. It provides service to the Montgomery and Powell BART/Muni Metro stations. During the a.m. peak hour, the maximum load point occurs at Stockton and Sutter Streets in the northbound (inbound) direction, with approximately 83 percent of the available capacity used. During the p.m. peak hour, the maximum load point occurs at the same location in the southbound (outbound) direction, with about 71 percent of the available capacity used. Daily boardings average about 27,100.

**45-Union/Stockton.** This line connects the Presidio (Lyon/Greenwich Streets) to the Caltrain Terminal (Fourth/Townsend Streets) via Union Street, Stockton Street, Fourth Street to Townsend Street. It provides service to the Montgomery and Powell BART/Muni Metro stations. During the a.m. peak hour, the maximum load point occurs at Stockton and Sutter Streets in the southbound (outbound) direction, with about 91 percent of the available capacity used. During the p.m. peak hour, the maximum load point also occurs at this location in the southbound (outbound) direction, with about 73 percent of the available capacity used. Daily boardings average about 12,700.



Other Muni routes serving the Study Area are summarized below. At the Caltrain Terminal, the 10-Townsend diesel bus line provides service east along Townsend Street to the Transbay Terminal and then north through the Financial District on Battery and Sansome Streets, continuing along The Embarcadero and North Point Street to a terminus at Van Ness Avenue. The 47-Van Ness trolley bus line connects the Caltrain Terminal to the west of Downtown along the Van Ness Avenue corridor, terminating at Van Ness Avenue and North Point Street near the 10-Townsend bus line terminus. The 12-Folsom/Pacific diesel bus line operates inbound on Folsom Street and outbound on Harrison Street to The Embarcadero, and then west to Pacific Heights via Broadway and Pacific and Jackson Streets. The 9-San Bruno operates on lower Market Street. The Market Street lines generally serve all of the BART/Muni Metro stations.

There are extensive Downtown connections to Muni surface bus operations and Muni Metro, and BART rail service. The 14-Mission and 14L–Mission Limited trolley bus lines and 14X–Mission Express diesel bus line operate along Mission Street. At Market Street there are nearly a dozen Muni bus lines that operate past Third and Fourth Streets, including the 2, 3, 4, 5, 6, 7, 16AX, 16BX, 21, 38, 71, and 71L lines. The F-Market provides surface rail connections between the Castro district and Downtown along Market Street. The BART/Muni Metro Montgomery and Powell Street Stations serve riders on the Market Street Subway near Third and Fourth Streets.

Union Square is served by the 38-Geary and 38L-Geary Limited diesel bus lines crossing Stockton Street inbound on O’Farrell to the Transbay Terminal and outbound on Geary Boulevard to the Richmond district. The 3-Jackson and 4-Sutter trolley bus lines and the 2-Clement diesel bus line cross Stockton Street inbound on Post Street and outbound on Sutter Street. The 2-Clement line continues to the Ferry Building. The 3-Jackson and 4-Sutter lines terminate near Market and Sansome Streets.

In Chinatown, the 1-California trolley bus line operates inbound to Market Street via Clay Street, and outbound to the Richmond district via Sacramento Street. As mentioned above, the 12-Folsom/Pacific line operates between South of Market, The Embarcadero and Chinatown via Broadway (inbound) and Pacific Street (outbound).

#### Light Rail System

Muni also operates the Muni Metro light rail system (refer to Figure 3-1). The light rail service has various types of operations: on-street in mixed traffic conditions, surface operations in semi-exclusive right-of-way, and exclusive subway. Most of the system operates on-street in mixed-flow conditions. The Metro system currently has five operating lines, all serving downtown San Francisco: the J-Church (from Balboa Park via Church Street), K-Ingleside (from Balboa Park via Ocean Avenue and West Portal

Avenue), L-Taraval (from San Francisco Zoo via Taraval Street), M-Ocean View (from Ocean View via 19th Avenue and West Portal Avenue), and N-Judah (from Great Highway via Judah Street). In addition, the Castro Shuttle operates in the subway between The Embarcadero and Castro stations during peak hours on 10-minute headways.

Muni started operation of an historic trolley line on Market Street in September 1995 and extended it in 1998. The F-Market historic streetcar line runs on the surface of Market Street, between Castro Street and Fisherman's Wharf, and operates using rehabilitated vintage PCC (President's Conference Committee) cars designed in the 1930s and historic street cars from systems around the world.

Muni Metro light rail lines provide weekday service generally between 5 a.m. and 1 a.m., 6 a.m. and 1 a.m. on Saturday and 8 a.m. and 1 a.m. on Sunday. Metro owl service (late-night surface bus operation) is offered for the L-Taraval and N-Judah lines. The J-Church route area is generally served by the 24-Divisadero and the surface portion of the K-Ingleside line is covered by the 91-Owl bus during the late-night hours when Muni Metro is not in operation.

The weekday Muni Metro and street car daily ridership for the 6 lines is about 128,100 boardings, including 16,100 for the F-Market, 18,700 for the J-Church, 15,300 for the K-Ingleside, 23,300 for the L-Taraval, 23,300 for the M-Ocean View, 31,400 for the N-Judah, and 24,000 for the T-Third line.<sup>3</sup>

### **Future Bus Service Changes**

Muni's SRTP 2006-2025 lists three transit-related improvements that are planned for implementation in and near the Study Area. These include:

- Bus Rapid Transit (BRT) - The Geary Corridor is one of the identified areas for BRT implementation and initial planning work is underway.
- Transit Preferential Streets (TPS) Improvements - Areas identified for TPS are Stockton Street/Columbus Avenue and Market Street.
- Islais Creek Bus Maintenance and Storage Facility - the new bus maintenance facility at Indiana and Tulare Streets will replace the Kirkland Division.

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<sup>3</sup> Muni Draft Short Range Transit Plan, 2008-2027, Ridership for Fiscal Year 2006 and Muni estimates from July 2007 for the T-Third line.

### Mission Bay

Muni is planning to extend trolley coach service to accommodate new ridership in Mission Bay as employment and residential development increase in that area (see Figure 3-2). The expected changes include:

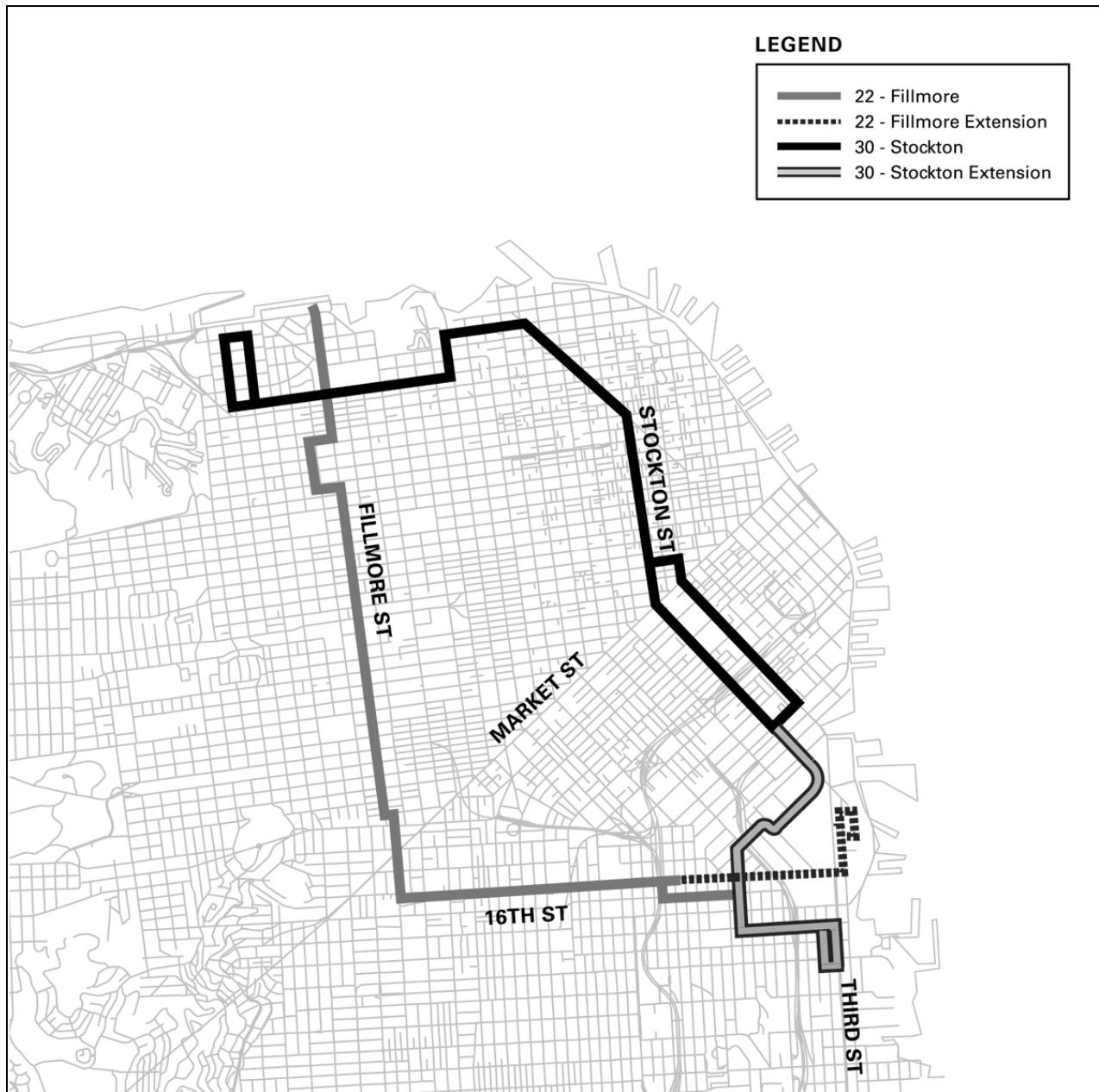
- Reroute the 22-Fillmore, which currently serves the Potrero Hill and Dogpatch neighborhoods, onto 16th Street, east of Kansas Street, to a terminal on Third Street in Mission Bay. As an interim measure, this extension to Third Street may be served by the 33-Stanyan. This service change requires overhead wires to be constructed on 16<sup>th</sup> Street between Kansas and Third Streets, and a terminal loop at Third Street. There are a number of safety concerns about the Caltrain grade crossing at 16<sup>th</sup> and Seventh Streets that must be resolved, before construction proceeds.
- Extend either the 30-Stockton or 45-Union/Stockton trolley coach line from its existing terminal at Fourth and Townsend Streets, through Mission Bay, and over a portion of the current 22-line on Potrero Hill to the existing 22-line terminal at Third and 20<sup>th</sup> Street. This service requires new street construction and identification of funding for overhead wires relocation and acquisition of additional vehicles in Mission Bay before it can be implemented.

### **Origin-Destination Analysis**

In February and March of 2004, a transit on-board survey was performed to support the transit planning efforts of Muni and the San Francisco County Transportation Authority. Prior to the development of this survey, a 1976 citywide survey of Muni passenger characteristics and travel patterns and a 1996 survey of transit riders in the Third Street Corridor were used to support the initial estimates of Third Street Light Rail ridership. A primary goal of the survey was to more precisely understand the origins and destinations of Muni passengers systemwide.

The origins and destinations of riders of the 15-Third bus line were primarily located in the Bayview-Hunters Point neighborhood (23 percent), Chinatown/North Beach (18 percent), Crocker-Amazon/Visitation Valley (15 percent), and South of Market (14 percent) (see Figure 3-3). The combined origins and destinations of riders all corridor routes, including the former 15-Third, 9AX/9BX-San Bruno Expresses, 30-Stockton, and 45-Union/Stockton indicate the greatest travel shares in Chinatown (26 percent), South of Market (16 percent), the Geary corridor (15 percent), and Crocker-Amazon/Visitation Valley (12 percent). Only 11 percent of the origins and destinations were in the Financial District/Civic Center areas

**FIGURE 3-2**  
**PROPOSED MISSION BAY ROUTE CHANGES**

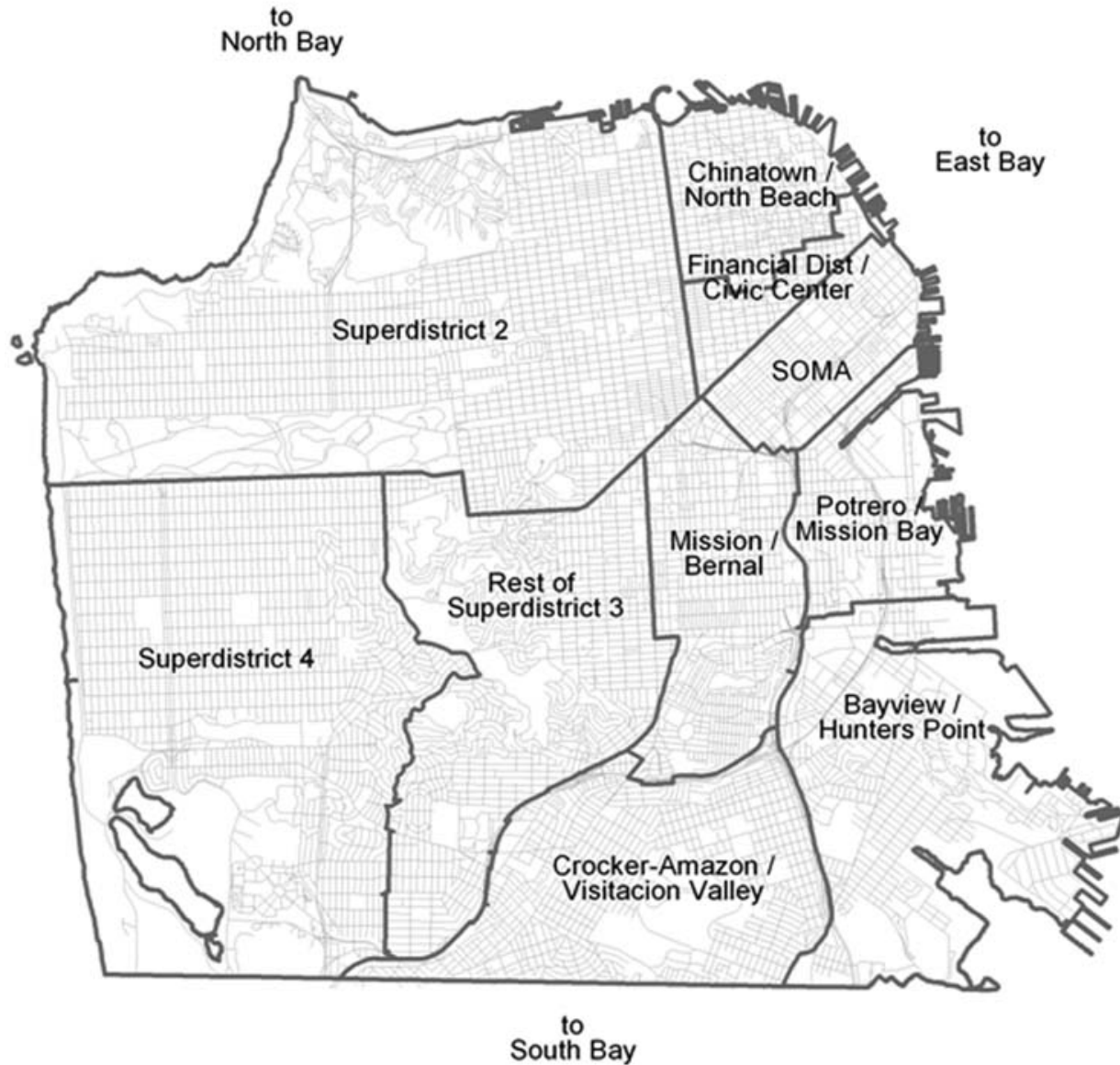


Source: MTA  
 Not to Scale

### Transit Travel Times

Travel times are a significant influence on the attractiveness of transit for any given trip. Transit travel times relative to walking and driving are key inputs and outputs of the travel demand forecast model used

**FIGURE 3-3**  
**ORIGIN - DESTINATION DISTRICTS**



Source: PB/Wong  
 Not to Scale  
 Revised 1/08

to estimate the future transit ridership of the Central Subway. In addition to other factors such as service frequency and stop location, the transit travel times are used in the model to predict the origins, destinations, timing, and purposes of transit trips. Average travel times by transit for select corridor origins and destinations illustrate transit service currently experienced by Third Street Corridor riders.

For the T-Third line, the travel time between the endpoints of the line is approximately 47 minutes during the a.m. peak period. Between Sunnydale Avenue/Bayshore Boulevard and Fourth/King Streets the in-vehicle travel time is 24 minutes.

For the existing 9X/9AX/9BX-San Bruno Express buses, the in-vehicle travel time between Arleta Avenue/Bayshore Boulevard and Kearny/Pacific Streets is approximately 34 minutes. In addition, the in-vehicle travel time between Arleta Avenue/Bayshore Boulevard and Kearny/Sutter Streets is 28 minutes. For both the 15-Third bus line and the 9X/9AX/9BX-San Bruno Expresses, p.m. peak service would be slightly longer due to generally more congested roadway conditions.<sup>4</sup>

### **Regional Transit Services**

Several regional transit providers serve the Study Area. These include Caltrain, BART, AC Transit, Golden Gate Transit, and SamTrans.

#### Caltrain

Caltrain provides commuter rail service between Santa Clara and San Francisco Counties. A total of 86 trains, including 10 express trains, run along the San Francisco Bay Peninsula each weekday and almost 32,000 people take Caltrain each day.<sup>5</sup> Caltrain's San Francisco Terminal is located at Fourth and Townsend Streets, approximately one and one-half mile from the core of Downtown. Several Muni local and express buses and one Metro line serve this station. Caltrain passengers who purchase a Peninsula Pass are able to transfer to any Muni bus or the light rail train at no charge. Approximately 7,150 daily passengers currently board at this station.<sup>6</sup>

#### Bay Area Rapid Transit (BART)

BART provides regional transit services, connecting San Francisco with Millbrae in the Peninsula and Pittsburg, Richmond, Fremont, and Dublin in the East Bay. In FY 06, the average weekday ridership was approximately 323,000 throughout the entire system.<sup>7</sup> Connections to the Corridor and Chinatown can be made via the Embarcadero, Montgomery, and Powell BART/Muni Metro Stations along Market Street.

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<sup>4</sup> Travel times derived from the June 2006, Muni rotation sheets.

<sup>5</sup> Caltrain Short Range Transit Plan, FY 2004/2013.

<sup>6</sup> Caltrain Station Rank (Average Weekday 2006)

<sup>7</sup> BART Fourth Quarter FY2006, Summary Chart, Performance Indicators, BART Website, June 2007.

#### Alameda-Contra Costa Transit District (AC Transit)

AC Transit is the primary bus transit operator for the East Bay counties of Alameda and Contra Costa. AC Transit operates 27 routes from the East Bay into the San Francisco Transbay Terminal. The Transbay Terminal is located two blocks east of Third Street between First and Fremont Streets and south of Mission Street. Most of the transbay service is designed for commuters and operates during peak periods only. In FY 06, the total average weekday ridership on the transbay routes was approximately 11,300 passengers.<sup>8</sup>

#### Golden Gate Transit

Serving riders from Marin and Sonoma Counties, Golden Gate Transit brings nearly 5,000 riders to San Francisco each weekday over a system of 18 commute express and 3 all-day basic bus routes. Most routes serve either the Civic Center area via the Van Ness Corridor or the Financial District via Battery/Sansome Streets. Transfers to other regional operators can be made along Mission Street and at the Transbay Terminal (two blocks east of the Corridor). Basic routes provide evening and late night service to San Francisco.

#### San Mateo County Transit District (SamTrans)

SamTrans is the primary public transit operator for San Mateo County, with 57 public transit routes. The service area stretches from northern Santa Clara County to Downtown San Francisco, with many routes terminating at the Transbay Terminal (two blocks east of the Corridor). SamTrans operates 11 routes that serve Downtown. Total average weekday ridership on the 11 routes serving downtown San Francisco is approximately 11,300 passengers.<sup>9</sup>

#### Bay Area Ferries

Ferry service is provided between San Francisco and Vallejo, Alameda, Oakland, and Tiburon by the Blue and Gold Fleet. Golden Gate Transit operates ferry service between San Francisco and Larkspur and Sausalito. All ferries serve the Ferry Terminal, located on The Embarcadero at the foot of Market Street.

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<sup>8</sup> Alameda-Contra Costa Transit District (AC Transit) GM Memo No. 7-036, Annual Transbay Service Performance Analysis.

<sup>9</sup> San Mateo Transit District (SamTrans) Short Range Transit Plan, Interim-2004-2013.

### **Planned Regional Improvements**

There are three major regional transit improvements that are identified in the current Regional Transportation Plan (RTP) and that have been included in the San Francisco travel demand model assumptions.<sup>10</sup>

- BART System – This project would improve station access, expand station capacity, and introduce new vehicles to the BART core system to reduce existing system constraints.
- Ferry Terminal – The RTP calls for improvements to the Downtown Ferry Terminal and to increasing the number of spare ferry vessels.
- Transbay Terminal – Phase 1 improvements including replacement of the existing Transbay Terminal with an upgraded facility with additional transit capacity are included in the financially constrained element of the RTP. The extension of Caltrain service from the Terminal at Fourth and Townsend Streets to the Transbay Terminal is not included in the financially constrained element of the RTP and therefore for modeling purposes is not assumed to be in place by 2030.

#### **3.1.2 TRAFFIC**

##### **Existing Roadway Network**

The Study Area contains major north-south roadways that link the southeastern quadrant of San Francisco with Downtown and provide regional connections to the Peninsula, East Bay, and Marin County. It also contains principal thoroughfares that distribute traffic in the South of Market, Union Square, Downtown, Chinatown and North Beach districts (refer to Figure 3-3). The major roadways in the Study Area are described below, including the average daily traffic volumes of 2005.<sup>11</sup>

##### Highway 101

This principal north-south highway links San Francisco with the Peninsula to the south and with Marin County to the north. Between Interstate 80 and Interstate 280, the limited access highway 101 has ten traffic lanes. Between I-80 and the Golden Gate Bridge, Highway 101 is a six-lane surface street along South Van Ness Avenue, Van Ness Avenue, Lombard Street, Richardson Avenue, and Doyle Drive. Highway 101 at Cesar Chavez Street carries over 246,000 vehicles per day.

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<sup>10</sup> Metropolitan Transportation Commission, *Transportation 2030 Plan for the San Francisco Bay Area*, Final February 2005.

<sup>11</sup> Caltrans 2005 Traffic Counts.



### Interstate 280

Interstate 280 (I-280) is a ten-lane freeway connecting the Peninsula with the southwestern quadrant of the City. For southbound traffic, I-280 provides a direct connection around the east side of Potrero Hill to Highway 101. Northbound traffic can use I-280 to access Potrero Hill and Mission Bay neighborhoods. I-280's northern terminus consists of a pair of on and off-ramps in the South of Market area, at Sixth and Brannan Streets and at Fifth and King Streets. I-280 at Mariposa Street (south of the on and off-ramps) carries over 106,000 vehicles per day.

### Interstate 80

Interstate 80 (I-80) provides the primary access to and from the San Francisco Oakland Bay Bridge (Bay Bridge) which connects to the East Bay and it also connects directly with Highway 101, west of Ninth Street. In the vicinity of Third and Fourth Streets, I-80 has three through lanes in each direction. I-80 provides access to the Bay Bridge, which carries up to 294,000 vehicles a day. A set of on-and-off ramps is located at Fifth Street and Fourth Street for eastbound and westbound I-80 traffic, respectively.

### Third Street

Third Street serves as a principal north-south arterial, extending north from its interchange with Highway 101 and Bayshore Boulevard to Market Street in the Financial District. Third Street serves as a through street and as a connection between the commercial and industrial areas located along the length of Third Street and the Highway 101 and I-80/Bay Bridge regional freeway facilities. The San Francisco *General Plan* identifies Third Street as a Major Arterial and a Transit Important Street. It is also part of the Congestion Management Plan (CMP) network and Metropolitan Transportation System (MTS).

In the SOMA area, Third Street serves as the principal northbound arterial into the Financial District from Mission Bay and the City's growing eastern waterfront. Third Street is a one-way, northbound arterial (with one-way southbound Fourth Street) between King Street and Market Street. Third Street is typically 62.5 feet wide with 10-foot wide sidewalks on both sides. In this section of Third Street, there are three 10-foot northbound through lanes. The configuration of the outside lanes varies by time of day and block. There is a dedicated northbound bus lane on the east side of the street that starts 200 feet south of Brannan Street and continues north to Market Street. Peak hour parking restrictions allow the use of the curb lane as a dedicated turn lane for Brannan, Bryant, and Mission Streets. Metered parking on both sides of Third Street exists between Market and King Streets, with the exception of the block between Howard and Folsom Streets, where parking is restricted all day long.

#### Fourth Street

Fourth Street, between King and Market Streets, is designated as a Major Arterial in the *General Plan*. With a 62.5 feet curb-to-curb width and two 10-foot wide sidewalks, Fourth Street is a key roadway connection between the Financial District and southbound I-80 and I-280. Fourth Street also provides the most direct pedestrian connection between the Financial District and Union Square and the new commercial and residential developments in the vicinity of the Caltrain Terminal at Townsend Street.

From its northern terminus at Market Street, Fourth Street draws traffic from southbound Stockton Street and eastbound O'Farrell Street. The number of traffic lanes on Fourth Street between Market and Townsend Streets varies between two and four through lanes. The configuration of the parking lanes varies by time of day and block. Multiple left-turn and right turn lanes exist at Mission, Folsom, and Harrison Streets. Between Harrison and Townsend Streets, a dedicated bus-only lane with a raised boarding island at Townsend Street, is located on the east side of the roadway. At Townsend Street, a dedicated left-turn lane separates the bus lane from the curb. Fourth Street, south of Townsend Street where it fronts the Caltrain Terminal, becomes a two-way street with two lanes in each direction. At Fourth and King Streets, the T-Third line intersects with the Muni Metro Extension (MMX) line from Market Street to Fourth Street, then continues south crossing over Mission Creek to Mission Bay via the Fourth Street Bridge. Existing metered parking can be found on both sides of Fourth Street between Market and Townsend Streets, except for the block between Mission and Howard Street, where a 24-hour parking restriction is in effect. As with other streets in the South of Market Area, Fourth Street has a combination of full-time and part-time tow-away restrictions of several block faces to increase traffic capacity during the peak travel hours.

#### Fifth Street

Fifth Street runs north and south between Market Street to the north and Townsend Street to the south, where it ends at the Caltrain Rail Yard. Fifth Street is a two-way street with two traffic lanes in each direction. The curb-to-curb width is generally 62.5 feet throughout the Study Area. There are 10-foot wide sidewalks and on-street parking along both sides of the street. The San Francisco *General Plan* identifies Fifth Street as a Major Arterial between Market and Bryant Streets and a Citywide Bicycle Route between Market and Townsend Streets. Metered parking is established on both sides of Fifth Street from Market to Bluxome Streets, except the block between Harrison and Bryant Streets, where there are tow-away restrictions in place, and the block between Bryant and Brannan Streets, where there is an existing one-hour parking regulation from 7 a.m. to 6 p.m., Monday through Saturday.

#### Sixth Street

Sixth Street provides a direct connection to the I-280 freeway in the South of Market Area at Townsend Street. Sixth Street is a two-way, north-south arterial with four traffic lanes and a curb-to-curb width of 62.5 feet throughout the Study Area. There are 10-foot wide sidewalks on both sides of the street. An additional traffic lane is provided in the southbound direction on Sixth Street between Howard and Harrison Streets during the p.m. peak period, due to on-street parking restrictions. Metered parking is provided along both sides of the street between Market and Folsom Streets.

#### King Street

King Street is a wide, landscaped boulevard providing a direct east-west connection between The Embarcadero and the I-280 on and off-ramps at Fifth Street. With a 126-foot curb-to-curb width and 20-foot wide sidewalks in the vicinity of Third and Fourth Streets, King Street has unique and varied geometries designed to safely accommodate high pedestrian, light rail, and vehicle flows. It is a four-lane, two-way street with Muni Metro tracks in a center median. In general, parking is not permitted on King Street, except on the north side between The Embarcadero and Third Street. King Street has an average daily traffic volume (ADT) of 21,580 east of Third Street.<sup>12</sup> It is designated as a Major Arterial, Primary Transit Street, a Neighborhood Network Connection Street, and Bicycle Route east of Third Street in the *General Plan*.

#### The Embarcadero

The Embarcadero, along the eastern edge of the Study Area, has three traffic lanes in each direction between Howard and Broadway Streets, and two traffic lanes in each direction south of Howard Street. An ADT of 47,700 was recorded at Washington Street, north of the Study Area. With a curb-to-curb width exceeding 120 feet in many locations, The Embarcadero readily accommodates Muni's semi-exclusive median rail right-of-way between South Beach Park and Fisherman's Wharf. The F-Line's Fisherman's Wharf extension operates in a semi-exclusive median right-of-way from Broadway Street to Kearny Street.

The *General Plan* designates The Embarcadero as a Major Arterial, a Primary Transit Street, a Neighborhood Commercial Street, a Citywide Bicycle Route with marked bike lanes, as well as a freight traffic route. Metered parking along The Embarcadero is managed by the Port of San Francisco. The walkway or promenade on the east side of The Embarcadero also serves as a key recreational trail for tourists, walkers, joggers and skaters.

#### Market Street

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<sup>12</sup> DPT count, 10/7/2004

Market Street is the central spine of San Francisco's Downtown and South of Market districts, serving as the axis from which the two street grid systems diverge. It is a two-way, four-lane street with a 120-foot right-of-way and sidewalks that range from 26 feet to 35 feet wide, with restricted transit lanes, boarding islands and marked bicycle lanes in the vicinity of the Project. Market Street primarily serves the City as a transit corridor, providing rail and bus transit service on the surface and two underground levels of rail service, Muni Metro and BART. Market Street is designated as a Primary Transit Street, a Neighborhood Commercial Street, and a Citywide Bicycle Route. Parking on Market Street is restricted to commercial loading and unloading use.

#### Geary Street

Geary Street is an east-west street providing a connection from the Union Square area to the Richmond District. In the vicinity of Union Square, the street is typically 38 feet wide with 15-foot sidewalks. In the Union Square area, it is one-way in the westbound direction and has two-mixed traffic lanes and a transit lane. Geary Street is designated in the *General Plan* as a Major Arterial, a Primary Transit Street, and a Neighborhood Commercial Street. Metered parking is available on both sides of Geary Street, except for the north side between Stockton and Powell Streets, which directly fronts the Union Square garage entrance.

#### Stockton Street

Stockton Street is a three-lane street that extends north from Market Street, past Union Square, Chinatown, and North Beach to Beach Street in the vicinity of Fisherman's Wharf. It is one-way in the southbound direction between Market and Sutter Streets, with two travel lanes and a transit lane. North of Sutter Street, it is two-way with one northbound lane and two southbound lanes. It traverses through a tunnel under Nob Hill between Sutter and Sacramento Streets. Within the tunnel, there is a single northbound bicycle climbing lane. Stockton Street is designated as a Primary Transit Street, a Neighborhood Commercial Street, and a Citywide Bicycle Route. In the Union Square area, Stockton Street has full-time tow-away restrictions on several blocks to increase capacity during the peak travel hours, with metered parking allowed in spot locations. In Chinatown, most of the metered parking spaces are established for commercial loading and unloading for the various businesses along Stockton Street.

#### Kearny Street

Kearny Street has a 46-foot wide curb-to-curb width and two 14-foot wide sidewalks. Kearny Street is designated as a major arterial in the San Francisco *General Plan*. It is also a designated Primary Transit Street between Broadway and Market Street and a Neighborhood Commercial Street between Market Street and Columbus Avenue. Typically four lanes wide, Kearny Street has peak hour parking

restrictions that allow a second left-turn lane at Sutter and Pine Streets and a second right turn lane at Post, Bush and California Streets. Metered parking is established on the west side of Kearny Street between Geary and Bush Streets and a daytime tow-away restriction (7 a.m. to 6 p.m.) on the east side of the street.

#### Columbus Avenue

Columbus Avenue, designated as a Major Arterial in the *General Plan*, provides a direct connection between the Financial District and Fisherman's Wharf. It is also a designated Primary Transit Important Street and Neighborhood Commercial Street between Kearny and North Point Streets. Columbus Avenue has a curb-to-curb width of 60 feet with 10-foot sidewalks. This width allows for two traffic lanes in each direction, and includes painted medians and turn pockets where required. Metered parking exists on both sides of Columbus Avenue, except where the bus zones serve the 15-Third, 30-Stockton, 41-Union, and the 45-Union-Stockton lines. A tree-planted median in the middle of Columbus Avenue exists between Union and Filbert Streets.

#### **Planned Roadway Improvements**

Roadway improvements planned for implementation in the Study Area or in the immediate vicinity include: the Bay Bridge approach and Terminal Separator ramps and roadway changes related to improvements at the Transbay Terminal. These roadway improvement projects are discussed in Section 2.1.1.

#### **Traffic Volumes**

Table 3-3 lists existing average weekday and peak hour traffic volumes on several roadways in the Corridor. The total two-way volume of a.m. and p.m. peak period traffic along most of the Corridor is generally similar. However, during the morning peak period, almost two-thirds of the traffic on Third Street's two-way segments is northbound toward the Downtown. During the p.m. peak period, traffic flows are closely balanced in the northbound and southbound directions.

Traffic counts conducted along Corridor area roadways indicate that the heaviest traffic volume periods occur on weekdays between 7 a.m. and 9 a.m. and between 4 p.m. and 6 p.m. Therefore, this study assesses the potential impacts the proposed project alternatives could cause to the transportation network during these typical weekday periods.

**TABLE 3-3**  
**EXISTING WEEKDAY TRAFFIC VOLUMES IN THE CORRIDOR**

Count Location		Traffic Volumes		
Roadway	Location	Daily (Approx.)	A.M. Peak Hour	P.M. Peak Hour
Interstate 280	Between 18th & Sixth Streets	95,000	11,440	11,340
	Between Sixth & Fifth Streets	52,000	2,490	2,470
Interstate 80	Between Fourth & Second Streets	201,000	13,740	11,560
Third Street	NB Between King & Townsend Streets	23,800	1,050	1,720
	NB Between Harrison & Folsom Streets	28,500	2,060	1,770
Fourth Street	SB Between King & Townsend Streets	11,300	780	1,160
	SB Between Harrison & Folsom Streets	29,000	1,450	1,770
King Street	Between Fourth & Third Streets	24,900	2,730	3,370
	Between Third & Second Streets	18,500	2,590	3,380
Geary Street	WB Between Powell & Stockton Streets	11,500	1,190	1,640
Stockton Street	SB Between Market & O'Farrell Streets	18,200	980	1,120
	SB Between Geary & Post Streets	18,000	1,410	1,750
Notes: All volumes are two-way volumes unless otherwise noted. NA – Not Available Source: San Francisco Department of Parking and Traffic and San Francisco Model, 2007.				

### Intersection Levels of Service

This SEIS/SEIR evaluates the weekday peak hour operations of five key signalized intersections along the Third, Fourth, and Sixth Street corridors that could be affected by the proposed alternatives. Other intersections along these street corridors may also be effected by Project alternatives, therefore the five intersections designated for analysis are representative of traffic conditions in the vicinity. In 2006, traffic conditions were assessed by DPT based on a.m. and p.m. peak hour turning movement counts at each of the Study Area intersections to assist in determining current traffic levels.

LOS is used to describe how efficiently an intersection operates. The method used for signalized intersection analysis generally defines LOS in terms of delay, which is the average amount of time a vehicle must wait before being able to pass through the intersection. The delay is expressed by letter designation from LOS A, which signifies very low delays (under 10.0 seconds per vehicle), to LOS F, which signifies substantial delays (over 80 seconds per vehicle) and congestion. In urban settings, LOS E (over 55 seconds to 80 seconds of delay per vehicle) and LOS F (80 seconds or greater delay) are

considered unacceptable levels of service. (LOS criteria for signalized intersections are defined in detail in Table E-5 in Appendix E.)

Existing peak hour service levels at each of the signalized intersections are presented in Table 3-4. During the a.m. peak hour the Third Street/King Street intersection performs at LOS D and the Fourth Street/Harrison Street and Fourth Street/Bryant Street intersections operate at LOS B. The other two Study Area intersections (Fourth/King and Sixth/Brannan) perform at LOS E and F, respectively, in the a.m. peak hour, when the traffic flows from the I-280 off-ramps are the heaviest. During the p.m. peak hour, two of the Study Area intersections operate at LOS ~~C~~, or better B, with the other three operating at LOS E or F conditions as outbound traffic peaks towards the I-280 freeway on-ramps. During the afternoon peak, traffic may queue back several blocks on City streets on approaches to the freeway ramps in the South of Market area. Congestion occurs not only at the intersections noted in Table 3-4, but also at other intersections along these streets.

**TABLE 3-4**  
**EXISTING INTERSECTIONS**  
**LEVEL OF SERVICE CONDITIONS**

<b>INTERSECTION</b>	<b>A.M. PEAK HOUR (LOS/ave. sec. delay)</b>	<b>P.M. PEAK HOUR (LOS/ave. sec. delay)</b>
Third Street / King Street	<del>D/ 36.1</del> <u>D/ 35.8</u>	F/ >80.0
Fourth Street / King Street	E/ 55.9	F/ >80.0
Fourth Street / Harrison Street	<del>B/ 13.2</del> <u>B/ 13.5</u>	<del>B/ 19.5</del> <u>B/ 18.5</u>
Sixth Street / Brannan Street	F/ >80.0	F/ >80.0
Fourth Street / Bryant Street	<del>B/ 11.8</del> <u>B/ 18.9</u>	<del>C/ 20.7</del> <u>B/ 19.6</u>
Source: San Francisco Department of Parking and Traffic, November 2006 and February 2007. . <u>Revised February 2008</u>		

### **Traffic Travel Speeds**

Average vehicle travel speeds were determined along the Fourth Street Corridor. Existing average travel speeds, which account for delays at intersections and congested conditions, are summarized in Table 3-5. On Fourth Street, peak period speeds average between 7 and 23 miles per hour.

**TABLE 3-5**  
**EXISTING TRAFFIC TRAVEL SPEEDS**

ROUTE	PEAK PERIOD	AVG. SPEED LOS/(mph)
<i><b>Fourth Street:</b></i>		
King to Brannan Streets	P.M.	E/ 7.2
Brannan to Bryant Streets	P.M.	D/12.1
Bryant to Harrison Streets	P.M.	B/22.6
Source: Department of Parking and Traffic, February 2007, and Transportation Research Board, Highway Capacity Manual 2000, Exhibit 15-2, 2000.		

The San Francisco County Transportation Authority, as Congestion Management Agency for San Francisco, periodically monitors average travel speeds along key segments of the designated Congestion Management Program (CMP) network in the City, including arterials and freeways. The CMP network includes all of the principal arterials within the City, including Fourth Street. Travel speeds have been monitored since 1991 and were last measured for CMP purposes in 2004. On Fourth Street, the CMP p.m. speeds were about seven miles per hour slower when compared to the current speeds. The speed increases are primarily due to recent adjustments to the cycle lengths, offsets, and splits in regards to the signal timing sequences to improve traffic progression. The performance of the CMP roadway network is measured against LOS standards for arterial roadways. If roadway performance falls below the standard (i.e., congestion worsens), actions must be undertaken to restore or improve the service level. The San Francisco CMP sets a standard of LOS E for the designated CMP network (LOS criteria for arterial roadways are defined in detail in Table E-6 in Appendix E). Currently, average travel speeds on Fourth Street are in the LOS B to E range during the p.m. peak period.

### 3.1.3 FREIGHT AND LOADING

While not officially designated as truck routes, Third Street and Fourth Street are called out in the San Francisco *General Plan* as routes with significant levels of truck traffic. Because of recurring peak hour congestion levels and relatively narrow lanes, Third and Fourth Streets are not preferred truck routes for non-local through trips. Truck drivers with large vehicles and a familiarity with the City would likely opt to avoid the Financial District and select a longer route along The Embarcadero or along other City arterials like Van Ness Avenue.

In order to adequately serve the many commercial businesses on Third and Fourth Streets and accommodate the occasional service needs of residents, the City has designated yellow metered loading areas along the corridor. On Fourth Street between Folsom and Townsend Streets there are ten metered



yellow loading zones. On Third Street between Bryant and King Streets, there are 18 metered yellow loading zones during the daytime non-peak hour times. Currently, the yellow zones are located on both sides of these streets and can only be accessed from one direction since Third and Fourth Streets are one-way streets. A review of the existing commercial businesses on Third and Fourth Streets between Harrison and Townsend Streets revealed that most, if not all, of the commercial loading/unloading activities occur on-street at the yellow zones since there are very few off-street truck loading facilities or docks available.

Because Third and Fourth Streets are currently both multi-lane, one-way streets, the accommodation for truck turning movements is adequate since trucks can straddle more than one traffic lane, when necessary, on approaches to intersections in preparation for making wide turns. In addition, side streets are generally wide enough to accept the truck turn movements from Third and from Fourth Streets; except on Perry and Stillman Streets.

Stockton Street is a mix of on-street metered parking, on-street loading zones, and bus zones. In some blocks, between Market and Sutter Street, on-street parking and loading has been removed completely to accommodate the flow of traffic, access to the public parking garages, and bus stops. The on-street loading spaces in both Union Square and Chinatown are important to servicing the adjacent retailers as off-street loading docks are limited.

On Columbus Avenue, between Union and Powell Streets, there are no off-street loading spaces.

#### 3.1.4 PARKING

##### **On-Street Parking**

Parking conditions along the Central Subway Corridor were surveyed during a mid-morning and two mid-afternoon weekday afternoon periods in September, 2006, south of Market Street and mid-afternoon weekday north of Market Street in May 2007. In each survey, block-by-block on-street parking occupancy counts and parking capacity measurements (excluding driveways and illegal parking zones, e.g., red zones for bus stops and fire hydrants, etc., but including yellow and white loading zones) were conducted. To conservatively assess potential parking impacts resulting from the Project alternatives, the following discussion presents the average parking occupancy counts, by block, of the surveys. Existing parking conditions are summarized in Table 3-6.

Parallel parking is allowed on both sides of Third Street between King and Bryant Streets and along both sides of Fourth Street between Bluxome and Harrison Streets. Many of these on-street parking spaces

are regulated with 15-minute, 30-minute, 1-hour, or 2-hour parking meters or time limits. In this area, metered parking spaces, many with short time limits, have been established to discourage long-term parking and encourage parking turnover. The abutting land uses consist of industrial, commercial and residential developments. On those segments of Third and Fourth Streets that will be impacted by the Project, there are currently ~~472~~192 on-street parking spaces (~~204~~221 including the spaces removed for construction on Fourth Street between Bryant and Harrison Streets).

**TABLE 3-6**  
**EXISTING ON-STREET PARKING CONDITIONS IN CORRIDOR**

SEGMENT	APPROXIMATE NUMBER OF ON-STREET PARKING SPACES			NUMBER AND PERCENTAGE OF SPACES OCCUPIED	
	WEST	EAST	TOTAL	NO.	Percent
<i>Third Street</i>					
King to Townsend Streets	13 (All metered)	10 (All metered)	23	20	87%
Townsend to Brannan Streets	19 (All metered)	16 (Tow-away east side 7-9 a.m. & 4-7 p.m.)	35	20	57%
Brannan to Bryant Streets	21 (All metered)	13 (Tow-away east side 7-9 a.m. & 4-7 p.m.)	34	25	74%
<b>Subtotal</b>	<b>53</b>	<b>39</b>	<b>92</b>	<b>65</b>	<b>71%</b>
<i>Fourth Street</i>					
Townsend to King Streets	0	0	0	0	0%
Townsend to Brannan Streets	5 (All metered)	15 (All metered)	20	14	70%
Brannan to Bryant Streets	20 (All metered)	16 (10 metered, Tow-away east side 7 am-7 pm between Freelon and Brannan – affects 6 sp)	36	30	83%
Bryant to Harrison Streets <sup>1</sup>	17 (all metered)	12 (all metered)	29	N/A	N/A
<b>Subtotal<sup>2</sup></b>	<b>25+</b>	<b>31+</b>	<b>56</b>	<b>44</b>	<b>79%</b>
<i>Stockton Street</i>					
Geary to Post Streets	0	10	10	4	40%
Clay to Washington Streets	11 (All metered)	3 (All metered)	14	11	79%
<u>Washington to Jackson Streets</u>	<u>8</u> (All metered)	<u>12</u> (All metered)	<u>20</u>	<u>18</u>	<u>90%</u>
<b>Subtotal<sup>3</sup></b>	<del>11</del> <u>19</u>	<del>13</del> <u>25</u>	<del>24</del> <u>44</u>	<del>15</del> <u>33</u>	<del>63%</del> <u>75%</u>
<b>TOTAL</b>	<b><del>89</del><u>97+</u></b>	<b><del>83</del><u>95+</u></b>	<b><del>172</del><u>192+</u></b>	<b><del>124</del><u>142</u></b>	<b><del>72%</del><u>74%</u></b>

<sup>1</sup> This segment of Fourth Street was under construction during the recent counts. Therefore, no parking occupancy data was available.

<sup>2</sup> Occupancy counts do not include the segment between Bryant and Harrison, so the 29 parking spaces between Bryant and Harrison Streets numbers are not included in the subtotal.

<sup>3</sup> Average occupancy was not calculated for the Stockton Street blocks because the two blocks are located in different districts and an average occupancy would not give an accurate assessment of occupancies in each area.

Source: San Francisco Department of Parking and Traffic, Sept. 27 and 28, 2006, ~~and~~ May 7 and 8, 2007, and January 2008.

Parking occupancy surveys were not conducted north of Bryant Street on Fourth Street and north of Bryant Street on Third Street because Caltrans' construction staging activities for the Bay Bridge West Approach Retrofit Project have temporarily removed parking in the area. In general, on-street parking is usually fully occupied on Third and Fourth Streets north of Bryant Street.

On Stockton Street, parking counts were conducted on the blocks potentially affected by the proposed stations and/or vent shafts where parking removal was anticipated. There are 10 parking spaces on the block between Geary and Post Streets, ~~and~~ 14 spaces on the block between Clay and Washington Streets, and 20 spaces on the block between Washington and Jackson Streets (including truck and passenger loading zones). The average occupancy is ~~63~~75 percent for these ~~two~~three blocks of Stockton Street.

On the block between Geary and Post Streets, all of the parking is located on the east side of the street and consists of 10 metered yellow loading zones. Observed mid-day weekday occupancy was only 40 percent, but occupancy would be expected to vary throughout the day as deliveries are made. On the blocks between Clay and ~~Washington~~Jackson Streets, there are a total of ~~44~~34 metered spaces, composed of a mix of standard parking spaces and white and yellow zones. The average weekday occupancy in ~~this~~these two blocks is ~~79~~85 percent.

### **Parking Summary**

Table 3-6 also summarizes the current corridor-wide parking occupancies. On Third Street between King Street and Bryant Street, there are 92 spaces. On Fourth Street between King Street and Bryant Street, 56 on-street parking spaces exist and on the ~~two~~three blocks of Stockton Street evaluated, there are ~~24~~44 parking spaces. Existing parking occupancy is approximately ~~72~~74 percent on a combined corridor-wide basis.<sup>13</sup>

#### **3.1.5 PEDESTRIANS**

##### **Pedestrian Streets**

Third Street, between King and Market Streets, is designated as a Neighborhood Commercial Street in the *General Plan*.<sup>14</sup> Other streets in the Study Area with the same designation include Berry Street (from

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<sup>13</sup> Because of Caltrans construction on the Bay Bridge West Approach, the portion of Fourth Street between Harrison and Bryant has been excluded from this occupancy survey

<sup>14</sup> San Francisco Planning Department, San Francisco *General Plan*, Transportation Element, adopted June 1978, amended in February 2005. A Neighborhood Commercial Street is a street in a Neighborhood Commercial District as identified in the *General Plan* with predominantly commercial use and parking and loading conflicts. Design goals are to maintain at least four feet of unobstructed width for pedestrian passage, encourage pedestrian-oriented uses, maintain a buffer (trees and parking) between pedestrian and vehicular circulation, meet minimum crosswalk requirements, and restrict turning movements and curb cuts. Pedestrian improvements which reflect the neighborhood character should be a priority.

Fourth Street to The Embarcadero), The Embarcadero, Market Street, Stockton Street, and Geary Street.

This designation indicates that the street is locally significant for pedestrian circulation. Third and Fourth Streets, between Folsom and Market Streets, and Market Street from Steuart Street westward, are designated as Citywide Pedestrian Network Streets in the *General Plan*.<sup>15</sup> This designation is reserved for streets of citywide significance, used for walking between neighborhoods and connecting major institutions and transit facilities.

The sidewalk on the east side of Third Street, between Clementina and Howard Streets, in the vicinity of the proposed Moscone Station entrance, is just over 10 feet wide. Building columns supporting upper floors are situated east of the sidewalk, and between the columns and the first floor building facade an 8- to 13.5-foot wide private sidewalk arcade exists. On the west side of the street, the sidewalk is situated behind the driveway entrance to the Moscone Center garage. On both sides of Third Street between Mission and Market Streets, the sidewalks are about 14 feet wide.

The sidewalks on Fourth Street in the Study Area are generally 10 feet wide. On the block between Howard and Folsom Street, the sidewalk on the west side is 16 feet wide. Moscone Center South fronts the east side of this block. On the east side, the pedestrian walkway is located within the Moscone Center property rather than on the public sidewalk to accommodate the entrance to the Moscone Center underground loading docks. All intersections of Fourth Street are signalized with pedestrian crosswalks. The land uses in this section are a mix of commercial, industrial, and public. The greatest concentration of pedestrian activity occurs adjacent to the Caltrain Terminal (at Fourth and Townsend Streets) as passengers walk to and from the station or transfer between Muni LRVs, buses, and the commuter trains. The pedestrian LOS near the Caltrain Terminal is LOS D.<sup>16</sup> The City plans to install an audible pedestrian signal at this location to facilitate pedestrian movement.

On the east side of Stockton Street, both north and south of Post Street, the sidewalks are 15 feet wide. On the west side of Stockton Street, south of Post Street, the sidewalk abutting Union Square Park is 10 feet wide. On the north side of Post Street, the sidewalk is 15 feet wide within the public right-of-way. Near Clay Street, Stockton Street's eastside sidewalks are about 11 feet wide. North of Clay Street, Stockton's western sidewalk is 10.5 feet wide, and to the south of Clay Street, the sidewalk is 29.5 feet wide. Stockton Street has some of the heaviest pedestrian volumes in the City, with people frequently walking in the street to avoid sidewalk queues. Physical pedestrian improvements, such as corner bulb-outs, delineated pedestrian walkway with colored concrete, standardized diagonal crossing striping, and

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<sup>15</sup> Ibid. Citywide Pedestrian Network Streets are of "citywide significance," providing inter-neighborhood connection and including both exclusive pedestrian and pedestrian-oriented vehicular streets. These streets are intended to connect major institutions and transit facilities and to be used by commuters, tourists, general public, and recreational users.

bi-lingual pedestrian crossing signs are proposed as part of the Stockton Street Enhancement Project, but are not yet funded.<sup>17</sup>

### **Bay Trail**

A portion of the regional Bay Trail runs through the Study Area (see Figure 3-4 for the route along the eastern waterfront). The Bay Trail is intended to provide continuous access to the San Francisco Bay's waters edge. It connects in the north from the recently completed pedestrian promenade along The Embarcadero to Fourth Street via King Street. It crosses the Fourth Street bridge and swings eastward into the China Basin Park around McCovey cove and connects with bike lanes on Terry A. Francois Boulevard and an existing bike route on Illinois Street to access the City's southeastern waterfront.

### **Pedestrian Levels of Service**

Table 3-7 summarizes the existing pedestrian level of service at the proposed station entrances in the Project Corridor. Pedestrian counts were collected at specific locations along the Corridor at each of the proposed stations that could potentially be impacted by the placement of station entrances as part of the Central Subway Project. The Highway Capacity Manual (HCM) methodology (Chapter 18) was used to calculate the pedestrian level of service on sidewalks at these locations. According to the results from the pedestrian counts, the existing pedestrian levels of service at all proposed station entrances operate at LOS A.

#### **3.1.6 BICYCLES**

The San Francisco General Plan designates an Official Bicycle Route Network (refer to Figure 3-4). The Official Bicycle Route Network does not include designated bicycle routes on Third or Fourth Streets in the South of Market Area, except for a three block segment on Third Street between Townsend Street and Terry A. Francois Boulevard (Route #536 traverses Third Street between Townsend Street and King Street, and Route #5 traverses Third Street between King Street and Terry Francois Boulevard).

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<sup>16</sup> U.S. Department of Transportation Federal Transit Administration and the City and County of San Francisco, Peninsula Joint Powers Board, and San Francisco Redevelopment Agency, Transbay Terminal Downtown Extension/Redevelopment Project FEIS/FEIR/Section 4(f) Evaluation, March 18, 2004.

<sup>17</sup> City and County of San Francisco, Department of Parking and Traffic in cooperation with the Chinatown Development Center, Stockton Street Enhancement Project, June 30, 2003.

**FIGURE 3-4****BICYCLE ROUTES AND BAY TRAIL IN THE THIRD STREET CORRIDOR**

Source: PB/Wong  
Not to scale



**TABLE 3-7**  
**EXISTING PEDESTRIAN LEVEL OF SERVICE**  
**AT PROPOSED STATION ENTRANCES**

Intersection	Corner	Street	15-minute count <sup>1</sup>	Effective Walkway Width (ft)	Ped Unit Flow Rate (ped/min/ft)	LOS
<b>Market Street Station</b>						
Third/Market	SW	Market	431	27.5	1.04	<b>A</b>
Third/Market	SE	Market	523	25.0	1.39	<b>A</b>
<b>Moscone Station</b>						
Fourth/Howard <sup>2</sup>	NE	Fourth	121	11.0	0.73	<b>A</b>
Fourth/Howard	NW	Fourth	96	12.0	0.38	<b>A</b>
Fourth/Howard	NW	Howard	72	18.0	0.27	<b>A</b>
<b>Union Square and Union Square/Market Street Station</b>						
Stockton/Geary	NE	Geary	238	19.5	0.84	<b>A</b>
Stockton/Maiden Lane	NE	Stockton	262	7.00	2.49	<b>A</b>
Stockton/Maiden Lane	SE	Stockton	261	9.00	1.93	<b>A</b>
<b>Chinatown Station</b>						
Stockton Between Sacramento and Clay	Mid	Stockton	179	7.0	1.70	<b>A</b>
Stockton/Washington	SW	Stockton	193	6.5	1.98	<b>A</b>
Hang Ah Alley (South of Clay)	Mid	Hang Ah	27	11.0	0.16	<b>A</b>
<sup>1</sup> Counts conducted April and June 2007 <u>p.m. peak period</u> . <sup>2</sup> Proposed station elevator location.						

However, there are two bicycle routes that run parallel to the Third and Fourth Street corridors in the South of Market Area. Route #11 is a designated bicycle route on Second Street between Market and King Streets to the east of the Project Corridor, and Route #19 is a designated bicycle route on Fifth Street between Market and Townsend Streets to the west of the Project Corridor. Additionally, Route #36 is a designated bicycle route on Townsend Street between Eighth Street and The Embarcadero. Second Street, Fifth Street, and Townsend Street were all identified as “Priority Projects” for bicycle improvements in the San Francisco Bicycle Program’s May 2005 Proposition K 5-Year Prioritization Program.<sup>18</sup> North of Market Street, Route #17 traverses Stockton Street between Broadway and Post Street.

<sup>18</sup> San Francisco County Transportation Authority, San Francisco Bicycle Program, Proposition K 5-Year Prioritization Program, May 2005. The Bicycle Improvement Program is currently undergoing separate environmental review.

## **Bicycle Routes**

### Route #5 (The Embarcadero/Third Street Corridor)

Route #5 follows Third Street, King Street, and The Embarcadero near the Project Corridor, with existing bicycle lanes provided in both directions on King Street and The Embarcadero. The Third Street portion connects with the Mission Bay development via a bridge that crosses the China Basin channel.

### Route #11 (Second Street)

Route #11 follows Second Street between Market and King Streets. The San Francisco Bicycle Program's May 2005 Proposition K 5-Year Prioritization Program identified the portion of Route #11 on Second Street, between Market and King Streets, as a "Priority Project" and several conceptual improvement options were developed and received public input and feedback.

### Route #17 (Stockton Street)

Route #17 follows Stockton Street between Broadway and Post Street. A northbound bicycle lane exists on Stockton Street between Bush and Sacramento Streets, which provides cyclists a dedicated lane as they climb upgrade towards Chinatown. The San Francisco Bicycle Program's May 2005 Proposition K 5-Year Prioritization Program recommends exploring adding bicycle lanes along the entire length of Stockton Street between Broadway and Market Street by removing one of the two southbound travel lanes in the Stockton tunnel to enable striping a southbound bicycle lane and by creation of a contraflow bicycle lane on the one-way southbound portion of Stockton Street between Sutter and Post Streets.

### Route #19 (Fifth Street and Fourth Street)

Route #19 follows Fourth Street between Third Street (Route #5) and Townsend Street (Route #36), Townsend Street to Fifth Street, and Fifth Street to Market Street. The San Francisco Bicycle Program's May 2005 Proposition K 5-Year Prioritization Program identified the portion of Route #19 on Fifth Street between Market and Townsend Streets as a "Priority Project" and several conceptual improvement options were developed and received public input and feedback – the document notes that the Central Subway's proposed alignment on Fourth Street could adversely increase traffic volumes on Fifth Street and that Muni's associated environmental documents for the Central Subway should address this impact to Fifth Street.<sup>19,20</sup>

### Route #36 (Townsend Street)

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<sup>19</sup> Ibid, Category: C.iv.b Bicycle Circulation/Safety, May 2005.

<sup>20</sup> City and County of San Francisco, San Francisco County Transportation Authority, San Francisco Bicycle Plan: Policy Framework, May 2005.

Route #36 follows Townsend Street between Eighth Street (Route #23) and The Embarcadero (Route #5). The San Francisco Bicycle Program's May 2005 Proposition K 5-Year Prioritization Program identified portions of Townsend Street as a "Priority Project" and several conceptual improvement options were developed and received public input and feedback.

### 3.1.7 EMERGENCY VEHICLE ACCESS

#### **Arterial Street Access**

The San Francisco Fire Department's Fire Station #8 is located at 36 Bluxome Street, just west of Fourth Street. This station is one of the City's five busiest stations. Emergency vehicles responding from this station are often challenged by traffic congestion and interference on Fourth and Fifth Streets. The major streets commonly used by emergency vehicles from this fire station are: Fourth Street, Fifth Street, Brannan Street, Townsend Street, and Bluxome Street.

Fire Station #1 is located at 676 Howard Street, just east of Third Street. As with Fire Station #8, Fire Station #1 is located in the South of Market Area, where traffic congestion creates difficulties for emergency vehicles to navigate. The major streets commonly used by emergency vehicles from this fire station are: Third Street, Fourth Street, Howard Street, Mission Street, Geary Street and Kearny Street.

#### **Fourth Street Emergency Vehicle Contraflow**

Depending on their destination, emergency vehicles from Fire Station #85 may exit Bluxome Street from Fourth or Fifth Streets. When Fourth Street is congested, emergency vehicles exiting Bluxome Street make a left turn and travel "contraflow" north on Fourth Street to Brannan Street. This kind of contraflow maneuver for emergency vehicle access is typical at other fire stations located near one-way streets.

### **Emergency Vehicle Staging Requirements**

In addition to the Bluxome Street access issue at Fire Station #8, the San Francisco Fire Department has insisted that if any portal structure is located in a roadway, consideration should strongly be given to the needs of the Fire Department vehicles to safely stage rescue vehicles on the east side of Fourth Street.

### **Proposed Fire Station Signal Pre-Emption System**

Because existing traffic flows on Fourth Street are currently a problem, the City has been investigating the potential application of a special pre-empt signal phase to clear the vehicle queues on Fourth Street between Brannan and Townsend Streets and give the emergency vehicles greater flexibility in selecting the quickest response route. Other signalized intersections in the South of Market area near the Corridor have also been identified to be upgraded with emergency pre-emption capabilities.

## **3.2 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES**

This section identifies and evaluates the potential environmental consequences for the operation and cumulative conditions of each of the Central Subway alternatives in the areas of transit, traffic, freight, parking, non-motorized transportation, and emergency vehicle access. Mitigation measures that would reduce or avoid significant impacts are described. Construction impacts and mitigations of the transportation areas are detailed in Chapter 6.0 with all other construction impacts and mitigations. See Chapter 7.0 for CEQA determinations of significance.

### **3.2.1 TRANSIT**

A project would have a significant effect on the environment if it would cause a substantial increase in transit demand that could not be accommodated by adjacent transit capacity, resulting in unacceptable levels of transit service; or cause a substantial increase in delays or operating costs such that significant adverse impacts in transit service levels could result.<sup>21</sup>

### **Future Transit Conditions**

The purpose of this section is to describe the methodology used to forecast future year (2030) transit ridership for the No Project/TSM, Enhanced EIS/EIR Alignment, Fourth/Stockton Alignment Option A (LPA), and Fourth/Stockton Alignment Option B (Modified LPA) Alternatives. The forecasts were based on outputs from the San Francisco Travel Demand Forecast Model. The analysis was conducted using the San Francisco Tour-Based Microsimulation Model (San Francisco Model), a state-of-the-art travel demand forecasting model developed for the San Francisco County Transportation Authority (SFCTA) in

the late 1990's to support transportation planning and coordination activities in San Francisco. This model has been used in long-range county-wide planning, development impact analysis, and to support the analysis of transportation impacts of major investments. The San Francisco Model is a multi-modal tool, addressing all modes of travel, including transit, auto, bike, and walk. The model can provide estimates of a wide range of travel-related measures. For transit, these measures include estimates of system ridership, route ridership, station ridership, and user benefits.

#### Relationship to 1998 EIS/EIR Analysis

The travel demand analysis conducted for each of the alternative Central Subway segments of the Third Street Light Rail Project is significantly different than that conducted for the 1998 EIS/EIR. In the earlier study, a growth-factor method was used to produce ridership estimates. The Draft EIS/EIR relied on data from the regional travel demand forecast model maintained by MTC (including land-use projections and transportation networks), observed transit boarding data, and an assumed relationship between travel time and demand (elasticity) to produce demand forecasts for the Third Street Light Rail Project. The ridership forecasts for the 1998 EIS/EIR were not based on runs of a travel demand forecast model for each alternative. At the time of the earlier analysis, the San Francisco Model had not yet been developed.

In contrast, travel demand forecasts for the Central Subway Project SEIS/SEIR are based on outputs from the San Francisco Model. The model was run separately for each alternative described. Differences in model outputs are the result of the different methodologies employed and the internalization of critical travel demand assumptions in the model that would potentially impact ridership. Such differences are noted where appropriate in this document.

#### The San Francisco Model

The San Francisco Model uses the “full day pattern” activity modeling approach. This approach simultaneously predicts the main components of all of a person's travel across the entire day. A simulation of San Francisco resident population is created, and input to the component models of vehicle availability, day pattern choice (tour and trip generation), tour and trip time of day choice, destination choice and mode choice. Destination and mode choice are also predicted at both the tour and the trip level. Simulated tours and trips are aggregated to represent flows between traffic analysis zones before traffic assignment. The model system predicts the choices for a full, representative sample of residents of San Francisco County, almost 800,000 simulated individual person-days of travel. It was created based on the observed behavior of San Francisco residents as revealed in 1990 and 1996 travel surveys conducted by the MTC. The San Francisco Model predicts demand for San Francisco County residents

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<sup>21</sup> Transit/Service levels are unacceptable if the demand exceeds the capacity (seats plus standees) as defined by the transit provider.

only. This San Francisco-specific travel demand is then integrated with estimates of regional travel demand produced by Baycast, the regional travel demand model developed and maintained by the MTC.

In order to estimate future travel demand, the model requires information on the location of future year employment, population, and configuration and performance of transportation networks. In addition to considering where people live, work, and shop, the model also considers the socioeconomic characteristics of Bay Area residents, and is sensitive to levels of congestion, fares, and other monetary costs. Many of these future year assumptions are based on information developed by the MTC, in order to ensure consistency with regional transportation planning efforts. An important aspect of the San Francisco Model is that it captures the effects of transit and other service quality improvements, not only in terms of new passengers attracted, but also in terms of how these improvements affect the choices of existing transit users.

The forecasts prepared as part of this effort were developed for the horizon year of 2030, consistent with the most recent Regional Transportation Plan (RTP). This forecasting effort assumed the same employment, population, and transportation network assumptions used in the RTP, with additional spatial detail added within San Francisco. Finally, the forecasting methodology used is consistent with the guidelines established for the Federal Transit Administration's (FTA's) evaluation of federal New Starts projects.

Analysis of all of the alternatives, including the No Project/TSM Alternative, assume a fixed trip distribution. This constraint is imposed by FTA to facilitate the comparison of alternatives. Some distribution models may be unreasonably sensitive to travel times and other measures of impedance, which makes alternative-to-alternative comparisons within a project difficult, and also makes comparing projects from one region to another difficult. As a result of this constraint, the assumed origin-destination patterns of travelers is assumed to be the same across all alternatives, though the transit network is different for each alternative, resulting in different estimates of transit ridership.

#### Base Year Validation

Prior to using the San Francisco Model for developing travel demand forecasts, the model was calibrated and validated against a base year of 2000 (before the implementation of T-Third service and the associated bus route changes). The ability of the model to match, within a reasonable tolerance, observed base-year transit ridership in the corridor is critical. Base year estimated ridership is compared to observed ridership estimates provided by Muni for selected bus and LRV routes in the Third Street/Central Subway Corridor. This analysis indicated a reasonable match to observed boardings, within two percent of observed total ridership across all routes.

## Ridership Projections

Table 3-8 presents the estimated typical weekday daily ridership projections for the Project alternatives (weekday a.m. peak hour and p.m. peak hour ridership projections are provided in Tables E-1 and E-2 in Appendix E). Projections are provided for the Third Street Corridor's primary bus lines, including the 9X/AX/BX-San Bruno Expresses, 30-Stockton, and 45-Union/Stockton (the projected ridership shown for the 30-Stockton and 45-Union/Stockton lines represent only those trips on the portion of the routes between Filbert and Townsend Streets as this segment would be most directly affected by the Central Subway Project). Projections are also provided for the proposed light rail line, where applicable. All of the projections account for existing transit trips and trips generated by expected growth along the Corridor, including the development of the proposed Mission Bay project.

The daily trips projected at each of the proposed Central Subway stations or stops for each alternative are summarized in Table 3-9.

Under all Build Alternatives, the greatest amount of passenger activity would occur at the Central Subway Market Street Station (or Union Square/Market Street Station); ~~45-47~~ percent of system boardings for Alternative 2 and ~~50-49~~ and ~~48~~ percent of system boardings for Alternatives 3A and 3B, respectively. At the Powell Street Station on Market Street, the passenger activity is associated with the high level of transfers that would occur between the BART system and the Muni Metro system. It is estimated that approximately ~~38-49~~ percent of the passengers boarding the Central Subway system at Powell Street would be transfers from BART. Much of this transfer activity is presently occurring as passengers use Powell Street as a point of transfer to other Muni routes and services, some of which would be replaced by the Central Subway light rail line. By 2030, it is projected that 4,200 additional daily riders would exit and 13,000 would enter BART at the Powell Street Station.<sup>22</sup> Additional passengers would use the concourse level of the station, however, passengers entries/exists from/to the street level is expected to decline. The 2008 study also shows fewer patrons using the station stairways and escalators between the street and concourse levels, because transfers to and from BART/Muni Metro

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<sup>22</sup> SFMTA analysis of SFCTA's 11/07 ridership projections as cited in Arup Americas, Inc. Powell Station Central subway Impacts Study, May 2008.

and the Central Subway on the concourse would replace transfers to and from the systems at the street surface level.

The Fourth and King Station, serving the T-Third Line also has a high level of passenger activity ranging from ~~25-29~~ percent (Alternative 3B) to 32 percent (Alternative 3A) of system ridership. The passenger activity at the King Street station relates to the high level of passenger transfers between Caltrain and the Muni system at this point. Caltrain boardings are projected to be about ~~89-67~~ percent of total ridership at this station in 2030. This transfer activity currently exists as passengers from the Caltrain terminal board Muni buses or the T-Third rail line to get to their destinations throughout the downtown and other parts



**TABLE 3-8**  
**ESTIMATED WEEKDAY TRANSIT RIDERSHIP**  
**EXISTING AND 2030 CONDITIONS**

<b>LRT/BUS LINE</b>	<b>2000</b>	<b>2030 NO PROJECT/TSM</b>	<b>2030 ENHANCED EIS/EIR ALIGNMENT</b>	<b>2030 FOURTH / STOCKTON ALIGNMENT OPTION A (LPA)</b>	<b>2030 FOURTH / STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)</b>
<b>CORRIDOR BOARDINGS</b>					
RAIL					
T-Third Long Line <sup>1</sup>	N/A	<del>60,030</del> <u>24,600</u> <sup>4</sup>	<del>59,710</del> <u>44,500</u>	<del>60,670</del> <u>45,800</u>	<del>65,830</del> <u>44,900</u>
T-Third Short Line	N/A	N/A	<del>30,080</del> <u>18,900</u>	<del>28,170</del> <u>19,000</u>	<del>33,400</del> <u>18,900</u>
T-Third Very Short Line	N/A	N/A	<u>12,900</u>	<u>12,800</u>	<u>12,800</u>
<b>Subtotal</b>		<del>60,030</del> <u>24,600</u>	<del>89,790</del> <u>76,300</u>	<del>88,840</del> <u>77,600</u>	<del>99,230</del> <u>76,600</u>
BUS					
Line 15 <sup>2</sup>	<del>31,130</del> <u>28,300</u>	<del>n/a</del> <u>N/A</u>	<del>n/a</del> <u>N/A</u>	<del>n/a</del> <u>N/A</u>	<del>n/a</del> <u>N/A</u>
Lines 9X, 9AX, 9BX	<del>9,320</del> <u>10,600</u>	<del>29,560</del> <u>23,000</u>	<del>30,790</del> <u>22,300</u>	<del>30,760</del> <u>20,800</u>	<del>24,770</del> <u>21,200</u>
Lines 30, 45 <sup>3</sup>	<del>52,420</del> <u>54,400</u>	<del>57,860</del> <u>76,600</u>	<del>42,030</del> <u>46,600</u>	<del>42,510</del> <u>44,800</u>	<del>38,290</del> <u>44,800</u>
<b>Subtotal</b>	<del>92,870</del> <u>93,300</u>	<del>87,420</del> <u>99,600</u>	<del>72,820</del> <u>68,900</u>	<del>73,270</del> <u>65,600</u>	<del>63,060</del> <u>66,000</u>
<b>TOTAL IN CORRIDOR:</b>	<del>92,870</del> <u>93,300</u>	<del>147,450</del> <u>124,200</u>	<del>162,610</del> <u>145,200</u>	<del>162,110</del> <u>143,200</u>	<del>162,290</del> <u>142,600</u>
Increase Over Existing:	0	<del>54,580</del> <u>30,900</u>	<del>69,740</del> <u>51,900</u>	<del>69,240</del> <u>49,900</u>	<del>69,420</del> <u>49,300</u>
Increase Over No Project/TSM:	0	0	<del>15,160</del> <u>21,000</u>	<del>14,660</del> <u>19,000</u>	<del>14,840</del> <u>18,400</u>
<b>SYSTEM BOARDINGS</b>					
RAIL	<del>209,510</del> <u>185,700</u>	<del>280,550</del> <u>238,900</u>	<del>303,190</del> <u>287,900</u>	<del>311,730</del> <u>300,700</u>	<del>320,630</del> <u>299,500</u>
BUS	<del>543,240</del> <u>547,000</u>	<del>585,470</del> <u>609,000</u>	<del>590,450</del> <u>567,800</u>	<del>575,760</del> <u>566,700</u>	<del>566,290</del> <u>566,800</u>
<b>TOTAL SYSTEM:</b>	<del>752,750</del> <u>732,800</u>	<del>866,020</del> <u>848,800</u>	<del>893,640</del> <u>855,700</u>	<del>887,490</del> <u>867,400</u>	<del>886,910</del> <u>866,300</u>
Increase Over Existing:	0	<del>113,270</del> <u>116,050</u>	<del>140,890</del> <u>122,900</u>	<del>134,740</del> <u>134,600</u>	<del>134,160</del> <u>133,500</u>
Increase Over No Project/TSM:	0	0	<del>27,620</del> <u>6,900</u>	<del>21,470</del> <u>18,600</u>	<del>20,890</del> <u>17,500</u>

Notes: <sup>1</sup> Central Subways T-Third long-line to Visitacion Valley, ~~and~~ T-Third short-line to 18<sup>th</sup> and Third Streets, and T-Third very short line to the Caltrain Station at Fourth and King Streets.  
<sup>2</sup> 15-Third Line shifts to 9X-San Bruno or to the T-Third line.  
<sup>3</sup> 45 Union/Stockton extended into Mission Bay  
<sup>4</sup> Rail ridership on the K between The Embarcadero and the county line and on the N to The Embarcadero.  
N/A Not Applicable  
Ridership is defined as the number of passengers boarding.

Source: San Francisco Model, January 2007. Revised January 2008.

**TABLE 3-9**  
**ESTIMATED WEEKDAY RIDERSHIP**  
**BY CENTRAL SUBWAY STATION**  
**2030 CONDITIONS**

STATION	2030 NO PROJECT /TSM	2030 ENHANCED EIS/EIR ALIGNMENT	2030 FOURTH / STOCKTON ALIGNMENT OPTION A (LPA)	2030 FOURTH / STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)
Fourth and King	---	<del>20,250</del> <u>15,700</u>	<del>20,670</del> <u>19,100</u>	<del>19,520</del> <u>17,400</u>
Fourth and Brannan	---	---	---	<del>6,670</del> <u>3,000</u>
Third (between King and Townsend)	---	<del>2,990</del> <u>4,000</u>	---	---
Moscone	---	<del>4,290</del> <u>3,800</u>	<del>3,860</del> <u>3,500</u>	<del>3,520</del> <u>2,800</u>
Market Street	---	<del>30,540</del> <u>28,300</u>	<del>32,620</del> <u>29,400</u>	<del>38,510</del> <u>28,600</u>
Union Square	---	<del>2,640</del> <u>1,600</u>		
Chinatown	---	<del>6,570</del> <u>6,200</u>	<del>8,190</del> <u>8,300</u>	<del>8,050</del> <u>8,000</u>
<b>TOTAL IN CORRIDOR:</b>	---	<del>67,280</del> <u>59,600</u>	<del>65,340</del> <u>60,300</u>	<del>76,270</del> <u>59,800</u>
<b>TOTAL IN CENTRAL SUBWAY</b>	---	<b>43,900</b>	<b>41,200</b>	<b>42,400</b>

Note: An estimated ~~89~~67 percent of passenger activity at the Fourth and King Station is related to transfers from Caltrain and about ~~25 to 32~~49 percent of passenger activity at the Market Street or Union Square/Market Street Stations is related to transfers from BART to Muni at Powell Street Station.  
Ridership is defined as the number of passengers boarding.  
Central Subway total excludes the Fourth and King Station which is part of the T-third line.  
Source: San Francisco Model, January 2007. Revised January 2008.

of San Francisco. If in the future, the Caltrain line is extended to the Transbay Terminal as proposed in Phase 2 (Downtown Extension) of the Transbay Terminal Improvements, ridership on the Central Subway line would likely be reduced by some portion of the ~~89-67~~ percent. However, because the Downtown Extension is not included as part of the Regional Transportation Plan and currently has an estimated \$2 billion shortfall for implementation, the extension of Caltrain has not been assumed to be part of the transportation network by 2030 and a detailed analysis of the ridership impacts was not conducted (refer to Section 3.1.1 for the transportation improvements that are projected to be in place by 2030). The p.m. peak period ridership at each of the Central Subway stations on the key transit routes in the T-Third corridor is presented in Table 3-10.

### Transit Travel Times

Table 3-11 presents in-vehicle travel time comparisons for selected trips using the 15-Third bus service (from 2000 before operation of the T-Third began) and travel times for selected trips under each of the alternatives. The total travel times include walk, wait, and ride (in-vehicle and out-of-vehicle) times.

Out-of-vehicle travel times are influenced by such factors as service headways, location of station access points, and depth of station. These out-of-vehicle travel times are accounted for in the model and the projected transit ridership.”

**TABLE 3-10**

**2030 ESTIMATED P.M. PEAK PERIOD RIDERSHIP  
FOR SELECTED ROUTES IN CORRIDOR**

<b>VOLUME</b>	<b>2000 BASE</b>	<b>2030 NO PROJECT / TSM ALIGNMENT</b>	<b>2030 ENHANCED EIS/EIR ALIGNMENT</b>	<b>2030 FOURTH / STOCKTON ALIGNMENT OPTION A (LPA)</b>	<b>2030 FOURTH / STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)</b>
<u>T-Third Lines</u> <u>Central Subway/30</u>	<del>4,260</del> <u>---</u>	<del>1,950</del> <u>11,590</u>	<del>19,020</del> <u>26,990</u>	<del>16,710</del> <u>27,110</u>	<del>19,720</del> <u>26,820</u>
9AX	<del>1,680</del> <u>1,490</u>	<del>710</del> <u>1,810</u>	<del>610</del> <u>1,670</u>	<del>610</del> <u>1,610</u>	<del>610</del> <u>1,620</u>
9BX	<del>720</del> <u>940</u>	<del>1,080</del> <u>1,900</u>	<del>1,000</del> <u>1,570</u>	<del>970</del> <u>1,550</u>	<del>970</del> <u>1,570</u>
9X	<del>570</del> <u>750</u>	<del>5,120</del> <u>1,630</u>	<del>6,210</del> <u>1,690</u>	<del>5,270</del> <u>1,520</u>	<del>2,730</del> <u>1,580</u>
<u>30</u>	<u>8,370</u>	<u>13,900</u>	<u>4,150</u>	<u>4,140</u>	<u>4,120</u>
<u>45</u>	<u>4,600</u>	<u>8,530</u>	<u>5,620</u>	<u>5,510</u>	<u>5,480</u>

Note: The p.m. peak period is three-hour ridership.  
Ridership is defined as the number of passengers boarding.  
Source: San Francisco Model, January 2007. Revised January 2008.

**TABLE 3-11**

**IN-VEHICLE TRAVEL TIMES FOR SELECTED TRANSIT TRIPS  
EXISTING AND 2030 CONDITIONS**

<b>TRANSIT TRAVEL TIME (minutes)</b>					
<b>ORIGIN- DESTINATION</b>	<b>2000</b>	<b>2030 NO PROJECT / TSM ALIGNMENT</b>	<b>2030 ENHANCED EIS/EIR ALIGNMENT</b>	<b>2030 FOURTH / STOCKTON ALIGNMENT OPTION A (LPA)</b>	<b>2030 FOURTH / STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)</b>
Fourth/King – Market Street	8.1	10.5	<del>4.4</del> <u>4.7</u>	<del>3.2</del> <u>3.5</u>	<del>4.5</del> <u>4.9</u>
<u>Market Street to Chinatown Station<sup>2</sup></u>	<u>3.7</u>	<u>6.5</u>	<u>2.3</u>	<u>1.1</u>	<u>1.4</u>
Fourth/King – Chinatown Station <sup>1</sup>	11.8	17.0	7.0	4.6	6.3

Notes: <sup>1</sup> The Chinatown Station is at Stockton/Clay for the Enhanced EIS/EIR and Fourth/Stockton Alignment Option A (LPA) Alternatives, and at Stockton/Washington for the Fourth/Stockton Option B (Modified LPA) Alternative.  
<sup>2</sup> Market Street is the Market Street Station under Alternative 2 and the Union Square/Market Street Station under Alternatives 3A and 3B  
Source: PB/Wong, April 2007. Revised October 2007.

**Alternative 1 – No Project/TSM**Operations and Cumulative Impacts

By 2030, the No Project/TSM Alternative transit ridership demand in the Corridor is expected to grow by nearly ~~60~~ 33 percent over existing conditions, due to employment and population growth in the South of

Market, Mission Bay, Bayview-Hunters Point, and the Financial districts (refer to Table 3-8). In the base year 2000, the San Francisco Model inputs indicate an estimated population of ~~58,000~~ 52,120 and estimated employment of ~~142,000~~ 280,700 jobs ~~within ¼ mile of~~ in the Central Subway Corridor (refer to Table 1-1). According to the San Francisco

Planning Department, SFCTA, and Association of Bay Area Government (ABAG) forecasts, the population is expected to grow to by approximately ~~83,000~~ 96,040 persons (plus ~~41~~ 84 percent) and the employment is expected to grow to ~~177,000~~ 335,030 jobs (plus ~~24~~ 19 percent) in the Central Subway Corridor. This growth can be compared to a county-wide projected population growth of approximately ~~18~~ 20 percent and employment growth of about ~~29~~ 28 percent, ~~demonstrating that the~~ The rate of population growth in the project corridor exceeds the rate of growth citywide, though the employment growth is lower. This growth could increase travel demand and result in increased congestion on surface streets. The travel time of a transit trip between Fourth and King Streets and Chinatown would increase by 5.2 minutes when compared to existing conditions.

Corridor transit ridership demand would increase by about ~~54,580~~ 30,900 daily trips between 2000 and 2030 under the No Project/TSM Alternative. The daily rail ridership would increase by approximately ~~60,030~~ 24,600 trips over existing conditions, ~~but this would be offset by a reduction of~~ and the daily bus ridership would increase by approximately ~~5,450~~ 6,300 trips (refer to Table 3-8). This reduction in bus increase in transit ridership would occur as a result of service changes that were implemented for the T-Third line, as well as growth in population and employment. Changes to transit services in the Corridor between the base year 2000 and the year 2030 TSM included:

- Implementation of Phase 1 of Third Street Light Rail Project. The Initial Operating Segment, which has been accepted by FTA as the TSM alternative for Central Subway analyses, provides at-grade rail transit service from the terminus at Sunnydale and Bayshore Boulevards at the San Francisco County line north to Fourth and Townsend Streets along Third Street. The T-Third line operates as an extension of the Castro shuttle with 7-minute frequencies in the a.m. and p.m. peak periods, 10-minute frequencies in the midday, and 12-minute frequencies in the evening.
- Elimination of the 15-Third line. The 15-Third line was replaced by the T-Third light rail line and expanded service on the 9X-San Bruno Express, the 30-Stockton, and the 45-Union/Stockton.
- Extension of the 9X/9AX/9BX-San Bruno Expresses: These routes were extended from Broadway north to the Kearny/North Point intersection and extended to the south from Mission Street to the Phelan Loop, to cover the portion of the 15-Third line that was eliminated and not replaced by T-Third service. The 9AX-San Bruno A Express and 9BX-San Bruno B Express provide peak hour, peak direction service only, operating at 10-minute headways. During the peak, the 9X-San Bruno Express provides reverse peak direction service with 12-minute headways and bi-directional service during the midday and evening at 12 and 15-minute headways, respectively.

- Extension of the 45-Union/Stockton: This route was extended from the 2006 (pre-T-Third) route to provide service to Mission Bay. It has 8-minute frequencies during the peak periods, 6-minute frequencies in the midday, and 20-minute frequencies in the evening.

In the No Project/TSM Alternative, service between the Caltrain station at Fourth and Townsend and Chinatown is provided by the 30-Stockton and 30-Stockton short line buses. This service is replaced by the Central Subway operations in the Build Alternative. An analysis of expected volumes and capacities on the 30-Stockton and 30-Stockton short line indicates that capacities would not be exceeded on this segment. However, capacities of the light rail vehicles operating along the Muni Metro Extension, which connects service between the Market Street subway and the T-Third line, may experience capacity issues for limited durations during the peak period due to capacity constraints on the segment between the Embarcadero Station and the Folsom/Embarcadero stop. The Muni 9AX/9BX-San Bruno Expresses are not expected to experience capacity issues, but capacity issues would arise on the 9AX-San Bruno Express, ~~with ridership on this the 9X-San Bruno Express routes~~ is forecast to increase from approximately ~~9,320~~ 10,600 daily boardings to approximately ~~29,560~~ 23,000 daily boardings between 2000 and 2030. Table 3-10 indicates a peak period demand of about ~~5,120~~ 4,930 passengers ~~(at Fourth and Mission Streets)~~ on the 9X-San Bruno Express lines, which is a substantial increase over the 2000 ridership demand of approximately ~~570~~ 3,180 passengers.

#### Mitigation Measures

To accommodate this projected demand for transit service, additional buses and increases in service levels for the 9X may be required. The 2030-ridership projections from the San Francisco model are “unconstrained” assuming full build out of Mission Bay and termination of Caltrain at Fourth and Townsend Streets. Actual ridership may vary from these projections if growth does not materialize or if the Caltrain is extended to the Transbay Terminal at some point in the future. Ridership patterns on the light rail and bus lines will be monitored following the implementation of the T-Third service and associated bus changes. When warranted by passenger demand, Muni will modify their service plans to allow an increase in transit capacity.

### **Alternative 2 – Enhanced EIS/EIR Alignment**

#### Operations and Cumulative Impacts

Travel times between Fourth and King Streets and the Market Street Station would be ~~6.1~~ 5.8 minutes faster and travel times between Fourth and King Streets and the Chinatown Station would be 10.0



faster in the Enhanced EIS/EIR Alternative than in the No Project/TSM Alternative due to the replacement of buses traveling in mixed-flow with trains traveling in a semi-exclusive or dedicated right-

of-way (refer to Table 3-11). When compared to the existing conditions the travel time between Fourth and King Streets and the Market Street Station would be ~~4.1~~ 3.4 minutes faster and ~~3.7~~ 4.8 minutes faster for the trip between Fourth and King Streets and the Chinatown Station.

As shown in Table 3-8, the proposed light rail line is expected to serve approximately ~~89,790~~ 76,300 trips per weekday in 2030, or ~~29,760~~ 51,700 more daily riders than served by the T-Third line in the No Project/TSM Alternative, primarily due to the more direct alignment providing connections to the Union Square and Market Street Stations and also due to travel time savings gained in the proposed tunnel. A large share of these travelers are persons with origins likely outside San Francisco who board the Central Subway at Fourth and King near the Caltrain Terminal ~~and alight along or board at~~ Market Street connecting from the BART system, as shown in Table 3-9. Overall boardings on routes serving the Third Street Corridor are expected to increase by approximately ~~15,160~~ 21,000 over the No Project/TSM Alternative or ~~69,740~~ 51,900 over existing conditions. The increase of ~~29,760~~ 51,700 rail boardings over the No Project/TSM Alternative would be offset ~~somewhat~~ by a decline in bus boardings in the corridor of approximately ~~14,600~~ 30,700.

The large numbers of travelers using the Enhanced EIS/EIR Alignment could exceed the capacity at some point in the future. The combined peak load on the T-Third long, ~~T-Third short~~, and T-Third very short lines is predicted to be ~~49,020~~ 26,990 riders by 2030, assuming ~~56~~-minute headways (refer to Table 3-11). The service provided by two-car trains on the T-Third very short line and one-car trains on the T-Third long ~~and short~~ lines may need to be supplemented in the future as growth occurs to meet Muni planning capacity standards. These capacity issues may be substantially alleviated if the Caltrain Downtown Extension were implemented (the Caltrain Extension was not included in the networks because it was not part of the fiscally constrained RTP). As was the case with the No Project/TSM Alternative, demand projected for ~~9A~~X-San Bruno Express line may exceed capacity by 2030. Ridership on ~~this the 9X-San Bruno Express routes~~ is forecast to increase to ~~6,210~~ 4,930 passengers ~~(at Fourth and Mission Streets)~~.

### Mitigation Measures

In 2030, passenger demand could slightly exceed the capacity of proposed light rail vehicle and bus services during certain peak hours. The 2030-ridership projections from the San Francisco model are “unconstrained” assuming full build-out of Mission Bay and termination of Caltrain at Fourth and Townsend Streets. As noted in the Mitigation Measures for the No Project/TSM Alternative, actual ridership may vary from these projections if growth does not materialize or if the Caltrain is extended to

the Transbay Terminal at some point in the future. Ridership patterns on the light rail line will be monitored following the implementation of the service. When warranted by passenger demand, Muni

will increase the number, frequency, and/or size of trains and buses through modification of the operating plan to allow an increase in capacity.

### **Alternative 3 – Fourth/Stockton Alignment Option A (LPA)**

#### Operations and Cumulative Impacts

Travel times between Fourth and King Street Station and the Union Square/Market Street Station are assumed to be 1.2 minutes faster in Fourth/Stockton Alignment Option A than in the Enhanced EIS/EIR Alignment and 2.4 minutes faster between Fourth and King Streets and the Chinatown station due to the straightening out of the route and a reduction in the number of stops. ~~and~~ The travel time between the Fourth and King Street Station and the Chinatown Station would be 12.4 minutes faster than under the No Project/TSM Alternative (refer to Table 3-11). When compared to existing conditions, travel times from Fourth and King Streets would be ~~4.9~~ 4.6 minutes faster to Market Street and 7.2 minutes faster to Chinatown Station.

As shown in Table 3-8, when compared to the No Project/TSM Alternative, the Fourth/Stockton Alignment Option A is projected to serve about ~~88,840~~ 77,600 trips per weekday in 2030, or ~~28,810~~ 53,000 more daily riders than served by the T-Third line operating along The Embarcadero. This is primarily due to the more direct alignment providing connections to the Union Square/Market Street Station and also due to the travel time savings gained in the proposed tunnel. ~~This is slightly fewer passengers than served~~ 1,300 more passengers than by the Enhanced EIS/EIR Alternative, as Though Option A provides slightly faster travel times, ~~with~~ the reduction in the number of stops increases the walk time to stations and a more direct alignment. ~~This out of vehicle time is often perceived by travelers to be more onerous than time spent riding in vehicles.~~ As was the case with the Enhanced EIS/EIR Alternative, a large share of the users of the Central Subway ~~are likely~~ have trip origins outside San Francisco; boarding the Central Subway at the Fourth and King Station after getting off Caltrain and ~~alighting at or~~ transferring from the BART system (refer to Table 3-9). When compared to the No Project/TSM Alternative, overall boardings on routes serving the Third Street Corridor are expected to increase by approximately ~~14,660~~ 19,000 over the No Project/TSM Alternative or ~~69,240~~ 49,700 over the existing conditions. The increase of ~~28,810~~ 53,000 rail boardings over the No Project/TSM Alternative would be offset by a decline in bus boardings of approximately ~~14,150~~ 34,000.

As observed in the Enhanced ~~EIS~~ EIS/EIR Alternative, the large numbers of travelers using the Fourth/Stockton Alignment Option A could exceed the capacity by 2030. The combined peak load on

the T-Third long, T-Third short, and T-Third very short lines is predicted to be ~~16,710~~ 27,110 riders (refer to Table 3-10). To meet the Muni planning capacity standards, additional service may be required as development occurs. As previously noted, these capacity issues would be substantially alleviated if the Caltrain Downtown

Extension were implemented. Once again, capacity issues may arise on the 9AX-San Bruno Express. Table 3-10 indicates a peak load of about ~~5,270~~ 4,680 passengers ~~on the 9X-San Bruno Express lines (at Fourth and Mission Streets).~~ The Powell Street Station may also experience capacity issues at the concourse level due to increased passenger activity at the northeast end of the station.

#### Mitigation Measures

Mitigation measures would be the same as those outlined under Alternative 2, except as noted below.

SFMTA and BART will prepare and enter into a Station Improvement Coordination Plan for the Powell Street Station that will provide for, at a minimum, implementation of and allocation of cost for any station infrastructure improvements necessary to maintain pedestrian safety and a pedestrian level of service of D or better at the Powell Street Station as a result of the Central Subway Project.

### **Alternative 3 – Fourth/Stockton Alignment Option B (Modified LPA)**

#### Operations and Cumulative Impacts

For the Fourth/Stockton Alignment Option B, travel time between the Fourth and King Station and the Union Square/Market Street Station is estimated to be ~~1.3~~ 1.4 minutes slower and travel time between Fourth and King Streets and the Chinatown Station would be 1.7 minutes slower than in Fourth/Stockton Alignment Option A due to the presence of an additional stop in SOMA, but travel times between Fourth and King Streets and Chinatown 10.7 minutes faster than under the No Project/TSM Alternative (refer to Table 3-11). When compared to existing conditions, travel times from Fourth and King Streets would be ~~3.6~~ 3.2 minutes faster to Market Street and 5.5 minutes faster to Chinatown Station.

The light rail line in the Fourth/Stockton Alignment Option B is expected to serve approximately ~~99,230~~ 76,600 trips per weekday in 2030, or ~~39,200~~ 52,000 more daily riders when compared to the No Project/TSM Alternative (refer to Table 3-8). It serves ~~10,390 more~~ 1,000 fewer passengers or one percent less than served by the light rail train in the Fourth/Stockton Alignment, Option A Alternative, primarily due to the ~~additional access provided by~~ slightly slower travel times resulting from the proposed surface station on Fourth Street. The bus ridership is projected to decline on lines serving the Corridor, such as the 9X/9AX/9BX- San Bruno Expresses, 30-Stockton, and 45-Union/Stockton, as well as other lines serving Downtown San Francisco and SOMA as a result of the Central Subway Project implementation. As was the case with the Enhanced EIS/EIR Alternative and Fourth/Stockton Alignment Option A, a large share of the users of the Central Subway are expected to have trip origins

outside San Francisco, transferring to the Central Subway at Fourth and King Station (from Caltrain) ~~and alighting or~~ at Market Street transferring from the BART system (refer to Table 3-9). When compared to the No Project/TSM Alternative, overall transit boardings on routes serving the Third Street Corridor are expected to increase by approximately ~~14,840~~ 18,400 over the No Project/TSM Alternative or ~~69,420~~ 49,300 over existing conditions. The increase of ~~39,200~~ 52,000 rail boardings over the No Project/TSM Alternative would be offset by a decline of ~~24,360~~ 33,600 bus boardings.

~~The Fourth/Stockton Alignment Option B has the highest Central Subway ridership of the four alternatives evaluated and b~~By 2030 the large numbers of travelers using the Central Subway could exceed the capacity during the peak hours under the Fourth/Stockton Alignment Option B (refer to Tables 3-9 and 3-10). Table 3-10 indicates that the peak load

on the combined T-Third light rail lines, is projected to be ~~19,720~~ 26,820 by 2030. Assuming the use of Muni planning capacity standards, additional rail service may be required to meet demand as development along the Corridor and to the south of San Francisco occurs. For the Fourth/Stockton Alignment Option B, the 9X-San Bruno Express demand would be less than under ~~all other~~ Alternative 2. This is due to a shift in passengers disembarking at the Fourth and Harrison Streets and Fifth and Harrison Street stops, from the 9X-San Bruno Express and other lines, to the T-Third light rail line stop at Fourth and Brannan Streets. The 9AX-San Bruno Express line could experience capacity issues. The Powell Street Station may also experience capacity issues at the concourse level due to increased passenger activity at the northeast end of the station.

#### Mitigation Measures

Mitigation measures would be the same as those outlined under ~~Alternative 2~~ 3A.

#### 3.2.2 TRAFFIC

A project is considered to have a significant traffic impact when project-related traffic causes the intersection level of service to deteriorate from LOS D or better to LOS E or F, or from LOS E to LOS F or if the project substantially contributes to increased delays at intersections already operating at LOS E or F. A project would also have a significant impact if it would cause major traffic hazards or contribute considerably to cumulative traffic increase that would cause deterioration in levels of service to unacceptable levels.

#### **Future Traffic Conditions**

This section discusses the methodology used to develop future year (2030) traffic projections and vehicle travel times for the Central Subway Alternatives.

#### Growth in Vehicular Traffic Trips

The development of 2030 background traffic conditions was based on the San Francisco County Transportation Authority's (SFCTA's) travel demand model (San Francisco Model). The San Francisco Model is typically used to obtain estimates of travel volumes and patterns within San Francisco. The activity-based model simulating trip tours is able to quantify shifts in travel patterns and modal splits due to changes in conditions such as: roadway configurations, land uses, travel times, transit accessibility, traffic congestion, and parking costs.

The San Francisco Model forecasts traffic volumes for street segments or links, but not for intersections. The forecasted traffic growth for each street segment in the Study Area (based on 2000 and 2030 model



runs) was added to existing traffic volumes to obtain 2030 No Project /TSM traffic projections. Then,

based on existing travel patterns and proposed development access points, manual adjustments were made to develop 2030 peak hour turning movement projections for the Study Area's five intersections.

Table 3-12 summarizes the expected 2030 traffic volumes along the I-80 and I-280 Freeway Corridors, Geary and Stockton Streets, and Third and Fourth Streets, between Mission Creek and Market Street. Traffic volumes are expected to increase on all key street segments in the Study Area in the future with the exception of Third Street between King and Townsend Streets in the a.m. peak hour. This reduction is expected to result from increased use of the Sixth and Brannan Streets off-ramp from I-280 by northbound traffic.

**TABLE 3-12**  
**PROJECTED 2030 WEEKDAY TRAFFIC INCREASES**  
**UNDER THE NO PROJECT/TSM ALTERNATIVE**

LOCATION	A.M. PEAK HOUR			P.M. PEAK HOUR		
	EXISTING	2030	INCREASE	EXISTING	2030	INCREASE
<b><i>Interstate 280:</i></b>						
Between 18 <sup>th</sup> & Sixth Streets	11,440	12,500	+1,060	11,340	12,150	+810
Between Sixth & Fifth Streets	2,490	3,280	+790	2,470	4,510	+2,040
<b><i>Interstate 80:</i></b>						
Between Fourth & Second Streets	13,740	18,660	+4,920	11,560	14,860	+3,300
<b><i>Third Street:</i></b>						
Between King & Townsend Streets	1,050	850	-200	1,720	2,830	+1,110
Between Harrison & Folsom Streets	2,060	N/A	N/A	1,770	2,120	+350
<b><i>Fourth Street:</i></b>						
Between King & Townsend Streets	780	1,780	+1,000	1,160	1,640	+480
Between Harrison & Folsom Streets	1,450	1,770	+320	1,770	2,390	+620
<b><i>King Street:</i></b>						
Between Fourth & Third Streets	2,730	3,210	+480	3,510	3,830	+460
Between Third & Second Streets	2,410	3,380	+970	2,590	3,410	+820
<b><i>Geary Street:</i></b>						
Between Powell & Stockton Streets	1,190	1,570	+380	1,640	2,340	+710
<b><i>Stockton Street:</i></b>						
Between Market/Ellis & O'Farrell Streets	980	2,030	+1,050	1,120	2,240	+1,120
Between Geary & Post Streets (Union Square)	1,410	1,710	+300	1,750	2,020	+270
N/A = Not Available						
Source: San Francisco, Department of Parking and Traffic and San Francisco Model, 2007.						

### Intersection Levels of Service and Traffic Travel Speeds

The future peak hour service levels were estimated for each study intersection. The service level calculations considered each alternative's future turning volumes; number, type and width of approaching lanes; travel speeds; and signal phasing, including consideration of special phases used for light rail vehicles. Tables 3-13 and 3-14 summarize the projected levels of service for each alternative for key intersections in the Study Area. The projected levels of service were generated from the TRAFFIX model using input for traffic volumes, signal timing, and lane configurations at each intersection. A significant impact would occur if a project or cumulative development to which the project contributes causes an intersection operating at LOS A, B, C or D to deteriorate to LOS E or F conditions. Intersection delays associated with LOS F are represented in the tables as greater than 80 seconds. Tables E-12 and E-13 in Appendix E include the percent contributions of the No Project/TSM and the Build Alternatives' Project-related traffic as a percent of total 2030 Cumulative traffic volumes, and the project-related traffic as a percent of only the increase in traffic volumes between Existing and 2030 Cumulative conditions. This calculation is presented only for the intersections that would operate at LOS E or LOS F under 2030 Cumulative conditions.

**TABLE 3-13**

**2030 A.M. INTERSECTION LOS / AVERAGE SECONDS OF DELAY**

INTERSECTION	EXISTING	NO PROJECT / TSM ALTERNATIVE	ENHANCED EIS/EIR ALTERNATIVE	FOURTH / STOCKTON ALTERNATIVE OPTION A (LPA)	FOURTH / STOCKTON ALTERNATIVE OPTION B (MODIFIED LPA)
Third Street / King Street	<del>D/ 36.4</del> <u>D/ 35.8</u>	<del>D/ 47.4</del> <u>E/61.0</u>	<b>F/&gt;80.0</b>	<b>F/&gt;80.0</b>	<b>F/&gt;80.0</b>
Fourth Street / King Street	E/ 55.9	E/ 69.5	<del>D/ 40.0</del> <u>E/ 62.6</u>	<del>E/ 64.6</del> <u>E/64.1</u>	<del>E/ 58.6<sup>1</sup></del> <u>E/64.1<sup>1</sup></u>
Fourth Street / Harrison Street	<del>B/ 13.2</del> <u>B/ 13.5</u>	<del>E/ 66.5</del> <u>C/28.0</u>	<del>C/ 31.5</del> <u>C/34.8</u>	<del>C/ 31.2</del> <u>C/34.8</u>	<del>F/ 75.7</del> <u>C/34.1</u>
Sixth Street / Brannan Street	F/>80.0	F/>80.0	F/>80.0	F/>80.0	F/>80.0
Fourth Street / Bryant Street	<del>B/ 11.8</del> <u>B/ 18.9</u>	<del>B/ 11.8</del> <u>B/ 19.0</u>	<del>C/ 23.8</del> <u>C/ 23.4</u>	<del>C/ 28.2</del> <u>C/ 27.7</u>	<del>D/ 52.5</del> <u>D/51.7</u>

**Bold** shows Project related impact.

<sup>1</sup> The level of service presented here is for the semi-exclusive flow option. The level of service under the mixed-flow option would be LOS D.

Source: San Francisco Department of Parking and Traffic, November 2006, February 2007, and March 2007. Revised February 2008.

**TABLE 3-14**  
**2030 P.M. INTERSECTION LOS**

INTERSECTION	EXISTING	NO PROJECT / TSM ALTERNATIVE	ENHANCED EIS/EIR ALTERNATIVE	FOURTH / STOCKTON ALTERNATIVE OPTION A (LPA)	FOURTH / STOCKTON ALTERNATIVE OPTION B (MODIFIED LPA)
Third Street / King Street	F/>80.0	F/>80.0	F/>80.0	F/>80.0	F/>80.0
Fourth Street / King Street	F/>80.0	F/>80.0	F/>80.0	F/>80.0	F/>80.0 <sup>1</sup>
Fourth Street / Harrison Street	<u>B/ 19.5</u> <u>B/ 18.5</u>	<u>C/ 27.6</u> <u>C/ 27.0</u>	<u>D/ 35.8</u> <u>D/35.3</u>	<u>E/ 65.2</u> <u>E/64.6</u>	<b>F/&gt;80.0<sup>2</sup></b>
Sixth Street / Brannan Street	F/>80.0	F/>80.0	F/>80.0	F/>80.0	F/>80.0
Fourth Street / Bryant Street	<u>C/ 20.7</u> <u>B/19.6</u>	<u>C/ 30.9</u> <u>C/30.4</u>	<u>B/ 18.5</u> <u>B/ 18.2</u>	<u>D/ 39.5</u> <u>C/ 24.4</u>	<u>D/ 37.3</u> <u>D/ 36.9</u>
<b>Bold</b> shows Project related impact. <sup>1</sup> The level of service presented here is for the mixed-flow and semi-exclusive option. <sup>2</sup> <u>The level of service presented here is for the semi-exclusive option. The level of service for the mixed-flow option would be LOS E.</u> Source: San Francisco Department of Parking and Traffic, November 2006, February 2007, and March 2007. <u>Revised February 2008.</u>					

Table 3-15 summarizes existing average travel speeds and 2030 travel speeds for the Project Alternatives. The travel speeds for existing conditions were collected using the average car method as recommended in the Manual of Transportation Engineering Studies, a publication of the Institute of Transportation Engineers (ITE). Each arterial segment was surveyed three times per segment in both the a.m. and p.m. peak periods. Upon completion of the three surveys for each segment, the average speed of each run conducted was calculated. To conform to recommended procedures established by ITE, the calculated average speed data was used to verify that the minimum sample size was satisfied. If these surveys were found to be insufficient, additional travel time runs on specific segments were completed to conform to the ITE procedure. Travel speeds for the build alternatives were generated from the TRAFFIX model using the urban streets methodology from the HCM (Chapter 15, HCM 2000).

### **Alternative 1 – No Project/TSM**

#### Operations and Cumulative Impacts

Under the No Project/TSM Alternative, the roadway network in 2030 would be similar to existing conditions, with the exception of the roadway changes within the proposed Mission Bay development. Two of the intersections, Third/King-Fourth/Harrison and Fourth/Bryant, intersections would operate at

**TABLE 3-15****TRAFFIC P.M. PEAK PERIOD TRAVEL SPEED COMPARISON**

LOS / AVERAGE SPEED (mph)					
ROUTE	EXISTING	2030 NO PROJECT / TSM ALTERNATIVE	2030 ENHANCED EIS/EIR ALTERNATIVE	2030 FOURTH/ STOCKTON ALTERNATIVE OPTION A (LPA)	2030 FOURTH/ STOCKTON ALTERNATIVE OPTION B (MODIFIED LPA)
<i>Fourth Street:</i>					
King to Brannan Streets	E/ 7.2	F/ 5.8	F/ 3.1	F/ 4.5	F/ 7.0
Brannan to Bryant Streets	D/ 12.1	D/ 9.1	E/ 9.0	F/ 6.0	D/ 9.3
Bryant to Harrison Streets	B/ 22.6	E/ 8.2	D/ 10.0	F/ 6.9	F/ 4.8
Source: Department of Parking and Traffic, February 2007, and Transportation Research Board, <i>Highway Capacity Manual 2000</i> , Exhibit 15-2, 2000.					

acceptable levels of service, LOS ~~D-C~~ and B, respectively, in the a.m. peak hour and both the Bryant and Harrison Street intersections ~~with Fourth Street~~ would operate at LOS C during the p.m. peak hour. As ~~under existing conditions, many~~ Three of the Study Area intersections would operate at LOS E, or worse, conditions during the a.m. and p.m. peak period. LOS E or F conditions would occur at the following intersections under the No Project/TSM Alternative (refer to Tables 3-13 and 3-14):

- Third Street/King Street would degrade from LOS D to LOS E during the a.m. peak hour and continue to operate at LOS F during the p.m. peak hour with increased delays due to increases in traffic volumes on all approaches,
- Fourth Street/King Street would remain at LOS E during the a.m. peak hour and LOS F during the p.m. peak hour with increases in traffic volumes on all approaches, except on the eastbound through movement in the a.m. peak hour, where congestion would limit the traffic flows, and
- ~~Fourth Street/Harrison Street would degrade from LOS B to LOS E during the a.m. peak hour with significant increase in traffic volume to the I-80 on-ramp, and~~
- Sixth Street/Brannan Street would continue to operate at LOS F during a.m. and p.m. peak hours but would experience increased delays in the p.m. peak hour.

Mitigation Measures

Given the constrained roadway space available and limited opportunities for roadway restriping or signal enhancements, none of the LOS E and F intersections, ~~except for the Fourth and Harrison Streets~~

~~intersection Third/King, Fourth/King and Sixth Brannan Streets, could be reasonably mitigated and are therefore considered cumulative, unavoidable adverse impacts.—At the Fourth/Harrison Streets intersection, the following mitigation measure is recommended:~~

- ~~• Fourth Street/Harrison Street: In 2030, the Fourth/Harrison Street intersection would degrade to LOS E conditions during the a.m. peak hour; however, the intersection's performance could be improved to LOS B conditions by adding, via striping changes, a shared through and right turn lane from Fourth Street to Harrison Street. This improvement would require parking removal on the east side of Fourth Street, from Harrison Street to a point about 200 feet to the north for lane transition purposes. Signal timing changes would also help improve the operating conditions by allocating the appropriate amount of green time to all approaches."~~

## **Alternative 2 – Enhanced EIS/EIR Alignment**

### Operations and Cumulative Impacts

For the Enhanced EIS/EIR Alignment, Third and Fourth Streets between King and Bryant Streets would be reconfigured to accommodate the light rail tracks, station platforms, and subway portals.

On Third Street, between King and Townsend Streets, three through (one-way northbound) and one right-turn only traffic lanes on the approach to Townsend Street would be situated on the east side of the street and the exclusive lane for the light rail tracks and a curbside station would be located on the west side. Between Townsend and Brannan Streets, the light rail tracks transition toward the middle of the street en route to the subway portal as part of a mixed-flow vehicle and track lane, and the western most through traffic lane would transition further west, crossing the light rail tracks, so that from just south of Brannan Street to the portal, two traffic lanes would exist on the east side of the tracks and one traffic lane on the west side. The middle through traffic lane would transition into the mixed-flow vehicle and track lane. No existing turning movements would be prohibited. With the inclusion of light rail, this segment of Third Street would provide three traffic lanes at all times (note that it currently provides a fourth lane during the a.m. peak hour for the right-turn only lane). Northbound traffic on this block of Third Street can access either side of the street by crossing the mixed-flow vehicle and track lane. On Third Street between Brannan and Bryant Street, the mixed-flow vehicle and track lane would transition into a portal in the middle of the street, with two northbound traffic lanes on the east side of the portal and two northbound traffic lanes on the west side of the portal. On this block of Third Street, the properties on the east side of Third Street would be accessed from the two northbound traffic lanes on the

east side of the portal, and the properties on the west side of Third Street would be accessed from the two northbound traffic lanes on the west side of the tracks.



Under this alternative, Fourth Street would remain one-way southbound between Bryant and Townsend Streets, with a portal in the center of the street between Bryant and Brannan Streets. Between Bryant and Brannan Streets, the buildings on the east side of Fourth Street would be accessed from the two southbound traffic lanes on the east side of the portal, and the buildings on the west side of Fourth Street would be accessed from the two southbound traffic lanes on the west side of the portal. On Fourth Street between Brannan and Townsend Streets, two southbound traffic lanes would exist on both sides of the light rail tracks with the track from the portal transitioning into a mixed-flow vehicle and track lane. In addition, southbound traffic can access either side of the street by crossing the mixed-flow vehicle and track lane. At Townsend Street, the eastern two lanes would be diverted onto Townsend to establish an eastbound one-way bus lane and loading zone on the west side of Fourth Street in front of the Caltrain Terminal. On Fourth Street between Townsend and King Streets, there would be three traffic lanes in the southbound direction, including a left turn only lane shared with the tracks, and one northbound traffic lane with a right-turn only regulation at Townsend Street.

Properties along Fourth Street between Bryant and Townsend Streets would have direct access from the eastbound Interstate 80 off-ramp at Fourth and Bryant Streets and access to the Interstate 280 on-ramp via the intersection at Fifth Street/King Street.

On Fourth Streets, the light rail would travel in a mixed-flow traffic lane, except along the track lane on the west side of Third Street between Townsend and King Streets, where the platform stop is located. All intersections would be re-graded to conform to the trackway.

Under Alternative 2, the Third and King Streets intersection would degrade from LOS ~~D-E~~ to LOS F and the Fourth and Bryant Streets intersection would degrade from LOS B to LOS C in the a.m. peak hour with the implementation of the Project. This would result in a significant project impact for the Third/King Streets intersection. The LOS operating conditions for the other three intersections would remain the same, with the Fourth/King Streets intersection experiencing slightly fewer delays than under the No Project/TSM Alternative and the Fourth/Harrison and Sixth/Brannan Streets intersections experiencing slightly higher delays. Cumulative unavoidable adverse impacts are expected to occur at Third Street/King Street intersection in the a.m. peak hour., ~~Fourth Street/King Street (p.m. peak hour only), and Sixth Street/Brannan Street under the No Project/TSM Alternative as these intersections are expected to perform at LOS E or F conditions during the a.m. and/or p.m. peak hours.~~

Implementation of the Enhanced EIS/EIR Alignment would result in a degradation of level of service from LOS C to LOS D at the Fourth Street/Harrison Street intersection and exacerbate the congested

LOS F operations during the p.m. peak hours at Third Street/King Street, ~~Fourth Street/King Street~~, and Sixth Street/Brannan Street intersections, ~~but~~ At the Fourth/Bryant Streets intersection, the level of service would improve from LOS C to LOS B with Alternative 2. Alternative 2 would make a considerable contribution to the cumulative congestion only at the Sixth/Brannan Streets intersection. At the Sixth Street/Brannan Street intersection, Alternative 2 would increase delays for vehicles accessing the I-280 on- and off-ramps. The Project would not make a considerable contribution to the cumulative adverse impacts at the other two intersections. At the Third Street/King Street intersection, the increase in the northbound left turns ~~that~~ would cause greater delays than under the No Project/TSM Alternative. At Fourth Street/King Street, the overall traffic volume and delays are ~~is~~ slightly less than the

~~No Project/TSM Alternative, but the increase in eastbound left turns could cause delays to increase. During the a.m. peak hours, the LOS operating conditions for two of the intersections remain the same, but would experience slightly fewer delays than under the No Project/TSM Alternative. The Fourth Street/King Street intersection would operate as a constraint to traffic traveling southbound on Fourth Street.~~

No long-term traffic impacts would be anticipated north of the subway portals since the project would not change traffic lane configurations or increase traffic levels north of Bryant Street.

#### Mitigation Measures

Project-related unavoidable adverse impacts are expected to occur at the Third/King Streets intersection. Cumulative unavoidable adverse impacts, which cannot be reasonably mitigated are expected to occur by 2030, with or without the Project, at Third Street/King Street, Fourth Street/King Street, and Sixth Street/Brannan Street intersections. Alternative 2 would make a considerable contribution to the cumulative impacts at the Sixth/Brannan Streets intersection in the p.m. peak hour.

#### **Alternative 3 – Fourth/Stockton Alignment Option A (LPA)**

##### Operations and Cumulative Impacts

For the Fourth/Stockton Alignment Option A (LPA), Fourth Street between King and Brannan Streets would be reconfigured to accommodate the light rail tracks and subway portal.

Under this alternative, Fourth Street would remain one-way southbound between Bryant and Townsend Streets. On Fourth Street between Brannan and Townsend Streets, two southbound traffic lanes would exist on the west side of the light rail tracks and one southbound traffic lane on the east side. At Townsend Street, the eastern southbound lane would be diverted onto Townsend Street to establish a northbound one-way bus lane and loading zone on the east side of Fourth Street in front of the Caltrain Terminal, between Townsend and King Streets.

On Fourth Street, the light rail would travel in a semi-exclusive four- to six-inch raised right-of-way between Townsend and King Streets for both northbound and southbound directions. It would then transition to a portal between Townsend and Brannan Streets. All intersections would be re-graded to conform to the raised trackway.

Access to the Interstate 280 on-ramp from the properties on the east side of Fourth Street between Brannan and Townsend Streets would be restricted. Southbound traffic originating from these properties

would have to turn left onto eastbound Townsend Street, right onto southbound Second Street, right onto westbound King Street, then to the on-ramp at Fifth and King Streets.

Under Alternative 3A, the Third Street/King Street intersection would degrade from LOS ~~D-E~~ to LOS F in the a.m. peak hour and the Fourth Street/Harrison Street intersection would degrade from LOS C to LOS E in the p.m. peak hour with the implementation of the Project, resulting in a significant project impact. The Fourth Street/Bryant Street intersection would degrade from LOS B to LOS C in the a.m. peak hour and would remain at LOS C in the p.m. peak hour, but would still operate at an acceptable level of service. Third/King, Fourth/King, and Sixth/Brannan streets intersections are expected to continue to operate at LOS E or F in the a.m. and p.m. peak hours. Cumulative unavoidable adverse traffic impacts are expected to occur at Third Street/King Street (a.m. peak hour), Fourth Street/King Street (a.m. and p.m. peak hour), and Fourth Street/Harrison Street (a.m. and p.m. peak hour). These intersections are expected to perform at LOS E or F conditions during the a.m. and/or p.m. peak hours with or without the Fourth/Stockton Alignment Option A (LPA), but Alternative 3A would have a considerable contribution to the cumulative impacts at these intersections in the p.m. peak hour. Implementation of light rail would exacerbate the congested operations at the Fourth Street/King Street intersection during the p.m. peak hours with increases in the eastbound through volumes contributing to the increase in delays. At Third Street/King Street, the increases in eastbound left turn movements would contribute to the increased delays at the intersection and at the Fourth Street/Harrison Street intersection, the increase in southbound right turn movements resulting from Alternative 3A would contribute to the increased congestion. At the Sixth Street/Brannan Street intersection, the LOS operating conditions would remain at LOS F during the a.m. and p.m. peak hours, but would experience slightly ~~fewer~~ higher delays ~~than under the No Project/TSM Alternative~~ with the reduction in southbound lanes.

No long-term traffic impacts would be anticipated north of the subway portals since the Project would not change traffic lane configurations or increase traffic levels north of Brannan Street, except for the Fourth Street/Harrison Street intersection.

#### Mitigation Measures

To mitigate intersection operation impacts under the Fourth/Stockton Alignment Option A (LPA), the following mitigation measure is recommended:

- Fourth Street/Harrison Street: With the Fourth/Stockton Alignment Option A (LPA), the Fourth/Harrison Street intersection would degrade to LOS E conditions during the p.m. peak hour due to heavy right turns from Fourth Street to Harrison Street. However, the intersection's p.m. peak

hour performance could be improved to LOS B conditions by adding, via striping changes, a shared through and right-turn lane from Fourth Street to Harrison Street. This improvement would require parking removal on the east side of Fourth Street, from Harrison Street to a point about 200 feet to the north for lane transition purposes. Signal timing changes would also help improve the operating conditions by allocating the appropriate amount of green time to all approaches.

Project-related unavoidable adverse impacts are expected to occur at the Fourth/Harrison Streets and Third/King Streets intersections. Cumulative unavoidable adverse traffic impacts, which cannot be reasonably mitigated are expected to occur by 2030, with and without the light rail project, at Third Street/King Street, and Fourth Street/King Street, ~~and Fourth Street/Harrison Street~~. Alternative 3A would have a considerable contribution to these cumulative impacts in the p.m. peak hour.

### **Alternative 3 – Fourth/Stockton Alignment Option B (Modified LPA)**

#### Operations and Cumulative Impacts

For the Fourth/Stockton Alignment Option B (Modified LPA), Fourth Street between King and Harrison Streets would be reconfigured to accommodate the light rail tracks, station platform, and subway portal.

Under this alternative, Fourth Street between Townsend and Bryant Streets would be converted from one-way southbound to two-way operation, with a portal in the center of the street underneath the Interstate 80 overpass between Harrison and Bryant Streets. This alternative will include one surface station between Brannan and Bryant Streets. On Fourth Street between Bryant and King Streets, two southbound traffic lanes would exist on the west side of the light rail tracks and one northbound traffic lane on the east side. The northbound lane would be diverted eastbound at Bryant Street with a right-turn only restriction.

There are two suboptions for lane configurations on Fourth Street under the Fourth/Stockton Alignment Option 3B. The semi-exclusive suboption would have light rail on Fourth Street in a semi-exclusive four-to six-inch raised right-of-way, or curbs along the trackway, between Brannan and King Streets for both northbound and southbound directions. On Fourth Street between Brannan and Bryant Streets, the track right-of-way would be semi-exclusive in the northbound direction and mixed-flow in the southbound direction. The trackway would then transition to a portal between Harrison and Bryant Streets underneath the Interstate 80 freeway overpass. All intersections would be re-graded to conform to the trackway.

The mixed-flow suboption would have light rail on Fourth Street in mixed-flow lanes between Bryant and King Streets for both northbound and southbound directions, providing for one additional lane of travel for northbound traffic. As with the semi-exclusive track lane option, the trackway would transition to a portal between Harrison and Bryant Streets underneath the Interstate 80 freeway overpass, and all intersections would be re-graded to conform to the trackway.

Alternative 3B provides direct access from Interstate 280 to properties on the west side of Fourth Street between Townsend and Bryant Streets. In order to access Interstate 280 from the properties on the east side of Fourth Street, traffic must make a right turn onto eastbound Bryant or Brannan, right onto

southbound Second Street, right onto King Street, then to the Interstate 280 on-ramp at Fifth and King Streets. Left turns from Fourth Street at intersections and at mid-block locations for both northbound and southbound would be prohibited.

Access to the proposed Transbay Terminal bus storage facilities underneath the Interstate 80 freeway on the blocks bounded by Second, Third, Fourth, Stillman, and Perry Streets would be provided through Second, Third, and Fourth Streets. ~~Because of the location of the~~ The portal on Fourth Street at Perry Street, under the Interstate 80 freeway, has been located to accommodate the bus access from southbound Fourth Street to the bus storage facility ~~may be restricted due to the tight turning radius~~. The portal may also ,however, restrict turn movements of larger trucks (40-foot or greater wheelbase) to Stillman Street for ~~the same reasons~~.

For Alternative 3B, when compared to the No Project/TSM Alternative, the LOS at the Third Street/King Street intersection would degrade from LOS ~~D-E~~ to LOS F in the a.m. peak hour and the operation of the Fourth Street/Harrison Street intersection would degrade from ~~LOS E to LOS F in the a.m. peak hour and from~~ LOS C to LOS F in the p.m. peak hour as a result of the Project implementation. The intersection of Fourth/Bryant Streets would degrade from LOS B to LOS D in the a.m. peak hour and from LOS C to LOS D in the p.m. peak hour, but would continue to operate at acceptable levels of service. The intersections of Third/King (a.m. peak hour changes from LOS E to LOS F), Fourth/King, and Sixth Brannan would continue to operate at LOS E or LOS F in the peak hours. Cumulative unavoidable adverse impacts are expected to occur at Third Street/King Street (a.m. and p.m. peak hour), Fourth Street/Harrison Street (p.m. peak hour only), and Fourth Street/King Street (p.m. peak hour only) intersections. Implementation of light rail would exacerbate their congested operations at these locations during the p.m. peak hours with either ~~of the~~ semi-exclusive or mixed-flow street configurations. These locations would experience greater delays in this alternative than in the No Project/TSM Alternative due to overall increases in traffic volumes, ~~as noted under Alternative 3A,~~ resulting in a considerable contribution to the cumulative impacts.

The LOS operating conditions at the critical intersections remain the same or degrade one level of service during the a.m. peak hours, and would also experience moderately longer delays than under the No Project/TSM Alternative, except at Fourth Street/King Street intersection where overall traffic volumes are less than those under the No Project/TSM Alternative. The increased traffic at the Third/King Streets

intersection resulting from Alternative 3B will also result in a considerable contribution to the cumulative impacts.

The only differences in the level of service between the semi-exclusive and mixed-flow track lane options are at Fourth/King Streets and Fourth/Harrison Streets. In the a.m. peak, Fourth/King Streets performs at LOS E for the semi-exclusive track option, while it operates at LOS D in the mixed-flow option. In the p.m. peak, Fourth/Harrison Streets intersection performs at LOS F for the semi-exclusive option and LOS E for the mixed-flow option. The improvement in the level of service for the mixed-flow option could be attributed to the added capacity of the mixed-flow lane, which would be used by both the LRVs and automobile traffic.



No long-term traffic impacts would be anticipated north of the subway portals, except for Fourth Street/Harrison Street, since the project would not change traffic lane configurations or increase traffic levels north of Harrison Street.

#### Mitigation Measures

Mitigation measures would be the same as those described under Alternative 3A except as noted below. To address the tight turn radius issues at ~~Perry-Stillman Street~~, MTA is currently investigating ~~reducing the portal length and shifting its location southward to allow buses and~~ with Caltrans, the TJPA and Golden Gate Transit the possibility of allowing trucks to enter Perry-Stillman Street from Fourth Street under the Caltrans I-80 structure via the bus storage facility. ~~Other possible options evaluated were to locate the subway portal opening at the immediate3 north side of the Fourth Street/Bryant Street intersection and to design the incline of the tracks in the portal with a steeper grade or to shift the portal westerly by 13 feet, which would also include shifting of the two westerly traffic lanes and the west sidewalk further west. The relocation of the west sidewalk would encroach into the Caltrans right-of-way. All of these options would provide adequate space on the east side of Fourth Street to allow buses and trucks to access Perry and Stillman Streets.~~ Other possible options not yet identified may also be considered as part of the coordination process with the Transbay Terminal project team. When the preferred option is selected, it would be included into the design ~~of the portal~~ for this Project.

#### 3.2.3 FREIGHT AND LOADING

This section discusses the potential environmental consequences to truck movement under each of the alternatives. A project would have a significant effect on the environment if it would result in a loading demand during the peak hour of loading activities that could not be accommodated within proposed on-site loading facilities or within convenient on-street loading zones, and created potentially hazardous conditions or significant delays affecting traffic, transit, bicycles or pedestrians.

#### **Alternative 1 – No Project/TSM**

##### Operations and Cumulative Impacts

By 2030, traffic is expected to increase on all major streets throughout the Corridor except Third Street, immediately north of the I-280 off-ramp in the a.m. peak hour (refer to Table 3-11). The increased congestion would impact all traffic flows, including private autos, trucks, and buses.

The No Project/TSM Alternative would not disproportionately affect truck freight movements. Trucks would be subject to the same amount of increase in delays at intersections and in overall travel times as automobiles.

### Mitigation Measures

No mitigation measures would be required.

## **Alternative 2 – Enhanced EIS/EIR Alignment**

### Operations and Cumulative Impacts

The light rail station platform on Third Street at King Street, the surface alignment along Third and Fourth Streets, and the subway portals would displace some on-street parking, including loading zones between King and Bryant Streets. The removal of existing on-street loading zones (3 on Third Street, 2 on Fourth Street) would require re-establishment of loading zones in areas where parking would be allowed on Third and Fourth Streets and/or on nearby side streets. If no convenient spaces were available, double-parking of trucks may occur. At the Union Square Station, sidewalk bulb-outs would be constructed on Stockton Street, north and south of Maiden Lane, to provide stair and escalator entries eliminating five or six truck parking spaces. The loss of existing loading zone spaces on Stockton Street at the Union Square and Chinatown Stations would not be re-established since there are already nearby loading zones at these locations.

### Mitigation Measures

During final design of the Enhanced EIS/EIR Alignment, areas for new, permanent, on-street loading zones may be identified along Third and Fourth Streets (between King and Bryant Streets) and appropriate side streets. Some of the new loading zones may need to displace existing parking spaces.

## **Alternative 3 – Fourth/Stockton Alignment Option A (LPA)**

### Operations and Cumulative Impacts

The surface alignment along Fourth Street and the location of the subway portal would displace some on-street parking, including loading zones between King and Brannan Streets. The removal of existing on-street loading zones would require re-establishment of loading zones in areas where parking would be allowed on Fourth Street and/or on nearby side streets. If no convenient spaces were available, double-parking of trucks may occur. The placement of vent shafts for the Union Square/Market Street Station would result in the loss of two to three loading zones on Stockton Street, south of Maiden Lane, and the bulb-out for stairway access to the station would displace three loading zones on Stockton Street, south of Maiden Lane. Two loading zone spaces would also be lost on the east side of Stockton Street between Clay and Washington Streets to provide room for the emergency access hatch at the Chinatown Station.

### Mitigation Measures

Mitigation measures would be the same as those described above under Alternative 2, except as noted below.

The proposed location of the combined northbound and southbound portals on Fourth Street on the block between Brannan and Townsend Streets would require the relocation of the existing 45-foot long white loading zone and the adjacent two 22-foot long yellow metered loading zones located on the east side of Fourth Street approximately 39-feet south of Brannan Street. These loading zones currently serve the multi-story commercial building at 601 Fourth Street (The Lofts) on the southeast corner of Fourth and Brannan Streets. This building's loading zone should be relocated to a location around the corner on the south side of Brannan Street just east of Fourth Street. These improvements should be considered during the development of the Project's final plans.

### **Alternative 3 – Fourth/Stockton Alignment Option B (Modified LPA)**

#### Operations and Cumulative Impacts

Provision of the light rail station platform on Fourth Street at Brannan Street, the surface alignment along Fourth Streets, and the location of the subway portal would displace some on-street parking, including loading zones between King and Harrison Streets. The removal of existing on-street loading zones would require re-establishment of loading zones in areas where parking would be allowed on Third and Fourth Streets and/or on nearby side streets. Approximately four loading zones spaces would be removed on the west side of Stockton Street between Washington and Jackson Streets at the Chinatown Station to provide space for the emergency access hatch. If no convenient spaces are available, double-parking of trucks may occur. The access to Stillman Street for larger trucks (40-foot wheelbase and above) would be restricted under this alternative due to the location of the portal.

#### Mitigation Measures

Mitigation measures would be the same as those described above under Alternative 2, except as noted below. To address the tight turn radius issues at Stillman Street, MTA is currently investigating with Caltrans, the TJPA and Golden Gate Transit the possibility of allowing trucks to enter Stillman Street from Fourth Street under the Caltrans I-80 structure via the bus storage facility. Other possible options not yet identified may also be considered as part of the coordination process with the Transbay Terminal project team. When the preferred option is selected, it would be included into the design for this Project.

#### 3.2.4 PARKING

San Francisco does not consider parking supply as part of the permanent physical environment. Parking conditions are not static, as parking supply and demand varies from day to day, from day to night, from month to month, etc. Hence, the availability of parking spaces (or lack thereof) is not a permanent physical condition, but changes over time as people change their modes and patterns of travel.

In San Francisco, parking deficits are considered to be social effects, rather than impacts on the physical environment as defined by CEQA. Under CEQA, a project's social impacts need not be treated as significant impacts on the environment. Environmental documents should, however, address the secondary physical impacts that could be triggered by a social impact. (CEQA Guidelines § 15131(a).) The social inconvenience of parking deficits, such as having to hunt for scarce parking spaces, is not an environmental impact, but there may be secondary physical environmental impacts, such as increased traffic congestion at intersections, air quality impacts, safety impacts, or noise impacts caused by congestion. In the experience of San Francisco transportation planners, however, the absence of a ready supply of parking spaces, combined with available alternatives to auto travel (e.g., transit service, taxis, bicycles or travel by foot) and a relatively dense pattern of urban development, induces many drivers to seek and find alternative parking facilities, shift to other modes of travel, or change their overall travel habits. Any such resulting shifts to transit service in particular, would be in keeping with the City's "Transit First" policy. The City's Transit First Policy, established in the City's Charter Section 16.102 provides parking policies for areas well served by public transit.

The transportation analysis accounts for potential secondary effects, such as cars circling and looking for a parking space in areas of limited parking supply, by assuming that all drivers would attempt to find parking at or near the project site and then seek parking farther away if convenient parking is unavailable. The secondary effects of drivers searching for parking is typically offset by a reduction in vehicle trips due to others who are aware of constrained parking conditions in a given area. Hence, any secondary environmental impacts which may result from a shortfall in parking in the vicinity of the proposed project would be minor, and the traffic assignments used in the transportation analysis, as well as in the associated air quality, noise and pedestrian safety analyses, reasonably addresses potential secondary effects.

### **Future Parking Conditions**

The following assessment is based on current parking demands and supplies in the Corridor and considers parking that would result from implementation of the alternatives. It does not forecast parking demands or evaluate parking impacts associated with other future developments; only those attributable to the Project. However, the assessment provides estimates of surplus parking throughout the Corridor.

Table 3-16 quantitatively summarizes the parking impacts on a segment-by-segment basis (Table E-10 in Appendix E provides quantified parking information on a block-by-block basis). Although individual

**TABLE 3-16**  
**2030 PARKING CONDITIONS IN CORRIDOR**

APPROXIMATE NUMBER OF ON-STREET PARKING SPACES								
SEGMENT	NO PROJECT / TSM ALTERNATIVE		ENHANCED EIS/EIR ALTERNATIVE		FOURTH / STOCKTON ALTERNATIVE OPTION A (LPA)		FOURTH / STOCKTON ALTERNATIVE OPTION B (MODIFIED LPA)	
Third Street - Total 92 Spaces								
	Spaces Remaining	Spaces Lost	Spaces Remaining	Spaces Lost	Spaces Remaining	Spaces Lost	Spaces Remaining	Spaces Lost
King to Townsend Streets	23	0	0	-23	23	0	23	-0
Townsend to Brannan Streets	35	0	35	0	35	0	35	-0
Brannan to Bryant Streets	34	0	0	-34	34	0	34	-0
Fourth Street - Total 85 Spaces								
King to Townsend Streets	0	0	0	0	0	0	0	-0
Townsend to Brannan Streets	20	0	20	0	2 NB/SB Portal	-18	Semi- Exclusive 0-2	Semi- Exclusive -20-18
							Mixed- Flow 5	Mixed- Flow -15
Brannan to Bryant Streets	36	0	0	-36	36	0	Semi- Exclusive 7	Semi- Exclusive -29
							Mixed- Flow 3-7	Mixed- Flow -33-29
Bryant to Harrison Streets	29	0	29	0	29	0	Both 0	Both -29
Stockton Street – Total 26 Spaces								
Geary to Post Streets	10	0	2	-8	5	-5	10	-0
Clay to Washington Streets	14	0	4	-10	8	-6	10	-4
Washington to Jackson Streets	20	0	20	0	20	0	18	-2
TOTAL CORRIDOR	204-221	0	90-110	-111	172-192	-29	Semi- Exclusive 44-139	Semi- Exclusive -82
							Mixed- Flow 120-142	Mixed- Flow -84-79
Source: San Francisco Department of Parking and Traffic, May 2007 and January 2008.								
NOTE: Under Alternative 3B up to three parking spaces would potentially be removed on the north side of Ellis Street to accommodate the expansion of One Stockton Street (the Apple Store) access/egress into the public sidewalk area.								

parking spaces are not delineated along much of the Corridor, estimates were made of overall parking capacities based on field measurements and observations.



**Alternative 1 – No Project/TSM**Operations and Cumulative Impacts

The No Project/TSM Alternative would not displace any additional parking spaces. Although additional bus service would be proposed under the No Project/TSM Alternative, none of Muni's bus zones along the Corridor would need to be extended (thereby displacing on-street parking spaces) to accommodate the increased bus service.

Mitigation Measures

This alternative would not result in any significant impacts, therefore no mitigation is required.

**Alternative 2 – Enhanced EIS/EIR Alignment**Operations and Cumulative Impacts

The Enhanced EIS/EIR Alignment would impact on-street parking along Third and Fourth Streets between King Street and the proposed subway portals, in the Hearst and Union Square parking garages, as well as near the proposed Chinatown station entrances.

The proposed location of the light rail tracks, platforms, and subway portal on Third Street would remove 57 of the existing 92 on-street parking spaces between King and Bryant Streets (refer to Table 3-16). On Fourth Street, all 36 spaces would be eliminated between Brannan and Bryant Streets to accommodate the light rail facilities. Parking would be retained on the blocks between Brannan and Townsend Streets and between Bryant and Harrison Streets.

On Stockton Street between Geary and Post Streets at the Union Square Station, 8 out of 10 parking spaces would be lost due the space occupied by the station portals. At the Chinatown Station on Stockton Street between Clay and Washington Streets, 10 of the 14 parking spaces would be lost due to the new emergency access hatch located on the northwest corner of Clay and Stockton Streets and station access as described below.

Overall, the Enhanced EIS/EIR Alignment would displace 111 parking spaces. Since on-street parking spaces along the Corridor and along nearby streets are usually at or near full occupancy during the day, it is unlikely that many of the displaced spaces could be reclaimed by relocation to another nearby location.

The Enhanced EIS/EIR Alignment would have four subway stations: Moscone Center, Market Street, Union Square, and Chinatown. The escalators, elevators and stairs serving the Moscone Center and Market Street stations are proposed to be located in off-sidewalk areas where feasible, in property to be

acquired by Muni, so parking would not be affected. However, due to the narrow right-of-way of Stockton Street in Chinatown and at Union Square, a portion of the curbs and sidewalks would need to be extended to accommodate the station's entries. Eight on-street parking spaces, a passenger loading zone, and a freight loading area would be eliminated due to the extensions at the Chinatown Station and another eight parking spaces at the Union Square Station. Most of these parking spaces are metered and used for truck loading. One of the spaces is located in front of the Post Office at the corner of Stockton and Clay Streets and is reserved for government vehicles. Parking in these areas is often at full-occupancy. In addition, 30 parking spaces in the Hearst Garage at 45 Third Street and 29 out of 985 parking spaces in the Union Square parking garage would be eliminated to accommodate the vent shafts and station access points.

#### Mitigation Measures

San Francisco has a "transit first" policy, and the displacement of existing automobile parking spaces is not considered a substantial impact requiring mitigation. However, the impacts could be alleviated or reduced with the following mitigation measures.

To improve the accessibility to businesses in the Corridor, it is recommended that retained and added (where applicable) parking spaces be designated for short-term parking and loading, especially in commercial districts. Near commercial establishments, parking turn-over should be encouraged through the use of time limits (e.g., parking meters, signed restrictions, etc.). These improvements would be incorporated into the development of the project's final plans.

#### **Alternative 3 – Fourth/Stockton Alignment Option A (LPA)**

##### Operation and Cumulative Impacts

The Fourth/Stockton Alignment Option A (LPA) would impact on-street parking along Fourth Street between King Street and the proposed subway portals near Brannan Street, at the Union Square Station, as well as the proposed Chinatown station entrance on Stockton Street.

The proposed location of the light rail tracks and subway portal on Fourth Street would remove 18 of the 20 existing on-street parking spaces between Townsend and Brannan Streets (refer to Table 3-16).

On Stockton Street between Geary and Post Streets at the Union Square Station, 5 out of 10 parking spaces would be lost due the space occupied by the station entrances. At the Chinatown Station on Stockton Street between Clay and Washington Streets, 6 of the ~~14~~14 parking spaces would be lost due to the new emergency access hatch located on the west side of the street and the station emergency stairs.

Overall, the Fourth/Stockton Alignment Option A (LPA) would displace 29 on-street parking spaces. Since on-street parking spaces along the Corridor and along nearby streets are usually at or near full occupancy during the day, it is unlikely that many of the displaced spaces could be reclaimed on other close-in streets.

The Fourth/Stockton Alignment Option A (LPA) would have three subway stations: Moscone, a combined Union Square/Market Street Station, and Chinatown Station. The escalators, elevators and stairs serving the stations are proposed to be located in off-sidewalk areas where feasible in property to be acquired by Muni, so parking would not be affected. However, due to the narrow right-of-way of Stockton Street in Chinatown, a portion of the curbs and sidewalks would need to be extended to accommodate the station's primary entrance. Four on-street parking spaces would be eliminated due to the sidewalk extensions. All of these parking spaces are metered. Parking in this area is often at full-occupancy. In addition to on-street parking loss, the Fourth/Stockton Alignment Option A would result in the loss of 29 off-street spaces out of 985 spaces at the Union Square garage to accommodate vent shafts and station access.

#### Mitigation Measures

The mitigation measures would be the same as those described for Alternative 2.

### **Alternative 3 – Fourth/Stockton Alignment Option B (Modified LPA)**

#### Operations and Cumulative Impacts

The Fourth/Stockton Alignment Option B (Modified LPA) alignment would impact on-street parking along Fourth Street between King Street and the proposed subway portals, just south of Harrison Street beneath I-80, in the Union Square Station area, and near the proposed Chinatown Station entrances.

The Fourth/Stockton Alignment Option B (Modified LPA) alignment also involves the modification of Fourth Street from a one-way street to a two-way street between Townsend and Bryant Streets. In addition, this alternative also includes a new center-platform surface-level station between Bryant and Brannan Streets.

The proposed location of the light rail tracks, platforms, and subway portal on Fourth Street would remove ~~82-76~~ of the 85 existing on-street parking spaces (east side and west side) under the semi-exclusive option and ~~84-73~~ spaces under the mixed-flow option between Townsend and Harrison Streets (refer to Table 3-16).

There would be a loss of three parking spaces on the north side of Ellis Street, west of Stockton Street, to accommodate the potential widening of the existing station access/egress at One Stockton Street (the Apple Store) and ~~four~~ six parking spaces near the Chinatown Station to accommodate emergency access to the station.

Overall, the Fourth/Stockton Alignment Option B (Modified LPA) would displace 82-79 parking spaces on Fourth and Stockton Streets and an additional three spaces on Ellis Street. Since on-street parking spaces along the Corridor and along nearby streets are usually at or near full occupancy during the day, it is unlikely that many of the displaced spaces could be relocated to other nearby streets.

The Fourth/Stockton Alignment Option B (Modified LPA) would have one surface platform stop and three subway stations: 1) the surface platform stop between Brannan and Bryant Streets (500 block of Fourth Street), 2) Moscone Center, 3) the combined station serving Market Street and Union Square, and 4) Chinatown.

The escalators, elevators and stairs serving the Moscone, Union Square/Market Street, and Chinatown stations are proposed to be located off-sidewalk, where feasible, on property that would be acquired by Muni or through the use of encroachment permits, so parking would not be affected. However, due to the narrow right-of-way of Stockton Street in Chinatown, a portion of the curbs and sidewalks would need to be extended to accommodate the station's primary entrance and the emergency stairway access. Four on-street parking spaces would be eliminated due to the extensions. All of these parking spaces are metered. Parking in this area is often at full-occupancy. In addition, 25 parking spaces out of 950 would be eliminated from the Ellis/O'Farrell garage and 34 out of 985 off-street parking spaces would be eliminated in the Union Square parking garage due to placement of vent shafts (Ellis/O'Farrell) and station elevators and escalator access (Union Square).

#### Mitigation Measures

Mitigation measures would be the same as described for Alternative 2.

### 3.2.5 PEDESTRIANS

This section describes the potential environmental consequences to pedestrian circulation under each of the alternatives. A project would have an effect on the environment if it would result in substantial overcrowding on public sidewalks, create potentially hazardous conditions for pedestrians, or otherwise interfere with pedestrian accessibility to the site and adjoining areas.

To project the future pedestrian volumes at the critical station entrance location a three-step process was undertaken. First, existing three-hour peak period pedestrian counts were factored with a growth factor (originating from the San Francisco Model) to account for the projected increases in pedestrian trips to

and from the Study Area at each of the proposed subway station locations. Second, future pedestrian volumes were added to the projected station ridership at each proposed entrance to give a projected total pedestrian volume at that location. Third, the total volume was converted into an equivalent 15-minute count to be used in the Highway Capacity Manual (HCM) methodology (Chapter 18) to calculate the pedestrian level of service on sidewalks. According to the results from the pedestrian counts, the existing pedestrian levels of service at all proposed station entrances, which currently operate at LOS A, would continue to operate at LOS A except on Stockton Street at Maiden Lane at the Union Square Station for Alternative 3A and along Stockton Street at the proposed Chinatown Station for Alternative 3B where sidewalks would operate at LOS B (see Table 3-17).

### **Alternative 1 – No Project/TSM**

#### Operations and Cumulative Impacts

Under the No Project/TSM Alternative, the sidewalks along the Corridor would not be changed. No sidewalk improvements would be undertaken along the Central Subway Corridor nor would sidewalk narrowing occur.

#### Mitigation Measures

These alternatives would not result in any significant impacts, therefore no mitigation is required.

### **Alternative 2 – Enhanced EIS/EIR Alignment**

#### Operations and Cumulative Impacts

Under the Enhanced EIS/EIR Alignment, the sidewalk widths on Third and Fourth Streets between Townsend and Brannan Streets would remain the same at 10 feet, and at two of the four proposed subway station locations, the effective walkway widths along the sidewalks (i.e., portion of sidewalk that can be effectively used for pedestrian movements) would be reduced to provide access stairways, escalators, and elevators.

Each of the proposed subway stations would be accessed via stairways, escalators, and elevators descending from the sidewalk area to the subway's mezzanine and platform levels. When provided within an existing sidewalk, subway access points reduce the effective sidewalk width available for pedestrians. The existing sidewalks near the proposed subway stations currently experience moderate to heavy pedestrian volumes and the subway stations would contribute additional pedestrian traffic. Emergency exits are located away from the main station entrances and usually require a sidewalk bulb

out to accommodate a steel hatch to access the exit. However, the establishment of these exits does not affect pedestrian access on the sidewalks.

**TABLE 3-17**  
**EXISTING AND PROJECTED PEDESTRIAN LEVEL OF SERVICE**  
**AT PROPOSED STATION ENTRANCES**

Alternative	Intersection	Corner	Street	Existing LOS	Existing 15-minute count <sup>1</sup>	3-hr PM Peak Period			Projected Total 15-min Ped Volume at Portal	Effective Walkway Width (ft)	Ped Unit Flow Rate (ped/min/ft)	LOS
						PM peak period count	Projected 2030 Pedestrian Volumes	Projected Ridership Volumes at Portal <sup>2</sup>				
2	Market Street Station											
	Third/Market	SW	Market	A	431	5172	7086	<del>3565</del> <u>3250</u>	<del>888</del> <u>861</u>	22.00	2.61	A
	Third/Market	SE	Market	A	523	6276	8598	<del>3565</del> <u>3250</u>	<del>1014</del> <u>987</u>	16.50	<del>4.10</del> <u>3.99</u>	A
	Union Square Station											
	Stockton/Maiden Lane	NE	Stockton	A	262	3144	4307	<del>380</del> <u>270</u>	<del>391</del> <u>381</u>	5.81	<del>4.47</del> <u>4.38</u>	A
	Stockton/Maiden Lane	SE	Stockton	A	261	3132	4291	<del>380</del> <u>270</u>	<del>389</del> <u>380</u>	7.81	<del>3.31</del> <u>3.24</u>	A
	Chinatown Station											
	Stockton between Sacramento and Clay	Mid	Stockton	A	179	2148	2943	<del>1255</del> <u>1350</u>	<del>350</del> <u>358</u>	7.00	<del>3.33</del> <u>3.41</u>	A
3A	Hang Ah Alley (south of Clay)	Mid	Hang Ah	A	27	324	444	<del>1255</del> <u>1350</u>	<del>142</del> <u>149</u>	11.00	<del>0.86</del> <u>0.81</u>	A
	Moscone Station											
	Fourth/Howard <sup>3</sup>	NE	Fourth	A	121	1452	1989	0	166	7.60	1.43	A
	Fourth/Howard	NW	Fourth	A	96	1152	1578	<del>600</del> <u>570</u>	<del>182</del> <u>179</u>	13.00	<del>0.93</del> <u>0.92</u>	A
	Fourth/Howard	NW	Howard	A	72	864	1184	<del>600</del> <u>570</u>	<del>149</del> <u>146</u>	14.00	<del>0.71</del> <u>0.70</u>	A
	Union Square/Market Street Station											
	Stockton/Maiden Lane	NE	Stockton	A	262	3144	4307	<del>380</del> <u>1750</u>	<del>391</del> <u>505</u>	6.50	<del>4.01</del> <u>5.18</u>	<del>A</del> <u>B</u>
	Stockton/Maiden Lane	SE	Stockton	A	261	3132	4291	<del>380</del> <u>1750</u>	<del>389</del> <u>503</u>	8.50	<del>3.05</del> <u>3.95</u>	<del>A</del> <u>B</u>



**TABLE 3-17 (CONTD.)**  
**EXISTING PEDESTRIAN LEVEL OF SERVICE**  
**AT PROPOSED STATION ENTRANCES**

Alternative	Intersection	Corner	Street	Existing LOS	Existing 15-minute count <sup>1</sup>	3-hr PM Peak Period			Projected Total 15-min Ped Volume at Portal	Effective Walkway Width (ft)	Ped Unit Flow Rate (ped/min/ft)	LOS
						PM peak period count	Projected 2030 Pedestrian Volumes	Projected Ridership Volumes at Portal <sup>2</sup>				
	Chinatown Station											
	Stockton between Sacramento and Clay	Mid	Stockton	A	179	2148	2943	<del>1675-1950</del>	<del>385408</del>	7.00	<del>3.66-3.88</del>	A
	Hang Ah Alley (south of Clay)	Mid	Hang Ah	A	27	324	444	<del>1675-1950</del>	<del>177-199</del>	11.00	<del>1.07-1.21</del>	A
3B	Chinatown Station											
	Stockton/Geary	NE	Geary	A	238	2856	3913	<del>2990-2230</del>	<del>575-512</del>	9.10	<del>4.22-3.75</del>	A
	Stockton/Washington	SW	Stockton	A	193	2316	3173	<del>3130-3700</del>	<del>525-573</del>	7.00	<del>5.00-5.45</del>	B
Note: Pedestrian Growth Factor = 1.37												
<sup>1</sup> Counts conducted April 2007. <u>Analysis updated April 2008.</u>												
<sup>2</sup> Total projected station ridership (p.m. peak period) divided by the number of station exits. See Table E-11 (Appendix E) for total projected station ridership during the p.m. peak period.												
<sup>3</sup> Proposed station elevator location.												

Access to the proposed Moscone Station would be via two sets of stairs, two sets of escalators, and an elevator on the east side of Third Street between Clementina and Howard Streets (refer to Figure 2-7). The station entrance itself would be located within the private Tehama Street right-of-way, in an open space between two buildings (687 Folsom Street and 255 Third Street). The space between the two buildings is approximately 40 feet wide, which is more than enough room to accommodate the station entrance and meet the minimum Americans with Disabilities Act (ADA) 6-foot requirement. Since the station entrance is set back from the public sidewalk on Third Street, it would not have an effect on the effective width of the sidewalk. The emergency exit would be located on the north side of Clementina Street east of Third Street, with a hatch, which would also not affect the effective width of the sidewalk on Clementina Street.

Access to the proposed Market Street Station would be via two sets of stairs, two sets of escalators, and an elevator at two entrances on the south side of Market Street, east and west of Third Street (refer to Figure 2-8). The existing sidewalk on Market Street is 30 feet wide, with effective widths of 22.0 feet and 25.0 feet on the west and east side of Third street, respectively, adjacent to the subway access points. The effective sidewalk width would be reduced to 16.5 feet east of Third Street. These sidewalks would be adequate to handle pedestrian flows during peak periods. Pedestrian analysis for future conditions shows that the sidewalks at the station entrances would operate at LOS A. Two emergency access hatches would be located on Third Street at Jessie Street, one on each side of the street. The hatches would not affect the effective width of the sidewalks on Third Street.

Access to the proposed Union Square Station would be provided by one set of stairs and one escalator on the east side of Stockton Street and two sets of escalators and two elevators on the west side of Stockton Street (refer to Figure 2-9). In addition, a pedestrian connection between the station's mezzanine and the Union Square garage elevators would be established. Stockton Street's east side sidewalks are 15 feet wide (with a 7.0 foot effective width north of Stockton Street and a 9.0 foot effective width south of Stockton Street), but with the station access points, the sidewalks would be extended (bulbed-out) in order to accommodate the station entrances, with an increase to almost 20 feet wide. The east side sidewalk's effective width would be 5.8 feet north of Stockton Street and 7.8 feet south of Stockton Street feet adjacent to the subway access points. The west side sidewalk, which is also 15 feet wide, would have its effective width unaffected since the station entrance is within Union Square. The emergency exit would be located on the east side of Stockton Street north of Post Street, with a hatch within the sidewalk, but would not affect the effective width of the sidewalk on Stockton Street. Pedestrian analysis for future conditions indicates that the sidewalks on the east side of Stockton Street where the station entrances are

located would operate at LOS A. Pedestrian traffic through Union Square to access the station entry would increase. (See also Section 4(f) Report, Section 10.0)

Due to the narrow widths of Stockton Street sidewalks near Clay Street (9.5 to 11 feet with an effective width of 7.0 feet), it is proposed that the Chinatown Station's main access point be located off the sidewalk on property to be acquired by Muni, thereby maintaining the existing effective sidewalk widths and minimizing pedestrian overcrowding on the sidewalk. It is also proposed that the emergency access hatch be located at the northwest corner of Clay and Stockton Streets within an extended sidewalk or bulb-out. Since the curb lane on the west side of Stockton Street is not used as a travel lane, this would not reduce lane capacity (refer to Figure 2-10). The extended sidewalk/bulb-out would, however, eliminate on-street parking, as previously discussed. The pedestrian level of service would remain at LOS A with these measures in the vicinity of the Stockton/Clay intersection. A secondary access proposal via Hang Ah Alley would increase considerably the pedestrian volumes on this alley under the jurisdiction of San Francisco Recreation and Parks Department, but the alley would still operate at LOS A.

#### Mitigation Measures

During final design, consideration should be given to widening Stockton Street sidewalks near the proposed Union Square Station and/or using narrower stairways and escalators. Although the pedestrian LOS analysis indicates the sidewalks on the east side of Stockton Street between Post and Geary Streets operate without congestion, the presence of commercial and retail business and their seasonal impacts of attracting shoppers may impact pedestrian circulation on the sidewalks and would warrant such consideration of using narrower stairways and escalators. Trade-offs between pedestrian circulation impacts and traffic and parking impacts will be further evaluated during final design.

At the proposed Chinatown Station, efforts should be made to minimize pedestrian circulation impacts on Stockton Street and on streets adjacent to the station, where the placement of merchandise along storefronts on sidewalks in Chinatown is commonplace. Enforcement by DPW to keep sidewalks clear of such merchandise near the station entrances should be considered a priority to maintain adequate pedestrian circulation.

During final design, elevators would be located so as to not obstruct sight lines for motorists entering the major street from side streets, alleys, and driveways, or vice versa. For example, the proposed elevator on the east side of Third Street serving the Moscone Station would be located so as not to block sight lines for motorists exiting the adjacent parking garage. The proposed elevator could be located within the parking structure to minimize any visual impacts to motorists. Likewise, the proposed elevators on the

west side of Third Street at Market Street would be located away from the corner, preferably further south along Third Street, so that the sight lines for motorists on Third Street would not be impeded from pedestrians and motorists crossing Third Street. Consideration would also be given to locating elevators inside adjacent private buildings or plazas for the Moscone and Market Street Stations. In all cases, efforts would be made to locate elevators as close as possible to the primary circulation path of the majority of transit patrons in order to minimize unnecessary long distances traveled by wheelchair users. Similar considerations would be given to the locations of stairways and escalators.

### **Alternative 3 – Fourth/Stockton Alignment Option A (LPA)**

#### Operations and Cumulative Impacts

Under the Fourth/Stockton Alignment Option A (LPA), the proposed station entrances would narrow the sidewalks at the Union Square/Market Street and Moscone stations and the effective walkway widths along the sidewalks (i.e., portion of sidewalk that can be effectively used for pedestrian movements) would be reduced to provide access stairways, escalators, and elevators. Sidewalks would not be narrowed at the remaining station locations.

At the proposed subway portal located on Fourth Street between Brannan and Townsend Streets, the sidewalk widths would remain unaffected on this block. Since there would be no reduction in sidewalk width, it is not expected that pedestrian crowding would occur during peak periods, particularly along Fourth Street's sidewalks before and after major events at the Ballpark.

Each of the proposed subway stations would be accessed via stairways, escalators, and elevators descending from the sidewalk area to the subway's mezzanine and platform levels. When provided within an existing sidewalk, subway access points reduce the effective sidewalk width available for pedestrians. The existing sidewalks near the proposed subway stations currently experience moderate to heavy pedestrian volumes and the subway stations would contribute additional pedestrian traffic. Emergency exits are located away from the main station entrances and typically require a sidewalk bulb out to accommodate a steel hatch to access the exit. However, the establishment of these emergency exits does not affect pedestrian access on the sidewalks. Provision of stairways, escalators, and elevators would substantially reduce the effective sidewalk widths near two of the three proposed subway stations, potentially resulting in crowded pedestrian conditions near the access points and along the adjacent sidewalks, the same as described for Alternative 2.

Access to the proposed Moscone station would be via two sets of stairs, three sets of escalators, and an elevator (refer to Figure 2-13). The existing public sidewalk is 17 feet wide (with an 11-foot effective

width) on the east side of Fourth Street, north of Howard Street, and 18 feet wide (with a 15-foot effective width) on the west side of Fourth Street between Clementina and Folsom Streets. The sidewalk's effective width would be 7.6 feet adjacent to the elevator at Fourth and Howard Streets, and the sidewalk would operate at LOS A. The resulting sidewalk width at the elevator would still conform to ADA guidelines and meet the 6-foot minimum clear space policy contained in San Francisco's *Downtown Streetscape Plan*. On the Fourth Street west sidewalk between Clementina and Folsom Streets, the sidewalk's effective width would remain unchanged at 15 feet since the stairs and escalators to the station would be located in a headhouse off of Fourth Street and the sidewalk would operate at LOS A. The station entrance on the west side of Fourth Street, north of Howard Street (15-foot effective width), and on the north side of Howard Street, west of Fourth Street (14-foot effective sidewalk width), are located on sidewalks along the frontage of Moscone West where there is walkway space within the private right-of-way in addition to the sidewalk to accommodate heavy pedestrian traffic. Pedestrian analysis for future conditions shows that the sidewalks next to these station access points would operate at LOS A.

Access to the proposed Union Square/Market Street Station would be provided by one set of stairs to Post Street, one escalator to Geary Street, two sets of escalators to the Union Square plaza, and one elevator to the upper concourse at Union Square (refer to Figure 2-14). A separate set of escalators and stairs would connect to the existing Powell Street BART/Muni Metro Station at the south end of the mezzanine level. In addition, a pedestrian connection between the station's mezzanine and the Union Square garage elevators would be established. Stockton Street's east side sidewalks are 15 feet wide, but with the station entrances established, the sidewalks would be extended to almost 20 feet in order to accommodate the entrances. Therefore, the east side sidewalk's effective width would be between 6.5 and 8.5 feet adjacent to the subway access points. The west side sidewalk, which is also 15 feet wide, would have its effective width remain unchanged since pedestrian access to the station from the west side of Stockton Street would take place within Union Square. Pedestrian analysis for future conditions indicates that the sidewalks on the east side of Stockton Street where the station access points are located would operate at LOS ~~A-B~~. Pedestrians would be likely to cut across Union Square to reach the station entry on the east side of the Square. (See also Section 4(f) Report, Chapter 10.0)

Due to the narrow widths of Stockton Street sidewalks near Clay Street (9.5 to 11 feet with an effective sidewalk width of 7.0 feet), it is proposed that the Chinatown Station's main access point be located within an off-street station property, thereby maintaining the existing effective sidewalk widths and minimizing pedestrian overcrowding on the sidewalk. There would also be an extension of the west sidewalk to accommodate an emergency hatch on Stockton Street between Clay and Sacramento Streets that would impact on-street parking, as previously discussed, but would not create pedestrian

overcrowding. Since the curb lane on the west side of Stockton Street is not used as a travel lane, this would not reduce lane capacity (refer to Figure 2-15). The pedestrian level of service would remain LOS A in the vicinity of the Stockton/Clay intersection. As noted under Alternative 2, pedestrian volumes would increase considerably on Hang Ah Alley with the proposed secondary station entrance, but the alley would continue to operate at LOS A.

#### Mitigation Measures

The pedestrian LOS analysis indicates the sidewalks on the east side of Fourth Street north of Howard Street and on the north side of Howard Street west of Fourth Street would operate without congestion with the proposed station elevator (east side of Fourth Street) and stairway (west side of Fourth Street). However, the presence of Moscone Center and the high volumes of visitors to scheduled events may impact pedestrian circulation on the sidewalks and would warrant consideration of alternative station entrance locations within the Moscone Center right-of-way.

At the proposed Chinatown Station, efforts would be made to minimize pedestrian circulation impacts on Stockton Street and on streets adjacent to the station, where the placement of merchandise along storefronts on sidewalks in Chinatown is commonplace. Enforcement by DPW to keep sidewalks clear of such merchandise should be considered a priority to maintain adequate pedestrian circulation.

During final design, consideration should be given to using narrower stairways and escalators, and to ensure enough space is reserved in the landing area at the escalators to provide for adequate pedestrian flow with the sidewalks at stations. Consideration should also be given to widening Stockton Street's sidewalks near the proposed Union Square/Market Street station and/or using narrower stairways and escalators. Although the pedestrian LOS analysis indicates the sidewalks on the east side of Stockton Street between Post and Geary Streets operate without congestion, the presence of commercial and retail business and their seasonal impacts of attracting shoppers may impact pedestrian circulation on the sidewalks and would warrant such consideration of using narrower stairways and escalators. Trade-offs between pedestrian circulation impacts and traffic and parking impacts should be further evaluated during final design.

Other mitigation measures are the same as defined under Alternative 2.

### **Alternative 3 – Fourth/Stockton Alignment Option B (Modified LPA)**

#### Operations and Cumulative Impacts

Under the Fourth/Stockton Alignment Option B (LPA), the proposed station entrance would be established at the existing bus bulb located on the northeast corner of Geary and Stockton Streets at the Union Square/Market Station where the effective walkway widths along the sidewalks (i.e., portion of sidewalk that can be effectively used for pedestrian movements) would be reduced to provide an access stairway. The station escalator on the northeast corner of Union Square would be located within the Union Square terraced section of the Plaza and would not affect the sidewalk. Sidewalks would not be narrowed at the other station locations.

At the proposed surface platform stop located on Fourth Street between Brannan and Bryant Streets for this alternative, the sidewalk widths would remain unaffected on this block. Since there would be no reduction in sidewalk width, it is not expected that additional pedestrian crowding would occur during peak periods, such as along Fourth Street's sidewalks before and after major events at the new Giants Ballpark. At the proposed subway portal located on Fourth Street between Bryant and Harrison Streets, the sidewalk widths would also remain unaffected.

Each of the proposed subway stations would be accessed via stairways, escalators, and elevators descending from the sidewalk area to the subway's mezzanine and platform levels. When provided within an existing sidewalk, subway access points reduce the effective sidewalk width available for pedestrians. The existing sidewalks near the proposed subway stations currently experience moderate to heavy pedestrian volumes and the subway stations would contribute additional pedestrian traffic. Emergency exits are located away from the main station portals and usually require a sidewalk bulb out to accommodate a steel hatch to access the exit. However, the establishment of these exits does not affect pedestrian access on the sidewalks. None of the three proposed subway stations would substantially reduce the effective sidewalk widths since the most of the stations' access points would be located away from the sidewalks.

Access to the proposed Moscone Station would be via one set of stairs, two sets of escalators, and two elevators, all of which are housed in a headhouse on the west side of Fourth Street between Clementina and Folsom Streets (refer to Figure 2-20). At this location, the existing public sidewalk is just over 16 feet wide. The sidewalk's effective width adjacent to the subway access points, would remain unchanged, thereby minimizing pedestrian overcrowding on the sidewalk. The resulting sidewalk width at the elevator would still conform to ADA guidelines and meet the 6-foot minimum clear space policy contained in San Francisco's *Downtown Streetscape Plan*.

Access to the proposed Union Square/Market Street Station would be provided by two sets of stairs, two sets of escalators, both of which are at the north end of the station and one elevator located at the

proposed Union Square entrance (refer to Figure 2-21). One of the station entrances would be located in the existing bus bulb at the northeast corner of Geary and Stockton Streets. In addition, a pedestrian connection between the station's mezzanine and the Union Square garage elevators would be established. The effective sidewalk widths on Stockton Street would remain unchanged since the station's main access point would be located within Union Square. Stockton Street's east and west side sidewalks are 15 feet wide. Currently, the sidewalk on the north side of Geary Street is 21 feet wide, including the bus bulb. With the station entrance, the effective sidewalk width on Geary Street would be 9.1 feet; however, pedestrian analysis for future conditions indicates that the sidewalk on the north side of Geary Street, east of Stockton Street where the station entrance is located, would operate at LOS A.

Due to the narrow widths of Stockton Street sidewalks near Washington Street (9.5 to 11 feet with a effective sidewalk width of 7.0 feet), it is proposed that the Chinatown Station's main access point be located within a station property on the southwest corner of Stockton and Washington Streets, thereby maintaining the existing effective sidewalk widths and minimizing pedestrian overcrowding on the sidewalk. There would be an extension of the west sidewalk to accommodate an emergency hatch on Stockton Street between Jackson and Washington Streets that would impact on-street parking, as previously discussed, but would not create pedestrian overcrowding. Since the curb lane on the west side of Stockton Street is not used as a travel lane, this would not reduce lane capacity (refer to Figure 2-22). The pedestrian level of service would be reduced from LOS A to LOS B as a result of the increased pedestrian volumes associated with station access in the vicinity of the Stockton/Washington Streets intersection.

#### Mitigation Measures

At the proposed Chinatown Station, efforts would be made to minimize pedestrian circulation impacts on Stockton Street and on streets adjacent to the station, where the placement of merchandise along storefronts on sidewalks in Chinatown is commonplace. Enforcement by DPW to keep sidewalks clear of such merchandise would be considered a priority to maintain adequate pedestrian circulation.

During final design, consideration would be given to ensure that stairways and escalators would not compete with sidewalk space for pedestrians, and to ensure enough space is reserved in the landing area at the escalators to provide for adequate pedestrian flow with the sidewalks at stations with headhouses. Consideration should also be given to widening Geary Street's sidewalk near the proposed Union Square/Market Street station and/or using narrower stairways and escalators. Although the pedestrian LOS analysis indicates the sidewalks on the north side of Geary Street east of Stockton Street operate without congestion, the presence of commercial and retail business and their seasonal impacts of



attracting shoppers may impact pedestrian circulation on the sidewalks and would warrant such consideration of using a narrower stairway. Trade-offs between pedestrian circulation impacts and traffic and parking impacts should be further evaluated during final design.

The remaining mitigation measures would be the same as described under Alternative 2.

### 3.2.6 BICYCLES

The project would have an effect on the environment if it would create potentially hazardous conditions for bicyclists or otherwise substantially interfere with bicycle accessibility to the site and adjoining areas.

Although there are no designated bicycle routes on portions of the Project Corridor itself, the existing bicycle routes that run parallel and adjacent to the Project Corridor may be impacted due to the diversion of traffic to these parallel streets under the build alternatives.

As bicycle travel becomes more common in the Project Corridor, the potential for conflicts between motorists and bicyclists could increase; the reduction in the number of travel lanes could result in greater use of the outside travel lanes by motorized vehicles and more competition for the limited space between bicycles, autos, and trucks. Due to congestion, there would also be less opportunity for bicyclists to maneuver to avoid sudden obstacles, such as a door opening on a parked car. The impacts associated with each of the alternatives are discussed below.

#### **Alternative 1 – No Project/TSM**

##### Operations and Cumulative Impacts

Under the No Project/TSM Alternative, no significant bicycle impacts would occur.

##### Mitigation Measures

No significant bicycle impacts would occur under the No Project/TSM Alternative, therefore no mitigation is required.

#### **Alternative 2 – Enhanced EIS/EIR Alignment**

##### Operations and Cumulative Impacts

Provision of the light rail tracks and subway portal on Third Street between King and Bryant Streets would result in the loss of one traffic lane, eliminate most on-street parking, and retain 10-foot wide outside travel lanes. The traffic lane widths on Fourth Street between King and Bryant Streets would generally remain the same as they currently are. Diversion of traffic onto Second and Fifth Streets may

impact bicycle travel on these streets (Bicycle Routes #11 and #19, respectively). The San Francisco Bicycle Program's May 2005 Proposition K 5-Year Prioritization Program identifies proposed bicycle lanes in both directions on Second Street from Market Street to King Street and in both directions on Fifth Street from Market Street to Townsend Street. These proposed bicycle lanes would require the removal of travel lanes in some locations, and the feasibility of these travel lane removals could be impacted by the diversion of traffic onto Second and Fifth Streets. These proposed bicycle lane changes are undergoing separate environmental review.

No impacts to bicyclists are foreseen near the proposed Moscone, Market Street, Union Square and Chinatown stations since the finished stations would not affect existing traffic or bicycle lanes. Existing curbs would remain, except at the Chinatown station, where sidewalk extensions would be constructed. However, the sidewalk extensions would replace existing on-street parallel parking spaces and not affect bicycle circulation.

#### Mitigation Measures

Existing bicycle traffic on Fourth Street could be diverted to Fifth Street. If bicycle lanes are provided, as identified in the San Francisco Bicycle Program's May 2005 Proposition K 5-Year Prioritization Program, this would further facilitate bicycle travel. The same is true for existing bicycle traffic on Third Street diverting to Second Street.

### **Alternative 3 – Fourth/Stockton Alignment Option A (LPA)**

#### Operation and Cumulative Impacts

Operation and cumulative impacts would be the same as those described under Alternative 2.

#### Mitigation Measures

Mitigation measures would be the same as described under Alternative 2.

### **Alternative 3 – Fourth/Stockton Alignment Option B (Modified LPA)**

#### Operations and Cumulative Impacts

Operation and cumulative impacts would be the same as those described under Alternative 2.

#### Mitigation Measures

Mitigation measures would be the same as described under Alternative 2.

#### **3.2.7 EMERGENCY VEHICLE ACCESS**

This section describes the potential consequences to emergency vehicle access under each of the alternatives. Again, the fire stations potentially affected by the Project are: Fire Station #1 located at 676 Howard Street, just east of Third Street; Fire Station #8, located at 36 Bluxome Street, just west of Fourth Street; and Fire Station #2, located at 1340 Powell Street between Broadway and Pacific Avenue.

### **Alternative 1 – No Project/TSM**

#### Operations and Cumulative Impacts

The No Project/TSM Alternative would not substantially affect emergency vehicle access. Emergency vehicle access for Fire Station #8 would remain the same, by exiting Bluxome Street to either Fourth or Fifth Streets and traveling “contra-flow” if exiting to Fourth Street.

#### Mitigation Measures

This alternative would not result in any significant impacts, therefore no mitigation is required.

### **Alternative 2 – Enhanced EIS/EIR Alignment**

#### Operation and Cumulative Impacts

Compared to existing conditions, emergency vehicles from Fire Station #8 would encounter a new roadway configuration on Fourth Street, which would include a 12 foot, 6-inch trackway in the middle of the street. If any emergency response requires emergency vehicles from Fire Station #8 to travel contra-flow on Fourth Street, they would have to cross the entire trackway in order to reach the intersection of Fourth and Brannan Streets. For emergency vehicles responding from Fire Station #1, it is expected they would continue to operate under existing conditions.

### Mitigation Measures

DPT will be upgrading traffic signals with emergency vehicle preemption equipment in order to minimize the emergency response time and to improve the signal operation at several intersections near fire stations along the Corridor. At Fire Station #8, the following locations will be upgraded with emergency preemption equipment: Third and Brannan Streets, Fourth and Brannan Street, Fourth and Townsend Streets, and Fifth and Brannan Streets. For Fire Station #1, the following locations will be upgraded with emergency preemption equipment: Third and Howard Streets, Third and Mission Streets, Fourth and Howard Streets, Fourth and Mission Streets, Geary Street and Grant Avenue, Geary and Powell Streets, and Geary and ~~Post~~-Stockton Streets. These traffic signals could be programmed such that all approaches to these intersections are stopped except for the approaches which are receiving the emergency preemption call.

### **Alternative 3 – Fourth/Stockton Alignment Option A (LPA)**

#### Operation and Cumulative Impacts

Compared to existing conditions, emergency vehicles from Fire Station #8 will be impacted with a new roadway configuration on Fourth Street, which will include a 24 foot, 8 inch double-track portal at the intersection of Fourth and Bluxome Streets. If any emergency response requires emergency vehicles from Fire Station #8 to travel in a northerly direction on Fourth Street, they must travel contra-flow on Fourth Street in order to reach the intersection of Fourth and Brannan Streets.

### Mitigation Measures

Mitigation measures would be the same as outlined above under Alternative 2, except as noted here.

Some of the existing perpendicular parking spaces on Bluxome Street may need to be converted into parallel parking spaces to accommodate the turning radii of the emergency vehicles due to the limited roadway space between the portal and the west side of Fourth Street. For emergency vehicles responding from Fire Station #1, it is expected they will continue to operate under existing conditions.

### **Alternative 3 – Fourth/Stockton Alignment Option B (Modified LPA)**

#### Operation and Cumulative Impacts

Compared to existing conditions, emergency vehicles from Fire Station No. 8 will encounter a new roadway configuration on Fourth Street, which would include a semi-exclusive 27 foot, 6 inch trackway in the middle of the street, with a raised 3 foot, 6 inch wide median. If any emergency response requires emergency vehicles from Fire Station #8 to travel in a northerly direction on Fourth Street, they must

cross the entire trackway and, in order to reach the intersection of Fourth and Brannan Streets, the raised track bed. For emergency vehicles responding from Fire Station #1, it is expected they will continue to operate under existing conditions.

#### Mitigation Measures

Mitigation measures would be the same as for Alternative 2.

## 4.0 AFFECTED ENVIRONMENT

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This chapter describes the environment that would be affected or existing conditions in the Project Corridor. How the Project alternatives would effect the environment during the operation phase along with the Project's cumulative effects and mitigation measures are detailed in Chapter 5.0. All construction effects and their mitigation are contained in Chapter 6.0.

### 4.1 LAND USE

#### 4.1.1 ADOPTED PLANS AND POLICIES

Adopted land use goals and policies that currently guide development in the Study Area are contained in the various elements and area plans that comprise the San Francisco *General Plan*. Adopted plans of the San Francisco Redevelopment Agency, Port of San Francisco, San Francisco Department of Parking and Traffic, Metropolitan Transportation Commission (MTC) and San Francisco Bay Conservation and Development Commission (BCDC) also guide development in the Study Area. In addition, under the federal Coastal Zone Management Act (CZMA), local projects that would affect the coastal zone and use federal funding or require federal approval must, to the greatest extent practicable, be consistent with BCDC's management program.

Adopted local plans relevant to the Central Subway Project have not substantially changed since the Third Street Light Rail FEIS/FEIR was certified in 1998, however a new draft plan has been developed for the Eastern Neighborhoods. Local plans are described below, as well as relevant regional plans adopted by BCDC and MTC.

#### **City and County of San Francisco**

This section describes various elements of the San Francisco *General Plan (General Plan)*, as well as specific Area Plans, that contain the land use goals and policies that guide development in the Central Subway Corridor. The *General Plan* elements reviewed below include the Commerce and Industry Element, the Transportation Element, the Environmental Protection Element, and the Recreation and Open Space Element. The area plans reviewed are the South of Market, Northeastern Waterfront Plan, Rincon Hill, Downtown, Chinatown Plans and the Eastern Neighborhoods Community Plan. Redevelopment Plans that affect portions of the Study Area are also described. Descriptions are provided for San Francisco's recently adopted *Bicycle Plan*, the San Francisco County Transportation Authority's (SFCTA) Strategic Plan, and the Port of San Francisco's *Waterfront Land Use Plan*.

### General Plan

**Commerce & Industry Element.** The Commerce and Industry Element of the *General Plan* guides both the public and private sector in making decisions related to economic growth and change in the City.<sup>1</sup>

The element contains eight objectives, three of which are general guidelines for citywide economic planning. The remaining five objectives relate to specific sectors of the San Francisco economy: industry, maritime, neighborhood commerce, government health and education services, and visitor trade. The overriding goals of the Commerce and Industry Element are continued economic vitality, social equity, and environmental quality for San Francisco.

**Transportation Element.** The Transportation Element of the *General Plan* focuses on meeting the travel needs of residents and visitors, and improving the environment.<sup>2</sup> Objectives and policies in this element focus on nine separate issues: 1) the general transportation system; 2) regional transportation; 3) congestion management; 4) vehicle circulation; 5) transit; 6) pedestrians; 7) bicycles; 8) citywide parking; and 9) the movement of goods. A primary objective of the Transportation Element is to develop transit as the “primary mode of travel to and from Downtown and all major activity centers within the region.” Policy 1.3 states “Give priority to public transit and other alternatives to the private automobile as the means of meeting San Francisco’s transportation needs, particularly of commuters.” Policy 21.2, which also supports this objective, states that “where a high level of transit ridership or potential ridership exists along a corridor, existing transit service or technology should be upgraded to attract and accommodate riders.” The Rail Transit map in the Transportation Element includes future rail/fixed guideway transit along the Third Street Corridor that connects with rail transit along the Geary Corridor and the Chinatown/North Beach Corridor.

In 1973, the Planning Commission adopted a Transit-First Policy for San Francisco. The Transit-First Policy is a set of principles that underscore the City’s commitment that travel by transit, by bicycle and on foot be given priority over the private automobile. These principles are embodied in the policies and objectives of the Transportation Element and they have guided the planning and development in San Francisco for the past three decades. In 1998, the voters amended the City Charter (Section 16.102) to incorporate the Transit-First Policy into the charter. All City boards, commissions and departments are now required by law to implement Transit-First principles in conducting City business.

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<sup>1</sup> San Francisco Planning Department, Commerce & Industry Element of the *General Plan*. Adopted June, 1978, last amended December, 2004.

<sup>2</sup> San Francisco Planning Department. Transportation Element of the *General Plan*. Adopted June, 1978, last amended February, 2005.

**Environmental Protection Element.** The Environmental Protection Element addresses the impact of urbanization, including the use of oil and gas resources and the production of hazardous waste, on the natural environment.<sup>3</sup> The element has three sections: the first section addresses natural resource conservation, the second transportation noise, and the third is an energy management plan. While the element does not specifically address the Central Subway Project, it does “encourage the development and use of urban mass transportation systems in accordance with the objectives and policies of the Transportation Element.” The Environmental Protection Element also includes a policy to increase the use of transportation alternatives to the automobile.

**Recreation and Open Space Element.** The Recreation and Open Space Element of the *General Plan* is focused on maintenance of the existing open space system and on acquisition and development of new parks to better serve the City.<sup>4</sup> Improving accessibility to regional parks by improving public transit service (Policy 1.3) is considered key to making it easier for people to make use of existing parks and open space resources.

#### Area Plans

The six area plans that are relevant in the Study Area are described below. See Figure 4-1 for the boundaries of the area plans.

**South of Market.** South of Market (SOMA) is an economically, socially, and culturally diverse plan area of approximately 350 acres. SOMA is an irregularly shaped area extending roughly from Mission Street on the north to Townsend Street on the south and from Highway 101 on the west to First Street on the east. A portion of the proposed Central Subway would lie within the boundaries of the South of Market plan area.

Primary goals of the City’s *South of Market Plan* are to protect and facilitate the expansion of industrial, artisan, home and business service, neighborhood-oriented retail, and community service activities; to protect the area’s economic, social and cultural diversity; to preserve existing housing and encourage the development of new affordable housing; and to improve the area’s livability for residents, workers and visitors.<sup>5</sup> The plan states that, on the whole, SOMA is well served by transportation facilities; freeways,

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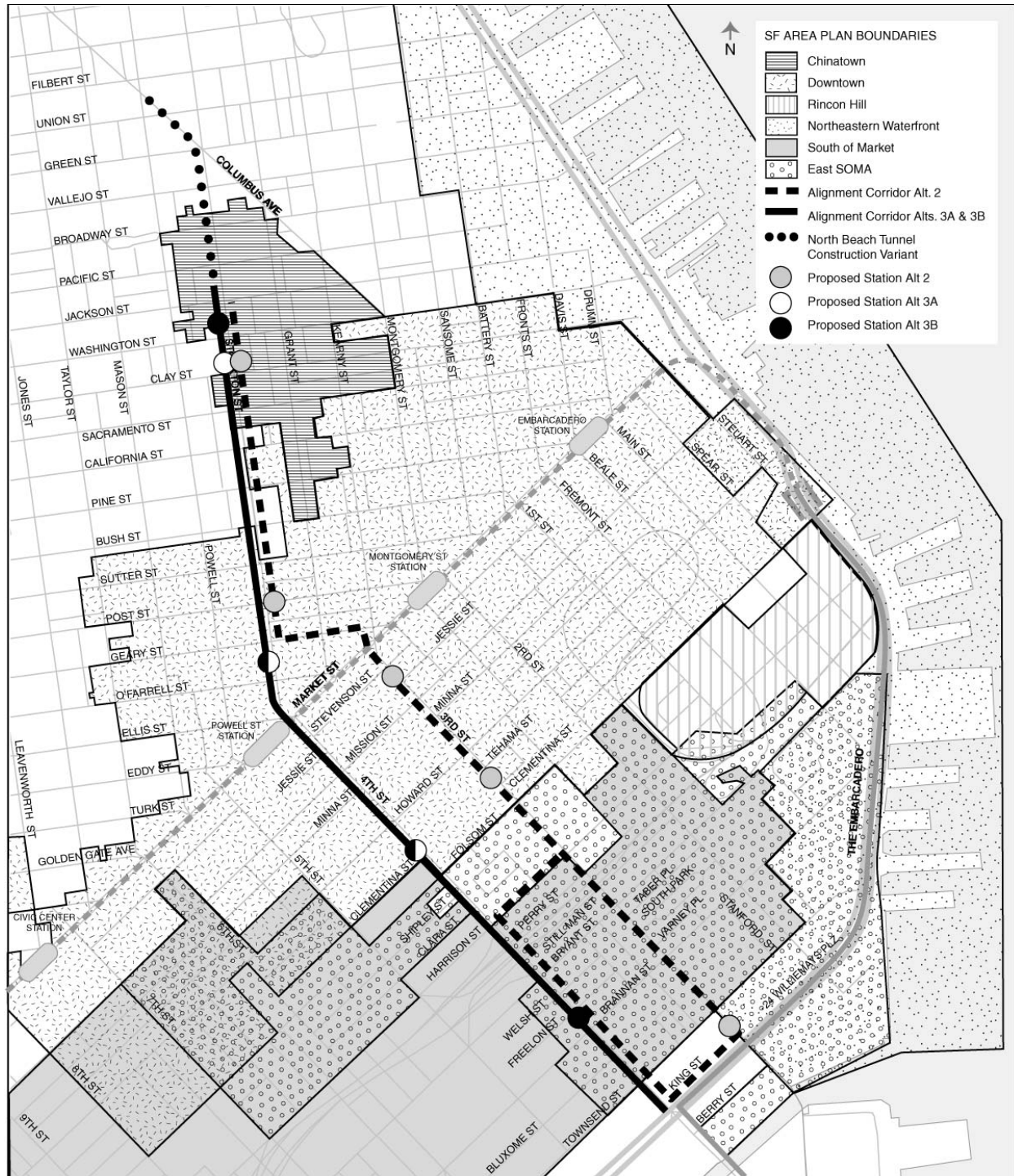
<sup>3</sup> San Francisco Planning Department. Environmental Protection Element of the *General Plan*. Adopted 1973, last amended December, 2004.

<sup>4</sup> San Francisco Planning Department. Recreation and Open Space Element of the *General Plan*. Adopted September 27, 1990, last amended May 25, 2005.

<sup>5</sup> San Francisco Planning Department. *South of Market Area Plan*. Adopted February, 1990, last amended July, 1995.



**FIGURE 4-1**  
**AREA PLAN BOUNDARIES**



Source: PB/Wong  
Not to scale

General approximation of Plan Area boundaries.

rail lines, maritime facilities, regional and local mass transit facilities are located within and along the periphery of the plan area. The plan states that portions of the plan area are somewhat better served by transportation facilities, particularly mass transit, than others. For example, the area between Second and Fourth Streets has considerably better transit service than the area west of Fourth Street and south of Mission Street. The plan suggests that the City examine the possibility of establishing new local transit lines in the north-south direction between Fifth and Eighth Streets to enhance transit travel opportunities for residents and employees in western SOMA.

**Northeastern Waterfront.** The *Northeastern Waterfront Plan* area extends south from the Municipal Pier in the Fisherman’s Wharf area along the waterfront to Pier 46 in North China Basin.<sup>6</sup> The primary goal of the *Northeast Waterfront Plan* is to create a physical and economic environment in the Northeastern Waterfront area that will use the area’s resources and potential in a manner that will best serve the needs of the community. Three planning principles of the plan include: 1) provide for those uses which positively contribute to the environmental quality of the area and contribute to the economic health of the Port and City; 2) preserve and enhance the unique character of the area and take advantage of the unique economic opportunity provided by San Francisco Bay; and 3) provide the maximum possible visual and physical access to San Francisco Bay while minimizing the adverse environmental impacts of existing and new activity. To accommodate the movement of people and goods, Policy 9.5 of the Plan calls for improving transit service between Fisherman’s Wharf and China Basin.

**Rincon Hill.** The *Rincon Hill Plan* covers a twelve-block area close to the San Francisco Downtown.<sup>7</sup> The Plan area is a highly visible gateway to the City bounded by Folsom Street, The Embarcadero, Bryant Street, Beale Street, Essex Street, and the approaches to the Bay Bridge. The Plan called for transition of the area from an older industrial area with many parking lots to a mixed-use neighborhood with a significant housing presence. The Plan envisioned 10,000 new residents in this area. The Plan also calls for a more residentially scaled street pattern as redevelopment progresses in this neighborhood.

**Downtown.** The Central Subway bisects the *Downtown Plan* area.<sup>8</sup> The *Downtown Plan* is one of the City’s most flexible plans, permitting almost every type of use except for manufacturing and automotive services in the plan area. The *Downtown Plan* is designed to manage growth in Downtown San Francisco and maintain the area’s distinctive character, as well as its livability. The plan encourages more residential development within the planning area and also identifies locations for future commercial and secondary office uses in the area west of the Yerba Buena Center.

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<sup>6</sup> San Francisco Planning Department. *Northeastern Waterfront Area Plan*. Adopted January, 1977, last amended July 2003.

<sup>7</sup> San Francisco Planning Department. *Rincon Hill Plan*. Adopted July, 1995, last amended May 2005.

<sup>8</sup> San Francisco Planning Department. *Downtown Plan*. Adopted November, 1984, last amended May, 2005.

The City's Transit-First policy calls for accommodating future job growth in the Downtown with public transit rather than private automobiles. The *Downtown Plan* states that employment growth should not be accommodated by expanding street or bridge capacity or by lengthening the peak commute period. Instead, plan objectives and policies are aimed at encouraging an increase in the number of commuters per automobile and increasing the number and percentage of commuters using public transit. The plan also includes a policy to build and maintain rapid transit lines from Downtown to all suburban corridors and major activity centers in San Francisco.

**Chinatown.** The *Chinatown Plan* area is bounded roughly by Powell Street on the west, Broadway to the north, Columbus Avenue to the northeast, and California Street to the south (with a thin leg of the plan area extending along Grant Avenue to Bush Street).<sup>9</sup>

The Central Subway lies partially within the *Chinatown Plan* area. Many of the plan objectives and policies relate to the overarching goals of maintaining and/or enhancing the area's livability, and preserving the area's historic and aesthetic resources. The plan also states that the need for more frequent, less crowded bus service and better east-west links is often expressed by residents. Chinatown's role as a residential and commercial neighborhood, visitor center and "capital city" is highlighted in the Chinatown Plan.

Section 812.1.39b of the San Francisco Planning Code prohibits demolition of residential apartment units in the Chinatown Residential Neighborhood Commercial District. The Chinatown Station site at 933-949 Stockton Street is located in this zoning district and would require an amendment to the Planning Code for the demolition of the residential units at this location.

**Eastern Neighborhoods Community Plan.** The Eastern Neighborhoods Community planning process began in January, 2002 in response to growing land use conflicts in the Mission, East SOMA, Showplace Square/Potrero, and Central Waterfront areas of the City. The primary goal was to develop new zoning controls for the industrially-zoned land in these neighborhoods. The portion of the Central Subway Corridor on Third and Fourth Streets between Townsend and Folsom Streets passes through the East SOMA area of the Eastern Neighborhoods plan area.

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<sup>9</sup> San Francisco Planning Department. *Chinatown Area Plan*. Adopted February, 1987, last amended July, 1995.

In East SOMA, the *Eastern Neighborhoods Community Plan* goals include encouraging an appropriate mix of uses, encouraging more neighborhood-serving businesses, attracting jobs for local residents, encouraging a mix of incomes in renter and owner-occupied housing, increasing affordable housing opportunities, improving the character of streets, encouraging pedestrian safety, improving community facilities, enhancing open spaces, and offering a variety of transportation options.<sup>10</sup> Based on the *Draft East SOMA Area Plan*, proposed land use in the area generally bounded by Harrison and Townsend Streets to the north and south and Third and Fourth Streets to the east and west is designated as mixed-

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<sup>10</sup> San Francisco Planning Department, *Community Planning in the Eastern Neighborhoods*. February, 2003

use with an affordable overlay.<sup>11</sup> Affordable and group housing would be allowed as a permitted use and the Mayor's Office of Housing will work to facilitate affordable housing development in this area. Market rate housing would not be permitted in this area. The mixed-use designation would protect and facilitate the expansion of commercial, manufacturing, production distribution and repair (PDR) uses in the area. The EIR for the *Eastern Neighborhoods Community Plan* is being prepared and is expected to be completed in 2007. Upon adoption of the *Eastern Neighborhoods Community Plan*, it would be incorporated into the *General Plan*.

### Redevelopment Plans

There are several Redevelopment Plans that control development in the Study Area. See Figure 4-2 for the boundaries of the Redevelopment Plans.

**Yerba Buena Center Redevelopment Plan.** Yerba Buena Center is a 87-acre combined rehabilitation and new development project located between Market, Harrison, Second, and Fourth Streets. The Central Subway would run through this redevelopment area. The *Yerba Buena Center Redevelopment Plan* was adopted in 1966 and the proposed redevelopment project is now in the final stages of completion.<sup>12</sup>

The *Yerba Buena Center Redevelopment Plan* proposed mixed-use development around the Yerba Buena Gardens, incorporating major hotel, office, housing, retail, recreational and cultural uses. The plan designated the northern and eastern portions of Yerba Buena Center as Downtown office space, the south-central and western portion for housing (business and light industry as alternate uses), the southern portion for business services and light industry (housing as the alternate use) and the central and eastern portions as "Special Use."

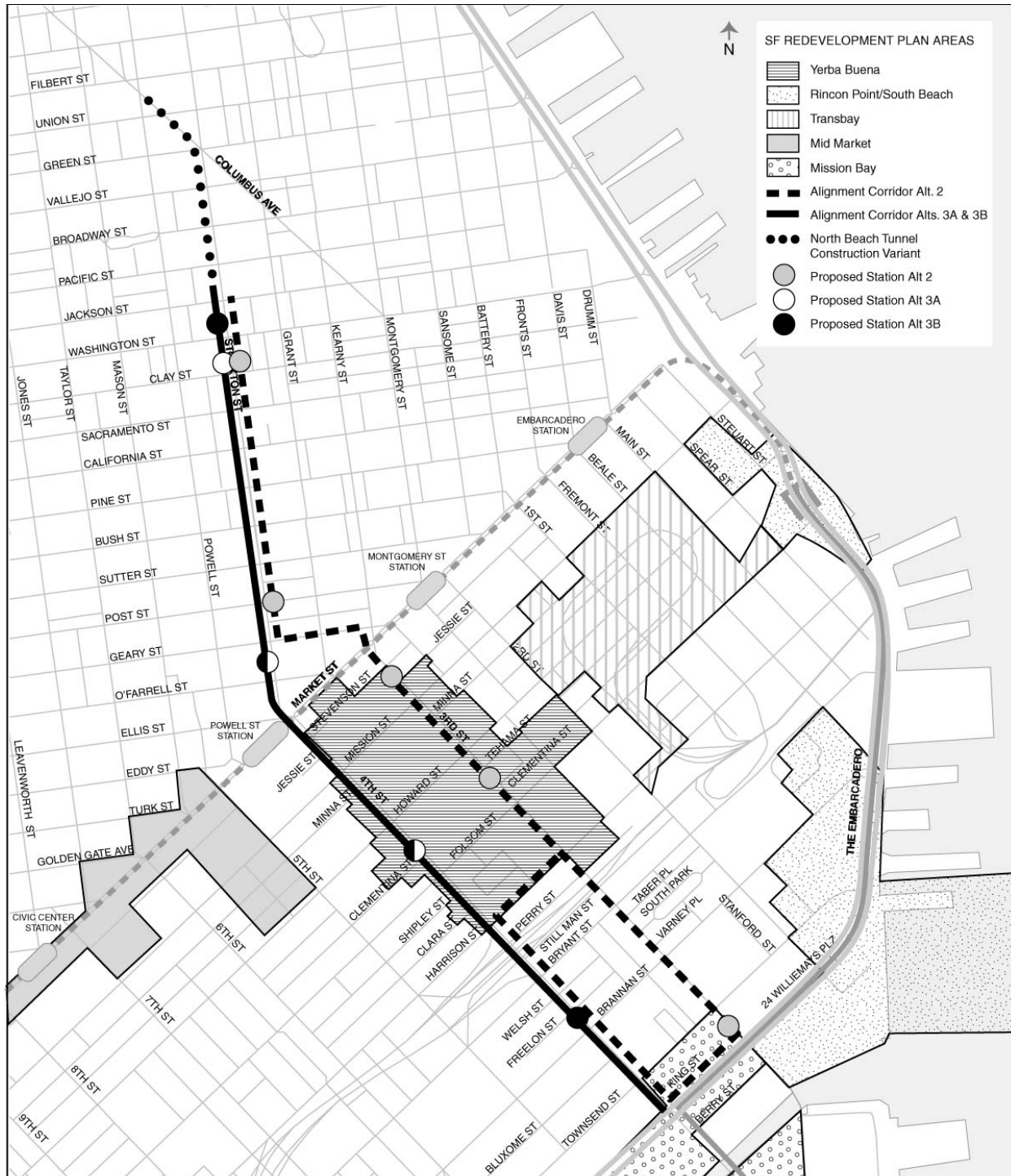
The Yerba Buena Center, which serves as a business and cultural center for the City, includes the Moscone Convention Center and the recently completed Moscone West annex. Other facilities in the Center include: the 1,500-room Marriott Hotel; 425-room W Hotel; Sony Metreon Entertainment Center, a 350,000 square foot retail and entertainment complex with 15 movie screens and 9 restaurants; 6 acres of gardens; Yerba Buena Center for the Arts; and the 5-acre Rooftop at Yerba Buena Gardens. The Rooftop includes a child care center, an ice rink, bowling center, an arts and technology center for children and youth called Zeum, the historic Playland-at-the-Beach carousel, and a two-acre interactive play garden. The Four Seasons Hotel and condominiums occupy a site fronting Market Street between Third and Fourth Streets. Construction of the Jewish Museum began in July 2006 and the museum is set

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<sup>11</sup> San Francisco Planning Department, *Draft East SOMA Area Plan*. October 3, 2006.

<sup>12</sup> San Francisco Redevelopment Agency. *Yerba Buena Center Redevelopment Plan*. Adopted April, 1966, last amended October, 2000.

**FIGURE 4-2**  
**REDEVELOPMENT PLAN BOUNDARIES**



Source: PB/Wong  
 Not to scale

General approximation of Plan Area boundaries.

to open in 2008 on Mission Street directly across from the Yerba Buena Gardens. The Mexican Museum hopes to begin construction by 2009 at Mission and Third Streets.

Over 2,500 housing units have been created in the Yerba Buena redevelopment area since its creation, and more than 1,400 of them are for low to moderate-income residents. Among them is a 257-unit Single Room Occupancy (SRO) housing development at Third and Harrison Streets and a 500-unit residential tower at the northeast corner of Third and Mission Streets.

**Rincon Point/South Beach Redevelopment Plan.** Rincon Point/South Beach is an existing redevelopment project area, containing residential and commercial uses, the Giants AT&T Ballpark, marina and other park facilities along the northeastern waterfront. The Redevelopment Plan for this area, which followed on the heels of the *Northeastern Waterfront Plan*, was adopted in 1982.<sup>13</sup> The purpose of the Plan was to assist the area's transition from a predominantly industrial/warehouse area with ties to the maritime industry, to a mixed-use residential, commercial, and recreational community. The plan calls for a total of 2,800 new housing units to be built, with 25 percent for low and moderate income households. In addition, the area has over a million square feet of commercial space. Rincon Point/South Beach is composed of two non-contiguous areas along the northeastern waterfront. The northern area is generally bounded by Harrison Street on the south, Spear Street on the west, Mission Street on the north, and the bay on the east. The southern area is located directly east of the Mission Bay Development with a northern boundary at Bryant Street and extending south to encompass the ballpark and the South Beach Marina.

**Mission Bay Redevelopment Plans.** The *Mission Bay Plan* adopted by the City in 1991 was subsequently amended when Catellus joined with the Redevelopment Agency to develop a new plan for the area. Two related redevelopment plans, *Mission Bay South* and *Mission Bay North Redevelopment Plans* were evaluated in an Environmental Impact Report certified in 1998 and were adopted by the Redevelopment Agency that same year.<sup>14, 15</sup> The new plans feature the following elements:

*Mission Bay North:*

- Up to 3,000 residential units (20 percent affordable)
- 505,000 square feet of commercial retail and entertainment space next to the Giants Ballpark

<sup>13</sup> San Francisco Redevelopment Agency. Rincon Point – South Beach Redevelopment Project. [http://www.sfgov.org/site/sfra\\_page.asp?id=5601](http://www.sfgov.org/site/sfra_page.asp?id=5601)

<sup>14</sup> San Francisco Redevelopment Agency. *Redevelopment Plan for the Mission Bay North Redevelopment Project*, October 26, 1998 and *Redevelopment Plan for the Mission Bay South Redevelopment Project*, November 2, 1998.

<sup>15</sup> San Francisco Planning Department and San Francisco Redevelopment Agency, *Mission Bay Subsequent Environmental Impact Report*, 96.771E, Certified September 17, 1998.

- 6 acres of public open space

*Mission Bay South:*

- New 43-acre medical research campus for the University of California at San Francisco (UCSF), containing 2,650,000 square feet of instruction, research and administrative uses
- 14.5-acre Mission Bay Hospital with a planned capacity of 550 beds<sup>16</sup>
- Up to 3,090 residential units (37 percent affordable)
- 500-room hotel
- 295,000 square feet of retail
- 5,954,000 square feet of research and development, light industrial and office use
- 22 acres of public open space
- New 500-student public school

Adoption of these plans required amendments to various elements of the *General Plan* and replaced the original Mission Bay Plan.

**Mid-Market Redevelopment Plan.** The *Mid-Market Redevelopment Plan* was adopted by the San Francisco Redevelopment Commission in October 2005.<sup>17</sup> The 14-block plan area extends from Fourth Street on the east to Tenth Street on the west and zigzags along the Market Street Corridor. The plan focuses on historic preservation and seismic retrofitting issues and development of several large vacant parcels in the plan area, such as those at on Mission Street at Seventh and Eighth Streets. There are no formal actions before the Board of Supervisors at this time for the adoption of the Plan. Analysis undertaken for the Plan would need to be updated prior to its adoption.<sup>18</sup>

San Francisco Bicycle Plan

The San Francisco Department of Parking and Traffic (DPT) adopted the *San Francisco Bicycle Plan Policy Framework (Bicycle Plan)* in June, 2005.<sup>19</sup> This Plan updated the first *Bicycle Plan* adopted by the City in 1997. The fundamental goal of the *Bicycle Plan* is to guide San Francisco in becoming a more “bicycle friendly” city. The plan describes the existing City policies, procedures, practices and infrastructure capabilities and constraints that affect bicycling. Recommendations for making bicycling

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<sup>16</sup> Kevin Beauchamp, Director of Planning, UCSF, April 2007. The *Mission Bay South Plan* was amended in 2005 to incorporate the proposed hospital.

<sup>17</sup> San Francisco Redevelopment Agency, *Redevelopment Plan for the Mid-Market Redevelopment Project*, October 18, 2005.

<sup>18</sup> Lisa Zayas-Chein, San Francisco Redevelopment Agency, May 4, 2007.



safer and more convenient in San Francisco include street improvements, bicycle parking facilities, new city policies, education programs, promotional efforts and improved transit access. Street improvements for bicycles include a comprehensive system of bicycle routes developed for integration into the City's General Plan.

The plan states that, wherever possible, bike routes should be established on streets without transit or heavy truck traffic. In some parts of the City, however, this is not possible due to geography or other factors.

There are five bike routes designated in the *Bicycle Plan* in the vicinity of the Central Subway (refer to Figure 3-4).

**Route 11 - Columbus Avenue.** Route 11 runs the length of Columbus Avenue between North Point and Washington Streets, connecting Aquatic Park and Fisherman's Wharf with North Beach and the Financial District. Although Columbus Avenue has narrow lanes and high traffic volumes, it provides a direct and flat route connecting these districts.

**Route 17 - Stockton Street.** Route 17 begins at Broadway and continues south along Stockton Street to the Sutter/Post Street one-way couplet. This route is intended to serve Chinatown, Union Square and the Financial District. This route is centrally located between the routes on The Embarcadero and Polk Street. The light rail would operate in a subway at this section.

**Route 19 - Fifth and Fourth Streets.** Route 19 begins in Mission Bay South at Third and Owens Streets, and then continues west on Owens to Fourth Street, north on Fourth Street to Townsend Street, west on Townsend Street to Fifth Street, and then north on Fifth Street to its terminus at Fifth and Market Streets.

**Route 30 - Howard and Folsom Streets.** Route 30 cuts across on the surface of the Central Subway Corridor with dedicated bicycle lanes on Howard and Folsom Streets. The light rail would operate in a subway at this section.

**Route 36 - Townsend Street.** Route 36 follows Townsend Street between Third and Eighth Streets. The Department of Parking and Traffic (DPT) and the San Francisco County Transportation Authority (SFCTA) are discussing bicycle upgrades for a segment on Townsend Street west of Third Street. In this segment bikes and autos share an extra wide curb lane. Various options for a proposal to convert the

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<sup>19</sup> San Francisco Department of Parking and Traffic and San Francisco County Transportation Authority, *San Francisco Bicycle Plan Policy Framework*, May, 2005, prepared by Alta Planning and Design.

shared lane to a dedicated bike lane with parking next to the curb have been presented to the public and are under consideration.

**Route 50 - Market Street.** Route 50 travels along Market Street through the Study Area and would cross over the subway portion of the Corridor.

The *Bicycle Plan*, as amended in June 2005, proposes a modification to Route 19 that would directly affect Alternative 3 - Fourth/Stockton Street Alignment. The amended plan recommends re-striping Fifth Street with two northbound lanes and one southbound lane to provide two six-foot bike lanes, suggesting that adjacent streets appear to have enough capacity to absorb the diversion of southbound traffic. Traffic diversion to Fourth Street as a result of the implementation of bicycle lanes on Fifth Street could potentially impact the implementation of the Fourth/Stockton Alignment alternative because traffic lanes and capacity would need to be reduced on Fourth Street to accommodate rail operation. The *Bicycle Plan* also recommends improvements for Route 11 on Columbus Avenue and for Route 17 on Stockton Street.<sup>20</sup> On Columbus Avenue, improvement options include installing “Bikes Allowed Use of Full Lane” signage and exploring better pavement markings for the cable car tracks. On Stockton Street, improvement options include re-striping and exploration of a short contra-flow lane between Sutter and Post Streets.

On November 3, 2006, the Superior Court ruled that the City must complete a full environmental review of the entire *Bicycle Plan* and its cumulative impacts. This ruling has not altered the initial scope or nature of the proposed bike facility improvements or the proposed network that will be reviewed. At this point, it is not clear how long this environmental review process will take, or when the planned improvements, once reviewed and certified would be expected to be approved and completed.

#### San Francisco County Transportation Authority Strategic Plan

In 1989, San Francisco voters passed Proposition B, a local ballot measure authorizing a one-half percent sales tax increase to fund specific transportation improvements. The SFCTA prepared a Strategic Plan in 1993, which is to be updated every two years, to verify funding commitments to specified transportation improvement projects.<sup>21</sup> The 1995 Strategic Plan Update identified the Third Street Light Rail Project as one of four major programs or projects to which over 70 percent of the Proposition B revenues would be committed through 2004.<sup>22</sup> In addition, in June 1995 the SFCTA passed a resolution adopting the *Four*

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<sup>20</sup> San Francisco Department of Parking and Traffic. *Network Improvement Document*. Adopted June, 2005.

<sup>21</sup> San Francisco County Transportation Authority. *Strategic Plan*. May, 1993.

<sup>22</sup> San Francisco County Transportation Authority. *1995 Strategic Plan Update*. October, 1995.

*Corridor Plan*, effectively designating the Bayshore Corridor (Third Street), as the top priority for fixed guideway projects funded with Proposition B revenues. The Four Corridor Plan identified four corridors--Bayshore, Van Ness, Geary and North Beach--to be upgraded with fixed guideway transit lines over a 20-year period. The Bayshore (Third Street) Corridor was listed as Phase One of the long range plan to construct rail transit in all four corridors. All of the projects were eligible, at least in part, for Proposition B funding.<sup>23</sup>

The *Four Corridor Plan* recommended that the Bayshore Corridor (Third Street) rail line begin at the San Francisco/San Mateo county line, run along the median of Third Street, transition to a subway between Brannan and Bryant Streets, cross Market Street and cross under Stockton/Kearny Streets to a terminus near California Street. The plan recommended that, if leveraged funds were not available, an initial surface segment be constructed from the county line to Third and King Streets, to connect with existing light rail tracks on King Street and The Embarcadero. The plan stated that this portion of the line (the IOS) could be constructed with Proposition B funds alone (a large percentage for construction of the IOS came from Proposition B sales tax monies).<sup>24</sup>

In November 2003, San Francisco voters approved Proposition K, which reauthorized the half-cent sales tax for 30 years, to pay for transportation improvements outlined in a New Expenditure Plan. The Expenditure Plan outlines eligibility requirements and maximum Prop K funds available for specific projects and programs that implement the priorities of the Countywide Transportation Plan. The Plan includes four major investment categories: Transit, Streets and Roads, Paratransit, and Transportation System Management/Strategic Initiatives. Prop K identified \$70 million in funds for the Third Street Light Rail IOS (Phase 1) and an additional \$126 million for the Phase 2 Central Subway.<sup>25</sup>

#### The Port of San Francisco Waterfront Land Use Plan

In November 1990, the voters of San Francisco adopted Proposition H, which required preparation of a comprehensive waterfront land use plan. The Port of San Francisco *Waterfront Land Use Plan* covers the 7.5 mile waterfront area from Fisherman's Wharf to India Basin, all of which is under the jurisdiction of the Port of San Francisco.<sup>26</sup> The plan area is divided into five waterfront subareas: 1) Fisherman's Wharf; 2) Northeast; 3) Ferry Building; 4) South Beach/China Basin; and 5) Southern. The EIR for this plan was certified in January 1997 and the Port Commission adopted the plan in June 1997.

<sup>23</sup> San Francisco County Transportation Authority. *The Four Corridor Plan*. June, 1995.

<sup>24</sup> San Francisco County Transportation Authority, Resolution 95-22. June 19, 1995.

<sup>25</sup> San Francisco County Transportation Authority. *New Transportation Expenditure Plan for San Francisco*. July, 2003.

<sup>26</sup> Port of San Francisco. *Waterfront Land Use Plan*. Adopted June, 1997.

Although the *Waterfront Land Use Plan* was developed to meet the requirements of Proposition H, the policies, objectives and site specific land use designations contained in the plan are consistent with the state, regional, and local regulations which govern waterfront land use including the City’s General Plan and Planning Code, as well as the BCDC plans described below.

The overarching goal of the *Waterfront Land Use Plan* is to “reunite the City with its waterfront.” To this end, land use objectives and policies in the plan are guided by seven subgoals to establish: 1) a working waterfront; 2) a revitalized port; 3) a diversity of activities for residents and visitors; 4) improved access to and along the waterfront; 5) preservation of the waterfront’s historic character; 6) urban design worthy of the waterfront setting; 7) and economic access to the area that reflects the diversity of San Francisco’s population. The plan states that improved waterfront access will involve a “network of parks, plazas, walkways, open spaces and integrated transportation improvements... to improve access to, and enhance the enjoyment and appreciation of the Bay environment.”

Discussion of the Ferry Building subarea also states that the Port “should promote a direct, continuous transit line between the northern and southern waterfront and, in particular, between the F-line and the Muni Metro extension when funding permits. Direct continuous transit lines are promoted to encourage the public to use transit rather than private cars.

### **San Francisco Bay Conservation and Development Commission**

The McAteer-Petris Act of 1965 grants BCDC permit authority over the San Francisco Bay, a band of land 100 feet from the shoreline of the Bay, saltponds, managed wetlands and certain specified waterways. Any project or development proposed for these areas must be reviewed by BCDC for consistency with the plans described below. In addition, under the Coastal Zone Management Act (CZMA), BCDC has the authority to review local projects that would affect the “coastal zone” and that use federal funding or require federal approval to ensure that the projects are, to the maximum extent practicable, consistent with BCDC’s coastal management program. Under this law, the coastal zone in the San Francisco Bay area has historically been interpreted to include priority use areas identified in the San Francisco Bay Plan, as well as, areas within the San Francisco Waterfront Special Area Plan. The Waterfront Special Area Plan extends from Hyde Street Pier in the north to India Basin and includes all areas within the jurisdiction of the Port of San Francisco. Thus, for certain projects, the CZMA effectively extends BCDC’s area of jurisdiction, for certain projects, beyond the 100-foot band of shoreline specified in the McAteer-Petris Act.<sup>27</sup>

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<sup>27</sup> Blanchfield, Jeff. Chief Planner, BCDC. Personal communication, November, 1997.

### San Francisco Bay Plan

The *San Francisco Bay Plan (Bay Plan)* is the policy document of the San Francisco Bay Conservation and Development Commission that specifies land use goals, objectives, and policies for the San Francisco Bay waterfront, as well as for other BCDC jurisdictional areas.<sup>28</sup> The plan's area of jurisdiction is defined in the McAteer-Petris Act (the enabling legislation for BCDC and the Bay Plan) as the San Francisco Bay, a band of land 100 feet from the shoreline of the San Francisco Bay, saltponds, managed wetlands and certain specified waterways. Portions of the Central Subway Corridor--roughly between China Basin and Market Street--are within the plan's area of jurisdiction.

The *Bay Plan* addresses the effects of filling and development on the Bay, as well as the issue of public access to the Bay. The plan concludes that the remaining water volume and surface area of the Bay should be maintained to the greatest extent feasible for the benefit and protection of Bay fish and wildlife. The plan details specific water-oriented uses allowed on the Bay, as well as non-priority uses allowed in the shoreline band.

### San Francisco Waterfront Special Area Plan

The *San Francisco Waterfront Special Area Plan (Special Area Plan)*, developed by BCDC, is an amendment to the *Bay Plan*.<sup>29</sup> The *Special Area Plan* does not supersede either the *Bay Plan* or the provisions of the McAteer-Petris Act. Any new development proposed for the area within BCDC's jurisdiction must be consistent with the McAteer-Petris Act, the *Bay Plan* and the *Waterfront Special Area Plan*. The *Special Area Plan* recommends uses for the land and water located along the existing San Francisco shoreline, from the Hyde Street Pier to India Basin, including all areas within the jurisdiction of the Port of San Francisco. While the *Special Area Plan* examines all of the land in this area, the policies in the plan apply only to those areas within the jurisdiction of the BCDC, i.e. the 100-foot band of land along the shoreline. The plan was developed to help public agencies and private parties seeking BCDC permits identify when and where fill, dredging or changes in land use appear to be consistent with the McAteer-Petris Act and the *Bay Plan*. The Central Subway Corridor lies within the plan boundaries at various points, generally between China Basin and Market Street. The plan contains no specific policies or recommendations about general transportation services, or the Third Street Light Rail Project (including Phase 2 Central Subway).

### The San Francisco Waterfront -- Piers 7 through 24--Total Design Plan

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<sup>28</sup> San Francisco Bay Conservation and Development Commission. *San Francisco Bay Plan*. Adopted January, 1969, last amended January 2006.

<sup>29</sup> San Francisco Bay Conservation and Development Commission. *San Francisco Waterfront Special Area Plan*. Adopted April, 1975, amended March, 1996.

The San Francisco *Waterfront Total Design Plan (Total Design Plan)* is another amendment to the Bay Plan.<sup>30</sup> The *Total Design Plan* was developed to provide more detailed planning for the Ferry Building area, particularly for the uses of replaced piers, than what was provided in the *San Francisco Waterfront Special Area Plan*. The *Total Design Plan* was a joint effort of the San Francisco Planning Department, the San Francisco Redevelopment Agency, the Port of San Francisco and BCDC. The area covered by the plan includes the water and the band of shoreline within BCDC's jurisdiction. The plan encourages development of continuous rail transit service along the length of the waterfront in the future.

### **Metropolitan Transportation Commission**

The Metropolitan Transportation Commission is the nine-county regional transportation planning agency for the San Francisco Bay Area. The Commission is responsible for development of regional transportation plans and for making regional recommendations in transportation investments.

#### Regional Transportation Plan

The *Transportation 2030 Plan* for the San Francisco Bay Area is the long range Regional Transportation Plan (RTP) for transportation projects and identifies planned transportation investments for the region over the next 25 years.<sup>31</sup> The plan identifies transportation projects that can be built with funds expected to be available over the 25-year time frame of the plan and those that are of priority to the region, but are not yet fully funded. Goals and objectives from the RTP are aimed at improving safety, reliability, access to the system, promoting livable communities, clean air and providing for efficient freight travel. The fully-funded or Tier 1 portion of the RTP includes a fixed guideway extension for the Third Street Light Rail Project (Phase 1 IOS service initiated in April 2007) and the Phase 2 Central Subway in San Francisco. The plan describes a mixture of local, regional and federal funds to be used for the two-phase project and notes that an updated cost estimate for the Phase 2 Central Subway will be provided following selection of a new locally-preferred alternative (LPA). Updated cost estimates have been developed and will be incorporated into the RTP once a project has been adopted.

#### **4.1.2 PROPOSED PLANS AND PROJECTS IN THE CORRIDOR**

There are a number of major developments that have either occurred since certification of the 1998 EIS/EIR or are proposed for construction in the northeastern quadrant of San Francisco and in the Downtown area by 2030. In addition, the San Francisco Redevelopment Agency is conducting studies on a proposed new Redevelopment Plan Area near the Corridor. Refer to Figure 4-2 for the locations of these major proposed developments and redevelopment areas, which are described below.

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<sup>30</sup> San Francisco Bay Conservation and Development Commission. *The San Francisco Waterfront -- Piers 7 through 24 -- Total Design Plan*.

## Major Development Activity Since 1998

### Mission Bay

As described in the previous section for Redevelopment Plan Areas, Mission Bay is an approximately 300-acre site located just south of the rapidly developing South of Market area of San Francisco. The site, which had been characterized mainly by abandoned railroad yards and other industrial uses, is owned primarily by a single developer, the Catellus Corporation. The redevelopment of these areas is directed by two plans—the *Mission Bay North Redevelopment Plan* and the *Mission Bay South Redevelopment Plan*. The Redevelopment Plan for Mission Bay North addresses the 65-acre area north of Mission Creek channel between Third and Seventh Streets, but excludes the China Basin Building and the Caltrain Terminal. The proposed *Mission Bay South Redevelopment Plan* addresses the portion of the plan area south of the Mission Creek channel and does not address the Central Subway phase of the Third Street Light Rail Project.

The Mission Bay North Redevelopment project began construction in mid-1998, with the first building opening in 2000. The plan provides for a maximum of 3,000 residential units, with 20 percent of these units to be set aside as affordable housing. The residential area will be adjacent to the South Beach area and west of the ballpark. (The ballpark, located northeast of Mission Bay boundaries is not part of the Mission Bay development.) A total of 600,000 square feet of retail/commercial space is proposed for this area, including 350,000 square feet for a retail complex close to the ballpark. Approximately six acres along the north shore of the channel will be in open space.

Construction is complete on many commercial, residential, and open space projects in Mission Bay. As of July 2006, projects completed included:<sup>32</sup>

- 1,224 residential units (288 affordable)
- 63,000 square feet of office space
- 118,450 square feet of retail space
- 465,000 square feet of commercial development
- 3 UCSF life science buildings totaling 707,000 square feet
- 430 UCSF student housing units
- 155,000 square feet of campus community center

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Adopted June, 1980, amended August, 1990.

- 6 acres of park land

### Giants Ballpark

The San Francisco Giants opened their new baseball stadium in April 2000. The ballpark, along with associated entertainment-oriented retail development, is located between Second and Third Streets south of King Street. The ballpark has a capacity of approximately 40,000 seats. The 13-acre site includes a playing field, stadium seating and commercial space. The Giants and the City formed a partnership to promote public transit as a major means of transportation to the new ballpark. The ballpark is directly served by regular Muni Metro and bus service, as well as supplemental Metro service on game days. In addition, Phase 1 of the Third Street Light Rail Project now serves the ballpark. Current estimates place access to the ballpark by non-auto modes (transit, bicycle, walking, etc.) at approximately 50 percent of total trips. The ballpark also represents an important source of employment for local residents, as does the associated restaurants and retail establishments.

### Transbay Redevelopment Plan

The removal of The Embarcadero Freeway and the reconfiguration of the I-80 Terminal Separator Structure in the early 1990s created surplus vacant land in the vicinity of Transbay Terminal. To facilitate new development around the Terminal, the area bounded roughly by Spear, Market, Third, and Bryant Streets was designated a redevelopment survey area. A Transbay Terminal Concept Plan developed in 1996 for the Redevelopment Agency outlined a vision for a new regional transit and commercial center for the Terminal area, as well as an educational/cultural campus, several mixed use residential neighborhoods and an integrated system of parks, plazas and pedestrian ways.<sup>33</sup>

In March 2003, the Transbay Joint Powers Authority (JPA) selected an alternative that proposed rebuilding the terminal facility on a larger site with new elevated viaducts leading to the Bay Bridge, a 1.3-mile subsurface extension of Caltrain commuter rail service from its present terminal at Fourth and Townsend Streets to the new terminal, and a development plan that provided for up to 4,700 residential units and two million square feet of commercial space as the Locally Preferred Alternative (LPA). The FEIR for this project was certified in April 2004 and the FTA issued a Record of Decision (ROD) for the EIS in February 2005.<sup>34</sup>

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<sup>31</sup> Metropolitan Transportation Commission. *Transportation 2030 Plan for the San Francisco Bay Area*. February, 2005.

<sup>32</sup> Redevelopment Agency of the City of San Francisco, Project Overview Mission Bay Redevelopment Study Area, July 2006.

<sup>33</sup> San Francisco Redevelopment Agency and San Francisco Planning Department with Simon Martin-Vegue Winkelstein Moris. *Transbay 20/20 Concept Plan*. December, 1996.

<sup>34</sup> U.S. Department of Transportation Federal Transit Administration and the City and County of San Francisco, Peninsula Corridor Joint Powers Board, and San Francisco Redevelopment Agency, *Transbay Terminal/Caltrain Downtown Extension /Redevelopment Project EIS/EIR/Section 4(f) Evaluation*, March 18, 2004.



The Transbay JPA completed preliminary engineering for the Terminal improvements and in late 2006 initiated a design and development competition for a Transbay Transit Center and Tower. A design/development team will be selected in late 2007. The TJPA will have responsibility for the transportation related improvements and the Redevelopment Agency will have responsibility for the remaining development.

The new Transbay Transit Center will accommodate significant expansion of the region's commuter bus service, including the Alameda-Contra Costa Transit District (AC Transit) transbay service, the Golden Gate Bridge, Highway and Transportation District (GGBHTD) service, and San Mateo County's SamTrans service. The terminal will enhance connectivity with expanded Muni service and promote ridership growth for Greyhound, paratransit, and other transit providers. The rail terminal will be capable of accommodating future high-speed and conventional intercity and corridor rail service to and from Los Angeles, Sacramento, the Central Valley, and the East Bay.

Key terminal characteristics include:

- 600,000 square foot multi-modal transit facility
- 80,000 daily train/bus passengers on opening day
- 300,000 daily train/bus passengers capacity
- 225,000 square feet of retail joint development in terminal

Relocation of the GGBHTD daytime bus storage facility for buses serving the Transbay Terminal will also be completed as part of the redevelopment of the Transbay Terminal. The new bus storage facility will be located under the I-80 freeway adjacent to the Central Subway Corridor on the blocks bounded by Fourth, Perry, Second, and Stillman Streets. Access to the bus storage site from Fourth Street will be directly affected by the Central Subway Project and the location of the subway portal under Alternative 3B. MTA is coordinating with GGBHTD and the Transbay Joint Powers Authority on the portal design to ensure access to the bus storage facility is maintained (refer to Section 3.2.2 Traffic Impacts of Alternative 3B for a more detailed discussion of the effect and mitigation).

The new facility will also provide for a future Downtown extension of Caltrain, which will serve commuters as far south as Monterey County. From the current terminus at Fourth and Townsend Streets, Caltrain would be extended easterly under Fourth Street and continue under the Townsend Street right-of-way to Second Street where the rail would swing north under Second Street to approach the Transbay

Terminal. The rail alignment would cross under the Central Subway surface operation on Fourth Street, at Townsend Street, for all Build Alternatives and also under Third Street for Alternative 2.

A phased implementation of the project is proposed; with Phase I including construction of the new Transbay Bus Terminal. Construction is expected to begin in 2010 and be completed in 2014. Phase 2, the Caltrain Downtown Extension is not yet fully funded; other funds will need to be secured to complete the project. The Downtown Extension is not included in the 2005 RTP and therefore was not assumed as part of the 2030 transportation network. Design of the Central Subway will take into account the future extension of Caltrain, but a detailed analysis of the project and its design have not been undertaken at this point as the implementation of the Downtown Extension is expected to occur well after the construction of the Central Subway is completed.

#### 4.1.3 EXISTING LAND USES IN THE CORRIDOR

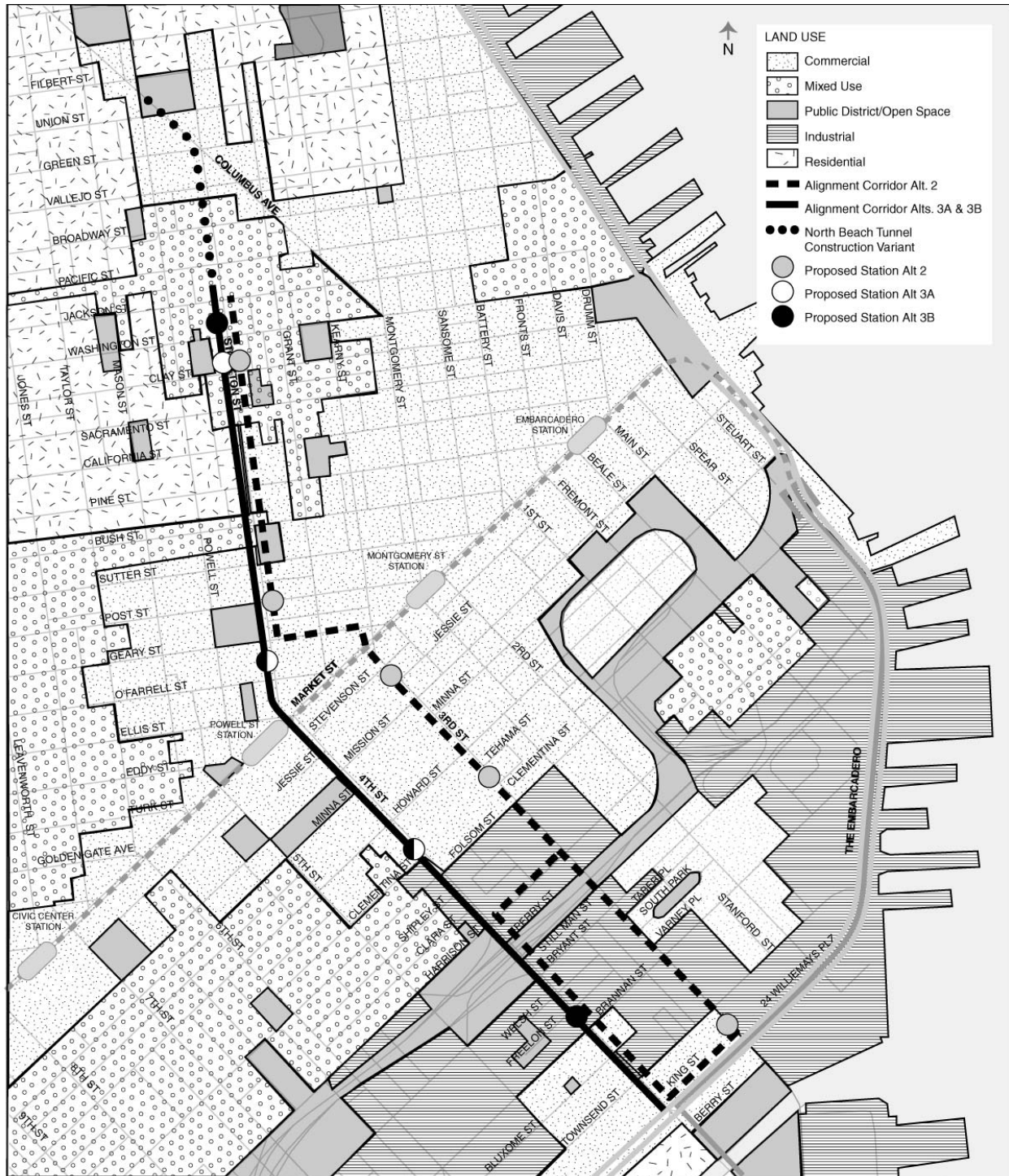
A broad range of land uses exist along the Central Subway Corridor, including residential, commercial, industrial, and institutional uses. The sections below describe land uses along the proposed light rail alignment, moving from south to north. Figure 4-3 illustrates current generalized land uses.

##### **South of Market, Union Square, and Downtown**

###### South of Market

This area is expected to experience strong growth over the next two decades, with high density residential, high-tech office and a variety of retail uses continuing to fill in sites formerly occupied by industrial uses. Significant amounts of new development have occurred in the South Beach area, as well as at Yerba Buena Center (refer to Figure 4-3). Between Berry and Harrison Streets, just north of I-80, land uses are primarily commercial and industrial, with restaurants, banks, and multi-story industrial buildings. There are also several loft live-work buildings. South Park, with its mixed-use residential, loft and commercial environment, is located just east of Third Street in this area. Exceptions to the general land use pattern are the I-80 ramps at Fourth Street and the Caltrain Terminal west of Fourth Street

**FIGURE 4-3**  
**GENERALIZED LAND USE**



between King and Townsend Streets. The Giants Ballpark is located east of Berry and Third Streets intersection.

Land uses along Harrison Street between Third and Fourth Streets are primarily industrial with the exception of two large office buildings on the north side. There are also several high density residential buildings mid-block between Harrison and Folsom Streets. North of Harrison Street, uses along the west side of Third Street include modern commercial, multi-story residential, the Moscone Convention Center and the Yerba Buena Center for the Arts. On the east side, office buildings dominate, but land uses also include modern multi-story residential development with ground-floor retail use and parking lots. The new San Francisco Museum of Modern Art is located between Howard and Mission Streets in this segment. West of Moscone Center, land uses are mixed with multi-story residential buildings as well as industrial, retail, and office commercial buildings.

Uses along Fourth Street are primarily commercial and multi-story residential. Many of the residential buildings include ground floor commercial space. Between King and Townsend Streets, the Caltrain terminal occupies the west side of Fourth Street and a multi-story residential building with a first floor supermarket occupies the east side. Between Bryant and Harrison Streets, the I-80 freeway crosses Fourth Street with on- and off-ramps on the west side of Fourth Street. The Yerba Buena Community Center is on the east side of Fourth Street between Harrison and Folsom Streets, opposite another multi-story residential building with a first floor supermarket. Continuing north, the Moscone Convention Center South including the Yerba Buena Ice Skating and Bowling Center and the Zeum arts and technology center is on the east side of Fourth Street between Folsom and Howard Streets. The west side of this segment consists of a gas station at the corner of Fourth and Folsom Streets and a multi-story residential building with ground floor retail. The Metreon Center is located along the east side of Fourth Street between Howard and Mission Streets, opposite the Moscone Convention Center West and a multi-story parking garage. Approaching Market Street, land uses are a mix of residential and commercial with several hotels and office buildings.

### Downtown

This is San Francisco's Central Business District, the densest and most transit-accessible downtown on the West Coast. The "Financial District" section of Downtown alone contains approximately 320,000 jobs or about 30 percent of all jobs in the City.<sup>35</sup>

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<sup>35</sup> Census "Transportation Planning Package" (CTPP, 2000) available [http://www.mtc.ca.gov/news/press\\_releases/archive/rel263.htm](http://www.mtc.ca.gov/news/press_releases/archive/rel263.htm).

The Corridor from Market Street to the Stockton Tunnel traverses the Union Square retail district, a major tourist attraction in the City. Union Square is the City's primary retail district – a dense pedestrian and transit-oriented district with large and small retail establishments, office, hotels, theaters, and some high-density residential uses. Union Square plaza, which is located at the heart of this district and serves as the district's primary focal point, was rebuilt in 2003 to make it more accessible to the street and the many visitors in the district. The Union Square below-grade garage and multi-story Sutter-Stockton garage are also in this segment of the Corridor.

### **Chinatown**

With over 100 housing units per net acre, Chinatown is one of the most densely populated areas in the City. Although Chinatown is a major tourist destination, Stockton Street between Sacramento Street and Broadway is considered the “Main Street” for the Chinatown neighborhood and is the heart of the Chinatown Residential Neighborhood Commercial District (San Francisco Planning Code Sec. 812.1). Land uses along Stockton Street in Chinatown, north of the Sacramento Street portal of the Stockton Tunnel, remain primarily commercial, with some buildings containing residential uses over ground-floor commercial. Cross streets have primarily residential and residential uses over ground-floor commercial. A preschool and several community service agencies are located in a multi-story building at the southwest corner of Stockton and Sacramento Streets. ~~Other exceptions to the primary land uses include a~~ A Post Office and several schools, including the Chinese Central High School and Gordon Lau Elementary School are located between Clay and Washington Streets. The St. Mary's Chinese Catholic Center is located on the northeast corner of Stockton and Clay Streets and the Sun Yat-Sen Memorial Hall is on the east side of Stockton Street. The Willie “Woo Woo” Wong Playground (formerly Chinese Playground), on Sacramento Street just east of Stockton Street, is the only open space along the Corridor north of Union Square. These institutions are an integral part of Chinatown, the historic heart of the Chinese-American community.

### **North Beach**

The North Beach neighborhood is located just north of Chinatown. The area is a popular tourist destination known for its many restaurants, cafes, shops and nightlife attractions. Land use along Columbus Avenue in North Beach are primarily commercial with some buildings containing residential uses over ground-floor commercial. Cross streets are primarily residential. Washington Square, a large public park, is bordered by Stockton Street and Columbus Avenue to the east and west and Filbert and Union Streets to the north and south. The north side of Washington Square is bordered by Saints Peter and Paul Church, School, and Parish Offices. A Post Office and Italian Athletic Club are located on

Stockton Street along the east side of Washington Park, while various commercial uses are located along the southern edge of the park on Union Street.

## 4.2 SOCIOECONOMIC CHARACTERISTICS

The socioeconomic characteristics described for the Study Area include population, housing and households, employment and income. A brief description of neighborhoods is also included. For the purpose of this analysis, the Study Area is defined as the Central Subway alignment plus up to 1,500 feet around proposed stations. The data presented are primarily from the 2000 U.S. Census. Although this information is from 2000, there have not been any major developments that have significantly changed the general population and employment information or the relative relationship between neighborhoods.

The Central Subway Corridor passes through thirteen census tracts, proceeding north from approximately Fourth and King Streets to Chinatown. The Central Subway includes five census tracts - 179.01, 176.02, 180, 178 and 176.01 - south of Market Street and eight census tracts on the north side of Market Street – 125, 123, 121, 119, 118, 117, 114, and 113. The North Beach Tunnel Construction Variant area includes two additional census tracts - 106 and 107.

### 4.2.1 POPULATION

San Francisco demographic characteristics are shown in Table 4-1. Relative to other cities in California, it is more densely populated, with a population of approximately 776,730 in an area covering only 49 square miles. The central city of a nine county region containing close to seven million people, San Francisco contains about 11.5 percent of the regional population. Between 1990 and 2000, San Francisco's population increased approximately seven percent; while the regional population growth was almost twice that rate. Compared to regional population characteristics, San Francisco's population is older on average. Fifteen percent of the residents are under 18 compared to 24 percent in the region, and 14 percent are over the age of 65, somewhat above the 11 percent average for the region.

The Central Subway Corridor has a population of approximately 52,000. Population characteristics here are distinct from the Third Street Light Rail Corridor. The population of the segment as a whole is over half minority. Several census tracts along Stockton Street are over 85 percent Asian. Seventeen percent of the population of the Central Subway segment is at least 65 years old, and eight percent are under the age of 18. Similarly, the North Beach Tunnel Construction Variant segment has greater percentages of Asians and older residents than the San Francisco averages. The combined Central Subway and North Beach Tunnel Construction Variant segments have approximately 62,000 residents, or about eight percent of the City's population.

**TABLE 4-1**  
**POPULATION, RACE, HISPANIC ORIGIN AND AGE: 2000**

Segment	Population	% Black	% White	% Asian	% Hispanic	% under Age 18	% over Age 65
Central Subway	52,160	9%	37%	40%	4%	8%	17%
North Beach Variant	9,910	1%	23%	73%	1%	12%	26%
San Francisco Total	776,730	8%	44%	31%	6%	15%	14%
Note: Percentages do not add to 100% because American Indian and "Other" are not included and because "Hispanic" is not counted as a separate race in the U.S. Census.							
Source: U.S. Census 2000.							

#### 4.2.2 HOUSING AND HOUSEHOLD CHARACTERISTICS

Compared to San Francisco totals, both the Central Subway and the North Beach Tunnel Construction Variant segments have lower percentages of owner occupied units and higher percentages of overcrowding and buildings with five or more units as shown in Table 4-2. In the Central Subway segment, only about 9 percent of the housing units are owner-occupied, well below the City average of 35 percent. The U.S. Census reported a high vacancy rate in this segment of nine percent, which reflected several large new (and not yet fully occupied) developments south of Market Street. The average household size in the Central Subway segment is 1.7 persons. The vast majority (93 percent) of the housing units in the Central Subway segment are in buildings with five or more units. Approximately 20 percent of the households in this segment are considered to be overcrowded (with more than one resident per room).

**TABLE 4-2**  
**HOUSING CHARACTERISTICS: 2000**

Segment	# of Units	% Owner Occupied	Average HH Size	Vacancy Rate	% Over-Crowded	% with 5+ units
Central Subway	30,910	9%	1.7	9%	20%	93%
North Beach Variant	5,120	8%	2.0	5%	27%	72%
San Francisco Total	346,530	35%	2.3	5%	12%	44%
Note: Overcrowded is defined as more than one person per room.						
Source: U.S. Census 2000.						

In the North Beach Tunnel Construction Variant segment, only eight percent of the housing units are owner occupied. The vacancy rate in this area is consistent with the San Francisco average of five



percent. The average household size is 2.0 persons. Approximately 72 percent of the housing units in the North Beach Tunnel Construction Variant segment are in buildings with five or more units and 27 percent of households in this area are considered to be overcrowded.

#### 4.2.3 EMPLOYMENT

According to the U.S. Census and Association of Bay Area Governments (ABAG) data, there were approximately 427,820 employed San Francisco residents in 2000 (see Table 4-3).<sup>36</sup> San Francisco serves as a major employment hub for the Bay Area. Although 322,000 of the San Francisco employed residents work in the City, an additional 261,000 people from other counties commute to jobs in San Francisco, bringing the total daily workforce to approximately 583,000.<sup>37</sup> Approximately 55 percent of all jobs in San Francisco are located downtown.

In the census tracts adjacent to the Central Subway alignment, nearly 24,790 residents were employed in 2000, with 37 percent in management, 19 percent in service, 23 percent in sales, and 9 percent in production jobs. The unemployment rate along this segment was nine percent. This is nearly 50 percent higher than the citywide unemployment rate.

**TABLE 4-3**  
**RESIDENT EMPLOYMENT CHARACTERISTICS BY SEGMENT: 2000**

<b>Segment</b>	<b># Residents Employed</b>	<b>% Mgmt.</b>	<b>% Service</b>	<b>% Sales</b>	<b>% Production</b>	<b>% Unemployed</b>
Central Subway	24,790	37%	19%	23%	9%	9%
North Beach Variant	4,570	29%	21%	24%	15%	7%
San Francisco Total	427,820	48%	14%	26%	8%	5%
Source: U.S. Census 2000.						

Along the North Beach Tunnel Construction Variant segment almost 4,600 residents were employed, with 29 percent in management, 21 percent in service, 24 percent in sales, and 15 percent in production. The unemployment rate along this segment was seven percent, compared to a citywide unemployment rate of 5 percent.

<sup>36</sup> Employed residents is defined as the employed civilian population residing in San Francisco 16 years old and over.

<sup>37</sup> ABAG, The Census Transportation Planning Package 2000 (CTPP 2000) , available.

#### 4.2.4 FISCAL AND ECONOMIC CHARACTERISTICS

##### Income Levels

Average household incomes in both the Central Subway and North Beach Tunnel Construction Variant segments were considerably below the City average of \$55,220 in 2000, as shown in Table 4-4. The per capita income was also generally lower than the citywide figure of \$34,560.

**TABLE 4-4**  
**ECONOMIC CHARACTERISTICS BY SEGMENT: 2000**

Segment	Average HH Income	Per Capita Income	% Below Poverty	% Without Vehicle
Central Subway	\$30,400	\$26,920	23%	72%
North Beach Variant	\$24,890	\$20,600	19%	34%
San Francisco Total	\$55,220	\$34,560	11%	29%
Source: U.S. Census 2000.				

In the Central Subway segment, the average household income was \$30,400 and the average per capita income was \$26,920. Twenty-three percent of residents were below the poverty line and 72 percent did not own vehicles. The median household incomes ranged from a low of \$12,000 in Tract 125 along Market Street to a high of \$78,000 in Tract 179.01, which includes new waterfront development in the South Beach area of the South of Market.

In the North Beach Tunnel Construction Variant segment, the average household income was approximately \$24,890 and the average per capita income was approximately \$20,600. Nineteen percent of residents were below the poverty line and 34 percent did not own vehicles.

##### Fiscal Environment

The 2006/2007 General Fund budget for the City and County of San Francisco is \$2.6 billion, and the total budget including capital and enterprise accounts is \$5.7 billion. This represents an increase of 7.3 percent over the previous fiscal year's budget.

Sources of revenue for the General Fund include various taxes and state subventions. Approximately 32 percent of the General Fund comes from property taxes, 18 percent from state government, 17 percent from other local taxes, and 13 percent from business taxes. The remainder comes from other taxes such as motor vehicle and utility taxes, hotel taxes, traffic fines, departmental fees, and major federal and state subventions for social service and health care programs.

The General Fund does not include activities that are considered enterprise accounts, which raise revenues to cover their costs through direct charges, fees, or other revenue sources. Examples of enterprise accounts are the Airport, Port, Water Department, Hetch Hetchy, General Hospital, and Laguna Honda Hospital. The Airport, Water Department, and Hetch Hetchy meet all costs with fee revenues, while the Hospitals receive subsidies from other governmental agencies as well as fee revenues.

According to the Mayor's 2006/2007 budget summary, 38 percent of the General Fund is allocated to public works, transportation and commerce; 21 percent to community health; 17 percent to public protection; 13 percent to human welfare and neighborhood development; and the remainder is allocated to a variety of programs and activities, including culture and recreation, general administration and finance, and general city responsibilities.<sup>38</sup>

#### 4.2.5 ENVIRONMENTAL JUSTICE CONSIDERATIONS

The environmental justice analysis considered Project impacts on minority and/or low-income populations. Determination of the presence of environmental justice populations and the potential effects on those populations rely, to a large degree, on analysis of demographic information, such as the U.S. census data and information gathered through public involvement and outreach activities.

##### **Regulatory Setting**

Federal laws and regulations guide the analysis of environmental justice. These include:

- Executive Order No. 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (signed by President Clinton on February 11, 1994) directs Federal agencies to achieve environmental justice by identifying and addressing disproportionately high and adverse human health and environmental effects, including interrelated social and economic effects of the programs, and activities on minority populations and low-income populations of the United States and assuring that Project information is available to those populations.
- Title VI of the Civil Rights Act of 1964 and related statutes prohibits discrimination on the basis of race, color, and national origin in programs and activities receiving federal financial assistance. Direct property acquisition under the Central Subway Project alternatives would require implementation of this Act along with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.

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<sup>38</sup> Mayor's Office of Public Policy and Finance. *Mayor's Proposed Budget 2006/2007*. June, 2006.

The environmental justice analysis was prepared following Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (1994). The methodology was based on FHWA Order 6640.23 (December 2, 1998). Ethnic and racial minority and/or low-income population groups in the affected community are identified in this report using 2000 U.S. Census data that describe racial and income characteristics, and project impacts that disproportionately affect these groups, if any, are evaluated.

As defined in Executive Order 12898 and subsequent agency guidance, the term “minority” includes any individual who is an American Indian or Alaskan Native, Asian or Pacific Islander (including Native Hawaiian), Black/African American (not of Hispanic origin), or Hispanic/Latino. The term “low-income” is defined in accordance with Executive Order 12898 and agency guidance as a person with household income at or below the U.S. Department of Health and Human Services (HHS) poverty guidelines.<sup>39</sup>

Minority and/or low-income populations are identified when (a) the minority or low-income population of the affected area exceeds fifty percent or (b) the minority or low-income population percentage of the affected area is meaningfully greater than the minority or low-income population percentage in the general population. For the purposes of this analysis, this difference was assumed to be more than ten percentage points. The Study Area for environmental justice analyses was based on U.S. Census Tracts within the Corridor as previously defined. The minority and/or low-income populations within these census tracts were compared to San Francisco and the Bay Area as a whole.

Community outreach and participation have been integrated into the Project development process from the beginning, including public scoping, alternatives development, public and agency involvement and environmental analysis. Efforts have been made to avoid or minimize adverse impacts to minority or low-income populations, as well as, to address community concerns by refining the Project alternatives.

### **Identification of Minority and Low Income Communities**

The Project Corridor was divided into three neighborhood areas based on census tracts and the definitions of neighborhoods according to the San Francisco Planning Department. The three neighborhoods and corresponding census tracts include South of Market (census tracts 176.01, 176.02, 178, 179.01, and 180), Downtown/Financial District (census tracts 117, 119, 121, 123, 123, and 125), and Chinatown (census tracts 113, 114, and 118). A fourth neighborhood, North Beach (census tracts 106 and 107), is included to cover the North Beach Tunnel Construction Variant associated with the Central Subway Fourth/Stockton Alignment Options.

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<sup>39</sup> California Department of Transportation, Desk Guide: *Environmental Justice in Transportation Planning and Investments*, January 2003

The demographic characteristics of the Central Subway Study Area are presented in Table 4-5.

According to U.S. Census Bureau data, the overall population of San Francisco in 2000 was approximately 49.7 percent white, with just over 50 percent of the City's 2000 population composed of minority populations. For the Central Subway Corridor, approximately 39.6 percent of the population is white, with the remaining approximately 60 percent of the population composed of minorities. In the Central Subway neighborhood of Chinatown, the minority (largely Asian) population is even higher at about 92 percent. Minority populations in the Downtown and South of Market neighborhoods are about 52 percent, with a larger concentration of African American residents in South of Market. Similarly, for the North Beach segment, approximately 24 percent of the population is white with approximately 76 percent of the population composed of minority populations.

The Department of Housing and Urban Development defines a low-income household as one in which income is 80 percent, or less, of the County median income. The median household income for San Francisco in 2000 was approximately \$55,000 as noted in Table 4-6, and 80 percent of this figure is approximately \$44,000. Within the Corridor the majority of census tracts are considered low-income (106, 107, 113, 114, 117, 118, 121, 123, 125, 176.01, and 178). Even though three of the five South of Market census tracts have median incomes above the City median, each neighborhood in the Study Area contains low-income tracts.

#### South of Market and Downtown

In recent years, the South of Market district (refer to Figure 4-2) has become one of the most economically vibrant in the City, with a mix of industrial, commercial, residential, and public uses. The area includes older industrial buildings that have been modernized for office commercial and live/work space, new office buildings, and new residential development, particularly along Third Street, the South Beach area along The Embarcadero, and the Mission Bay North development along King Street. These uses co-exist with remaining industrial uses that range from business services to clothing manufacturing to artisans. The Moscone Convention Center (East and West), San Francisco Museum of Modern Art, and Yerba Buena Center, and the Sony Metreon Entertainment Center are also contributing to the transformation of the South of Market area.

**TABLE 4-5**  
**POPULATION AND RACE/ETHNICITY CHARACTERISTICS, 2000**

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Census Tract	Population	White	Black or African American	Native American & Alaska Native	Asian	Hispanic or Latino (of any race)
<b>Central Subway Segment</b>						
<b>Chinatown</b>						
113	3,265	13.8%	1.0%	0.1%	82.2%	2.1%
114	3,175	1.9%	1.1%	0.1%	95.1%	1.4%
118	1,530	9.0%	0.3%	0.0%	88.9%	0.7%
<b>Downtown</b>						
117	1,745	34.5%	4.3%	0.9%	53.3%	8.2%
119	5,245	65.0%	2.6%	0.5%	25.5%	7.9%
121	3,460	60.2%	3.4%	0.6%	28.4%	7.4%
123	6,205	46.4%	10.8%	1.2%	31.0%	13.1%
125	7,725	35.3%	15.2%	1.5%	36.2%	11.5%
<b>South of Market</b>						
176.01	5,755	35.5%	15.9%	1.4%	36.4%	6.4%
176.02	535	60.1%	16.3%	0.4%	15.4%	10.5%
178	5,830	40.2%	8.7%	0.8%	39.8%	10.0%
179.01	5,410	67.3%	8.3%	0.4%	16.4%	6.5%
180	2,285	45.8%	29.3%	1.2%	10.8%	18.4%
Summary	52,165	39.6%	9.0%	0.7%	43.0%	8.0%
<b>North Beach Tunnel Construction Segment</b>						
107	5,635	14.3%	1.0%	0.1%	81.6%	2.4%
106	4,280	33.5%	1.0%	0.2%	62.2%	3.1%
Summary	9,915	23.9%	1.0%	0.2%	71.9%	2.8%
City & County of San Francisco	776,735	49.7%	7.8%	0.4%	30.8%	14.1%
Note: Percentages do not add to 100% because Hispanic is not counted as a separate race in the U.S. Census. Census categories of “Some Other Race” or “Two or more Races” were also unaccounted for. Source: 2000 U.S. Census						

The Downtown District includes both the Financial District, dominated by high-rise office buildings with ground floor banking and retail activity, and the Union Square Downtown retail core, one of the most vibrant retail districts in the country. Geary, Post, and Stockton Streets represent key arteries of the retail district, with multi-floor retail uses and hotels the primary uses.

#### Chinatown

Chinatown is a vibrant mixed-use area, combining high density residential, neighborhood- and regional-serving specialized shopping, central religious and social service functions for the Chinese community,

**TABLE 4-6**  
**INCOME CHARACTERISTICS, 2000**

<b>Census Tract</b>	<b>Median Household Income (1999 Dollars)</b>	<b>Percentage of Population Below Poverty<sup>1</sup></b>
<b>Central Subway Segment</b>		
Chinatown		
113	\$23,930	19.7
114	\$15,060	23.8
118	\$18,260	17.3
Downtown		
117	\$18,960	29.6
119	\$44,200	12.2
121	\$32,440	16.5
123	\$21,290	27.4
125	\$12,160	32.1
South of Market		
176.01	\$23,900	29.3
176.02	\$56,840	11.2
178	\$14,730	20.9
179.01	\$77,920	19.2
180	\$61,460	9.4
Average	\$37,040	23.0
North Beach Tunnel Construction Segment		
107	\$16,100	20.8
106	37,040	16.1
Average	\$24,890	19.0
City & County of San Francisco Average	\$55,220	11.0
Note: Percentage below poverty is based on the U.S. Census Bureau definition of poverty status which is determined by weighted average thresholds.		
Source: 2000 U.S. Census		

and a prominent visitor destination. Stockton and Grant Streets are the center of retail and community service functions, with residential uses above retail and business uses and along the crossing east-west streets from Sacramento Street to Pacific Avenue. Approximately 10,000 to 15,000 residents live in the district, many of them elderly and/or recent immigrants.

#### North Beach

Situated adjacent to the north of Chinatown is North Beach. The high density North Beach area, known as San Francisco's Little Italy, is a popular tourist destination filled with restaurants, cafes, nightclubs and bars. The area also has a large residential make-up with approximately 10,000 people living in the area.

### **Community Participation**

The Central Subway Project has been conducted with extensive public participation throughout the project development and environmental review process. Meetings were conducted within affected neighborhoods on the Corridor to ensure that residents who would be most affected by the Project had an opportunity to comment. Special outreach efforts have been taken to encourage participation by minority and low-income residents of the Corridor. Since 2004, there have been over 100 presentations to neighborhoods, community organizations, and individual stakeholders. Community meetings have been held in the immediate vicinity of each of the proposed four stations to update the community and impacted residents on the Project, as well as to hear any concerns or issues they may have. Formal presentations at the community meetings were preceded by open house sessions where attendees could ask staff general questions about the Project. All locations for the community meetings have been ADA accessible. Further discussion of community coordination and consultation can be found in Chapter 11.0.

Project meeting announcements and informational materials were available in English, Chinese, and Spanish. Translation services at public meetings were available with a 72-hour notice. Four newsletters were published in English, with approximately 15,000 copies of each issue distributed by mail. These newsletters were also available in Spanish and Chinese.

In September 2006, the Central Subway information phone line was updated so callers could leave a message of any length. The caller can select English, Chinese, or Spanish and have their call returned no later than the next business day.

In Chinatown, additional outreach efforts were conducted to ensure appropriate participation by the Chinese community. Approximately 3,000 copies of each Project newsletter were published in Chinese and distributed by mail, as well as door-to-door and at community meetings. Chinese-translated meeting notices and Project fact sheets were hand-delivered to community groups or posted on community bulletin boards at recreation and senior centers, public housing, and other appropriate posting locations throughout the community. In addition to this outreach effort, the MTA had bus car cards in English, and Chinese in the vehicles that served the Chinatown community. Information for all public meetings was included on all postings.



### **4.3 COMMUNITY FACILITIES AND SERVICES**

The Community Facilities and Services section identifies and describes the existing public facilities, parklands, recreational centers, and institutions that lie within one block of the proposed Central Subway alignments on Third, Fourth and Stockton Streets, as well as the public services provided by these facilities. Figure 4-4 indicates the location of these community facilities.

#### **4.3.1 PUBLIC AND COMMUNITY FACILITIES**

The Central Subway Corridor contains numerous public and community facilities, such as community centers, libraries, health centers, post offices, transportation centers, cultural and religious institutions, and social service centers. Table 4-7 lists those facilities that are within one block of the proposed Central Subway alignments on Third, Fourth and Stockton Streets. The list includes the location, jurisdiction, and brief description of the activities occurring at the facility, for each community in the Corridor.

#### **4.3.2 POLICE, FIRE, AND EMERGENCY SERVICES**

The Central Subway alignment alternatives contain several police and fire stations. Emergency response services are provided by the San Francisco Fire Department, which assigns medical personnel to local fire stations and is responsible for ambulance dispatch. Table 4-7 identifies the location of the police and fire stations within one block of the Central Subway alignments.

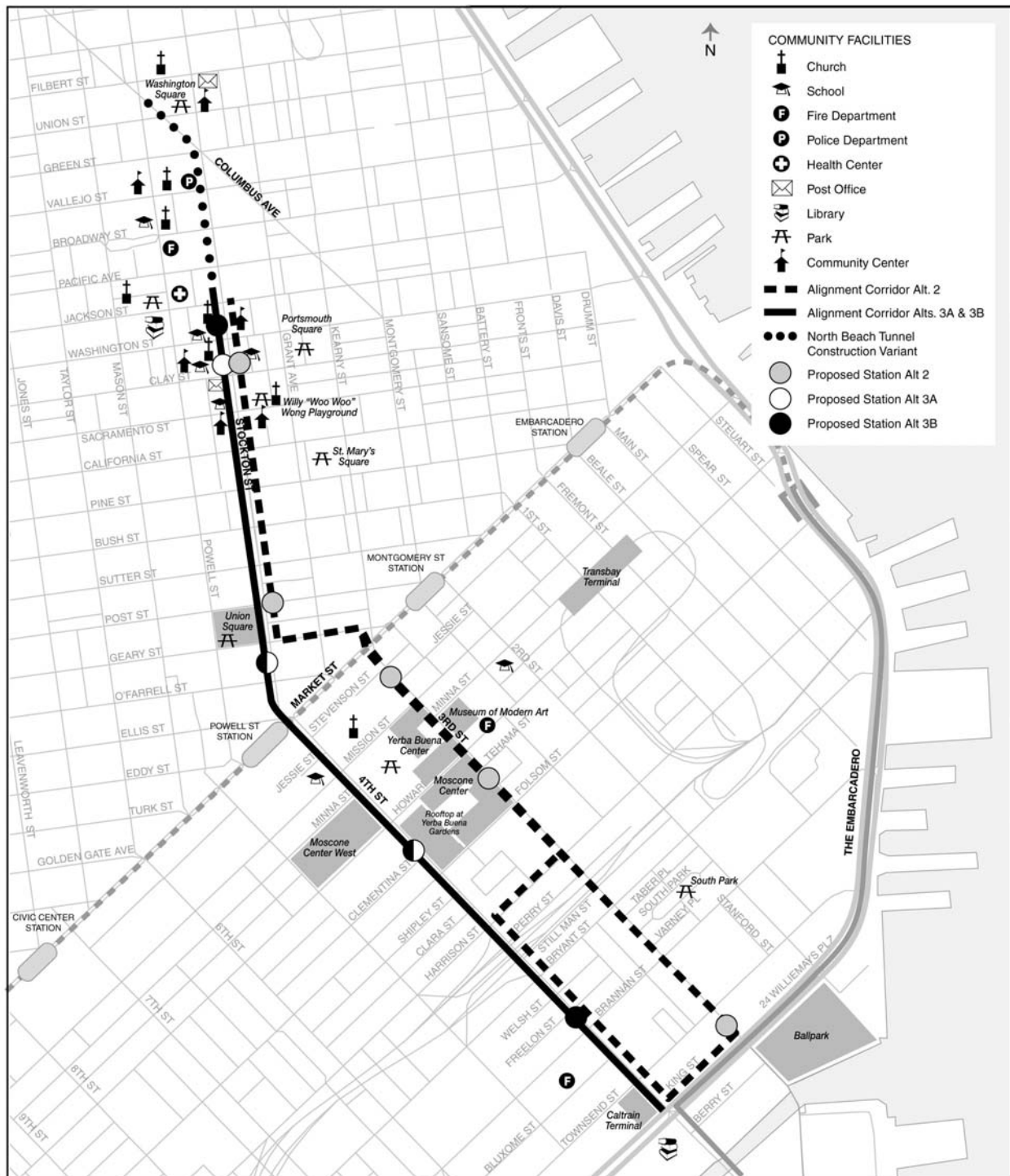
#### **4.3.3 PARKS AND RECREATIONAL FACILITIES**

The Central Subway alignments include parks, playgrounds, recreational centers, public squares, and open spaces (refer to Figure 4-4). Those that are near the proposed Project alignments are described below.

##### **South Park**

Surrounded by residences and commercial uses, South Park lies mid-block between Third and Second Streets, south of Bryant Street. The 0.85-acre park is under the jurisdiction of the San Francisco Recreation and Park Department and contains a children's playground and picnic tables. This park is only near the Alternative 2 alignment on Third Street and is not within one block of Alternatives 3A and 3B on Fourth Street.

**FIGURE 4-4**  
**PUBLIC FACILITIES ALONG CENTRAL SUBWAY CORRIDOR**



Source: PB/Wong  
 Not to scale  
 Revised 1/08

**TABLE 4-7**  
**PUBLIC AND COMMUNITY FACILITIES WITHIN THE CORRIDOR**

FACILITY	ADDRESS	JURISDICTION	ACTIVITY
<b>South of Market/ Downtown</b>			
Caltrain Terminal	Fourth/Townsend	Joint Powers Board	Caltrain San Francisco terminal station
Station 8	38 Bluxome	City	Fire house
Station 35	676 Howard	City	Fire house
Moscone Convention Center West	Fourth between Howard and Mission	City	Exhibit halls and meeting rooms
Moscone Convention Center	Howard between Third and Fourth	City	Exhibit halls and meeting rooms
Museum of Modern Art	Third between Howard and Mission	Private	Art museum and retail store
Yerba Buena Center for the Arts	Third/Mission	City	Theater and art center
San Francisco Community College	800 Mission	City	Business school and City College
Academy of Art	79 New Montgomery	Private	Fine arts college
Yerba Buena Community Center	Fourth between Folsom and Harrison	Private	Community Center
St. Patrick's Church	756 Mission	Private	Catholic church
Mission Bay Branch Library	960 Fourth	City	Public library

<b>Chinatown</b>			
<u>Chinatown YMCA</u>	<u>855 Sacramento</u>	<u>Private</u>	<u>Residential, and community center/events</u>
<u>Donaldina Cameron House</u>	<u>920 Sacramento</u>	<u>Private</u>	<u>Community Center</u>
<u>First Chinese Baptist Church</u>	<u>15 Waverly Place</u>	<u>Private</u>	<u>Baptist Church</u>
Chinese Central School	829/843 Stockton	Private	High school
Post Office	867 Stockton	Federal	Postal services
St. Mary's Chinese Day School	902 Stockton	Private	Catholic school and mission
<u>Presbyterian Church in Chinatown</u>	<u>925 Stockton</u>	<u>Private</u>	<u>Presbyterian Church</u>
Commodore Stockton School	950 Clay	SF Unified School District	Elementary school
<u>Chinese Historical Society</u>	<u>965 Clay</u>	<u>Private</u>	<u>Historical Society meetings and events</u>
Commodore Stockton Annex II	949 Washington	SF Unified School District	Child care center
Chinese Education Center	657 Merchant	SF Unified School District	Elementary school
Chinese Hospital	845 Jackson	Private	Medical services
Cumberland Presbyterian Chinese Church	865 Jackson	Private	Presbyterian church
Station 2	1340 Powell	City	Fire house
Gordon Lau Elementary School	950 Clay	SF Unified School District	Elementary School
Salvation Army Chinatown Corps	1450 Powell	Private	Sunday school, senior center, community center
Central Police Station	766 Vallejo	City	Police station
Cathay Post #384 American Legion	1524 Powell	Private	Veterans association
Pin Yuen Senior Recreation Center	799 Pacific	Private	Senior center

San Francisco Chinese Baptist Church	1524 Powell	Private	Baptist church
Chinese United Methodist Church	1009 Stockton	Private	Methodist church

**TABLE 4-7 (CONT.)****PUBLIC AND COMMUNITY FACILITIES WITHIN THE CORRIDOR**

Chinese American Citizens Alliance	1044 Stockton	Private	Political, social and educational citizens group
<b>North Beach</b>			
San Francisco Italian Athletic Club	1630 Stockton	Private	Athletic and social club
Post Office	1640 Stockton	Federal	Postal services
Saints Peter and Paul School, Parish Center & Church	600-620-660 Street Filbert	Private	Catholic church and school
Salesian Boys & Girls Club	680 Filbert	Private	Community center and camp
Source: PB/Wong, Consultants, December 2006.			

**Yerba Buena Gardens**

This 5.5-acre landscaped garden is owned and maintained by the San Francisco Redevelopment Agency and serves as the center piece of the Yerba Buena complex. The garden, which is bordered by the Center for the Arts, the Moscone Convention Center, the Sony Metreon Entertainment Center, and the Contemporary Jewish Museum (under construction) on Mission Street, contains meadows, unique gardens, public art, an outdoor area for staging performances, a tribute to the native Ohlone Indians, and a memorial to Dr. Martin Luther King, Jr.

**Union Square**

Union Square, bounded by Geary, Powell, Post, and Stockton Streets, is in the heart of the San Francisco Downtown retail core. The 2.6-acre public park is under the jurisdiction of the San Francisco Recreation and Park Department and contains flower beds and sitting areas as well as an area for staging outdoor exhibits and performances. On the east side of the plaza, Union Square is elevated above street level to cover a 985-space underground parking garage administered by the Department of Parking and Traffic. Union Square is also identified as a California State Landmark (No. 623). (See also Union Square description in Section 9.0 of this document.)

**Willie “Woo Woo” Wong Playground**

The Willie “Woo Woo” Wong Playground (formerly known as the Chinese Playground) is approximately 0.60 acres of park space consisting of two sand play areas, a basketball court, tennis court, volleyball court, two play structures, and a community recreation center and indoor gym on multi-levels of park. The recreation center runs an after school program that helps children with homework and offers various activities. The playground is located between Clay and Sacramento Streets one-half block east of the

proposed alignment for the Central Subway on Stockton Street, and adjacent to the parcel identified for the Chinatown station in Alternative 2 and 3A.

### **Woh Hei Yuen Recreation Center**

The Woh Hei Yuen Recreation Center located on Powell Street at John Street (near Jackson Street) provides educational and recreational activities for children and adults. The two-story facility includes, a basketball court, auditorium, meeting/recreation room, kitchen, outdoor basketball court, court yard, children's play structure, and weight training facility.

### **Portsmouth Square**

Portsmouth Square has historically been known as the Heart of San Francisco as it was the site of the first public square of the community of Yerba Buena, which eventually became San Francisco. Located along Kearny Street between Washington and Clay Streets, the square features numerous statues, markers and plaques, an open plaza and children's playground. Below the square is the four-level, 500-space Portsmouth Square Parking Garage.

### **Washington Square**

Washington Square is a 2.26-acre park bordered by Filbert and Union Streets to the north and south and Columbus Avenue and Stockton Street to the west and east. The park is under the jurisdiction of the San Francisco Recreation and Park Department and features strolling paths, small gathering areas, a greensward, seating throughout, historic sculptures, restrooms and a children's playground. In 1999 the park was designated as a Landmark, requiring it to undergo specific reviews by the San Francisco Landmarks Preservation Advisory Board for any future potential changes. The small triangular area bounded by Columbus Avenue, and Union, Filbert and Powell Streets was once part of the original Washington Square, but was severed in the 1870's with the construction of Columbus Avenue. Known as Marini Plaza, the small area features plants, sculpture and a pond. Washington Square park includes several mature trees, some along Columbus Avenue. To date, none of these trees have been designated by the City as historic landmark trees.

## 4.4 CULTURAL RESOURCES

Cultural resources include buildings, sites, districts, structures, or objects having historical, architectural, archaeological, cultural, or scientific importance. Technical reports produced for the 1998 environmental document include an Archaeological Survey Report (Hupman and Chavez 1997) and a Historic Architectural Survey Report conducted by Dames & Moore (Corbett et al. 1997); also produced was a Historic Property Survey Report (December 1997) that summarizes the information in the technical reports. These reports examined the same alignments as the Alternative 2 (Enhanced EIS/EIS Alignment) of the Central Subway segment of Phase 2 of the Third Street Light Rail Project. Additional research resulting in a Historic Context and Archaeological Survey Report (HCASR), Anthropological Studies Center (ASC), 2007 and a Historic Architectural Evaluation Report (Garcia and Associates, 2007) was completed for this supplemental environmental document. These reports are on file at the San Francisco Planning Department.

### 4.4.1 REGULATORY FRAMEWORK

This cultural resources section of the SEIS/SEIR meets both state and federal environmental requirements, including the CEQA, as amended (PRC Section 21000 et seq.), and its implementing regulations (CCR 14 Section 15000 et seq.); NEPA, as amended (42 USC 4321-43470); and Section 106 of the National Historic Preservation Act of 1969 (36 CFR 800).

The first step in complying with these laws is the identification of resources and evaluation of their significance based on the criteria of the above legislation and its guidelines. The Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation (46 FR 44716.44740) provide the relevant standards by which these activities are carried out. Historic properties include the buildings, districts, structures, objects, and sites that are listed on, or determined eligible for listing on, the National Register of Historic Places (NRHP). Properties eligible for listing on the California Register of Historical Resources (CRHR) are called historical resources; the evaluation criteria of the CRHR closely follow those of the NRHP. In addition to resources determined eligible under these evaluation criteria, the CRHR also includes properties listed on or eligible for listing on the NRHP, California Historical Landmarks, and properties of local significance designated under a local preservation ordinance. CEQA states that it is the policy of the state of California to "take all action necessary to provide the people of this state with . . . historic environmental qualities . . . and preserve for future generations examples of the major periods of California history" (PRC Section 21001[b], [c]). CEQA Section 21084.1 states that "A project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." CEQA defines an historical resource as one which "is listed in, or determined eligible for listing in the California Register of Historical

Resources,” and also states that historical resources included in a local register of historical resources as defined in subdivision (k) of Public Resources Code Section 5020.1, are “presumed to be significant” unless the preponderance of the evidence suggests otherwise. “Unique archaeological resources” are considered under PRC Section 15064.5 (c)(3) and 21083.2.

The City and County of San Francisco’s Planning Department and Commission maintain a list of significant historic architectural resources, historic districts, and conservation districts; these lists are found in Articles 10 and 11 of the Planning Code. The boundaries of Article 10 historic districts and Article 11 conservation districts do not correspond with the NRHP and CRHR boundaries, because the locally identified boundaries tend to be larger and more inclusive. A Landmarks Preservation Advisory Board makes recommendations to the Planning Department about properties to be added to the list of significant properties and they maintain a stewardship role to protect landmarks from inappropriate modifications.

### **Previous Approvals**

The State Historic Preservation Office (SHPO) approved an Area of Potential Effects (APE) for archaeological and historic resources for the Central Subway and Third Street Light Rail Project in 1997. At that time, only one build alignment for the Central Subway phase of the project was being considered. This SEIS/SEIR evaluates three build alternatives for the Central Subway: an Enhanced EIS/EIR Alternative and a Fourth/Stockton Alternative with two options for portal location and surface operations.

The Programmatic Agreement for the construction of the Third Street Light Rail (including the Central Subway) was signed on 1999 by the Advisory Council on Historic Preservation, SHPO, FTA, and the San Francisco Planning Department, pursuant to 36 CRF 800.6 This agreement identified measures to mitigate the effects of the Project on historic properties (Appendix C).

This section of the SEIS/SEIR discusses Archaeological Resources first, followed by Historic Architectural Resources.

#### **4.4.2 ARCHAEOLOGICAL RESOURCES**

##### **Archaeological APE**

The SHPO reviewed and approved the APE for the three alternatives in March 2007 (see Appendix D for copies of the APE maps and SHPO approval letter). The APE for archaeology is defined both horizontally and vertically to include all areas where potential ground-disturbing activities may affect historic properties, with the vertical and horizontal extent of these activities varying within and between alternatives. These locations include proposed tunnels, stations, ventilation structures, surface tracks, and



temporary construction facilities. A five-foot buffer was imposed outside the planned construction to account for voids behind tunnel panels, grouting, and other tunnel and trench shoring cuts. The APE for Alternatives 2, 3A, and 3B are 12,900, 10,800, and 9,800 feet in length, respectively. The width of surface tracks and tunnels for all alignments ranges from 35 to 75 feet, not including stations. The vertical APE for archaeology varies within and between alignments, from surface to depths of nearly 120 feet below street level. Larger scale APE maps are available for review, by appointment, at the San Francisco Planning Department, 1650 Mission Street, San Francisco.

### **Expected Archaeological Resources within the APE**

The HCASR provides a summary of archaeological research in the APE, a discussion of the prehistoric and historical archaeological resources background of the Study Area; a description and listing of known prehistoric and historical resources within a 1/2-mile radius of the APE; identification of anticipated property types that may be present within the Study Area; and a discussion of expected prehistoric and historical archaeological resources in the APE. Several methods were used to collect and analyze this information. To identify known prehistoric and historical resources, a records search (Northwest Information Center (NWIC) Search No. 06-461) was conducted on December 15, 2006 with the NWIC, California Historical Resources Information System. The records search provided the mapped locations and descriptions of all recorded archaeological sites, as well as reports describing archaeological research. Review of these reports and archaeological literature also allowed identification of archaeological sites that have not been formally recorded, including several locations of shipwreck remains. SHPO's list of historic properties in San Francisco was checked for any resources that fall within the APE, including updated listings for State Historic Landmarks and NRHP properties; the CRHR was also checked.

The NWIC records search revealed that 11 prehistoric, 43 historical archaeological resources, and 4 prehistoric/historical archaeological sites have been recorded within 1/2 mile of the APE; these are mentioned below, followed by a discussion of the sites within or adjacent to the APE.

### **Known Prehistoric Archaeological Resources In or Adjacent to the APE**

At least 33 prehistoric archaeological sites or components have been recorded on the northern San Francisco peninsula, most located in sheltered coves or near streams within 1/2 mile or less of the historic margins of San Francisco Bay. To provide context for discovery and evaluation of prehistoric archaeological sites, records searches typically include all archaeological sites recorded within a given radius of a project APE. Because prehistoric archaeological sites can often be much larger than their surface remains suggest, it is also prudent to consider that sites some distance away might extend into the APE.

The records search indicated that 11 prehistoric sites have been recorded within 1/2 mile of the APE; most were found from about 6 to 20 feet below ground surface. All but one of the sites are residential shell middens, three of which contain human remains; the exception is CA-SFR-28, a single, isolated human burial discovered during construction of the Civic Center BART station approximately 75 feet below ground. CA-SFR-28 is over 5,000 years old and is the oldest to date encountered prehistoric archaeological resource in San Francisco.

The locations of two prehistoric sites, CA-SFR-2 and CA-SFR-154/H, are located within or adjacent to the APE. A third site, CA-SFR-114, is located almost midway between the alternatives. Table 4-8 summarizes which alternatives would potentially impact known archaeological resources.

**TABLE 4-8****KNOWN ARCHAEOLOGICAL RESOURCES WITHIN OR ADJACENT TO THE APE**

	<b>Enhanced EIS/EIR Alignment - Alternative 2</b>	<b>Fourth/Stockton Alignment - Alternative 3A</b>	<b>Fourth/Stockton Alignment - Alternative 3B</b>
<b>Prehistoric Archaeological Site</b>	CA-SFR-2 (CA-SFR-154/H) (CA-SFR-114)	– – (CA-SFR-114)	– – (CA-SFR-114)
<b>Historical Archaeological Site</b>	(CA-SFR-154/H)	CA-SFR-137H	CA-SFR-137H
Parentheses = Resource that may extend in or near the APE			

CA-SFR-2, the only known prehistoric archaeological site clearly situated within the project horizontal APE, is located at Third and Harrison Streets. The site is a shell midden deposit that was first documented by U.C. Berkeley archaeologist Nels C. Nelson in 1909. Cultural materials, as well as human remains, were encountered at a depth of about 6 feet below the ground surface during construction excavation in the 1920s (Gifford 1929; Rudo 1982:20). The site is located immediately northeast of the large, prehistoric marsh associated with Mission Bay and the mouth of Mission Creek. Given the site's apparent high density of faunal remains, diversity of artifacts, and human remains, intact deposits from CA-SFR-2 would likely be considered eligible to the NRHP/ CRHR under Criterion D/4.

CA-SFR-154/H was discovered and excavated during pre-construction investigations for the San Francisco–Oakland Bay Bridge (SFOBB) West Approach Project, at the east end of the block bounded by Third and Fourth and Harrison and Bryant. It is a midden site with a low density of artifacts. The site was evaluated as eligible to the NRHP/ CRHR under Criterion D/ 4 (Martin 2006). Although the midden

deposit at CA-SFR-154/H was completely removed during these investigations, it is possible that other associated remains are present.

CA-SFR-114 (called the Moscone/Yerba Buena or Surprise Shellmound) was recorded on the north side of Howard Street between Third and Fourth Streets, approximately midway between the alternatives. Discovered at a depth of 10 to 21 feet, the midden site has yielded a possible sweathouse feature and at least 11 human burials, one with extensive grave goods (Holman & Associates 1995; Walsh 1988). Radiocarbon dates (Pastron, Gottsfield, and Vanderslice 2004:27) and diagnostic artifacts indicate that the site was occupied between about 1,000 and 2,500 years ago. Given the density and diversity of artifacts and the human remains, intact deposits from CA-SFR-114 would likely be considered eligible to the NRHP/ CRHR under Criterion D/ 4. It is unclear whether the site deposit extends to the APE.

### **Known Historical Archaeological Resources In or Adjacent to the APE**

The 43 known historical sites or components within 1/2 mile of the APE represent an array of types, such as a cemetery; dumpsite; buried ship and artifacts; hotel and bathhouse refuse; and several Chinese residential or commercial sites, including a Chinese Fishing Village dating from 1850 to 1852. There are also several large sites that are the remains of city blocks comprising historical ground surfaces and hollow-filled features from 19th-century working-class families. Of these 43 known sites, 5 are within or adjacent to the APE for one or more of the Project alternatives; some sites have been entirely removed by previous archaeological data recovery. These sites are listed below; only CA-SFR-137H is located within the APE, for Alternatives 3A and 3B.

CA-SFR-137H consists of buried remains of a historic city block (bounded by Fourth, Fifth, Harrison, and Bryant Streets) uncovered during archaeological investigations for SF-80 Bayshore Viaduct Project (Praetzellis 2004). The resource includes the remains of residential and commercial buildings, 1906 earthquake/fire debris, intact ground surfaces, and hollow-filled features from the 1870s. The site was determined eligible to the NRHP under Criterion D and eligible to the CRHR under Criterion 4.

CA-SFR-153H was recorded on historic city block (bounded by Second, Third, Harrison, and Bryant Streets) on the SFOBB West Approach Project (Praetzellis 2006a). The resource includes 1906 earthquake and fire debris, intact ground surfaces, and hollow-filled features from 1870s; and deposits from the first free kindergarten west of the Rocky Mountains. The site was determined eligible to the NRHP under Criterion D and eligible to the CRHR under Criterion 4.

CA-SFR-154/H is on the city block (bounded by Third, Fourth, Harrison, and Bryant Streets) recorded on the SFOBB West Approach Project (Praetzellis 2006b). Includes 1906 fire-scarred building foundations;

25 artifact-filled privies; and 2 deep wells; the resources are below at least 8 feet of fill (McIlroy 2004). Targeted areas include domestic occupation sites, stores, Chinese laundries, a hotel, and a restaurant. A prehistoric midden site is also present. The site was determined eligible to the NRHP under Criterion D and eligible to the CRHR under Criterion 4.

P-38-004294 consists of archaeological features associated with San Francisco Glass Works (SFGW), 1865–1868, found on block bounded by Third, Fourth, King, and Townsend Streets during monitoring for the Mission Bay Development Project (Beevers 2003). SFGW was destroyed in July 1868, just months before a major earthquake. Excavated features included the remains of two brick furnaces and a brick chimney; two artifact deposits were covered in a burn layer possibly related to 1868 quake. The site may be eligible to the NRHP/ CRHR under Criterion D/ 4.

Jessie Square Garage Feature #1 is a deposit of carbon rods recorded during construction monitoring inside the Jessie Street substation, on Jessie Street between Market, Third, and Fourth Streets (Pastron, Gottsfield, and Vanderslice 2004). These rods are thought to be associated with the California Electric Light Company founded in June 1879; the first in the U.S. to offer central-station electric service distribution to the public. The deposit contained various sizes and types of rods used in arc lamps. The site was determined eligible for the NRHP under Criteria A and D; it is also eligible to the CRHR under Criteria 1 and 4.

### **Identifying Archaeological Resource Sensitivity**

It is unlikely that archaeological resources—either known sites or previously undiscovered ones—can be identified until the Project is under construction, as they are buried under city streets and substantial quantities of fill. Consequently one important goal of the archaeological investigation and historic context report was to identify where subsurface historic properties are likely to be found. The methods used in the archaeological survey report for predicting prehistoric and historical archaeological resource locations are summarized below. For prehistoric archaeological sites, the assessment was based on the archaeological sensitivity of specific geological landforms, as determined from ongoing geoarchaeological research in the northern San Francisco Peninsula. For historical archaeological sites, predictions were based on historic maps, other historical documents, and prior archaeological investigations in urban settings. The impacts that the Central Subway Project might have on these predicted resources are discussed in Section 5.4 of this document.

**Expected Prehistoric Archaeological Resources.** The HCASR presents an overview of the paleoenvironmental history of the northern San Francisco Peninsula, a discussion of how these changes

have affected the age and distribution of archaeological sites, and a summary of previous geoarchaeological studies in the area. Based on these studies, it is clear that people were present in the Study Area by 5,000 years ago and possibly much earlier, and that intensive occupation sites were established as early as 2,000 years ago. Additional unidentified prehistoric sites are almost certainly associated with dunes, bay marsh margins, alluvial deposits, or other landforms that have been buried by natural geologic processes near the margins of San Francisco Bay.

The assessment of potential Project effects on prehistoric sites has been based on a review and analysis of (1) selected historic maps (Coast Survey maps 1852/53 and 1857/59); (2) modern geologic maps and other data (Knudsen et al. 2000; Schlocker 1974); (3) relevant geoarchaeological studies; (4) logs from soil borings conducted for the Project; and (5) preliminary geologic sections of the proposed alignments (Geomatrix 2003, 2006). Approximately 100 subsurface borings, as well as other data sources, were used to create the geologic sections, including previously collected geotechnical data, as well as new information gathered from an additional 22 subsurface borings. The borings do not provide a continuous profile of the APE, however, and only preliminary assessments of archaeological sensitivity in specific Project impact areas are possible.

Using these data, prehistoric archaeological sensitivity was predicted based on the geoarchaeological units present within the APE. The units identified include the Colma Formation, colluvial deposits, alluvial deposits, bay mud and marsh deposits, Late Holocene sand dunes, and artificial fill. The sensitivity of each geologic unit depends on its age and the length of time the surface was exposed, and thus available to human occupation. This is determined by radiocarbon dating or the degree of soil development, or inferred from underlying or overlying units. Much of this information was generated from previous geoarchaeological studies in the vicinity of the APE (Mc Ilroy, Meyer, and Praetzelis 2001; Meyer 2003; Praetzelis 2004). The sensitivity of these units is summarized below.

The Colma Formation was deposited before the arrival of humans in the San Francisco Bay Area and therefore represents the area's "cultural basement." Geologic units that are earlier than this formation have little or no potential to contain buried prehistoric archaeological resources. Only the top 3 feet of the Colma Formation is considered of high archaeological sensitivity.

Colluvial deposits are mapped only in isolated areas around Nob Hill. No archaeological materials have been recovered in colluvial deposits on the northern San Francisco Peninsula. These deposits may contain stable ground surfaces when occurring as ravine fill, but this is unlikely when occurring as slope debris. Consequently, this geological unit is considered to have a low to moderate sensitivity for archaeological resources.

One meter or more of alluvium overlies the Colma Formation throughout much of the APE. The various natural resources associated with alluvial deposits, including the presence of fresh water, have long attracted humans, and numerous Bay Area prehistoric archaeological sites are associated with alluvial soils. Alluvial deposits in the APE, which can reach considerable depth, have a moderate to high sensitivity. As this unit is probably the result of numerous episodes of deposition and may contain several former surfaces and soils, the entirety of this geologic unit is considered sensitive for archaeology. This alluvium may date to the Late Pleistocene and therefore may represent the cultural basement in some areas.

Although bay mud and marsh deposits do not represent a stable landform, portions of this geologic unit are sensitive for prehistoric archaeological resources. The lower vertical margin and lateral margins (as well as immediately adjacent units such as alluvium or sand dunes) of this unit are considered to have a high sensitivity, while the middle and upper vertical margins of this unit (open water bay mud rather than marsh) have low sensitivity. Where bay mud and marsh deposits are encountered, a 3-foot zone at the lower margin of the deposit is highly sensitive for archaeology.

Sand dunes are mapped as overlying alluvial and bay deposits, and underlying artificial fill throughout much of the southeastern portion of the APE. While several episodes of dune stability and soil formation occurred from the Late Holocene to the historic period, two time periods—dating to 2,000 and 1,000 years ago—are important in that they reflect discrete periods of landform stability. Each has a different degree of sensitivity for prehistoric archaeological deposits: the earlier deposition represents a relatively stable landform, while the latter is generally unstable. Based on previous geoarchaeological studies, dunes in the southeastern end of the APE are known to represent the more recent deposition (the Latest Holocene), while the sand dunes in the Market Street area are likely from the Late Holocene, overlain by the more recent, “latest” deposits. Thus, sand dune units in the Market Street area are considered highly sensitive, whereas those in the southeastern portion of the APE are of low sensitivity for archaeology.

Prehistoric archaeological remains that have been documented within artificial fill are the result of secondary deposition related to historic cutting and filling. Therefore, this unit is considered to have very low sensitivity to contain intact prehistoric archaeological resources.

The HCASR details the locations and sensitivity of the six reaches defined for the Study Area within each of the alternatives. Each alternative contains from 5 to 15 locations of moderate to high prehistoric archaeological sensitivity, with a few locations considered of low sensitivity. A summary of these results and of the Project effects on potentially important prehistoric sites is provided in Section 5.4 of this document.

**Expected Historical Archaeological Resources.** The assessment of historical archaeological sensitivity in the Project APE was based on review and analysis of historic maps, municipal reports, and other documents to identify historic land use and the area's evolving topography. Historical development along each section of roadway was characterized using information from a variety of sources in order to identify the potential types of historic archaeological deposits that may be present within or adjacent to the APE. The primary sources included: U.S. Coast Survey maps (1852/53, 1857/59, 1869); Sanborn Company fire insurance maps (1887-1899, 1899-1900, 1913-1915); San Francisco Board of Engineers city grades report (1854); San Francisco Board of Supervisors street grades report (1877); San Francisco Board of Supervisors Special Committee report on Chinatown (1885); San Francisco Office of the City and County Surveyor report (1887/88); San Francisco City Directories (various dates); and San Francisco Municipal Reports (various dates). Information for blocks previously studied for the Third Street Light Rail Project, identified as Alternative 2, has been drawn from that report (Hupman and Chavez 1997). These sections typically include information after 1906. Research for blocks on Alignment Alternatives 3A and 3B are focused on the built environment prior to 1906, based on the following assumptions:

- Artifact deposits in the form of domestic or commercial refuse are less likely to be deposited in hollow-filled features within street alignments once a street is paved. Refuse is also less likely to remain in situ on a paved street.
- Paving dates listed in the 1877 Board of Supervisors report indicate established ultimate grade.
- The presence of sewer lines does not necessarily indicate abandonment of privies and connection to city sewer, only the potential to do so.
- Domestic and commercial artifact caches, especially those in hollow-filled features, are more likely to be found dating prior to rather than after post-1906 redevelopment.

Property types identified from the block-by-block research include Domestic Occupation Sites, Domestic Architecture Sites, Commercial Sites, Institutional Sites, Industrial Structures/Architecture, Industrial Features, Gardens and Parks, Landfills and Dumps, and pre-Gold Rush and Gold Rush-period sites that may contain some or all of the above types. In most cases, the importance of individual resources representing these property types will depend on the ability of the data they contain to address important research issues as required by Criterion D of the NRHP and Criterion 4 of the CRHR.

The locations described below are all considered highly sensitive for historical archaeological resources. The sensitivity of these and other archaeological resources with respect to the effects of specific project components is presented in Section 5.4 of this document.

- Just south of Market on Third Street was the end of Happy Valley, an informal settlement of tents and improvised dwellings. Low areas at Third Street and further south may contain sheet refuse and archaeological features associated with the people who occupied the area in the first years of the Gold Rush.
- South of Market Street, the Fourth Street alignment passes through a former area of undulating dunes adjacent to marshlands at Mission Bay. The roadway and surrounding lands were cut or filled to extend the City during the 1850s and 1860s. Filled areas of the marsh and bay may also contain the remains of abandoned small watercraft. Some blocks were filled with debris after the 1906 Earthquake and Fire; historical artifacts are expected within the fill layers.
- A row of buildings stood on the west side of Fourth Street between Clementina and Folsom Streets at the proposed Moscone Station location beginning in the 1850s until 1906. Commercial establishments and households within these structures are likely to have left various archaeological deposits and features that may have survived to the present.
- On Stockton Street near Union Square, areas between Nob Hill and former sandhills toward Market Street, and within Market Street itself, were filled by the 1860s to improve street grades; filled spots may contain remains from the Gold Rush period. Between 1852 and 1859, a building was constructed within the Stockton Street alignment in a low spot at the base of a sandhill. Archaeological resources associated with this structure, including privies, architectural and garden remains, and domestic, commercial, and industrial features, may have survived within Stockton Street.
- Where Stockton Street passes over the saddle between Russian Hill and Telegraph Hill was an elite residential enclave for many of the city's early merchants. The sidewalks shown are an irregular combination of dirt, planks, and paving, and archaeological deposits could be encountered below modern sidewalks.
- The section of APE from Broadway to Clay was part of Chinatown by 1885. Both station locations and the area within the roadways have the potential for archaeological resources, including architectural, domestic, commercial, industrial, garden, and Gold Rush period archaeological deposits. The parcel containing the pre-Gold Rush Paty–Hinckley Adobe lies within Stockton Street between Clay and Jackson Streets, while a trail from Yerba Buena Cove to the Presidio passed through this area. This section of Stockton Street is highly sensitive for archaeological resources associated with Yerba Buena (1835-1848).



- Three Great Fires that occurred in 1849 and 1850 were the impetus for organizing fire companies and the construction of water cisterns. The Coast Survey maps of 1852/53 and 1857/59 shown the locations of cisterns built at intersections throughout the City. Many of the original cisterns were built of wood; most were rebuilt in brick. The cisterns were constructed at depths ranging from 10 to 27 feet (Boden 1936). There are five potentially affected cisterns within the APE.
- Columbus Avenue (historically Montgomery Avenue) cut through several city blocks—including that bounded by Stockton, Union, Powell, and Green Streets—that contained many buildings by the 1850s. When the roadway was cut through the block between 1873 and 1875, it affected at least 10 lots, including buildings and yards. Due to the depth of the tunnel at this location, the only potential historical archaeological resources that may be encountered are artifacts from filled wells.
- At the TBM retrieval shaft in Columbus Avenue at Washington Square, the roadway (originally Montgomery Avenue) was cut through between 1873 and 1875, bisecting Washington Square. Deposits related to the early years of Washington Square as a public space and park may be present.

#### 4.4.3 HISTORIC ARCHITECTURAL RESOURCES

##### **Historic Architectural APE**

An APE for historic buildings was defined to guide background research and field inventory for the Phase 2 Central Subway Project. The proposed APE conforms to the approach used for the Central Subway segment of the Third Street Light Rail Project historic architectural investigation conducted by Dames & Moore (Corbett et al.1997), which was approved by the State Historic Preservation Officer (SHPO). The APE is defined as the first row of parcels or buildings fronting either side of the street for each alignment alternative. For the proposed station and vent locations, the APE was expanded to include two rows of parcels and buildings because it is possible that new construction could visually and/or physically impact the historic integrity of buildings or structures. The APE was approved by SHPO in March 2007 (see Appendix D for SHPO approval letter and copy of APE maps).

##### **Historic Architectural Resources Methods**

This section of the SEIS/SEIR summarizes information contained in the Historic Architectural Evaluation Report (HAER) prepared for this Project (Garcia and Associates 2007). Prior to undertaking field studies, background research was initiated to identify previous studies conducted in and around the Study Area. Numerous reports and studies have been researched for this environmental document and references are listed in Appendix F. Previous studies, site records, historic maps, NRHP listings, California Points of Historical Interest, California Historic Landmarks, the Office of Historic Preservation (SHPO) *Directory of Historic Properties in the Historic Property Data File*, and other applicable material was compiled

from the California Historical Resources Information System (CHRIS) at the Northwest Information Center (NWIC), Sonoma State University, California. The Office of Historic Preservation's (OHP) *Directory of Properties in the Historic Property Data File* for San Francisco County, updated on September 18, 2006 contains a current inventory of historic properties and their associated NRHP status. This directory was the primary resource used to determine if properties had been previously evaluated for significance. The data file includes information regarding properties listed in the NRHP and CRHR; note that the NRHP was also independently reviewed to confirm inclusion and status noted in the OHP's Directory.<sup>40</sup> Other registers, including the California Historical Landmarks (1995) and California Points of Historical Interest (2004), were also consulted to determine if the Study Area contains important listed historic properties. The San Francisco Planning Department's list of existing historic preservation districts and surveys was also a resource.

In order to determine NRHP eligibility, historical research pertaining to each property within the APE was compiled. Information relevant to the construction history, history of use, and affiliation with important historical figures was gathered for each property using resources at the San Francisco Public Library, San Francisco Assessor's Office, San Francisco Architectural Heritage Commission, and the San Francisco Planning Department. Additional information was gathered through website searches.

Resource materials consulted at the San Francisco Public Library included: Sanborn Fire Insurance Company maps; San Francisco City Directories; the *Architect and Engineer* journal; San Francisco Handy Block Books; historic newspapers comprising the *San Francisco Call*, *San Francisco Chronicle*, and *San Francisco Examiner*; the San Francisco Blue Book directories (billed as "the fashionable private address directory"); and special subject books.

Databases consulted at the San Francisco Assessor's Office included recorded dates of construction, property ownership transactions, and names and addresses of current owners. Assessor's parcel maps were also reviewed to cross-check lot numbers and addresses.

At the archives of the San Francisco Architectural Heritage Commission and the San Francisco Planning Department, existing records of Study Area properties were reviewed, and the information was incorporated into the current research. These records include Articles 10 and 11 of the *San Francisco Planning Code*; the *San Francisco Citywide Architectural Survey* (San Francisco Planning Department 1976); *Foundation for San Francisco's Architectural Heritage Survey* (Hasbrouck and Hall 1978); *San Francisco Downtown Architectural Survey: C-3 Zoning District* (FSF Heritage 1982);

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<sup>40</sup> National Register of Historic Places website, <http://www.nationalregisterofhistoricplaces.com/ca/San+Francisco/state.html>, accessed February 2007.

*Architectural/Historical Survey of Unreinforced Masonry Building Construction from 1840 to 1940* (Marsh 1990); *San Francisco Chinatown Historic Survey* (Choy and Yip 1979); *Chinatown Historic District Case Report* (Choy, McGrew, and Marsh 1994) and *North Beach Historic Properties Survey-Completion Report* (Bloomfield 1982). The book, *Splendid Survivors: Downtown San Francisco Architectural Heritage*, was also an important reference for this project (Corbett 1979).

### **Historic Architectural Resources within the APE**

There are eight existing or proposed historic districts of local or national importance, and one local conservation district that would be crossed by the Central Subway alternatives (see Table 4-9 and Figure 4-5). A historic district is a group of neighboring buildings that meet the criteria for listing on the National Register of Historic Places. Historic districts include a cohesive collection of buildings that represent a particular period or architectural style that serves to characterize a neighborhood. Locally-established conservation districts are groupings of buildings based on their architectural quality and contribution to the built urban environment. There is a potential for impacts to historic properties or, in the case of the conservation district, architecturally-significant properties within the districts that are crossed by segments of the alternative alignments that are either above ground or in the portal and station areas where the surface disturbance would take place. NRHP eligible historic districts are a cohesive

**TABLE 4-9**  
**HISTORIC AND CONSERVATION DISTRICTS IN THE APE**  
**BY ALTERNATIVE**

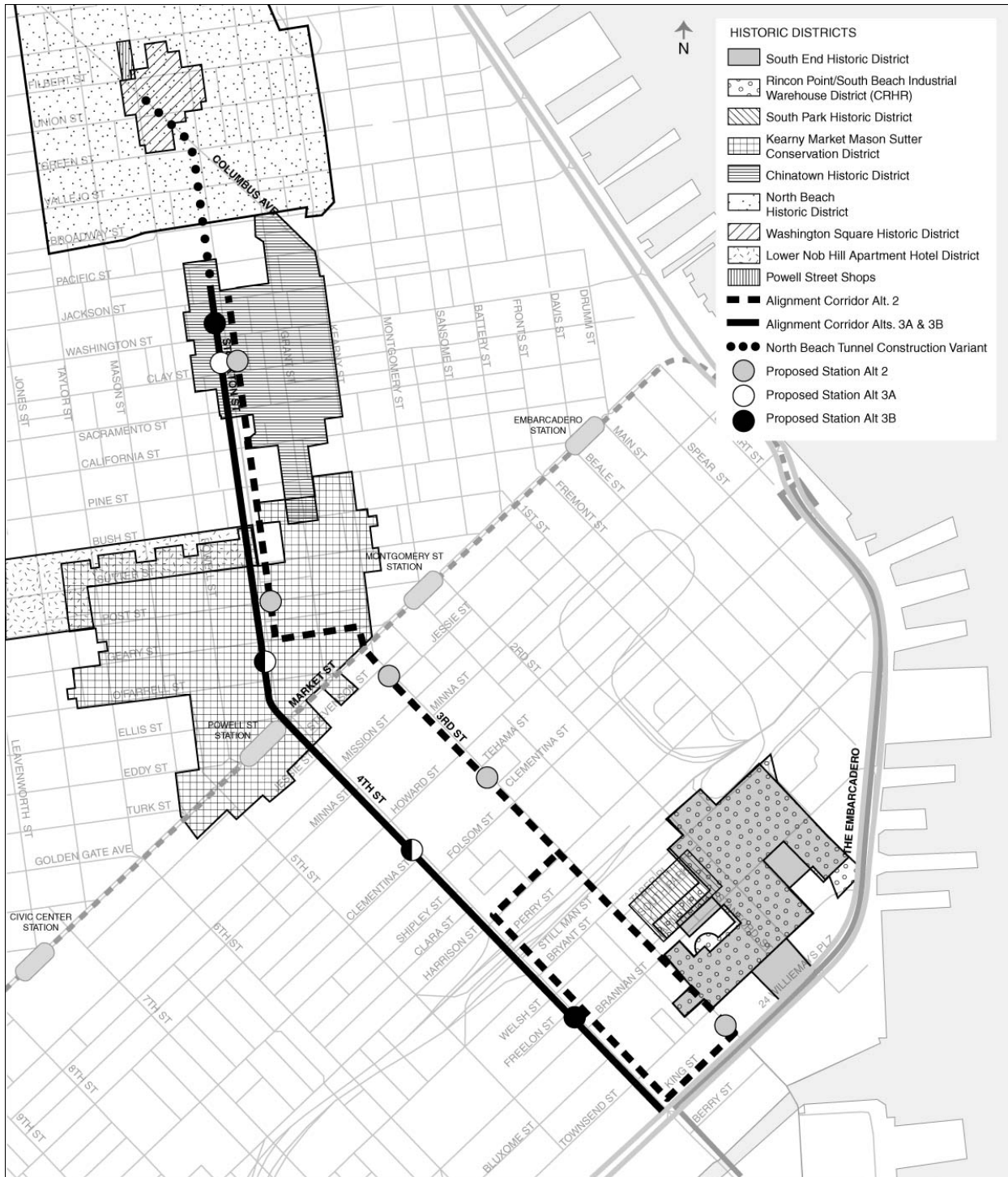
<b>District</b>	<b>Enhanced EIS/EIR Alignment</b>	<b>Fourth/Stockton Alignment Option A</b>	<b>Fourth/Stockton Alignment Option B</b>	<b>Reference</b>
South End Historic District	X			San Francisco Planning Code, Article 10, Appendix I 1990
Rincon Point/South Beach Industrial Warehouse District	X			CRHR 1998
South Park Historic District <sup>2</sup>	X			Newly Proposed by Garcia and Associates
Kearny-Market-Mason-Sutter Conservation District	X	X	X	San Francisco Planning Code, Section 1103.1 of Article 11
Lower Nob Hill Apartment Hotel District <sup>1</sup>	X	X	X	NRHP listed 1991
Chinatown Historic District	X	X	X	CRHR 1998
North Beach Historic District <sup>2</sup>		X	X	Bloomfield 1982
Washington Square Historic District <sup>2</sup>		X	X	Bloomfield 1982
Powell Street Shops Historic District		X	X	Bloomfield 1982
<sup>1</sup> Part of San Francisco Apartment Hotel District				
<sup>2</sup> Proposed districts; not presently on any city, state, or federal lists				

grouping of buildings that share a common history, visual appearance, or development. Historic districts can be contiguous or non-contiguous groupings of buildings. Each of these districts is described below.

#### **South End Historic District and Rincon Point/South Beach Historic Industrial Warehouse District**

Historic buildings that are eligible as contributors to the South End Historic District also appear to be within the boundaries of the Rincon Point/South Beach Historic Industrial Warehouse District (refer to Figure 4-5). The South End Historic District was listed as an Article 10 Historic District in 1990, with boundaries that generally include Stillman Street to the north, First Street to the east, Ritch Street to the west, and King Street to the south. The Rincon Point/South Beach Historic District is a CRHR-listed property and NRHP-eligible district identified and evaluated by Caltrans in 1983 for the I-280 Transfer Concept Project. Its boundary is larger and more inclusive than the CRHR boundary of the Rincon Point/South Beach Industrial Warehouse Historic District. The Rincon Point/South Beach district boundaries extend from First Street to Third Street between Townsend and Brannan Streets, with portions extending to King and Bryant Streets.

**FIGURE 4-5**  
**HISTORIC DISTRICTS**



In the 1850s-1860s, while hilltops were leveled and streets were graded in the retail area of San Francisco, attempts were made south of Market Street to dispose of the excess fill material and create buildable lots. During that time, warehouses began to increase in the area. These districts currently include industrial warehouses that date from 1880 to 1915, when warehouses, dry docks, and shipyards were developed in response to construction of a new seawall during the period of 1878 to 1924. After the 1906 earthquake and fire, what had been predominantly industrial warehouses became mixed with apartments, hotels, and family businesses.

Six contributors to the two overlapping districts front the area where surface tracks would be located in the center of Third Street for the Enhanced EIR/EIS Alignment (see Table 4-10).

#### **South Park Historic District (Proposed)**

South Park, a small, oval-shaped park, was created in the 1850s, and is now surrounded by industrial buildings and warehouses. The South Park neighborhood was established as one of the most exclusive areas in San Francisco, but after the 1906 disaster it was unable to regain its former luster. Nonetheless, all of the post-1906 buildings fronting and adjacent to the park represent a cohesive grouping, unified by their association with the park. Only one historic property within the Study Area, 166 South Park, is considered to be a contributor to this proposed historic district. The building fronts South Park Avenue before it splits to surround South Park. South Park Street bisects the block bounded by Second, Third, Bryant, and Brannan Streets. This building is in the second row of buildings east of the NB Portal for the Enhanced EIR/EIS Alignment (Table 4-11).

#### **Kearny-Market-Mason-Sutter Conservation District**

The Kearny-Market-Mason-Sutter (KMMS) Conservation District, as depicted in Article 11 of the San Francisco Planning Code, covers an irregular area which encompasses much of the downtown retail district of San Francisco with Union Square in the center (refer to Figure 4-5).

The Kearny-Market-Mason-Sutter (KMMS) Conservation District, while not presently determined to be a NRHP-eligible district, has numerous buildings within its boundaries that are eligible for listing. In keeping with the City of San Francisco's intent to designate Conservation Districts to recognize and protect architecturally-significant buildings, this collection of historic buildings is exquisite, as many were constructed during the City's Beautification Movement. The buildings convey a sense of unity as architectural forms created by prominent architects influenced by the Ecole des Beaux-Arts in Paris. Within the KMMS Conservation District, there are three types of buildings, including hotels, department stores, and retail lofts. The majority of buildings included in the APE are retail lofts, which are generally

**TABLE 4-10**

**NATIONAL REGISTER-LISTED OR -ELIGIBLE PROPERTIES WITHIN THE AREA OF  
POTENTIAL EFFECT (APE) IN THE SOUTH END HISTORIC DISTRICT AND THE RINCON  
POINT/SOUTH BEACH HISTORIC INDUSTRIAL WAREHOUSE DISTRICT**

<b>Ref. No.<sup>1</sup></b>	<b>Address</b>	<b>Current or Historic Name</b>	<b>Date Built</b>	<b>Parcel No. (Block/Lot)</b>	<b>Alternative/Location</b>	<b>NR Status</b>
178	660-670 Third	South End Terminal Warehouse	1906	3787/008	Enhanced EIR/EIS Alignment- Third Street surface tracks	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district
185	689-699 Third	Wall & Co./ Anna Davidow Bldg.	1917	3788/014	Enhanced EIR/EIS Alignment- Third Street surface tracks	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district
186	679-685 Third	A Nice Co.	1906	3788/015	Enhanced EIR/EIS Alignment- Third Street surface tracks	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district
187	665 Third	M.J. Brandenstein Bldg.	1916	3788/041	Enhanced EIR/EIS Alignment- Third Street surface tracks	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district
188	625 Third	Rolling Stone Magazine offices 1970-1977	1909	3788/045	Enhanced EIR/EIS Alignment- Third Street surface tracks	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district
189	601 Third	General Cigar Co. Bldg.	1909	3788/020	Enhanced EIR/EIS Alignment- Third Street surface tracks	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district
<sup>1</sup> Reference numbers correspond to property numbers on the APE maps that are available for public review, by appointment, at the San Francisco Planning Department, 1650 Mission Street, San Francisco.						

multi-storied buildings with display windows and flexible floor plans (Corbett et al. 1997:21). Union Square serves as the heart of the KMMS Conservation District and it is also eligible for the NR and it is listed as California State Landmark No. 623.

Twenty-six buildings within the KMMS Conservation District are within the Project APE. These properties are summarized in Table 4-12. Twenty-four of these buildings are identified as properties

**TABLE 4-11**  
**NATIONAL REGISTER-LISTED OR -ELIGIBLE PROPERTIES WITHIN THE APE IN THE**  
**PROPOSED SOUTH PARK HISTORIC DISTRICT**

Ref. No. <sup>1</sup>	Address	Current or Historic Name	Date Built	Parcel No. (Block/Lot)	Alternative/ Location	NR Status
192	166 South Park Avenue		1912	3775/070	Enhanced EIR/EIS Alignment- NB Portal	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district
<sup>1</sup> Reference numbers correspond to property numbers on the APE maps that are available for public review, on request, at the San Francisco Planning Department, 1650 Mission Street, San Francisco.						

eligible for individual listing. However, they also qualify as a cohesive collection of buildings within the conservation district. With the exception of Union Square and two buildings, each of these buildings has been rated as being either significant (Categories I or II) or contributory (Categories III or IV) under the Category I – V classification system established in Article 11 of the San Francisco *Planning Code*.

Seven of the buildings are in the first row of buildings along Stockton Street, but they are outside the potential station impact area. They include 700-706 Market Street, 722-742 Market Street, 146 Geary Street, 152 Geary Street, 156 Geary Street, 417 Stockton Street, and 423-439 Stockton Street. Two more, outside the station areas, are in the second row, including 825-833 Market Street, and 785 Market Street. The remaining 17 historic buildings either front the proposed station locations within each of three alternatives or they are in the second row of buildings; although, there is some overlap of buildings between alternatives.

Union Square is recognized as State Historical Landmark No. 623, and has been proposed for designation as a San Francisco Landmark.<sup>41</sup> Union Square has not been listed in the California Register of Historical Resources, which was enacted by legislation to automatically include State Historic Landmark No. 770 and all succeeding State Historic Landmarks. (For State Historical Landmarks preceding No. 770, the State Historic Preservation Officer must review each structure's eligibility in accordance with State Office procedures.) Union Square is also not individually included in a local register of historical resources, since it has not been designated a Landmark by the Board of Supervisors, although the Square is within the Kearny-Market-Mason-Sutter Conservation District, established by ordinance in 1985.

<sup>41</sup> On May 3, 1995, the Landmarks Preservation Advisory Board initiated the nomination under resolution No. 470, and on September 19, 1996, the Planning Commission held a public hearing on the proposal, and voted to continue the matter. No subsequent action has been taken. Information regarding the Landmark nomination may be found in the case file number 95.233L at the Planning Department, 1650 Mission Street.



**TABLE 4-12**

**NATIONAL REGISTER-LISTED OR -ELIGIBLE PROPERTIES WITHIN THE APE  
KEARNY-MARKET-MASON-SUTTER CONSERVATION DISTRICT**

<b>Ref. No.<sup>1</sup></b>	<b>Address</b>	<b>Current or Historic Name</b>	<b>Date Built</b>	<b>Parcel No. (Block/Lot)</b>	<b>Alternative/Location</b>	<b>NR Status</b>
71	700-706 Market	Mutual Building, Citizen Savings	1902	0312/010	Enhanced EIR/EIS Alignment-Geary and Stockton streets, first row	Office of Historic Preservation 3S- Appears eligible for a separate NRHP listing; Article 11, Category IV Building
78	722-742 Market	Banker's Investment Bldg.	1912	0312/009	Enhanced EIR/EIS Alignment- Geary Street, first row	Office of Historic Preservation 3S- Appears eligible for a separate NRHP listing; Article 11, Category IV Building
85	150 Stockton	Neiman Marcus	1908	0313/018	Alternatives 3A and 3B- Union Square/Market Street Station-first row	Office of Historic Preservation 3S- Appears eligible for a separate NRHP listing; Article 11, Category IV Building
89	146 Geary		1907	0309/007	Enhanced EIR/EIS Alignment- Geary Street, first row	Office of Historic Preservation 3S- Appears eligible for a separate NRHP listing; Article 11, Category IV Building
90	152 Geary		1907	0309/008	Enhanced EIR/EIS Alignment- Geary Street, first row	Office of Historic Preservation 3S- Appears eligible for a separate NRHP listing; Article 11, Category IV Building
91	156 Geary		1907	0309/009	Enhanced EIR/EIS Alignment- Geary Street, first row	Office of Historic Preservation 3S- Appears eligible for a separate NRHP listing; Article 11,

**TABLE 4-12**

**NATIONAL REGISTER-LISTED OR -ELIGIBLE PROPERTIES WITHIN THE APE  
KEARNY-MARKET-MASON-SUTTER CONSERVATION DISTRICT**

<b>Ref. No.<sup>1</sup></b>	<b>Address</b>	<b>Current or Historic Name</b>	<b>Date Built</b>	<b>Parcel No. (Block/Lot)</b>	<b>Alternative/Location</b>	<b>NR Status</b>
						Category IV Building
92	160-170 Geary	Whittell Building	1906	0309/010	Alternative 3A- Union Square/Market Street Station-second row	Office of Historic Preservation 3S- Appears eligible for a separate NRHP listing (Article 11, Category I Building)
95	333 Post Street	Union Square (including Parking Garage)	1942	0308/001	Enhanced EIR/EIS Alignment-Union Square Station- placement of vent and station entry at east side of structure; Alternative 3A-Union Square/Market Street Station- placement of vent and station entry at east side of structure; Alternative 3B-Union Square/Market Street Station- placement of station entry and elevator at southeast side of structure	Office of Historic Preservation 3S- Appears eligible for a separate NRHP listing  California State Landmark No. 623 (CHL 1996: 220)
97	218-222 Stockton	A. M. Robertson Building	1908	0309/014	Enhanced EIR/EIS Alignment- Union Square Station- first row; Alternative 3A- Union Square/Market Street Station-first row	Office of Historic Preservation 3S- Appears eligible for a separate NRHP listing (Article 11, Category IV Building)
98	234-240 Stockton	Scroth Building (aka TWA Building)	1908-1909	0309/020	Enhanced EIR/EIS Alignment- Union Square Station- first row; Alternative 3A- Union Square/Market Street Station- first row	Office of Historic Preservation 3S- Appears eligible for a separate NRHP listing (Article 11, Category I Building)
100	275-299 Post	Lathrop Building	1909	0309/022	Enhanced EIR/EIS Alignment- Union Square Station- first row; Alternative 3A -	Office of Historic Preservation 3S- Appears eligible for a separate

**TABLE 4-12**

**NATIONAL REGISTER-LISTED OR -ELIGIBLE PROPERTIES WITHIN THE APE  
KEARNY-MARKET-MASON-SUTTER CONSERVATION DISTRICT**

<b>Ref. No.<sup>1</sup></b>	<b>Address</b>	<b>Current or Historic Name</b>	<b>Date Built</b>	<b>Parcel No. (Block/Lot)</b>	<b>Alternative/Location</b>	<b>NR Status</b>
					Union Square/Market Street Station- first row	NRHP listing (Article 11, Category I Building)
102	278-298 Post	Joseph Fredericks Co. Building	1910	0294/011	Enhanced EIR/EIS Alignment- Union Square Station- first row	Office of Historic Preservation 3S- Appears eligible for a separate NRHP listing (Article 11, Category I Building)
104	340 Stockton	Hotel Drake Wilshire Building	1909; 1984 remodeled	0294/013	Enhanced EIR/EIS Alignment- Union Square Station- first row; Alternatives 3A and 3B- Union Square/Market Street Station-first row	Office of Historic Preservation 3S- Appears eligible for a separate NRHP listing (Article 11, Category I Building)
108	417 Stockton	Hotel Navarre, All Seasons Hotel	1907	0285/004	Enhanced EIR/EIS Alignment- Fourth Street- first row; Alternatives 3A and 3B- Fourth Street-first row	1D- Contributor to a listed district- NHAHD; (Article 11, Category IV Building)
109	423-439 Stockton	Natalia Apartments	1911	0285/003	Enhanced EIR/EIS Alignment- Fourth Street- first row; Alternatives 3A and 3B- Fourth Street-first row	2D2-eligible for the NRHP; listed in the CRHR (Article 11, Category IV Building)
242	825-833 Market	Commercial Building; California Academy of Sciences	1908	3705/037	Alternative 3A- Fourth Street-second row	Office of Historic Preservation 3S- Appears eligible for a separate NRHP listing (Article 11, Category II Building)
244	785 Market	Humboldt Savings Bank Building	1906	3706/075-092	Alternatives 3A and 3B- Fourth Street-second row	Office of Historic Preservation 3S- Appears eligible for a separate

**TABLE 4-12**

**NATIONAL REGISTER-LISTED OR -ELIGIBLE PROPERTIES WITHIN THE APE  
KEARNY-MARKET-MASON-SUTTER CONSERVATION DISTRICT**

<b>Ref. No.<sup>1</sup></b>	<b>Address</b>	<b>Current or Historic Name</b>	<b>Date Built</b>	<b>Parcel No. (Block/Lot)</b>	<b>Alternative/Location</b>	<b>NR Status</b>
						NRHP listing (Article 11, Category I Building)
266	101 Stockton	Macys	1928; addition 1948	0314/002; 0314/004	Alternatives 3A and 3B- Union Square/Market Street Station-first row	Office of Historic Preservation 3S- Appears eligible for a separate NRHP listing (Article 11, Category I Building)
272	177-179 Maiden		1907	0309/012; 0309/010	Enhanced EIR/EIS Alignment- Union Square Station- second row; Alternative 3A- Union Square/Market Street Station- second row	Office of Historic Preservation 3S- Appears eligible for a separate NRHP listing (Article 11, Category IV Building)
273	259 Post	Ransohoffs Department Store	1909	0309/023	Enhanced EIR/EIS Alignment- Union Square Station- second row; Alternative 3A- Union Square/Market Street Station-second row	Office of Historic Preservation 3S- Appears eligible for a separate NRHP listing (Article 11, Category IV Building)
275	250 Post (246-268 Post)	Gumps Dept. Store	1865;  1906	0294/009	Enhanced EIR/EIS Alignment- Union Square Station- second row; Alternative 3A and 3B- Stockton Street -second row	Office of Historic Preservation 3S- Appears eligible for a separate NRHP listing (Article 11, Category II Building)
276	272 Post	Martin Sachs Company; Lengfeld Drug Company.	1909	0294/010	Enhanced EIR/EIS Alignment- Union Square Station- second row	Office of Historic Preservation 3S- Appears eligible for a separate NRHP listing (Article 11, Category IV Building)
249	760 Market/35 O'Farrell	Phelan Building	1908	0328/001	Alternatives 3A and 3B- Union Square/Market Street	Office of Historic Preservation 3S- Appears eligible

**TABLE 4-12**

**NATIONAL REGISTER-LISTED OR -ELIGIBLE PROPERTIES WITHIN THE APE  
KEARNY-MARKET-MASON-SUTTER CONSERVATION DISTRICT**

<b>Ref. No.<sup>1</sup></b>	<b>Address</b>	<b>Current or Historic Name</b>	<b>Date Built</b>	<b>Parcel No. (Block/Lot)</b>	<b>Alternative/Location</b>	<b>NR Status</b>
					Station-second row	for a separate NRHP listing (Article 11, Category I Building)
250	790 Market	Roos Bros. (Grodins)	1907	0328/002	Alternatives 3A and 3B- Union Square/Market Street Station-first row	Appears eligible for listing as a contributor to a NR eligible district (3D)
251	77-81 O'Farrell	Newman & Levinson; Joseph Magnin	1909	0328/003	Alternatives 3A and 3B- Union Square/Market Street Station-first row	Office of Historic Preservation 3S- Appears eligible for a separate NRHP listing
252	79 O'Farrell (previously 46-68 Stockton/77-79 O'Farrell)		1909	0328/004	Alternatives 3A and 3B- Union Square/Market Street Station-first row	Office of Historic Preservation 3S- Appears eligible for a separate NRHP listing (Article 11, Category I Building)
<sup>1</sup> Reference numbers correspond to property numbers in the APE maps that are available for public review, by appointment, at the San Francisco Planning Department, 1650 Mission Street, San Francisco.						

Union Square is not “rated” as a Category I, II, III, IV, or V resource within the Conservation District, but Appendix E to Article 11 of the City Planning Code calls Union Square “an integral part of the District,” and “a unique resource” ranking with the finest open spaces in the country (Section 5(d)). Appendix E also states: “The District is further defined by the location of Union Square in its heart. This square is, in many ways, the premier public open space in the City, as well as a primary public forum” (Section 5(b)). The Dewey monument has received an “A” rating from the Foundation for San Francisco’s Architectural Heritage.

While Union Square does not technically meet CEQA’s definition of an historical resource on an individual basis, it is clearly an important element of a designated Conservation District, and therefore an important component of a larger historical resource warranting particular attention. Little of Union Square’s importance is derived from its internal configuration or landscape features, however. The

Square is significant because of its relationship to surrounding buildings and the urban setting, its history as one of San Francisco's first public squares, and the successful integration of an underground garage, which was the first of its kind in the world.<sup>42</sup>

Five additional buildings in the KMMS Conservation District front the Union Square Station in the Enhanced EIR/EIS Alignment, and another four properties occupy the second row of buildings. Nine contributors to the KMMS Conservation District front the Union Square/Market Street Station under the Alternative 3A Alignment, and four more are within the second row of buildings. Six contributors to the KMMS Conservation District front the Alternative 3B Alignment, and one contributor is in the second row.

The two remaining contributing properties occupy the first row of building on Fourth Street under the Alternatives 3A and 3B alignments.

### **Lower Nob Hill Apartment Hotel District**

The Lower Nob Hill Apartment Hotel District is listed in the National Register of Historic Places and is part of the larger San Francisco Apartment Hotel District that is on the CRHP. The historic district contains 295 buildings and one structure within an area of 570 acres. The approximate extent of the historic district boundaries is 590-1209 Bush Street, 680-1156 Sutter Street, and 600-1099 Post Street, and the intersecting cross streets, including Stockton Street.

There are eleven buildings within the Central Subway APE that are contributors to the Lower Nob Hill Apartment Hotel District (see Table 4-13). These buildings represent a grouping of apartments and/or hotels that replaced the earlier mansions after the 1906 San Francisco earthquake and fire. The majority of buildings within the present Study Area are apartments designed for individuals employed in the nearby retail and financial districts. These buildings are within the limits of the fireproof zone, so fireproof materials were used in their construction. The use of similar materials, construction methods, design, and function serves to unify this collection of buildings.

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<sup>42</sup> San Francisco Beautiful, Landmarks Preservation Advisory Board Nomination Form, April 1995. Charles Hall Page Assoc., State Department of Recreation & Parks Historic Resources Inventory Form, September 1978. Application for Registration of Historical Point of Interest. Copies of these materials are available for review in the project case file at the San Francisco Planning Department, 1650 Mission Street.

**TABLE 4-13****NATIONAL REGISTER-LISTED OR -ELIGIBLE PROPERTIES WITHIN THE APE****LOWER NOB HILL APARTMENT HOTEL DISTRICT**

<b>Ref. No.<sup>1</sup></b>	<b>Address</b>	<b>Current or Historic Name</b>	<b>Date Built</b>	<b>Parcel No. (Block/Lot)</b>	<b>Alternative/Location</b>	<b>NR Status</b>
108	417 Stockton	Hotel Navarre, All Seasons Hotel	1907	0285/004	Enhanced EIR/EIS Alignment, Alternative 3A, Alternative 3B – Stockton Street	1D- Contributor to a listed district
109	423-439 Stockton	Natalia Apartments	1911	0285/003	Enhanced EIR/EIS Alignment, Alternative 3A, Alternative 3B – Stockton Street	2D2- Contributor to a district determined eligible for the NR; Listed in the CR
111	600-604 Bush		1915	0272/004	Enhanced EIR/EIS Alignment, Alternative 3A, Alternative 3B – Stockton Street	1D- Contributor to a listed district
114	525 Stockton		1921	0272/002	Enhanced EIR/EIS Alignment, Alternative 3A, Alternative 3B – Stockton Street	1D- Contributor to a listed district
116	535 Stockton	Pon Apartments	1925	0272/001A	Enhanced EIR/EIS Alignment, Alternative 3A, Alternative 3B – Stockton Street	1D- Contributor to a listed district
118	701-737 Pine	Agatha Apartments	1925	0272/001	Enhanced EIR/EIS Alignment, Alternative 3A, Alternative 3B – Stockton Street	1D- Contributor to a listed district
112	590-598 Bush	Victoria Hotel	1908	0271/015	Enhanced EIR/EIS Alignment, Alternative 3A, Alternative 3B – Stockton Street	1S- Individual property listed in the NR; 1D- Contributor to a listed district
113	510 Stockton		1920	0271/016	Enhanced EIR/EIS Alignment, Alternative 3A, Alternative 3B – Stockton Street	1D- Contributor to a listed district
115	530 Stockton		1925	0271/017	Enhanced EIR/EIS Alignment, Alternative 3A, Alternative 3B – Stockton Street	1D- Contributor to a listed district
117	540 Stockton		1922	0271/018	Enhanced EIR/EIS Alignment, Alternative 3A, Alternative 3B – Stockton Street	1D- Contributor to a listed district

119	550 Stockton	Pinemont Apartments	1923	0271/019	Enhanced EIR/EIS Alignment, Alternative 3A, Alternative 3B – Stockton Street	1D- Contributor to a listed district
<sup>1</sup> Reference numbers correspond to property numbers on the APE maps that are available for public review, on request, at the San Francisco Planning Department, 1650 Mission Street, San Francisco.						



Each of these buildings fronts the APE along Stockton Street. Two of the buildings, 417 Stockton Street and 423-439 Stockton Street, overlap the boundaries of the KMMS Conservation District. None of the eleven buildings are within a station or portal area.

### **Chinatown Historic District**

Buildings within the Chinatown District generally occupy a small lot and have three or more stories with storefronts on the ground floor and residential flats, offices, or meeting rooms upstairs. Some buildings within the area are schools or churches. Most of the buildings are brick two- or three-part block vertical compositions. In some cases, the brick is now covered with stucco and Moderne influences have been infused with the formerly Renaissance/Baroque forms. A National Register of Historic Places Inventory Nomination Form was completed for the Chinatown Historic District in 1979 (Gardner 1979) and the district boundaries were refined in 1994 (Choy et al. 1994). The Chinatown Historic District is listed on the California Register of Historic Resources with a status code rating of “3D”.

Twenty-five significant buildings are within the APE in and around the proposed station locations of the Chinatown Historic District; together, they qualify as a cohesive collection of buildings within the historic district (see Table 4-14). They include buildings that either front the proposed station locations within each of three alternatives or they are in the second row of buildings. Some of the buildings are affected by more than one alternative.

Nine contributors to the Chinatown Historic District front the Chinatown Station in both the Enhanced EIR/EIS Alignment and the Alternative 3A Alignment, and another one property occupies the second row of buildings. Seven contributors to the Chinatown Historic District front the Alternative 3B Alignment, and six additional contributors are in the second row. Another contributor in Block 211 is in the third

**TABLE 4-14**  
**NATIONAL REGISTER-LISTED OR -ELIGIBLE PROPERTIES WITHIN THE APE**  
**CHINATOWN HISTORIC DISTRICT**

<b>Ref. No.<sup>1</sup></b>	<b>Address</b>	<b>Current or Historic Name</b>	<b>Date Built</b>	<b>Parcel No. (Block/Lot)</b>	<b>Alternative/Location</b>	<b>NR Status</b>
133	800-810 Stockton	Lewis Gasner Hotel	1911	0225/013	Enhanced EIR/EIS Alignment, Alternative 3A- Chinatown Station- first row on east side of Stockton	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
135	814-828 Stockton		1923-1924	0225/014	Enhanced EIR/EIS Alignment, Alternative 3A- Chinatown Station- first row on east side of	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district through

**TABLE 4-14**  
**NATIONAL REGISTER-LISTED OR -ELIGIBLE PROPERTIES WITHIN THE APE**  
**CHINATOWN HISTORIC DISTRICT**

Ref. No. <sup>1</sup>	Address	Current or Historic Name	Date Built	Parcel No. (Block/Lot)	Alternative/Location	NR Status
					Stockton- <b>This building is slated for demolition for station entry</b>	survey evaluation
137	830-848 Stockton	Kuo Ming Tang	1915	0225/016	Enhanced EIR/EIS Alignment, Alternative 3A- Chinatown Station- first row on east side of Stockton	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
140	850-898 Stockton	Oriental Hotel	1910	0225/017	Enhanced EIR/EIS Alignment, Alternative 3A-Chinatown Station- first row on east side of Stockton	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
146	930 Stockton	St. Mary's School	1906	0210/047 (0210/014)	Alternative 3B- Chinatown Station- first row on east side of Stockton	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
284	857-865 Clay		1913	0225/019	Enhanced EIR/EIS Alignment, Alternative 3A- Chinatown Station- second row on east side of Stockton	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
294	868-870 Clay		1911-1912	0210/012	Alternative 3B- Chinatown Station- second row on east side of Stockton	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
295	31-37 Spofford		1907	0210/015	Alternative 3B - Chinatown Station- second row on east side of Stockton	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
297	867-869 Washington		1929	0210/018	Alternative 3B- second row on east side of Stockton	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
132	801-805 Stockton		1925	0224/006	Enhanced EIR/EIS Alignment, Alternative 3A- Chinatown Station- first row on west side of Stockton	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
134	809-815 Stockton	Burke Lodging House	1915	0224/005	Enhanced EIR/EIS Alignment, Alternative 3A - Chinatown	Office of Historic Preservation 3D- Appears eligible as a contributor to a

**TABLE 4-14**  
**NATIONAL REGISTER-LISTED OR -ELIGIBLE PROPERTIES WITHIN THE APE**  
**CHINATOWN HISTORIC DISTRICT**

Ref. No. <sup>1</sup>	Address	Current or Historic Name	Date Built	Parcel No. (Block/Lot)	Alternative/Location	NR Status
					Station- first row on west side of Stockton	NR eligible district through survey evaluation
136	827-829 Stockton	Chinese High School, Victory Hall	1908	0224/004	Enhanced EIR/EIS Alignment, Alternative 3A - Chinatown Station- first row on west side of Stockton	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
138	833-841 Stockton		1914	0224/003	Enhanced EIR/EIS Alignment, Alternative 3A - Chinatown Station- first row on west side of Stockton	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
139	843 Stockton	Chinese Benevolent Society (Chinese Six Companies)	1908	0224/002	Enhanced EIR/EIS Alignment, Alternative 3A - Chinatown Station- first row on west side of Stockton	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
143	901-907 Stockton		1907	0211/004	Alternative 3B - Chinatown Station- first row on west side of Stockton	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
144	913-917 Stockton	Hop Wo Benevolent Society	1910	0211/003	Alternative 3B - Chinatown Station- first row on west side of Stockton	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
145	925 Stockton	Chinese Presbyterian Church	1907	0211/002	Alternative 3B - Chinatown Station- first row on west side of Stockton	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
147	933-949 Stockton	S.H. Woodruff	1906	0211/001	Alternative 3B - Chinatown Station- first row on west side of Stockton - <b>This building is slated for demolition under Alternative 3B Alignment for station entry</b>	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
149	1003-1011 Stockton	Chinese Methodist Episcopal Church	1910	0192/004	Alternative 3B - Chinatown Station- first row on west side of Stockton	Office of Historic Preservation 3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
151	1013-1017		1910	0192/003	Alternative 3B -	Office of Historic

**TABLE 4-14**  
**NATIONAL REGISTER-LISTED OR -ELIGIBLE PROPERTIES WITHIN THE APE**  
**CHINATOWN HISTORIC DISTRICT**

Ref. No. <sup>1</sup>	Address	Current or Historic Name	Date Built	Parcel No. (Block/Lot)	Alternative/Location	NR Status
	Stockton				Chinatown Station- first row on west side of Stockton	Preservation 3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
289	910-914 Clay	Chinese Mission	1907	0211/005	Alternative 3B - Chinatown Station- second row on west side of Stockton	3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
290	916-918 Clay		1907	0211/006	Alternative 3B - Chinatown Station- third row on west side of Stockton	3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
292	950 Clay	Commodore Stockton School	1913	0211/007	Alternative 3B - Chinatown Station- second row on west side of Stockton	3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
305	940 Washington	Gum Moon Residence Hall	1911	0192/005	Alternative 3B - Chinatown Station- second row on west side of Stockton	3S- Appears eligible for a separate NRHP listing
148A		Washington Street Street Lights	1925		Alternative 3B - Chinatown Station	3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
<sup>1</sup> Reference numbers correspond to property numbers on the APE maps that are available for public review, on request, at the San Francisco Planning Department, 1650 Mission Street, San Francisco.						

row from Stockton Street, but only one building separates it from the proposed station location. Two buildings are proposed for demolition and removal in the Chinatown Historic District: one in the first row of the Enhanced EIR/EIS and 3A alignments, and another in the first row of the 3B Alternative Alignment. One additional resource, the Washington Street Street Lights, is within the Alternative 3B Alignment.

Various surveys have identified the Chinatown Historic District as having expansive boundaries that encompass an area of several blocks. Corbett et al. (1997) identified 814-828 Stockton Street and 933-949 Stockton Street and other surrounding buildings as contributors to a NRHP eligible historic district in Chinatown. These buildings are linked through their association with the development of the Chinatown community. Each of the two buildings lies within an area known to be a part of Chinatown since at least the 1880s and has continuously remained a vibrant part of the community. Constructed in 1923, 814-828

Stockton Street is noted for initial Chinese ownership in the 1920s, use of its basement as a Chinese school, and it housed the *World Journal* Chinese newspaper during the 1970s and 1980s. Designed by S.H. Woodruff and erected in 1906, 933-949 Stockton Street served the immediate need of lodging and use of the storefronts by Chinese merchants in the aftermath of a natural disaster.

There are architectural similarities shared with a large percentage of the Chinatown buildings. The architecture is loosely tied to the significance of the Chinatown Historic District, although it is not exclusive to this part of the City. Most convey Renaissance or Baroque design influences produced by architects whose designs were found throughout the City. Visual differences expressed in Chinatown include bright banners and awnings, and in some cases, Chinese design elements have been infused in the architecture. 933-949 Stockton Street conforms to the two-part commercial block composition also found in other areas of San Francisco. The architectural design of the 824-828 Stockton Street building, with one story fronting Stockton Street, is less common.

Especially in the case of 814-828 Stockton Street, the visual representation of the building is less important than its history. However, within that block (Block 225), the three remaining buildings on the east side of Stockton Street are also contributing elements to a historic district, as are many of the properties across the street. Equally important buildings also surround 933-949 Stockton Street. Removal of either building breaks up the continuity of contextually linked buildings on the two blocks.

#### **North Beach Historic District, Washington Square Historic District, and Powell Street Historic District**

The North Beach Historic District was proposed by Bloomfield in 1982. Within the North Beach Historic District, four historic sub-districts have been identified: the Upper Grant Avenue Historic District, Jackson Square Historic District Extension, Powell Street Shops Historic District, and Washington Square Historic District. Each of these historic sub-districts has been determined to be eligible for the NRHP. Of these four sub-districts, only the Powell Street Shops Historic District and the Washington Square Historic District are within the Project Area boundaries.

The Washington Square Historic District was also proposed by Bloomfield in 1982. The Washington Square Historic District includes historic properties that surround the park. Washington Square Park is listed as San Francisco Landmark No. 226. It is bounded by Filbert, Union, Powell, and Stockton Streets, and creates a visual focal point for historic buildings that front the park. With the exception of a Catholic Church on the north side, these properties exhibit the same architectural forms as those found throughout North Beach.

The Powell Street Shops Historic District is a block-long section on the west side of the 1800 block of Powell Street from Filbert to Greenwich Streets, consisting of eleven street-level shops in eight buildings, with flats and apartments above. The block is remarkable for the nearly intact state of most of its storefronts; the whole streetscape is virtually unaltered since its construction early in the twentieth century. However, none of the buildings in the Powell Street Shops Historic District are located within 200 feet of the extraction shaft.

North Beach was one of the first areas to rebuild after the 1906 earthquake and fire, and thereafter, developed into the center of San Francisco's Italian American community. The vast majority of new buildings were wood-framed flats of two or three stories, built on row-house lots whose narrow dimensions remained unchanged from before the earthquake. These buildings usually had bay windows, with either rounded or slanted sides, that overhung the sidewalk. Many were decorated with Classical Revival ornamentation, including classical cornices that wrapped around the bay windows, subordinate cornices at the second floor level, and columns at the porches. The proposed North Beach Historic District encompasses the Washington Square Historic District, although its boundaries are imprecisely defined.

Washington Square Park and the associated Washington Square Park Triangle are the only properties in close proximity to the Tunnel Boring Machine extraction shaft that would be placed in the middle lanes of Columbus Avenue between Union and Powell Streets for the Alternative 3A and 3B Alignments (see Table 4-15). Washington Square Park is listed as locally significant both individually (listed, eligible, or appears eligible) and as a contributor to a district that is locally listed, designated, determined eligible or appears eligible through survey evaluation (Bloomfield 1982). Five additional properties, considered contributors to the Washington Square Historic District, are located within 200 feet of the extraction shaft.

**TABLE 4-15**

**NATIONAL REGISTER-LISTED OR -ELIGIBLE PROPERTIES WITHIN THE APE  
NORTH BEACH, WASHINGTON SQUARE, AND POWELL STREET HISTORIC DISTRICTS**

<b>Ref. No.<sup>1</sup></b>	<b>Address</b>	<b>Current or Historic Name</b>	<b>Date Built</b>	<b>Parcel No. (Block/Lot)</b>	<b>Alternative/Location</b>	<b>NR Status</b>
366	600-668 Columbus	Washington Square Park	Ca. 1860	0102/001	Alternatives 3A, 3B-TBM Extraction Shaft	5S2-locally significant both individually (listed, eligible, or appears eligible) and as a contributor to a district that is locally listed, designated, determined eligible or appears eligible through survey evaluation. San Francisco Landmark No. 226
367	651 Columbus	Washington Square Park Triangle	Ca. 1860	0102/002	Alternatives 3A, 3B-TBM Extraction Shaft	3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
359	1636-1656 Powell	Verdi Apartments	1914	0117/016	Alternatives 3A, 3B-TBM Extraction Shaft- within 200 feet of extraction shaft	3S- Appears eligible for a separate NRHP listing
358	575-579 Columbus		1912	0117/017	Alternatives 3A, 3B-TBM Extraction Shaft- within 200 feet of extraction shaft	3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
371	1731-1741 Powell	Pagoda Theatre	1908	0101/004	Alternatives 3A, 3B-TBM Extraction Shaft- within 200 feet of extraction shaft	7N1- may become eligible for NR w/restoration or when meets other specific conditions.
370	1717-1719 Powell		1914	0101/005	Alternatives 3A, 3B-TBM Extraction Shaft- within 200 feet of extraction shaft	3D- Appears eligible as a contributor to a NR eligible district through survey evaluation
369	1701-1711 Powell 1715 Powell		1908	0101/005A	Alternatives 3A, 3B-TBM Extraction Shaft- within 200 feet of extraction shaft	3D- Appears eligible as a contributor to a NR eligible district through survey evaluation

<sup>1</sup> Reference numbers correspond to property numbers on the APE maps that are available for public review, on request, at the San Francisco Planning Department, 1650 Mission Street, San Francisco.

**San Francisco Planning Code Resources within the Project Area**

Historic buildings in the C-3 Downtown Commercial districts have been rated using a classification system under Article 11 of the San Francisco *Planning Code*. The rating system assessed the architectural design, history of the property, and aesthetic value to devise four categories. The highest rated buildings are Category I and II buildings, which are identified as “Significant Buildings.” Category I and II buildings are exempt from demolition unless their condition prevents them from being economically viable for rehabilitation and reuse. Category III and IV buildings represent “Contributory Buildings.” Although they are important as contributors to the C-3 Downtown Commercial districts, the standards for demolition are slightly less restrictive. A third category, Category V is used for buildings that are designated as unrated.

The rating system differs from the criteria used to evaluate historic buildings for the NRHP. For instance, of the twenty-six properties within the Project APE, twenty-one are also NRHP-eligible buildings within the boundaries of the Kearny-Market-Mason-Sutter District (refer to Table 4-12). Of those, eight are Category I, three are Category II, and ten are Category IV buildings. One the two buildings that overlap in the Kearny-Market-Mason-Sutter Conservation District and the Lower Nob Hill Apartment Historic District is NRHP-eligible and the other is a contributor to the historic district, but they both are rated Category IV. Six more rated buildings within the APE are outside the boundaries of a Historic District or Conservation District (see Table 4-16).

In accordance with Article 10 of the *Planning Code*, the Landmarks Preservation Advisory Board (LPAB) maintains a list of historic landmarks. The LPAB and the San Francisco Planning Commission review proposed plans for modifications to listed historic landmarks and make recommendations. Article 10 identifies seven San Francisco landmarks in the Study Area as depicted in Table 4-17.

**National Register and California Register Properties within the Project Area**



In the Study Area there are historic buildings, structures, and objects that are listed in state and federal registers, including the California Register of Landmarks, California Register of Historic Resources, and the National Register of Historic Places (see Tables 4-18, 4-19, and 4-20, respectively). One California Historical Landmark (No. 623) has been identified in the Study Area. Union Square, though it has not been listed in the California Register of Historical Resources, is also proposed for designation as a San Francisco Landmark (No. 210). Union Square is not “rated” as a Category I, II, III, IV, or V resource within the Conservation District.

**TABLE 4-16****CATEGORY RATED BUILDINGS WITHIN THE PROJECT APE****NOT ASSOCIATED WITH A HISTORIC DISTRICT OR A CONSERVATION DISTRICT**

<b>Ref. No.<sup>1</sup></b>	<b>Address</b>	<b>Current or Historic Name</b>	<b>Date Built</b>	<b>Parcel No. (Block/Lot)</b>	<b>Alternative/ Location</b>	<b>Status</b>
238	54 Fourth	Keystone Hotel	1910	3705/004	3A	3S - Appears eligible for the NR
121	600 Stockton	Met Life-Pacific Coast Head Office	1909	0257/012	2, 3A, 3B	Landmark No. 167
62	17-29 Third	Herman Levy Bldg	1907	3707/057	2	3S- Appears eligible for a separate NRHP listing
64	691-699 Market	Hearst Building	1909	3707/057	2	3S- Appears eligible for a separate NRHP listing
65	673-687 Market	Monadnock Building		3707/051	2	3S- Appears eligible for a separate NRHP listing
63	703-705 Market (26 Third)	Claus Spreckels Bldg./Call Bldg.	1898	3706/001	2	3S- Appears eligible for a separate NRHP listing
<sup>1</sup> Reference numbers correspond to property numbers on the APE maps that are available for public review, on request, at the San Francisco Planning Department, 1650 Mission Street, San Francisco.						

**TABLE 4-17****SAN FRANCISCO LANDMARKS IN THE STUDY AREA**

<b>Ref. No.<sup>1</sup></b>	<b>Alt. No.</b>	<b>Address</b>	<b>Property</b>	<b>Date</b>	<b>Parcel</b>	<b>District</b>	<b>Landmark No.</b>
95	2, 3A, 3B	333 Post	Union Square	1942	0308/001	KMMS	SF Landmark No. 210
121	2, 3A, 3B	600 Stockton	Metropolitan Life Building- Pacific Coast Head Office	1909	0257/012		SF Landmark No. 167
366	3A, 3B	600-668 Columbus	Washington Square Park	1900	0102/001	WS	SF Landmark No. 226
285	3A	920 Sacramento	Donaldina Cameron House	1908	0224/008	CH	SF Landmark No. 44
249	3A,	760 Market/35	Phelan Building	1908	0328/001	KMMS	SF Landmark No. 156

	3B	O'Farrell	(William Curlett-architect)				
66	2	Pedestrian island at intersection of Market, Geary and Kearny streets	Lotta Crabtree Fountain- cast iron statue and fountain presented to the City in 1875 by Lotta Crabtree, a noted entertainer	1875	-----	KMMS	SF Landmark No.73
---	2,3A, 3B	1-2490 Market Street	Path of Gold Standards (historic street lights)	1908, 1916, 1925	-----		SF Landmark No.200

<sup>1</sup> Reference numbers correspond to property numbers on the APE maps that are available for public review, on request, at the San Francisco Planning Department, 1650 Mission Street, San Francisco.

**TABLE 4-18****CALIFORNIA HISTORICAL LANDMARKS IN THE STUDY AREA**

Ref. No. <sup>1</sup>	Alt. No.	Address	Property	Date	Parcel	District	Status
95	2, 3A, 3B	333 Post	Union Square	1942	0308/001	KMMS	California Historical Landmark No. 623

<sup>1</sup> Reference numbers correspond to property numbers on the APE maps that are available for public review, on request, at the San Francisco Planning Department, 1650 Mission Street, San Francisco.

**TABLE 4-19****HISTORIC RESOURCES LISTED IN THE CALIFORNIA REGISTER OF HISTORIC RESOURCES**

Ref. No. <sup>1</sup>	Alt. No.	Address	Property	Date	Parcel	District	Status
113	2, 3A, 3B	510 Stockton		1920	0271/016	LNHAH	1D-Contributor to District or Multiple Resource Property listed in NR by Keeper. Listed in CR.
115	2, 3A, 3B	530 Stockton		1925	0271/017	LNHAH	1D-Contributor to District or Multiple Resource Property listed in NR by Keeper. Listed in CR.
117	2, 3A, 3B	540 Stockton		1922	0271/018	LNHAH	1D-Contributor to District or Multiple Resource Property listed in NR by Keeper. Listed in CR.
119	2, 3A, 3B	550 Stockton	Pinemont Apartments	1923	0271/019	LNHAH	1D-Contributor to District or Multiple Resource Property listed in NR by Keeper. Listed in CR.
66	2	Pedestrian island at intersection of Market, Geary and	Lotta Crabtree Fountain	1875	-----	KMMS	1S- Individual Property listed in NR by the Keeper. Listed in CR.

		Kearny streets					
124A	2, 3A, 3B	California; Kearny	San Francisco Cable Cars	1873	-----		1S- Individually property listed in the NR by the Keeper. Listed in CR.
58	2	700-706 Mission	Aronson Bldg., Mercantile Bldg.	1906	3706/093		2S1-Individual property determined eligible by the Keeper. Listed in CR.
217	3A, 3B	360 Fourth	Salvation Army Senior Activities Center	1925	3752/010		2S- Individual property determined eligible for NR by the Keeper. Listed in CR.

**TABLE 4-19 (CONTD.)**

### HISTORIC RESOURCES LISTED IN THE CALIFORNIA REGISTER OF HISTORIC RESOURCES

108	2, 3A, 3B	417 Stockton	Hotel Navarre, All Seasons Hotel	1907	0285/004	LNHAH KMMS	1D-Contributor to a district or multiple property listing on NR by Keeper. Listed in CR.
109	2, 3A, 3B	423-439 Stockton	Natalia Apartments	1911	0285/003	LNHAH KMMS	2D2-Contributor to a district determined eligible for NR by consensus through Section 106 process. Listed in CR.
110A	3A, 3B	Stockton Tunnel		1914	-----		2S- Individual property determined eligible for NR by the Keeper. Listed in CR.
<sup>1</sup> Reference numbers correspond to property numbers on the APE maps that are available for public review, on request, at the San Francisco Planning Department, 1650 Mission Street, San Francisco.							

**TABLE 4-20**

### NATIONAL REGISTER-LISTED HISTORIC PROPERTIES IN THE STUDY AREA

Ref. No. <sup>1</sup>	Alt. No.	Address	Property	Date	Parcel	District	Status
66	2	Market/Gear y/Kearny streets	Lotta Crabtree Fountain	1875	-----	KMMS	NRHP No. 1975000475
---	2, 3A, 3B	590-1209 Bush 680-1156 Sutter 600-1099 Post, and intersecting streets	Lower Nob Hill Apartment Hotel District			Lower Nob Hill Apartment Hotel District	NRHP No. 1991000957
<sup>1</sup> Reference numbers correspond to property numbers on the APE maps that are available for public review, on request, at the San Francisco Planning Department, 1650 Mission Street, San Francisco.							

Historic properties listed in the NRHP have been recognized to be nationally significant properties using criteria for evaluation developed by the National Park Service. The existing historic property that was identified in the Study Area is the Lotta Crabtree Fountain (which is also a San Francisco Landmark). The fountain, which includes a cast iron statue, was presented to the City in 1875 by Lotta Crabtree, a noted entertainer. The Lower Nob Hill Apartment Hotel District is a NRHP-listed historic district and it includes contributing buildings within the district. Table 4-13, above, provides a list of the eleven historic buildings of the Lower Nob Hill Apartment Hotel District within the Project APE.

### **Summary of Historic Architecture within the Study Area**

There are 376 properties located within the APE, including buildings, structures (e.g., Lotta's Fountain), and linear features (e.g., street lights, Stockton Tunnel). Of the 376 properties, 161 of the properties and six historic districts were included in the Study Area previously evaluated by Corbett et al. in 1997 for the Central Subway segment of the Third Street Light Rail Project. These were identified as reference numbers 1 through 158 on the APE map (in some instances, more than one property was assigned to the same reference number; e.g., 66, 66A). Refer to Corbett et al. (1997) for additional information regarding historic architectural properties reviewed in that study.

The Central Subway HAER (as summarized in this SEIS/SEIR) has updated the findings of the Corbett et al. (1997) study by conducting significance evaluations on those additional properties included in the 1997 study that have become historic (45 years of age) in the intervening years ("newly historic") and eliminating from further study those previously evaluated properties that were demolished between 1997 and 2006. It was also necessary to reevaluate properties in close proximity to the proposed station locations that were previously assigned a NRHP code of 4S (might become eligible for a separate listing in the National Register when more historical or architectural research is performed on the property) or 4D (might become eligible as contributor to a fully documented district when more historical or architectural research is performed on the district), so an explicit determination could be made about eligibility. As a result, 218 additional properties have been identified and categorized within the APE (see Table 4-21).

The remaining 218 properties in the APE of the Central Subway Project (reference numbers 159 to 376 on the APE maps) are the main focus of this SEIS/SEIR. A review of the *Directory of Historic Properties in the Historic Property Data File for San Francisco* (SHPO 2006) revealed 59 properties out of the 218 have been evaluated prior to the start of this SEIS/SEIR. Of those, 49 properties were evaluated as eligible for the NRHP (Item No. 1 in Table 4-21); nine properties were evaluated as ineligible for the NRHP; and one property was determined to be eligible for local listing only (Item No.

2). Another 55 properties have been eliminated from consideration because they have been identified as being less than 45 years of age and do not appear to possess exceptional significance to qualify them as eligible for the NRHP/CRHR (Item No. 3). These include 42 buildings and nine vacant parcels or parking lots that did not require evaluation. Another four properties have been demolished since the previous study (Item No. 4). After eliminating these 114 properties from further review; 104 properties of the 218 properties required further evaluation for historic significance for this SEIS/SEIR (Item Nos. 5

**TABLE 4-21**  
**HISTORIC ARCHITECTURAL RESOURCES WITHIN THE APE**  
**IN ADDITION TO THOSE EVALUATED IN CORBETT ET AL. (1997)**

<b>Item No.</b>	<b>NRHP Evaluation</b>	<b>Results</b>
1	Properties previously listed on the NRHP	49
2	Properties previously determined to be ineligible	10
3	Properties not evaluated- less than 45 years of age, moved, altered, or other	51
4	Properties demolished and replaced after 1997	4
5	“Newly historic” properties determined to be eligible in this study	42
6	“Newly historic” properties determined to be ineligible	62
	<b>Total</b>	<b>218</b>
Source: Garcia and Associates, February 2007.		

and 6). It was determined that 42 of the properties appear eligible for listing on the NRHP and the remaining 62 properties appear to be ineligible.

## **4.5 VISUAL AND AESTHETIC RESOURCES**

### **4.5.1 VIEWSHED**

The viewshed for the Central Subway Corridor consists of the actual area in which Project features (track, overhead catenary, stations and station entries, vent shafts) would be visible. Due to changes in topography and adjacent buildings in the surrounding built environment the viewshed varies in character and in the extent of visible areas along the Corridor. In general the viewshed consists of urban landscapes along Third Street, Fourth Street, Geary Street, Market Street, Stockton Street, Columbus Avenue and those streets which run perpendicular to the Corridor where views of Project features would be prominent. Sensitive viewing points within the viewshed include parks, residential buildings, historic properties and sidewalks that offer a view of the urban landscapes making up the viewshed.

### **4.5.2 VISUAL CHARACTER**

The visual character of the Central Subway Corridor reflects the built-up features of San Francisco's urban landscape. The landscape is characterized by streets and buildings typical of a densely built-up urban area, interspersed with some open spaces, plazas, alleyways and parking areas. Overhead utilities and signage as well as freeway overpasses, bridges, tunnels and elevated roadways punctuate the visual landscape. Views from vantage points along Third Street, Fourth Street, Stockton Street, and Columbus Avenue are summarized for each segment of the Corridor. Views are described as foreground, middle-ground or background. Generally, foreground views are of within one-quarter mile of the viewer; middle-ground views are within one mile; and the background views are beyond one mile.

#### **South of Market Segment**

The Central Subway landscape from the southern-most connection with the T-Third line at Fourth Street and King Street along surface alignments on Third and Fourth Streets to where the Project would be in subway can be characterized as a landscape in transition, from previously undeveloped vacant land and warehouses until the mid to late 1990s, to newly developed mixed commercial and residential properties and the brick-clad ballpark. Also in the foreground of the Corridor segment looking south is the elevated structure of the I-280 on- and off-ramps at King and Sixth Streets, the Caltrain tracks and station at King and Fourth Streets, and the elevated I-80 freeway viaduct between Bryant and Harrison Streets looking north from Third and Fourth Streets. The area under the I-80 freeway ramp and elevated structure between Bryant and Harrison Streets (where the tunnel portal and construction staging area is proposed for Alternative 3B) is an unpaved gravel and dirt area. The landscape in this segment is also characterized by billboards and signs and low-rise commercial buildings. Downtown highrise buildings to the east and north form the background for views in this segment (see Figure 4-6). The viaduct for the

**FIGURE 4-6****FOURTH STREET LOOKING TO I-80 (TUNNEL & STAGING AREA)**

Source: PB/Wong

I-80 Freeway and Bay Bridge ramps and support towers break the view of Downtown from many vantage points along Third and Fourth Streets.

Foreground landscapes along both Third and Fourth Streets are characterized by newly constructed multi-family residential buildings and by office buildings, with commercial properties often located on the streetfront. North of Harrison Street is Moscone Center, a light colored concrete complex, located between Third, Fourth, Mission, and Folsom Streets. This complex is a visually dominating feature in the landscape.

#### **Market Street to Chinatown (Stockton Street tunnel) Subway Segment**

This segment of the Project corridor is characterized by densely developed large buildings, typical of the Downtown commercial area of the City. Also characteristic of this segment are congested streets and sidewalks, with many large delivery trucks and buses, blocking all but foreground views of the landscape.

The one exception is Union Square at Stockton, Geary, Powell and Post Streets, where the 1998 redesigned plaza is characterized by a hardscape open space with palm trees, a cafe, a ticket center, and seating areas elevated above the street level and accessed by a series of steps and lawn terraces around the perimeter of the Park (see Figures 4-7 and 4-8). The Union Square Improvement Project was granted a Negative Declaration by the San Francisco Planning Department on August 18, 1998 (Case 98.257E).



**FIGURE 4-7**  
**UNION SQUARE LOOKING WEST**



Source: PB/Wong

**FIGURE 4-8**  
**UNION SQUARE FROM MAIDEN LANE**



Source: PB/Wong

The improvements included removal of all existing park features, except for the Dewey Monument, and replacing them with new paving, vegetation, and landscape elements and improved connections to surrounding sidewalks. The ratio between hard and softscape increased from 50/50 to 70/30. Vistas from Union Square are of large department stores along adjacent streets, with display windows facing the plaza and streets and the St. Francis Hotel to the west. Views of the eastern side of Union Square are prominent from Maiden Lane, the eastern side of Stockton Street, the northern side of Post Street, and the southern side of Geary Street. Views to the north along Stockton Street include hotels and retail/office buildings up to the Stockton Street tunnel in the background.

### **Chinatown to North Beach Subway Segment**

From the Stockton Street tunnel under Pine and California Streets, the Project Corridor shifts from the densely developed downtown commercial area characterized by multi-story large buildings, to Chinatown, characterized by a colorful shopping and residential streetscape that is heavily congested with pedestrians and vehicles, and food and merchandise displays and bright banners and awnings extending out of the storefronts onto the sidewalks (see Figure 4-9). Most buildings, with the exception of a few taller structures, are two to four stories high, with commercial uses along the street level and residential uses above. Several churches, banks, and schools are located along Stockton Street between Sacramento Street and Broadway and many of the buildings have a historic architectural character of old Chinatown. One public park, called Willie “Woo Woo” Wong Playground (the former Chinese Playground), is located one-half block to the east of Stockton Street between Sacramento and Clay Streets. Views of Pagoda Alley and Hang Ah Alley and the back of the row of buildings fronting Stockton Street (station location under Alternative 2 and 3A) are available from the Playground tennis and volleyball courts (see Figure 4-10).

As described in the previous Section 4.4.3, Historic Architectural Resources, there are architectural similarities shared with a large percentage of Chinatown buildings. Most convey Renaissance or Baroque design influenced by architects whose designs are found around the City.

Views of the two-story building (station location under Alternative 3B) on Stockton and Washington Streets are available from the playground of the Gordon Lau Elementary School to the west of Stockton Street. Distant views looking east of the Bay and the TransAmerica building are available from streets perpendicular to Stockton Street (Clay, Sacramento, and Washington Streets).

**FIGURE 4-9**

**CHINATOWN, STOCKTON STREET AT SACRAMENTO**  
**814-828 STOCKTON STREET LOCATION**



Source: PB/Wong

**FIGURE 4-10**

**WILLIE “WOO WOO” WONG PARK PLAYGROUND VIEW**



Source: PB/Wong



**North Beach Segment (Construction Tunnel Variant Option)**

The streetscape from Green Street to Columbus Avenue at Union Street is representative of the historic North Beach neighborhood and is characterized by restaurants and shops. Columbus Avenue is a wide, four-lane thoroughfare and is heavily used by buses, trucks and automobiles. Tables and chairs dot the sidewalks and are used by coffee houses, cafes and restaurants for added table space and are a buzz of activity on most days of the week. Street banners and colorful signage characterize this streetscape. At the end of the Study Area, along Columbus Avenue, between Union and Filbert Streets, is Washington Square (see Figure 4-11). This historic park is lined with mature trees, statues, a children's playground and a pond (southwest corner). This open green-space is regularly used to walk dogs, do Tai Chi in the mornings, sun bathe in the good weather, and is also used for art shows and festivals. The large cathedral of Saints Peter and Paul is the dominant landscape feature at the north side of the park.

**FIGURE 4-11**  
**WASHINGTON SQUARE PARK**



Source: PB/Wong

## **4.6 UTILITIES AND ENERGY**

### **4.6.1 UTILITIES**

Each Central Subway alternative alignment has extensive underground and above ground utilities serving the residents and businesses adjacent to the alignments. The primary utilities serving the Corridor are:

- City and County of San Francisco Public Utilities Commission (PUC) underground sewer system;
- City and County of San Francisco Water Department (SFWD) potable water lines;
- San Francisco Fire Department (SFFD) auxiliary water supply service (AWSS) lines;
- Pacific Gas and Electric (PG&E) underground natural gas lines;
- PG&E electrical transmission and distribution lines and ductbanks (overhead and underground);
- AT&T underground and overhead telecommunications lines (although AT&T has the most extensive network of underground telecommunications cables, MCI, Sprint, and various other telecom providers also have a limited number of underground cables in the Corridor);
- NRG Energy Center steam lines;
- Municipal Railway (Muni) traction power ductbanks and overhead contact system.

Other utilities in the Study Area include:

- Electrical and communications vaults located along the ductbanks alignment to facilitate the installation of conductors and cables;
- North Point trunk sewer line (96-inch) which runs below Mission Street, crosses under Third Street, and continues to Fourth Street where it turns south to Howard Street and continues west on Howard Street;
- Sewer manholes used for maintaining the sewer mains;
- Water main gate valves and other appurtenances for isolating sections of the main for maintenance;
- Service laterals to adjacent residences and businesses for all utilities.

### **4.6.2 ENERGY**

#### **Transit Traction Power System**

More than half of Muni's transit fleet--trolley buses, cable cars, streetcars, and light rail vehicles--use electrical power for operation. The diesel buses are the only mode that uses fossil fuel. Muni's electric

fleet operates with power that is generated at the San Francisco Public Utilities Commission (PUC) Hetch Hetchy hydroelectric facility in the Sierra foothills, and is distributed via a long distance transmission system to customers in San Francisco and the Peninsula. Under City agreements, Hetch Hetchy provides power to Muni that is transmitted to the electric fleet through Muni's traction power substations and overhead wire system. The trolley bus and rail modes each have their separate substations and overhead systems. Four new traction power substations and a new overhead wire system were built along the Third Street Corridor as part of the Phase 1 for the T-Third line.

## 4.7 GEOLOGY AND SEISMICITY

### 4.7.1 TOPOGRAPHY

The topography of the Study Area is characterized by a series of gently sloping hills with intervening alluvial-filled valleys. The Central Subway alternative alignments start in the flat-lying area south of Brannan Street, near Mission Creek, where the surface elevation is approximately 0 feet San Francisco City Datum (SFCDD).<sup>43</sup> The topography of the Study Area gently slopes upward along the alignment reaching a high point ground elevation of approximately 172 feet SFCDD at Stockton and California Streets, where it begins to slope downward.<sup>44</sup> The ground surface elevation at Stockton and Washington Streets terminus is approximately 102 feet SFCDD and approximately 70 feet on Columbus Avenue, near the terminus of the North Beach Construction Variant. The approximate surface elevations along other portions of the alignment are presented in Table 4-22.

**TABLE 4-22**  
**APPROXIMATE SURFACE ELEVATIONS**  
**ALONG CENTRAL SUBWAY ALIGNMENTS**

Location	Approximate Elevation (feet, SFCDD)
<i>Central Subway (Ground Surface Elevations)</i>	
Fourth and Bryant Streets	0
Third and Bryant Streets	7
Kearny and Market Streets	33
Stockton and Geary Streets	49
Stockton and California Streets	172
Stockton and Sacramento Streets	128
Stockton and Washington Streets	102
Notes: SFCDD = +8.616 feet National Geodetic Vertical Datum Sources: USGS, 1973, San Francisco North Quadrangle, 7½-minute series (Topo). USGS, 1980 San Francisco South Quadrangle, 7½-minute series (Topo). ICF Kaiser, 1996, Central Subway Alignment, Plan and Profile, October.	

### 4.7.2 GEOLOGY

San Francisco is located in the Coast Range geomorphic province of California. The regional topography is characterized by relatively rugged bedrock hills surrounded by flat, low-lying valleys underlain by

<sup>43</sup> SFCDD = +8.616 feet National Geodetic Vertical Datum.

<sup>44</sup> ICF Kaiser. Preliminary Plans and Profile, Central Subway Alignment, Stockton/Third/Fourth Streets. 1 October, 1996.

Quaternary sedimentary deposits or artificial fill. Bedrock in the area consists of the highly deformed Franciscan Formation.<sup>45</sup> The Study Area is underlain by four general types of near-surface geologic material: 1) bedrock, 2) dune sand, 3) artificial fill, and 4) surficial deposits.<sup>46,47</sup>

Along the Central Subway Corridor, the Fourth Street tunnel and surface alignment is located in an area of artificial fill. The Third Street tunnel and surface alignment is located in an area of surficial deposits that extends north from approximately Townsend Street. Dune sand deposits are encountered from approximately Harrison Street to Geary and Sutter Streets. Bedrock is encountered from approximately Geary Street to the northern end of the alignment in the Chinatown area.<sup>48, 49</sup>

### **Bedrock**

Bedrock is present in the Study Area at depths ranging from over 249 feet to outcropping at the surface.<sup>50</sup> The bedrock consists of the Jurassic- to Cretaceous-aged Franciscan Formation. The Franciscan Formation varies in composition, consisting of graywacke sandstones, shales with thin-bedded sandstones, cherts and shales, and intruded serpentine. Exposed bedrock in the Study Area consists of graywacke sandstones in the Nob Hill area.<sup>51</sup> Locally, bedrock has been crushed and sheered through geologic and tectonic processes making their engineering properties variable.<sup>52</sup>

### **Dune Sand**

Over half of the City of San Francisco is underlain by Quaternary-age dune sand. The sands are wind-deposited from sources historically located near Ocean Beach. The sands are fine- to medium-grained, well sorted, and generally yellowish brown in color.<sup>53</sup> Thickness of the sand in the Study Area along Third Street ranges up to 98 feet.<sup>54</sup> In places within the Study Area, the dense sands are overlain by artificial fill. The engineering properties of the sand vary depending on the level of saturation. Saturated dune sand is susceptible to liquefaction; unsaturated, well compacted sand provides moderate to high shear strength, when confined.<sup>55</sup>

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<sup>45</sup> Schlocker, J. Geology of the San Francisco North Quadrangle, California, U.S. Geological Survey, Professional Paper, 782. 1974.

<sup>46</sup> Ibid.

<sup>47</sup> Bonilla, M. Preliminary Geologic Map of the San Francisco South Quadrangle and Part of the Hunters Point Quadrangle, California, U.S. Geological Survey Miscellaneous Field Studies, Map MF-311. 1971.

<sup>48</sup> ICF Kaiser. Preliminary Plans and Profile, Central Subway Alignment, Stockton/Third/Fourth Streets. October 1, 1996.

<sup>49</sup> Geotechnical Consultants, Inc. Geotechnical Report for MUNI Metro East Facility, LRT Extension, San Francisco, California. 11 August, 1993.

<sup>50</sup> Phillips, S.P., S. Hamlin, and E. Yates. Geohydrology, Water Quality, and Estimation of Groundwater Recharge in San Francisco, California, 1987-1992, U.S. Geological Survey Water Resources Investigations, Report 13-4019. 1993.

<sup>51</sup> Schlocker, J. Geology of the San Francisco North Quadrangle, California, U.S. Geological Survey, Professional Paper, 782. 1974.

<sup>52</sup> Ibid.

<sup>53</sup> Ibid.

<sup>54</sup> Lee & Praszker. Geotechnical Report, Idealized Subsurface Profiles, San Francisco Museum of Modern Art, San Francisco, California. 14 August, 1990.

<sup>55</sup> Schlocker, J. Geology of the San Francisco North Quadrangle, California, U.S. Geological Survey, Professional Paper 782. 1974.



### **Artificial Fill**

Much of the Study Area consists of fill areas where fill materials were deposited on Bay Mud or directly into open waters of the Bay.<sup>56</sup> The practice of creating land by placing fill on tidal flats along the eastern margins of San Francisco began in the 1800s.<sup>57</sup> Fill was placed on mudflats and in estuaries within the South of Market areas of the Central Subway Corridor.

The fill material generally consists of clay to cobble-sized material including dune sand that was excavated during the development of San Francisco and hauled to the waterfront and dumped on top of the Bay Mud or other surface deposits. The fill also includes building demolition rubble (concrete, bricks, and wood) from the 1906 earthquake and fire.<sup>58</sup> Organic and inorganic debris, refuse, and other materials were also deposited in the fill areas.

In many areas, the fill is underlain by a soft, silty clay (Bay Mud). The Bay Mud has a high water content, is plastic, weak, and highly compressible. When overlain by fill, it becomes unstable.<sup>59</sup> Thickness of the Bay Mud reaches to a depth of over 25 feet in the Study Area.<sup>60</sup> Because the fill was largely placed before or around the 1950s, there was little control or engineering of the fill. Therefore, the material is highly variable with respect to compaction and settlement. Where the fill is saturated in low-lying areas, it is also subject to liquefaction during earthquakes. Numerous fill areas within the Study Area experienced differential settlement, ground failure, and surface cracking during the 1989 Loma Prieta earthquake.

### **Surficial Deposits**

The valleys between the bedrock hills of the Study Area are generally filled with unconsolidated surficial deposits consisting of Quaternary age slope debris and ravine fill or alluvial deposits. These deposits have been variously classified by different geologists and are not well differentiated in the Study Area. The slope debris and ravine deposits generally consist of angular rock fragments in a matrix of sand, silt, and clay derived from nearby bedrock hills. Transportation of materials downslope was mostly through colluvial processes such as creep, mud flows, and debris flows. Alluvial deposits were generally associated with historic streams, such as Mission Creek, located just south of the Study Area. These

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<sup>56</sup> Ibid.

<sup>57</sup> Goldman, H., Editor. *Geologic and Engineering Aspects of San Francisco Bay Fill*, California Department of Conservation, Division of Mines and Geology, Special Report 97. 1969.

<sup>58</sup> Ibid.

<sup>59</sup> Goldman, H., Editor. *Geologic and Engineering Aspects of San Francisco Bay Fill*, California Department of Conservation, Division of Mines and Geology, Special Report 97. 1969.

<sup>60</sup> Lee & Praszker. *Geotechnical Report, Idealized Subsurface Profiles*, San Francisco Museum of Modern Art, San Francisco, California. 14 August, 1990.

undifferentiated deposits can reach up to 100 feet in thickness within the Study Area.<sup>61</sup> The engineering characteristics of these materials is highly variable depending on the nature and origin of the deposits.<sup>62</sup>

#### 4.7.3 SEISMICITY

The City of San Francisco and the Study Area are located in a region of northern California with a high degree of seismic activity.<sup>63</sup> There are no known active faults that traverse the Study Area; however, several nearby active faults could affect the area. Significant regional faults that could serve as sources of seismic activity include the San Andreas Fault, located approximately 8 miles west of Downtown; the Hayward Fault, located in the East Bay approximately 9 miles east of Downtown; the Calaveras Fault, located approximately 25 miles east of Downtown; the Rodgers Creek Fault, located approximately 25 miles northwest of Downtown and the San Gregorio Fault, located approximately 14 miles west of Downtown.

Active faults in the Bay Area are presented in Table 4-23. Inactive faults within the City of San Francisco are unlikely to generate earthquakes, but numerous other active faults in northern California can generate earthquakes. Earthquakes generated from active faults can generate significant seismic hazards within the Study Area. This was evidenced in the 1989 Loma Prieta Earthquake, where the epicenter was located over 62 miles from San Francisco.

The measure of an earthquake's magnitude ( $M$ ) is reported in moment magnitude ( $M_w$ ); a measurement of the energy released by the earthquake. Moment magnitude is calculated based on the length and width (area) along the fault plane that experienced movement. It has commonly replaced the familiar Richter (or "local") magnitude ( $M_L$ ) due, in part, to the difficulty in differentiating the size of large (larger than  $M_L$  7-1/2) magnitude earthquakes.<sup>64</sup>

The California Department of Conservation, Division of Mines and Geology (CDMG) has developed estimates for parameters related to future activity for major faults in California based on length, width, and slip rate. Using these parameters, maximum moment magnitudes ( $M_{max}$ ) have been developed for

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<sup>61</sup> Schlocker, J. Geology of the San Francisco North Quadrangle, California, U.S. Geological Survey, Professional Paper 782. 1974

<sup>62</sup> Ibid.

<sup>63</sup> Perkins, J. and J. Boatwright. *The San Francisco Bay Area - On Shaky Ground*, Association of Bay Area Governments. April, 1995.

<sup>64</sup> Ibid.

**TABLE 4-23**  
**MAJOR SAN FRANCISCO BAY AREA**  
**EARTHQUAKE FAULTS AND THEIR MAXIMUM MOMENT MAGNITUDE**

<b>Fault Name</b>	<b>Length (miles)</b>	<b>Slip Rate (mm/year)</b>	<b>Maximum Magnitude (M<sub>max</sub>)</b>	<b>Return Interval (years)</b>	<b>Nearest Distance from Downtown San Francisco (miles)</b>
San Andreas-Peninsula Segment	55	17±3	7.1	400	8
San Andreas-North Coast Segment	200	24±3	7.6	NA	17
San Andreas-Santa Cruz Segment	23	14±3	7.0	400	48
Northern Hayward	27	9±1	6.9	167	9
Southern Hayward	27	9±1	6.5	167	15
Entire Hayward	53	9±1	7.1	167	9
San Gregorio	80	5±2	7.3	400	14
Northern Calaveras	32	6±2	6.8	146	25
Rogers Creek	39	9±2	7.0	222	25
Concord-Green Valley	40	6±3	6.9	176	24
<p>Notes: mm = millimeters.  Slip rate based on historic earthquake records and geologic evidence.  M<sub>max</sub> = Maximum moment magnitude.  Return interval calculated using slip rate in relation to the displacement occurring during the M<sub>max</sub> earthquake.  NA = Not calculated by CDMG.</p> <p>Sources: California Department of Conservation, Division of Mines and Geology, 1996, <i>California Fault Parameters, San Francisco Bay Area Faults</i>.  Wells, D.L. and Coppersmith, K.J., 1994, New empirical relationships among magnitude, rupture length, rupture width, rupture area, and surface displacement. <i>Seismological Society of America Bulletin</i>, v. 84, no. 4, pp. 974-1002.</p>					

each segment of major faults.<sup>65, 66</sup> The slip rate of a fault is estimated based on historic earthquake records and geologic evidence. Although earthquakes cannot be predicted, return intervals are calculated using the slip rate in relation to the displacement occurring during the  $M_{\max}$  earthquake.<sup>67</sup> Major faults proximate to the Study Area, their  $M_{\max}$ , return interval, and distance from Downtown San Francisco are presented in Table 4-23. The Working Group on California Earthquake Probabilities has estimated that there is a 62 percent probability that one or more major, damaging earthquakes ( $M_L$  6.7 or greater) will occur in the San Francisco Bay Region during the 30-year period between 2002 and 2031.<sup>68</sup>

The Bay Area faults with the greatest slip rates include the San Andreas Fault, Hayward/Rodgers Creek Fault, Calaveras Fault, and San Gregorio Fault. Each of these faults have displayed evidence of historic earthquake activity and have potential to generate large-magnitude earthquakes. The 1989 Loma Prieta Earthquake had a  $M_w$  of 6.9; while the 1906 San Francisco Earthquake is estimated to have had a  $M_w$  of approximately 7.9.<sup>69</sup>

The design parameters to be used for construction under the 1994 Uniform Building Code (UBC) Section 1629A.2.6 require the determination of a Design-Basis Earthquake (DBE) for each specific project location.<sup>70</sup> The DBE is defined as the seismic event that has a 10 percent chance of exceedance in 50 years.<sup>71</sup> It is specific to a project location and is based on the  $M_{\max}$  of earthquakes for all faults located within reasonable distance of the project and the seismic characteristics of the geologic material underlying the project. The DBE calculation results in the determination of a specific set of ground motion values (measured by a strong motion seismograph as the acceleration of gravity) for a project site.

The ground motion values for the Study Area will vary along the alignment. Ground motion values must be carefully developed for the Study Area to determine appropriate DBE parameters. The DBE parameters for this Project will require evaluation using the International Building Code (IBC) 2003 standards which vary from the 1994 UBC standards and will be established during Project design.<sup>72, 73</sup>

<sup>65</sup> California Department of Conservation, Division of Mines and Geology. California Fault Parameters, San Andreas Fault Zone. 1996.

<sup>66</sup> California Department of Conservation, Division of Mines and Geology. California Fault Parameters, San Francisco Bay Area Faults. 1996.

<sup>67</sup> Peterson, M. California Department of Conservation, Division of Mines and Geology. Personal communication with Baseline Environmental Consulting. 22 November, 1996.

<sup>68</sup> U.S. Geological Survey. Working Group on California Earthquake Probabilities. Probabilities of Large Earthquakes in the San Francisco Bay Region: 2002-2031, California, Open File Report 03-214. 2003.

<sup>69</sup> Bray, J. and Kelson, K. Observations of Surface Fault Rupture from the 1906 Earthquake in the Context of Current Practice, Earthquake Spectra, Special Issue II, Vol. 22. April 2006.

<sup>70</sup> Uniform Building Code. International Conference of Building Officials. 1994

<sup>71</sup> Ibid.

<sup>72</sup> Ibid.

<sup>73</sup> Sydnor, R. California Department of Conservation, Division of Mines and Geology. Personal communications with Baseline Environmental Consulting. 21 November, 1996.

## Groundshaking

The occurrence of an earthquake produces seismic waves that emanate in all directions from the origin of the earthquake, or epicenter. The seismic waves cause groundshaking, which is typically strongest at the epicenter and diminishes (attenuates) as the waves move through the earth away from the source of the quake. The severity of groundshaking at any particular point is referred to as "intensity" and is a subjective measure of the effects of groundshaking on people, structures, and earth materials.<sup>74</sup> The effects of groundshaking on structures depends on the design, quality of construction, and foundation materials. A critical factor affecting intensity at a site is the geologic material underneath that site. Deep, loose soils tend to amplify and prolong the shaking; soft clay and silty clay amplify the most. Igneous rock amplifies ground shaking the least.<sup>75</sup>

During an earthquake, portions of the Study Area are subject to higher groundshaking risks than others. Where the underlying geologic material consists of unconsolidated sediments, artificial fills, and Bay Mud, groundshaking during an earthquake can be amplified, resulting in greater damage to structures.<sup>76</sup> The ABAG has mapped and classified San Francisco according to groundshaking amplification. The Study Area is located within areas classified from "Extremely High" shaking amplification, the highest risk classification, to "Low" shaking amplification.<sup>77</sup> The areas of high amplification are those where the underlying geologic materials consist of artificial fill, dune sand, and surficial (alluvial/colluvial) sediments. Higher risk areas are typically underlain by Bay Mud, as present in the South of Market area. The areas of lower amplification are those underlain by bedrock in the Nob Hill area.

## Liquefaction

A secondary effect of amplified ground shaking in unconsolidated (cohesionless) sediments, such as silts and sands, is liquefaction. Liquefaction occurs when saturated, cohesionless soils become "liquid" due to groundshaking.<sup>78</sup> When a soil liquefies, it loses its load-bearing strength. Liquefaction can result in a drop in the ground surface or cause buckling, rippling, and cracking of the ground surface. This can result in roads, rail lines, or buildings being displaced or severed. Liquefaction resulted in differential

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<sup>74</sup> Perkins, J. and J. Boatwright. *The San Francisco Bay Area - On Shaky Ground*, Association of Bay Area Governments. April, 1995.

<sup>75</sup> Ibid.

<sup>76</sup> Ibid.

<sup>77</sup> Association of Bay Area Governments. *On Shaky Ground City Maps*, City of San Francisco. October, 1995.

<sup>78</sup> Liquefaction is the rapid transformation of loose, saturated sand or soil to a fluid-like state due to groundshaking during an earthquake. The loss of pore pressure in the material causes it to lose its shear strength resulting in soil losing its bearing capacity and spreading laterally or vertically.

settlement, sand boils, and lateral spreading within the Study Area during the 1989 Loma Prieta Earthquake. Geologic profiles of the Study Area for each alternative are shown in Section 5.7 of the SEIS/SEIR.

## **4.8 HYDROLOGY AND WATER QUALITY**

### **4.8.1 REGULATORY FRAMEWORK**

The U.S. Environmental Protection Agency (EPA) is responsible for enforcing the federal Clean Water Act of 1972 (amended in 1987). The Clean Water Act (CWA) established the National Pollution Discharge Elimination System (NPDES) program to regulate municipal and industrial wastewater discharges. The CWA provides that the discharge of pollutants to waters of the United States from any point source is unlawful, unless the discharge is in compliance with an NPDES permit.

In 1990, the EPA published final regulations that establish storm water permit application requirements for specific categories of industries. The regulations require that discharges of storm water associated with construction activities from soil disturbances of five acres or more must be regulated as an industrial activity and covered by an NPDES permit. On December 8, 1999, the EPA finalized regulations (Phase II Rule) which expand the existing NPDES program to address storm water discharges from construction sites that disturb land equal to or greater than one (1) acre and less than five (5) acres (small construction activity).<sup>79</sup> In California, the EPA has delegated responsibility for the program to the state Water Resources Control Board (WRCB) and the California Regional Water Quality Control Boards (RWQCB).

The WRCB has adopted general NPDES permit requirements for owners of land where construction activities occur. These requirements include: 1) elimination or reduction of non-storm water discharges to the storm sewer system, 2) development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), and 3) inspections of storm water pollution prevention measures. The RWQCB is responsible for adopting, monitoring, and enforcing compliance with the NPDES permit requirements and Waste Discharge Requirements for point and non-point sources.

San Francisco's combined storm and sanitary sewer system collects storm water and sewage and conveys the combined flows to wastewater treatment facilities; therefore, construction operations that drain to the sewer system are not required to comply with the general permit requirements for non-point source discharges or preparation of SWPPPs.<sup>80</sup> However, under San Francisco Ordinance 19-92, Sections 118 and 123, discharges of materials, including soil, sand, or gravel that can obstruct the sewers are prohibited.<sup>81</sup> Best Management Practices (BMPs) must be implemented at construction sites to ensure that unauthorized discharges do not occur. During construction activities for the Project, BMPs for non-point source discharge control will be required.

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<sup>79</sup> National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated With Construction Activity (General Permit) Water Quality Order 99-08-DWQ.

<sup>80</sup> Lee, T. Section Engineer, San Francisco Department of Public Works, Bureau of Environmental Regulation and Management, personal communication with BASELINE, 25 November, 1996.

<sup>81</sup> Ibid.

The groundwater underlying the Study Area and the surface waters of San Francisco Bay constitute the receiving waters, which could be affected by implementation of the Central Subway Alternatives. The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) was first adopted by the RWQCB in 1975, and amended most recently in 2005, to implement state and federal laws requiring the preservation and enhancement of water quality.<sup>82</sup> The Basin Plan identifies the beneficial uses of and water quality objectives for water resources within distinct subregions of the San Francisco Bay Region. The Study Area is within the Central Bay subregion, an inland surface water resource. Current beneficial uses include industrial process and industrial service water. Potential beneficial uses include municipal and agricultural water.

The Basin Plan also defines water quality objectives for surface and subsurface waters within the San Francisco Bay Basin. The water quality objectives specifically identify recommended contaminant concentrations for the protection of human health and aquatic life for the groundwater and the saline marine surface waters of the Bay. The groundwater in the low-lying portions of the Study Area is brackish and is not typically used as a water supply source.<sup>83</sup>

During times of normal (dry and wet) weather, combined flows to the sewer system are treated prior to discharge to surface waters. In some wet weather events, the Southeast and North Point treatment plants cannot accommodate all of the combined storm drain/sewer system flows, resulting in partially treated discharges to the Bay. The points of discharge for wet weather overflows in the Study Area are located along the eastern waterfront.<sup>84,85</sup>

Direct discharge of partially treated wastewater is allowed by the RWQCB under the Wet Weather Overflow Control Strategy under an NPDES permit issued by the RWQCB.<sup>86</sup> The rationale for allowing the discharges recognizes that adverse impacts of the discharges on the beneficial uses of the Bay are minimal compared to the cost of eliminating wet weather overflows.

Protection of groundwater quality in the Study Area is also the responsibility of the RWQCB through authority under the Porter Cologne Water Quality Control Act of 1969. Although the Study Area is not located within an area identified as a major groundwater basin and groundwater is not used as a municipal

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<sup>82</sup> California Regional Water Quality Control Board, San Francisco Bay Region. Water Quality Control Plan, San Francisco Bay Basin (Region 2), Amended November 2005.

<sup>83</sup> Ibid.

<sup>84</sup> Loiacono, J. Section Manager, Environmental Engineering, San Francisco Department of Public Works, Southeast Water Pollution Control Plant. Personal communication with BASELINE, 20 November, 1996.

<sup>85</sup> San Francisco Planning Department, *San Francisco Waterfront Land Use Plan, Final Environmental Impact Report*. January 8, 1997.

<sup>86</sup> California Regional Water Quality Control Board. NPDES Permit No. CA0037664, Waste Discharge Requirements for City and County of San Francisco, Southeast Water Pollution Control Plant, North Point Wet Weather Facility and Bayside Wet Weather Facilities. June 2002.



or domestic water supply, the RWQCB enforces the provisions of the State statutes, which protect groundwater resources.

The San Francisco Department of Public Health (DPH) implements the state underground storage tank regulations (California Code of Regulations Title 23) within the Study Area. These regulations include the requirements for groundwater investigations in the case of fuel releases.

The San Francisco Public Utilities Commission (SFPUC) regulates the discharge and potential discharge of industrial wastewater, including dewatering effluent, to the combined sewer system under the San Francisco Public Works Code - Industrial Waste Ordinance and Department of Public Works Order No. 158170, which cites local discharge limits. Discharges resulting from dewatering of construction sites, wells drilled to investigate or mitigate a suspect contaminated site, or any other activities which generate wastewater other than from routine commercial/industrial processes, must comply with the Requirements for Batch Wastewater Discharges issued by the BERM.<sup>87</sup> The requirements specify analytical approaches and discharge limits for organic and inorganic constituents in discharges. Applications for permits to perform batch wastewater discharges must be submitted to BERM for approval. In areas along the alignment where groundwater dewatering will be necessary (for example, tunnels and underground stations), permits to perform batch wastewater discharges will be required.

#### 4.8.2 SURFACE WATER

The climate of the Study Area is characterized by near-shore Mediterranean conditions. The mean annual temperature in San Francisco is 58° Fahrenheit. Rainfall is variable throughout San Francisco and generally increases with elevation west of the Study Area. The range of average annual rainfall within the Study Area is about 20 inches per year.<sup>88</sup> More than 90 percent of the rainfall occurs between November and April.<sup>89</sup>

Runoff from paved urbanized areas, such as the Study Area, is recognized as a principle non-point source of pollutants contributing to water quality degradation. The pollutants typically carried by urban runoff

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<sup>87</sup> City and County of San Francisco, Public Utilities Commission, Bureau of Environmental Regulation and Management. Requirements for Batch Wastewater Discharges. 11 April, 1994.

<sup>88</sup> Rantz, S.E. Mean Annual Precipitation Depth Frequency Data for the San Francisco Bay Region, California, U.S. Geological Survey, Open File Report 3019-21, 1971

<sup>89</sup> Ibid.

include suspended sediments, heavy metals, and petroleum (particularly oil and grease components). Roadway use contributes significantly to the generation of contaminants in urban runoff. Tire and pavement wear, vehicle rust, mud, dust, and car exhaust produce solid particles on roadways. Petroleum products leaking or spilled from vehicles and emitted with exhaust also accumulate on roadway surfaces. Heavy metals are contributed through exhaust, corrosion or wear of metallic vehicle components, roadway structures, and tires. These contaminants build up on the paved areas and are entrained in runoff during rainstorms.

Surface runoff throughout most of the Study Area is collected into the City's combined storm and sanitary sewer system. The combined sewer system carries both sanitary sewage (municipal and industrial wastewater) and, during rainy weather, rainfall runoff from streets, sidewalks, and building roofs. Streams or surface drainage systems are not located in the Study Area.

There are no perennial surface waters in the Study Area. During times of dry weather, surface water flows from the Study Area are routed to the Southeast Water Pollution Control Plant located on Jerrold Avenue and Phelps Street, where they are treated and discharged to San Francisco Bay. During rainy weather, the North Point Water Pollution Control Plant, located on Bay Street and The Embarcadero, is operational for the flows from the northern part of the Study Area; the Southeast Plant also processes wet weather flows.<sup>90</sup> During major storms, the storage capacities of the combined sewers and the treatment plants are exceeded and combined flows of sewage and storm water overflow into the Bay through overflow points along the bayside waterfront. There are a total of 28 overflow points along the bayside waterfront including Mission Creek.<sup>91,92</sup>

#### 4.8.3 FLOODING/TSUNAMIS

San Francisco does not participate in the Federal Emergency Management Agency's floodplain identification program and no flood plains have been identified within San Francisco.<sup>93</sup> The Study Area elevations range from approximately 0 feet San Francisco City Datum (SFCD) at the southern end of the Central Subway Corridor at King and Fourth Streets, to a high point of approximately 172 feet SFCD along Stockton Street between Pine and California Streets. At the north end of the Corridor along Columbus Avenue, the elevation is approximately 70 feet SFCD.<sup>94</sup>

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<sup>90</sup> Loiacono, J. Section Manager, Environmental Engineering, San Francisco Department of Public Works, Southeast Water Pollution Control Plant. Personal communication with BASELINE, 20 November, 1996.

<sup>91</sup> Ibid.

<sup>92</sup> California Regional Water Quality Control Board. Order No. 95-039, NPDES Permit No. CA0038610, Waste Discharge Requirements for City and County of San Francisco, Bayside Wet Weather Facilities, 15 February, 1995.

<sup>93</sup> Federal Emergency Management Agency. National Flood Insurance Program, Community Status Book, January, 1997.

<sup>94</sup> San Francisco Enterprise GIS, Elevation Contours Data Set developed from Digital Elevation Model used for 2001 orthophotography. San Francisco City Datum is equal to +8.616 feet National Geodetic Vertical Datum (NGVD).

The 100-year high tide (the height that is equaled or exceeded with an average frequency of once every 100 years) would reach an elevation of approximately -2.0 feet SFCD.<sup>95</sup> Inundation of the Study Area from a 100-year high tide would not be expected.

The projected sea level rise in the San Francisco Bay has historically been estimated to be approximately 1.25 feet in the next 100 years.<sup>96</sup> However in the last 50 years, the rise in sea-level has increased by 0.023 inches/year, nearly double the previous rate.<sup>97</sup> By 2100, using these modified rates, future sea-level rise due to the greenhouse effect can be projected to range from 20 inches to over 120 inches.<sup>98</sup> An increase of 5 feet to the 100-year high tide (currently -0.7 feet SFCD) would result in an elevation of about +4.3 feet SFCD.

Portions of the Study Area are located near the landward edge of an area designated as possibly being inundated by tsunami waves generated by earthquakes.<sup>99</sup> The potential tsunamis considered for the hazard evaluation would be similar to the wave produced by the 1964 tsunami from the Alaska earthquake which generated a wave run-up (height of wave above water level at the time of the event) of 7.40 feet at the Golden Gate.<sup>100</sup> The narrow mouth of the Golden Gate limits the extent of tsunami incursion into the Bay; the run-up attenuates with distance from the Golden Gate. The estimated run-up from a tsunami with 100-year return period (i.e., expected to occur once every 100 years, on average) range from 5.6 feet near the Ferry Building to 4.9 feet near China Basin.

#### 4.8.4 GROUNDWATER

The Study Area for the Central Subway alignment alternatives is underlain by the Downtown Basin as defined by the U.S. Geological Survey.<sup>101</sup> The groundwater basin is separated by hills (bedrock outcrops) along the eastern portion of San Francisco and occupies the intervening valleys.

Depths to groundwater in the Study Area are highly variable due to geologic and geographic conditions. Groundwater occurs at depths along the Central Subway Corridor ranging from approximately 40 feet below ground surface near Stockton and Washington Streets to 10 feet below ground surface near Fourth

<sup>95</sup> Mission Bay Plan FEIR, Volume 2, page VI.L.9 and Volume 4, page XV.J.4

<sup>96</sup> Titus, J., and V. Narayanan. The Probability of Sea Level Rise, U.S. Environmental Protection Agency, EPA 230-R-95-008. October, 1995.

<sup>97</sup> Gornitz, V. and L. Lebedeff. "Global Sea-Level Changes During the Past Century" published in Sea-Level Change and Coastal Evolution, SEPM Publication, No. 41, p. 3-16. 1987.

<sup>98</sup> Gleick, P. and E. Maurer. Assessing the Costs of Adapting to Sea Level Rise, A Case Study of San Francisco Bay, Pacific Institute for Studies in Development, Environment and Security. February, 2004.

<sup>99</sup> Ritter, J.R. and W.R. Dupre. Map showing potential inundation by tsunami in the San Francisco Bay Region, California. U.S. Geological Survey Miscellaneous Field Studies Map MF-480. 1972

<sup>100</sup> Garcia, A.W., and J.R. Houston. Type 16 Flood Insurance Study: Tsunami Predictions for Monterey and San Francisco Bays and Puget Sound, Final Report, prepared for the Federal Insurance Administration, Department of Housing and Urban Development, Technical Report H-75-17. November, 1975.

<sup>101</sup> Phillips, S.P., S. Hamlin, and E. Yates. Geohydrology, Water Quality, and Estimation of Groundwater Recharge in San Francisco, California, 1987-1992, U.S. Geological Survey Water Resources Investigations, Report 13-4019. 1993.

and Harrison Streets.<sup>102</sup> At Market Street, where the Central Subway tunnel would cross over or under the existing BART/Muni Metro tunnels, the groundwater table was last measured in 2005 to be approximately 25 feet below the surface. Given the depth of the Powell Street Station, sump pumps are required to continuously pump water from the station at the rate of 100,000 to 500,000 gallons a day.

Within the Downtown Basin, the groundwater generally flows east toward the Bay. Groundwater flows from areas of high head to areas of relatively lower head. Therefore, the groundwater flows in the basins would be expected to be from the uplands and hills (recharge areas) toward lowlands and valleys (discharge areas).

This pattern can vary locally due to unusual subsurface conditions, such as heterogeneous geology, steep slopes, and undulating bedrock topography. Human activities such as groundwater pumping or injection can also affect the local groundwater flow direction.<sup>103</sup>

The dominant source of groundwater recharge in the Downtown Basin is leakage from the sewer and water delivery pipes, which form a dense network in the Downtown area. Due to the relatively high water table in the Downtown Basin, dewatering operations are required for building foundations, underground structures (such as BART/Muni Metro stations), and construction sites. This dewatering constitutes the primary source of discharge from the aquifer. Most of the pumped groundwater is discharged directly to the City storm sewer system.

The only known uses of groundwater in the Downtown Basin are limited non-potable uses such as fountains and HVAC systems. Potential future uses of groundwater in the Downtown Basin would also be limited to non-potable uses, because the basin contains high levels of groundwater pollutions and meets the exemption criteria of the State Water Resources Control Board (SWRCB) Sources of Drinking Water Policy.<sup>104</sup> Since the Downtown Basin is almost entirely covered with impermeable surfaces, leaking sewer lines provide the majority of the groundwater recharge. In addition, historic industrial development and placement of artificial fill have contributed to the degradation of groundwater quality.

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<sup>102</sup> Lee & Praszker. Geotechnical Report, Idealized Subsurface Profiles, San Francisco Museum of Modern Art, San Francisco, California. 14 August, 1990.

<sup>103</sup> San Francisco Public Utilities Commission. San Francisco Groundwater Master Plan. 1997

<sup>104</sup> San Francisco Bay Regional Water Quality Control Board. Update on the Status of the Groundwater Basin Plan Amendments (August 2004) available at: [http://www.swrcb.ca.gov/rwqcb2/basin\\_plan\\_ammend.htm](http://www.swrcb.ca.gov/rwqcb2/basin_plan_ammend.htm).

## **4.9 BIOLOGICAL AND WETLAND RESOURCES**

### **4.9.1 SPECIAL-STATUS SPECIES**

Special-status species are plants and animals that are legally protected under the state and/or federal Endangered Species Acts or other regulations, as well as other species that are considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitat.<sup>105</sup> Special-status species include:

- Listed (rare, threatened, or endangered) and candidate species for listing by the California Department of Fish and Game (CDFG);
- Listed (threatened or endangered) and candidate species for listing by the US Fish and Wildlife Service (USFWS);
- Species considered to be rare or endangered under the conditions of Section 15380 of the CEQA Guidelines, such as those identified on lists 1A, 1B, and 2 in the Inventory of Rare and Endangered Vascular Plants of California by the California Native Plant Society (CNPS);
- Other species that are possibly considered sensitive or of special concern due to limited distribution or lack of adequate information to permit listing or rejection for state or federal status, such as those included on lists 3 and 4 in the CNPS Inventory or identified as animal “Species of Special Concern” by the CDFG. Species of Special Concern have no legal protective status under the state Endangered Species Act, but are of concern to the CDFG because of severe decline in breeding populations in California.

Based on occurrence information from the California Natural Diversity Data Base (CNDDB), there are no special status biological resources in the Central Subway Study Area. The nearest occurrence record in the CNDDB is a overwintering site for monarch butterfly at Telegraph Hill, approximately ¼ mile northeast of Washington Square at Columbus Avenue and Union Street.

### **4.9.2 WETLANDS**

Although definitions used by jurisdictional agencies vary to some degree, wetlands are generally considered to be areas that are periodically or permanently inundated by surface or groundwater, and support vegetation adapted to life in saturated soil. Wetlands are recognized as important features on a

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<sup>105</sup> The federal Endangered Species Act (FESA) of 1973 declares that all federal departments and agencies shall use their authority to conserve endangered and threatened plant and animal taxa. The California Endangered Species Act (CESA) of 1984 parallels the policies of FESA and pertains to native California taxa.

regional and national level due to their high inherent value to fish and wildlife, use as storage areas for storm and flood waters, and water recharge, filtration, and purification functions. Technical standards for delineating wetlands have been developed by the US Army Corps of Engineers (Corps) and the USFWS, which generally define wetlands through consideration of three criteria: hydrology, soils, and vegetation. The Corps and CDFG have jurisdiction over modifications to stream channels, river banks, lakes, and other wetland features.<sup>106</sup>

A wetland assessment was conducted during the field reconnaissance surveys for the Third Street Light Rail project in July 1997. Vegetative cover was used as the primary indicator of potential wetland habitat during the survey effort. Due to the extent of development and past filling, jurisdictional wetlands and other water in the Study Area are not present. The only wetlands identified during the 1998 EIS/EIR study for the Third Street Light Rail project were in the Mission Creek and Islais Creek channels. There are no wetlands in the Central Subway Study Area.

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<sup>106</sup> Jurisdiction of the Corps is established through the provisions of §404 of the Clean Water Act, which prohibits the discharge of dredged or fill material into "waters," including wetlands and unvegetated "other waters," of the United States without a permit. All three of the identified technical criteria must be met for an area to be identified as a wetland under Corps jurisdiction, unless the area has been modified by human activity.

#### 4.10 HAZARDOUS MATERIALS

This section describes hazardous materials that could be encountered in the Study Area.<sup>107</sup> This section also includes a description of the general regulatory framework for hazardous materials management and the nature and extent of hazardous materials known to be, or potentially, present in subsurface soil and groundwater within the Study Area.

This section summarizes information from detailed technical reports describing known soil and groundwater contamination and past and current land uses in the Study Area that may have affected or could potentially affect the quality of soil and groundwater.<sup>108,109,110,111,112</sup> Existing reports and regulatory databases were reviewed to determine known areas of contamination and areas suspected of containing hazardous materials throughout the Study Area. Previous reports, including site investigation reports, leaking underground storage tank site files, and EIS/EIR documents prepared for projects in the Study Area, were reviewed and independent regulatory records database searches, which included federal, state, and local data bases, were also conducted. A Phase II Hazardous Materials Investigation (HMI) was conducted in 2005 to screen for the presence of contaminants of concern that could affect (1) the health and safety of construction workers and the public and (2) the handling and disposal of excavated materials and groundwater encountered during construction of the project.

##### 4.10.1 REGULATORY FRAMEWORK

Hazardous materials and hazardous wastes are controlled by federal, state, regional and local regulations, with the objective of protecting the public health and environment. In general, these regulations provide definitions of hazardous substances; establish reporting requirements; set guidelines for handling, storage, transport, remediation, and disposal of hazardous wastes; and require health and safety provisions for both workers and the public. Sites that comply with hazards regulations are identified on periodically-updated lists at the federal, state, and local levels.

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<sup>107</sup> Hazardous materials are defined as any material that, because of its quantity, concentration, or physical chemical characteristics, poses a significant present or potential hazard to human health and safety, or to the environment if released into the workplace. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, radioactive materials, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment (HSC 25501).

<sup>108</sup> No. 96.218E, Hazardous Materials Technical Report by Baseline Environmental Consulting, June, 1997

<sup>109</sup> Phase I Environmental Site Assessment and Site History Report, Central Subway Alignment, San Francisco, California, Revision 1, December 18, 2003.

<sup>110</sup> Addendum to Phase I Environmental Site Assessment and Site History Report, Task 1.02-03, Hazardous Material Investigations, Revision 0, April 1, 2005.

<sup>111</sup> Phase II Hazardous Materials Investigation Report, for the Fourth/Stockton Alignment, Task 1.02-03, Hazardous Material Investigations, Revision 0, May 18, 2006.

<sup>112</sup> Addendum No. 2 to Phase I Environmental Site Assessment and Site History Report, Task 1.02-03, Hazardous Material Investigations, Revision 0b, February 9, 2007.

Agencies enforcing these regulations in San Francisco include: the U.S. Environmental Protection Agency (federal); the Department of Toxic Substance Control, California Environmental Protection Agency (state); the California Regional Water Quality Control Board (state); the Bay Area Air Quality Management District (regional); the San Francisco Department of Public Health, Bureau of Toxics, Health and Safety Services (local); and the San Francisco Fire Department (local). A brief overview of the applicable hazardous materials regulatory requirements is presented below.

A portion of the Study Area is located in areas formerly bayward of the 1851 high tide line. Areas of the City located bayward of the 1851 high tide line are subject to the requirements of Article 20 (also known as the Maher Ordinance) of the San Francisco Municipal Code. Article 20 requires that, if development is proposed bayward of the 1851 high tide line, and more than 50 cubic yards of soils are excavated, the following actions must be undertaken:

- Preparation of a site history report;
- Collection of soil samples in accordance with an approved work plan;
- Preparation of a soils analysis report; and
- Preparation of a site mitigation report.

Article 20 is administered by San Francisco Department of Public Health (DPH). DPH reviews and approves all site history reports, sampling work plans, soil analyses reports, and site mitigation reports. The site mitigation reports delineate remedies to be undertaken during project construction and operation to protect the public and the environment. DPH coordinates the Article 20 documentation and mitigation with the State Department of Toxic Substances Control (DTSC) and the Regional Water Quality Control Board (RWQCB).

Discovery of hazardous substances in the subsurface, in areas not subject to the requirements of Article 20, could also result in investigation oversight by regulatory agencies. Such oversight could be from DPH, DTSC, and/or RWQCB. DPH may provide remedial action oversight for the cleanup of waste releases provided that the requisite technical expertise and capabilities are available to supervise the action. DPH would be required to notify the DTSC and the RWQCB prior to the commencement of oversight.<sup>113</sup>

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<sup>113</sup> Applicability and implementation of remedial action oversight must comply with the requirements in the Health and Safety Code, Section 512.



The majority of federal hazardous materials regulations has been incorporated into California's hazardous materials regulations. California's hazardous materials statutes and regulations are contained in the California Health and Safety Code (HSC) Section 25130 et seq. and Title 22 of the California Code of Regulations (CCR). Title 22 CCR is administered by the DTSC.

#### 4.10.2 WASTE CLASSIFICATION AND MANAGEMENT

According to Title 22 CCR Section 66261, a waste is considered hazardous if it exhibits at least one of four specified characteristics (ignitability, corrosivity, reactivity, or toxicity) or if it is a "listed waste" (i.e., the waste is generated from a specific process). A waste can be present in a liquid, semi-solid, solid, or gaseous form.

Waste types generated from public transit construction projects include pavement and roadbed debris, soils, and wastewater. Pavement and roadbed debris is not a "listed waste" and generally does not exhibit hazardous characteristics. Waste soils are also not a "listed waste" and generally are not ignitable, corrosive, or reactive. Excavated soils could be hazardous by exhibiting the toxicity characteristic. Excavated soils would constitute a hazardous waste based on toxicity characteristics, if representative samples collected from the soils contain concentrations of contaminants listed in Title 22 CCR Section 66261 at levels exceeding the specified limit, which would define the waste as either a Federal hazardous waste (RCRA Waste) or a California hazardous waste.

Waste containing friable, finely divided, and powdered asbestos at levels equal to or greater than one percent asbestos is defined as a California hazardous waste. A friable waste is one that can be reduced to a powder or dust under hand pressure when dry. Non-friable asbestos-containing waste would not be considered hazardous.

California regulations require that hazardous waste be managed according to applicable regulations, which include: worker operational safety procedures as identified in Title 8 CCR; handling and storage and exposure requirements; transportation and disposal requirements under a uniform hazardous waste manifest; and documentation procedures. In California, waste disposal facilities have been classified into three categories, Class I, Class II, and Class III. A Class I disposal facility may accept federal and California hazardous waste. Class II and III facilities are only permitted to accept non-hazardous waste at facility-specific acceptance threshold levels established by the RWQCB, the permitting agency.

In San Francisco, water generated from dewatering of construction sites is commonly discharged to the City's combined storm drain/sewer system. Discharges must be managed in accordance with the San Francisco Department of Public Works Batch Wastewater Discharge (BWWD) requirements. Discharges

to the combined storm drain/sewer system must comply with established threshold levels for chemical and physical parameters.

#### 4.10.3 HEALTH AND SAFETY

Exposure to hazardous materials (or soils containing hazardous materials) could adversely affect construction workers and the public. Exposure routes include inhalation, absorption through exposed skin area, and ingestion. Federal and state regulations were developed to address worker exposure to safety and health hazards; these regulations are contained in 29 CFR on the federal level and in Title 8 CCR in California. The Occupational Safety and Health Administration (OSHA) and California OSHA (CalOSHA) are the primary agencies responsible for enforcing these federal and state regulations.

#### 4.10.4 POTENTIAL AND KNOWN SOIL AND GROUNDWATER CONTAMINATION ON SITES ALONG LIGHT CENTRAL SUBWAY ALIGNMENT

The Study Area constitutes an urban area with a history of commercial, industrial, and residential land uses dating back to before the turn of the century. Urban areas with these types of historic land uses generally have various types of contaminants in the subsurface from disposal, storage, or spillage of hazardous materials.

This section identifies known subsurface soil and groundwater quality conditions within each segment of the Corridor. These available soil and groundwater quality data may be used to provide a general assessment of subsurface conditions. The available sampling points are not uniformly distributed throughout the area and the number of sampling points is insufficient to provide a comprehensive characterization of the soils and groundwater quality of the Study Area. Soil and groundwater sampling activities were not completed specifically for this project, but were undertaken by individual property owners in response to various regulatory requirements. However, the available data can be used as an indicator of possible contamination that could be encountered in the Study Area.

In general, the primary contaminants of concern identified in the soils within the Study Area include metals, volatile organic compounds (VOCs), and total petroleum hydrocarbons (TPH). Several samples contained metals and VOCs at concentrations greater than the regulatory limit threshold concentrations. Soils containing serpentine fragments and asbestos were also identified in portions of the Study Area. A summary of the analytical results is included in the technical reports referenced previously.

The primary contaminants identified in groundwater within the Study Area generally consist of metals (nickel and mercury), benzene, trichloroethylene (TCE), tetrachloroethylene (PCE), and oil and grease;

these contaminants were identified in the groundwater samples at levels greater than the BWWD requirements established by San Francisco Department of Public Works.

There may be sources of contaminants from historic or current land uses or artificial fill in areas that have not been subject to subsurface investigations. Land uses that could potentially affect the quality of underlying soil and groundwater include spillage or releases of hazardous materials; the land uses of special concern are those associated with industrial activities. Typical contaminants that could be expected to be associated with industrial land uses are summarized in the detailed technical reports.

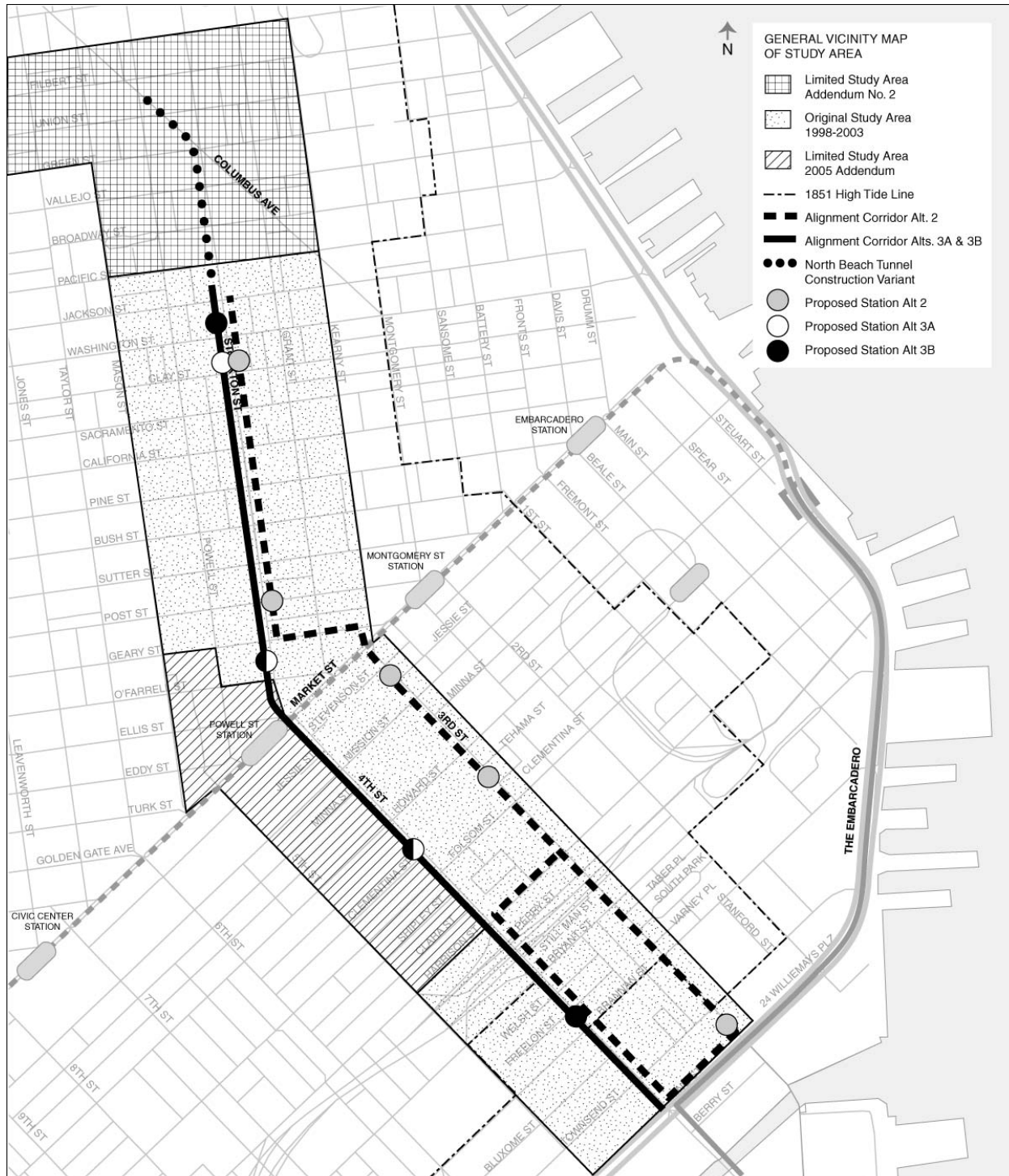
A portion of the Study Area is also within the boundary of Article 20; that area has been filled, since the turn of the century, with materials of various origins. The quality of the fill is largely unknown, but generally has been found to contain hazardous substances that could affect construction workers and render the soil a hazardous waste, if excavated. The fill areas generally coincide with the Article 20 boundary, which is shown as the 1851 High Tide Line on Figure 4-12.

Historic and current land uses in the Study Area include residential, commercial, and industrial land uses. The land uses and known contamination are summarized from the detailed technical reports. The technical studies previously referenced include tables which summarize the results of the regulatory file reviews, available chemical analytical data, and locations of underground storage tanks. See Appendix G for maps depicting the sites of potential hazardous materials.

#### **Central Subway Corridor - King Street to Chinatown**

Past land uses along the Central Subway Corridor included a combination of residential, commercial, and industrial uses. Along Third and Fourth Streets (between Townsend and Folsom Streets), land uses were primarily commercial and industrial; land uses and activities in these areas included oil and gas use (specific business unknown), lithographics, bus garage, spray painting booth, machine shop, auto truck freight depot, paint spraying, printing warehouse, metal shop, auto body and greasing garage, blacksmith shop, and scrap metal facility. A coal gasification plant (Citizens Gas Company), that operated between 1866 and 1886, was reportedly located near Townsend and Second Streets. A second gas manufacturing facility (Pacific Gas Improvement Company) was reportedly located south of Townsend Street between Second and Third Streets and operated between the 1880s and early 1900s. It is likely that waste products from these two plants were discharged to the Bay and may be present within the fill in this area. Between Folsom and Sutter Streets, past land uses included gas and oil (of undermined form), printing and sign painting, an underground garage (which currently exists), retail stores, hotels, and offices. North of Sutter Street, land uses were primarily commercial and residential.

**FIGURE 4-12**  
**GENERAL VICINITY MAP OF STUDY AREA**



Source: PB/Wong  
 Not to scale

Current land uses along Third and Fourth Streets (between Townsend and Folsom Streets) are primarily commercial (gas stations, parking, auto service and body, paint company) and residential. Offices, parking garages, and the Moscone Convention Center are located between Folsom and Sutter Streets. North of Sutter Street, current land uses consist of offices, retail stores, hotels, and apartments. A number of vacant lots were observed during site reconnaissance activities in 2003; many of these lots appeared to have been subjected to random dumping of various materials, including trash, whereas others were in the process of being redeveloped.

The regulatory database searches and file reviews identified numerous sites along or in the proximity of the alignment where chemical compounds are likely present in soil and groundwater. In general, the chemical compounds likely to be present in soil and groundwater along the Corridor are as follows:

- Petroleum hydrocarbon compounds (TPH as gasoline, diesel, and motor oil) and fuel-related VOCs, such as benzene, are likely to be present in the near-surface soil and groundwater, especially near leaking underground storage tank (LUST) and underground storage tank (UST) sites.
- Other VOCs, such as degreasers and thinners, may be present from former activities in the Study Area.
- According to the San Francisco DPH, groundwater in the northern portion of the Study Area is affected by a regional-scale chlorinated solvent plume.
- Polynuclear aromatic hydrocarbons (PAHs) associated with former coal gasification plants likely are present in the area south of Market Street, particularly in areas underlying fill bayward of the 1851 high tide line. Dumping of slag on adjacent properties has been associated with the historical operation of several former coal gasification plants. Previous investigations at plants located along The Embarcadero have revealed the presence of waste materials at depths ranging from approximately 28 to 40 feet below ground surface (bgs).
- Historical Sanborn maps indicated the locations of several electrical substations and transformers. Polychlorinated biphenyl (PCB) compounds may be present in soil in those areas.
- Various metals are likely present in fill. Lead has been reported at concentrations exceeding its hazardous waste threshold. Arsenic may be present in soil along railroad tracks, such as the area just south of Townsend Street. According to DPH, asbestos-containing material (ACM) and lead-impacted soil were detected during construction of the Chinese Playground in Chinatown.

Groundwater quality in the Downtown area of San Francisco generally is degraded due to the presence of solvents, petroleum hydrocarbon constituents, and other chemicals. Due to the degraded nature of the groundwater, the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB), has approved closure for several LUST sites that are characterized by contaminant levels higher than those that are typically allowed for site closure. Refer to the tables in the technical studies for a summary of available chemical analytical data for groundwater along the alignment.

Depth to groundwater in the Study Area is highly variable and ranges from approximately 3 to 50 feet bgs. The reported groundwater flow directions are inconsistent and, at several sites, have been shown to be different from the regional groundwater flow direction (generally towards San Francisco Bay). The high variability in groundwater gauging data is attributed to variable topography and geology in the area, in combination with dewatering processes associated with construction projects and existing building foundations or basements.

#### **North Beach Tunnel Construction Variant – Chinatown to Vicinity of Washington Square**

The approximately 2000-foot extension for the North Beach Tunnel Construction Variant would be via Stockton Street and Columbus Avenue to a temporary construction shaft on Columbus Avenue near Washington Square in North Beach. Past land uses in this area included residential, commercial, and industrial. Commercial uses identified included retail shops and hotels. There were many industrial uses, including numerous factories, which manufactured various items, including food (e.g., ravioli, macaroni, sausage, tortillas, noodles, and candy), overalls, paste, cigars, and garments. Other industrial and commercial facilities included machine shops, tin shops, photo shops, paint shops, drugstores, dyeing and cleaning shops, auto service shops, undertakers, plumbing shops, electrical shops, oil and gas facilities (of undetermined form), plating works, printing and sign painting, movie theaters, and stables.

Current land uses within the North Beach portion of the Study Area consist of a mixture of commercial and residential uses. In general, the area west of Powell Street is dominated by residential uses, as is the area north of Broadway from the eastern boundary of the Study Area west to Stockton Street. The remaining portions of the Study Area, are dominated by commercial facilities (e.g., retail shops, restaurants, and parking structures) and include apartments on the upper floors. The dominantly commercial portions of the Study Area also include some high-density San Francisco Housing Authority residential complexes (e.g., on the southern side of Pacific Avenue). Auto service shops were observed at the corner of Pacific Avenue and Powell Street and at the corner of Filbert Street and Grant Avenue.

Federal or California hazardous waste generators/facilities were identified in the North Beach Study Area, including those reported to have had a release of petroleum due to a leaking underground storage tank.

Numerous LUST sites, both open and closed, are located within the limited Study Area. Chemical compounds that may be present in soil and groundwater along the North Beach Construction Variant may include, but not be limited to, petroleum hydrocarbon compounds and fuel-related volatile organic compounds (VOCs), such as benzene; other VOCs, such as degreasers and thinners; and various metals (likely present in fill). At four LUST sites (766 Vallejo Street, 1625 Powell Street, 1636 Powell Street, and 1641 Powell Street), the regulatory database and review of DPH files indicated that subsurface soil and groundwater were impacted with fuel-related VOCs, total petroleum hydrocarbons (TPH) as gasoline, diesel, and motor oil.

Groundwater measurement data were available at the four LUST sites discussed above. Data collected at 766 Vallejo Street in 1998 indicate groundwater at approximately 8 feet bgs. At 1636 Powell Street, groundwater was encountered at 1 to 16 feet bgs. At 1625 and 1641 Powell Street, groundwater was encountered at 4 to 18 feet bgs.

## **4.11 AIR QUALITY**

### **4.11.1 AIR QUALITY STANDARDS**

National Ambient Air Quality Standards (NAAQS) were established in 1970 by the federal Clean Air Act for airborne concentrations of six national criteria pollutants, including; ozone (O<sub>3</sub>), carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), lead (Pb), and particulate matter with a diameter of 10 microns or less (PM<sub>10</sub>). In July 1997, the US Environmental Protection Agency (EPA) promulgated new NAAQS for particulate matter with diameters less than or equal to 2.5 microns (PM<sub>2.5</sub>). The NAAQS for PM<sub>2.5</sub> are 15 micrograms per cubic meter (μg/m<sup>3</sup>) and 65 μg/m<sup>3</sup> for the annual average and 24-hour periods, respectively. In addition, the 1-hour ozone standard of 0.12 parts per million (ppm) was revoked on June 15, 2005 and was replaced by an 8-hour standard of 0.08 ppm.

The California Air Resources Board (CARB) has established State Ambient Air Quality Standards (SAAQS), many of which are more stringent than the corresponding NAAQS. The 1988 California Clean Air Act, amended in 1992, sets standards for the six national criteria pollutants as well as for hydrogen sulfide, sulfates, and vinyl chloride, for which there are no corresponding NAAQS. In May 2006, the CARB created a new 8-hour O<sub>3</sub> standard of 0.07 ppm. The ambient air quality standards are designed to protect segments of the population most susceptible to the pollutants' adverse effects, or sensitive receptors. Sensitive receptors are considered the very young, the elderly, people weak from disease or illness, or persons doing heavy work or exercise. National and state standards for these criteria pollutants are presented in Table 4-24. The source of each criteria pollutant and the corresponding health effects are described below.

The Central Subway Project is located within the San Francisco Bay Area Air Basin which is composed of nine counties. Air quality in the Bay Area Air Basin is regulated by the Bay Area Air Quality Management District (BAAQMD), which operates ambient air quality monitoring stations within the Bay Area. CARB regulates mobile source emissions and is responsible for reviewing state-required documentation submitted by regional agencies such as the BAAQMD and for submitting federally-required documents to EPA.

### **4.11.2 AIR POLLUTANTS OF CONCERN**

Smog or O<sub>3</sub> is formed in the atmosphere by complex chemical reactions between nitrogen oxides (NO<sub>x</sub>) and reactive organic gases (ROG) in the presence of sunlight. The main sources of the ozone precursors are combustion processes and the evaporation of solvents, paints and fuels. Automobiles are the largest



**TABLE 4-24**  
**CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS**

POLLUTANT	AVERAGING TIME	SAAQS <sup>(1),(2)</sup>	NAAQS <sup>(2),(3)</sup>
Ozone (O <sub>3</sub> )	1-hour 8-hour	0.09 ppm 0.07 ppm	n/a 0.08 ppm
Carbon Monoxide (CO)	1-hour 8-hour	20 ppm 9.0 ppm	35 ppm 9 ppm
Nitrogen Dioxide (NO <sub>2</sub> )	1-hour Annual Arithmetic Mean	0.25 ppm n/a	n/a 0.053 ppm
Sulfur Dioxide (SO <sub>2</sub> )	1-hour 24-hour Annual Arithmetic Mean	0.25 ppm 0.04 ppm n/a	n/a 0.14 ppm 0.03 ppm
Suspended Particulate Matter with diameter ≤10 microns (PM <sub>10</sub> )	24-hour Annual Arithmetic Mean	50 µ/m <sup>3</sup> 20 µ/m <sup>3</sup>	150 µ/m <sup>3</sup> 50 µ/m <sup>3</sup>
Suspended Particulate Matter with diameter ≤2.5 microns (PM <sub>2.5</sub> )	24-hour Annual Arithmetic Mean	n/a 12 µ/m <sup>3</sup>	35 µ/m <sup>3</sup> <sup>(4)</sup> 15 µ/m <sup>3</sup>
Sulfates	24-hour	25 µ/m <sup>3</sup>	n/a
Lead (Pb)	30-day Calendar Quarter	1.5 µ/m <sup>3</sup> n/a	n/a 1.5 µ/m <sup>3</sup>
Hydrogen Sulfide (H <sub>2</sub> S)	1-hour	0.03 ppm	n/a
Vinyl Chloride (VC)	24-hour	0.010 ppm	n/a
<p>Notes: <sup>(1)</sup> SAAQS stands for State Ambient Air Quality Standards (California). SAAQS for ozone, carbon monoxide, sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, and respirable particulate matter are values that are not to be exceeded. All other California standards shown are values not to be equaled or exceeded.</p> <p><sup>(2)</sup> ppm = part per million by volume; µ/m<sup>3</sup> = micrograms per cubic meter; n/a = not applicable.</p> <p><sup>(3)</sup> NAAQS stands for National Ambient Air Quality Standards. NAAQS, other than ozone and those based on annual averages, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.</p> <p><sup>(4)</sup> On October 17, 2006, the NAAQS for PM<sub>2.5</sub> was lowered to 35 µ/m<sup>3</sup> from 65 µ/m<sup>3</sup>.</p> <p>n/a = not applicable</p> <p>Source: California Air Resources Board, Ambient Air Quality Standards, September 2007.</p>			

single source of ozone precursors in the Bay Area. Short-term exposure to ozone can irritate the eyes and cause shortness of breath. Chronic exposure to high ozone levels can permanently damage lung tissue.

CO is a colorless, odorless gas, formed by incomplete combustion of fuels. The single largest source of CO is motor vehicles. When inhaled at high concentrations, CO combines with the hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood.

NO<sub>2</sub> is a reddish-brown gas that is a by-product of the combustion process. Automobiles and industrial processes are the main sources of NO<sub>2</sub>. Nitrogen dioxide is an ozone precursor and can increase the risk of acute and chronic respiratory disease, as well as reduce visibility.

SO<sub>2</sub> is a colorless acid gas with a strong odor. It is produced by the combustion of sulfur-containing fuels, such as coal, oil and diesel. Sulfur dioxide can irritate lung tissue and increase the risk of acute and chronic respiratory disease.

In the past, airborne lead was primarily caused by gasoline-powered automobile engines, but since leaded fuels have been phased out of the gasoline market, it is no longer as prevalent. Lead can cause hematological (blood-related) effects, such as anemia (iron-deficient blood), and inhibition of enzymes involved in blood synthesis. Ambient levels of lead in the Bay Area are well below the ambient standard and are expected to continue to decline.

PM<sub>10</sub> refers to particulate matter ten microns and less in size and encompasses many solid or liquid particles in the atmosphere, including smoke, dust aerosols and metallic oxides. Motor vehicles are the single largest source of PM<sub>10</sub> in the Bay Area. Other sources are combustion, construction, grading, demolition and agricultural activities. Some particulate matter is naturally occurring, such as pollen. Extended exposure to particulate matter can increase the risk of chronic respiratory disease. PM<sub>10</sub> also includes PM<sub>2.5</sub> which is particulate matter with a diameter of less than 2.5 microns. These particles have an even higher likelihood of entering the body and lungs due to its smaller size and may be more harmful to humans.

Most diesel-related particulate matter (about 90 percent) falls within the PM<sub>2.5</sub> subgroup. Particulate matter from diesel-fueled vehicles and equipment is of special concern because this type of particulate matter is small enough to be respirable and has many chemicals adsorbed to the surface, including known or suspected mutagens (causing changes in genetic structure) and carcinogens (cancer causing). Diesel emissions are complex mixtures containing thousands of organic and inorganic constituents.

#### 4.11.3 METEOROLOGY AND TOPOGRAPHY

The primary factors that determine air quality levels are the location of air pollutant sources and the amount of pollutants being emitted. Meteorological and topographical conditions, however, are also important. Atmospheric conditions such as wind speed, wind direction, and air temperature determine the movement and dispersal of air pollutants, as well as, the rate of photochemical reactions in the atmosphere. Another important factor in California is the Pacific Ocean, which moderates temperatures and helps create consistent wind gradients.

The San Francisco Bay Area is characterized by complex terrain consisting of coastal mountain ranges, inland valleys, bays, and associated flatlands. Consequently, the Bay Area is subject to a combination of climatic factors that result in low potential for accumulation of pollutants near the coast and high potential

in sheltered inland valleys. The Study Area is located in the western portion of the Bay Area. Because of the relatively flat terrain and the close proximity to the bay, the Project is located in an area where the dispersal of pollutants is relatively good compared to inland sheltered valleys.

The marine air creates cool summers, mild winters and infrequent rainfall; it drives the cool daytime sea breeze and maintains comfortable humidities. Temperatures in San Francisco average 58 degrees Fahrenheit annually, ranging from the mid-40s on winter mornings to the mid-70s on late summer afternoons. Rainfall averages 20 inches per year and is confined primarily to the wet season from late October to early May.<sup>114</sup> Exceedances of air quality standards occur primarily during meteorological conditions conducive to high pollution levels, such as cold, windless winter nights, or hot, sunny, summer afternoons.

#### 4.11.4 EXISTING AIR QUALITY AND REGIONAL ATTAINMENT STATUS

The BAAQMD takes primary responsibility for national and state standard attainment planning, implementation and enforcement in the Bay Area. Air quality conditions in the Bay Area have improved since the BAAQMD was created in 1955. Ambient concentrations of air pollutants and the number of days on which the region exceeded the air quality standards have decreased.

Existing levels of air quality in the Study Area can generally be inferred from ambient air quality measurements conducted by the BAAQMD at two of its San Francisco monitoring stations. The Potrero Hill station at 10 Arkansas Street measures all criteria pollutants (except for lead), including regional pollution levels (O<sub>3</sub>), as well as primary vehicular emissions levels near busy roadways (CO). The station at the BAAQMD headquarters, 939 Ellis Street, monitors only carbon monoxide. Table 4-25 summarizes five years of published data (2002 through 2006) from the monitoring stations. The highest CO concentrations from either of the two monitoring stations are presented in Table 4-25. Monitoring for lead, hydrogen sulfide, and vinyl chloride is not conducted in the Project vicinity. During this five-year period, there were no violations of the one-hour or the eight-hour CO standards at either the Ellis Street or Arkansas Street monitoring station. At the Arkansas Street monitoring station, the state PM<sub>10</sub> standard was violated on four days in 2002 and one day in both 2003 and 2004. These high levels also resulted in exceedences of the state annual arithmetic mean standard. In 2005 and 2006, there were no

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<sup>114</sup> Western Regional Climate Center, Western U.S. Historical Summaries (Individual Stations), 2007; [www.wrcc.dri.edu](http://www.wrcc.dri.edu)

TABLE 4-25

## SAN FRANCISCO AIR POLLUTANT SUMMARY, 2002-2006

		MONITORING DATA BY YEAR <sup>(1)</sup>				
POLLUTANT	STATE/ FEDERAL STD. <sup>(2)</sup>	2002	2003	2004	2005	2006
<u>Ozone</u> <sup>(3)</sup>						
Highest 1-hr. average, ppm <sup>(4)</sup>	0.09/0.12	0.05	0.09	0.09	0.06	0.05
Number of state/federal violations		0/0	0/0	0/0	0/0	-/-
Highest 8-hr. average, ppm	0.07/0.08	-/-	-/-	-/-	-/-	0.05
Number of state/federal violations		-/-	-/-	-/-	-/-	0/0
<u>Carbon Monoxide</u>						
Highest 1-hr average, ppm	20/35	6.8	5.1	3.7	4.1	2.7
Number of state/federal violations		0/0	0/0	0/0	0/0	0/0
Highest 8-hr. average, ppm	9.0/9	2.6	3.6	2.7	3.1	1.7
Number of state/federal violations		0/0	0/0	0/0	0/0	0/0
<u>Nitrogen Dioxide</u>						
Highest 1-hr. average, ppm	0.25/--	0.08	0.07	0.06	0.07	0.11
Number of state violations		0	0	0	0	0
Annual arithmetic mean, ppm	--/0.053	0.019	0.018	0.017	0.016	0.015
Number of federal violations		0	0	0	0	0
<u>Sulfur Dioxide</u>						
Highest 1-hr. average, ppm	0.25/--	0.053	0.024	0.034	0.019	0.010
Number of state violations		0	0	0	0	0
Highest 24-hour average, ppm	0.04/0.14	0.007	0.007	0.006	0.007	0.007
Number of state/federal violations		0/0	0/0	0/0	0/0	0/0
Annual arithmetic mean, ppm	--/0.03	0.002	0.002	0.001	0.001	0.001
Number of federal violations		0	0	0	0	0
<u>Particulate Matter</u> (with diameter ≤ 10 microns)						
Highest 24-hr. avg (state/federal) <sup>(5)</sup> , µg/m <sup>3</sup>	50/150	<u>78.6</u> /74.1	<u>51.7</u> /50.8	<u>51.8</u> /48.6	46.4/44.6	46.8/44.5
Number of state/federal violations <sup>(6)</sup>		4/0	1/0	1/0	0/0	0/0
Annual arithmetic mean (state/federal), µg/m <sup>3</sup>	20/50	<u>26.0</u> /24.7	<u>22.7</u> /21.8	<u>22.5</u> /21.6	20.1/19.2	n/a/19.2
Number of state/federal violations		1/0	1/0	1/0	0/0	n/a/0
<u>Particulate Matter</u> (with diameter ≤ 2.5 microns)						
Highest 24-hr. avg, µg/m <sup>3</sup>	--/65 (35)	<u>70.2</u>	41.6	45.8	43.6	31.5
Number of violations <sup>(6)</sup>		4	0	0	0	0
Annual arithmetic mean (state/federal), µg/m <sup>3</sup>	12/15	<u>13.1</u>	10.2	9.9	9.5	n/a
Number of state/federal violations		1/0	0/0	0/0	0/0	n/a
Notes: <sup>(1)</sup> Most of the data comes from the monitoring station located at 10 Arkansas Street in San Francisco. The CO concentrations represent either the Arkansas Street Station or the Ellis Street Station depending on which location had the highest value. <sup>(2)</sup> State standard, not to be exceeded, except for Lead standard, which is not to be equaled or exceeded. <sup>(3)</sup> The federal 1-hour standard listed in the table was revoked in June 2005. Federal and state 8-hour standards were not in effect during the monitoring period analyzed until 2006. On October 17, 2006, the NAAQS for PM <sub>2.5</sub> was lowered to 35 µm <sup>3</sup> from 65 µm <sup>3</sup> . <sup>(4)</sup> ppm = parts per million; µg/m <sup>3</sup> = micrograms per cubic meter. <sup>(5)</sup> State and federal statistics differ due to different samplers being used. <sup>(6)</sup> Samples typically taken every six days. Underlined values are in excess of applicable standards. n/a = not available.						
Source: California Air Resources Board, <i>Air Quality Data Summaries</i> , 2002-2006; www.arb.ca.gov.						

violations of the state  $PM_{10}$  standard. The state/federal  $PM_{2.5}$  standard was violated four times in 2002. The annual arithmetic mean in 2002 also exceeded the state standard. All other monitored pollutants were below federal and state standards.

The federal Clean Air Act requires non-attainment and maintenance areas to prepare air quality plans that include strategies for attaining and maintaining the federal standards. Regional air quality plans developed under the federal Clean Air Act are included in an overall program referred to as State Implementation Plans (SIPs). The California Clean Air Act also requires plans for non-attainment areas (the state PM standards are exempt from these plans) that will specify strategies to attain state air quality standards. Thus, an area may have two sets of air quality plans.

Regionally, the San Francisco Bay Area air basin is currently designated as a non-attainment area for ozone at both the federal and state level. On April 15, 2004, the EPA classified the Bay Area as a marginal non-attainment area for the federal ozone eight-hour standard. Marginal non-attainment areas must attain the national 8-hour ozone standard by June 15, 2007. However, certain elements of EPA's 8-hour ozone standard implementation rule are still undergoing legal challenge. It is not currently anticipated that marginal non-attainment areas will be required to prepare attainment demonstrations for the 8-hour standard. Other planning elements may be required. The Bay Area plans to address all requirements of the national 8-hour ozone standard.

The California Clean Air Act requires the BAAQMD to update its Clean Air Plan for meeting the state one-hour ozone standard every three years. The BAAQMD, in association with Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG), has prepared the Bay Area 2005 Ozone Strategy to meet this requirement. It was approved on January 4, 2006. The Bay Area is currently unclassified for the recent state 8-hour ozone standard that went into affect in May 2006. However, CARB is currently considering changing the status to non-attainment.

An important component of the Bay Area Ozone Strategy is a set of control measures that would further reduce ozone precursor emissions from a wide range of sources. In addition to stationary and area source control measures, measures for on- and off-road mobile sources and transportation are included. Depending on the type of mobile source, the EPA and/or CARB are the only agencies authorized to adopt fuel and emission control system specifications. As such, the BAAQMD can only reduce mobile source emissions by providing grants or incentives to encourage the use of cleaner vehicle and fuels. The Bay Area Ozone Strategy measures encourage the retirement of older, more-polluting equipment and vehicles, introduction of new, less-polluting equipment, and operational changes such as reduced idling.

With respect to PM ( $PM_{10}$  and  $PM_{2.5}$ ) non-attainment for the state air quality standards, the California Legislature recognized that PM was relatively intractable and excluded it from the basic planning requirements. The control measures of the Clean Air Plan will reduce PM emissions through measures to reduce vehicular traffic.

The Bay Area Air Basin is in attainment or unclassified (i.e., available data does not support a designation of non-attainment or attainment) for all other federal and state ambient air quality standards.

#### 4.11.5 PROJECT CONFORMITY

In addition to SIP and Air Quality Plan activities, federal agencies must also make a determination of conformity with the SIP before taking any action on a proposed project located in a non-attainment or maintenance area. In 1993, EPA published the General Conformity Rule that indicates how federal agencies are to make such a determination. A similar rule was created to specifically address conformity issues related to highway or transit projects that receive funding or approval from the Federal Highway Administration (FHWA) or the Federal Transit Administration (FTA). In general, transportation projects must not cause or contribute to new violations of air quality standards, worsen existing violations or interfere with timely attainment of standards. Project conformity is evaluated at both the local level (“hot spot” analysis) and the regional level. At the regional level, one aspect of the conformity determination is to confirm that the proposed project is included in currently conforming regional transportation plans as fiscally constrained (i.e., the project would be funded through revenues projected to be reasonably available over the next 25 years). Another aspect is to confirm that the proposed project is included in transportation improvement programs, which list projects and their specific funding sources. This would also result in the proposed project being included in regional air quality analyses. The local level analysis requirements in the 1993 rules focused on CO levels in areas designated as non-attainment or maintenance for CO. In March 2006, procedures were adopted to include  $PM_{2.5}$  and  $PM_{10}$  non-attainment and maintenance areas.

The Central Subway Project is located in a maintenance area for CO and as a result must have a local CO analysis conducted. The area is currently unclassified for the federal 24-hour standard for both  $PM_{10}$  and  $PM_{2.5}$ . It is also in attainment for the annual  $PM_{2.5}$  standard. The EPA is required to designate attainment status for the newer 24-hour  $PM_{2.5}$  standard by December 2009. As a result, a hot spot analysis for particulate matter is not currently required for the Central Subway Project.

For the Bay Area, MTC adopted the conformity analysis for the *Final Transportation 2030 Plan* (RTP) and the *2005 Transportation Improvement Program* (TIP) in February 2005. The Third Street Light Rail Project Phase 2 Central Subway is included in both these documents as part of the financially constrained

Tier 1 plan. As a result, the Central Subway Project was included in the conformity analysis for these plans. Project conformity of the Central Subway Project is further discussed in Section 5.11.

#### 4.11.6 EXISTING POLLUTANT SOURCES

Pollutants are emitted by a variety of stationary, area and mobile sources. Stationary sources are identified as utility, industrial, institutional, and commercial facilities operating at fixed locations. Area sources are activities that individually emit relatively small quantities of air pollutants, but which cumulatively may emit a large amount of emissions. Examples are gasoline service stations, consumer use of solvents, and fireplace use.

The greatest sources of emissions in the Study Area are mobile sources. Mobile sources are considered to be on-road vehicles such as cars and trucks, airplanes, trains, and off-road vehicles such as diesel-powered construction equipment.

The estimated emissions associated with motor vehicles in the Study Area in 2006 are presented in Table 4-26. For a sense of magnitude, motor vehicle emissions in the Study Area account for approximately one to eight percent of San Francisco County's overall total for pollutant emissions from all sources, depending on the pollutant.<sup>115</sup> CO accounts for the highest percentage of motor vehicle emissions while particulate matter is the lowest.

**TABLE 4-26**  
**ESTIMATED 2006 MOTOR VEHICLE EMISSIONS IN THE STUDY AREA**  
**(IN POUNDS/DAY)**

CO	ROG	NO <sub>x</sub>	PM <sub>10</sub>	CO <sub>2</sub>
33,795	3,405	4,225	445	1,122,045
Note: PM <sub>10</sub> includes PM <sub>2.5</sub>				
Source: PB/Wong, 2007				

one to eight percent of San Francisco County's overall total for pollutant emissions from all sources, depending on the pollutant.<sup>116</sup> CO accounts for the highest percentage of motor vehicle emissions while particulate matter is the lowest.

<sup>115</sup> California Air Resources Board, The California Almanac of Emissions and Air Quality - 2006 Edition, April 2006 and Bay Air Quality Management District, Source of Inventory of Bay Area Greenhouse Gas Emissions, November 2006..

<sup>116</sup> California Air Resources Board, The California Almanac of Emissions and Air Quality - 2006 Edition, April 2006 and Bay Air Quality Management District, Source of Inventory of Bay Area Greenhouse Gas Emissions, November 2006..

#### 4.11.7 SENSITIVE RECEPTORS

Air quality standards are set at pollutant levels considered to be safe for the public. Of most concern are localized pollutant (CO and PM) impacts because these impacts are greater when members of the public are closer to the source of the emissions. In general, air pollution is a concern wherever the public has access. In the proposed Study Area, this could include locations such as sidewalks, boarding platforms, etc. However, it is unlikely that a member of the public would be at any of these locations for a long period of time and would not have long-term exposure to pollutants generated in the area. Particular attention is paid to locations where people who are more susceptible to respiratory infections and other air quality-related health problems are more likely to spend time. These locations are termed sensitive receptors. Land uses such as playgrounds and parks, schools, hospitals, clinics and health centers, and community centers are used by people who could be susceptible to the results of poor air quality. Schools, hospitals and convalescence homes are relatively sensitive to poor air quality because of the people who frequent these locations (see Sections 4.1.3 and 4.3.1). Residential areas are considered sensitive to poor air quality because people in residential areas are often home for extended periods. Recreational land uses are moderately sensitive to air pollution, because vigorous exercise associated with recreation places a high demand on the human respiratory function.

School playgrounds and parks along the Project corridor are shown on Figure 4-4 and discussed in Section 4.3.3. Sensitive receptors of particular interest for air quality include:

- Yerba Buena Center of the Arts at Third and Mission Streets;
- Union Square along Stockton Street;
- Gordon Lau Elementary School playground at Washington Street;
- Willie “Woo Woo” Wong Playground at Sacramento Street;
- Washington Square at Columbus Avenue and Union Street

#### 4.11.8 CLIMATE CHANGE/GREENHOUSE GAS EMISSIONS

At one time, all climate change occurred naturally. However, now through human activity such as fossil fuel burning, deforestation, and growing population, the mixture of gases in the Earth’s atmosphere is being changed. Certain gases are considered “greenhouse gases” because they absorb infrared radiation and trap the heat in the atmosphere thereby contributing to global warming. Greenhouse gases include carbon dioxide (CO<sub>2</sub>), methane, nitrous oxide, ozone, and water vapor. Some of the gases occur naturally, while others are exclusively human-made. The majority of human-made gases are from burning fossil fuels and include CO<sub>2</sub> and methane.



California, despite its many environmental regulations, is still one of the largest producers of greenhouse gases. State and local governments and agencies are becoming more active in the climate change issue.

In the Bay Area, fuel consumption from transportation (on-road motor vehicles, off-road mobile sources, and aircraft) account for more than fifty percent of greenhouse gases generated in the Bay Area. According to the BAAQMD, the Bay Area generates over 85 million tons of greenhouse gases and the City and County of San Francisco generates 6.7 million tons.<sup>117</sup>

In 2002, the San Francisco Board of Supervisors passed the Greenhouse Gas Emissions Reduction Resolution, committing the City and County of San Francisco to a greenhouse gas emission reduction goal of 20 percent below 1990 levels by the year 2012. In September 2004, San Francisco released its Climate Action Plan, which provides an inventory and reduction target of greenhouse gas emissions. The Plan also contains actions and implementation strategies to reduce greenhouse gas emissions from the transportation and solid waste sectors and through energy efficiency and renewable energy programs.

On June 1, 2005, Governor Schwarzenegger signed Executive Order S-3-05 establishing climate change emission reductions targets for the State of California. The greenhouse gas reduction targets are as follows: reduce emissions to 2000 levels by 2010, reduce emissions to 1990 levels by 2020, and reduce emissions to 80 percent below 1990 levels by 2050. In addition, Governor Schwarzenegger signed AB 32 (known as the California Global Warming Solutions Act of 2006) on September 27, 2006 to create a comprehensive statewide program to reduce greenhouse gas emissions. One of the requirements is that on or before June 30, 2007 CARB is required to publish a list of discrete greenhouse gas emission reduction measures that can be implemented.

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<sup>117</sup> Bay Area Air Quality Management District, Source Inventory of Bay Area Greenhouse Gas Emissions, November 2006.

## **4.12 NOISE AND VIBRATION**

### **4.12.1 NOISE AND VIBRATION MEASURES**

The following are brief descriptions of the measures used to characterize community noise and vibration in the Corridor.

#### **A-Weighted Sound Level**

Sound is measured using microphones that respond accurately to all audible frequencies. The human hearing system does not respond equally well to all frequencies. Low frequency sounds below about 400 Hz are progressively and severely attenuated, as are high frequencies above 10,000 Hz.<sup>118</sup> To approximate the way humans interpret sound, a filter circuit with frequency characteristics similar to the human hearing system is built into sound measurement equipment. Measurements with this filter enacted are referred to as "A-weighted sound levels", expressed in dBA. Community noise is almost always characterized in terms of A-weighted levels.

#### **Equivalent Sound Level (Leq)**

Leq is a measure of sound energy over a period of time. It is referred to as the equivalent sound level because it is equivalent to the level of a steady sound which, over a referenced duration and location, has the same A-weighted sound energy as the fluctuating sound. Leq's for periods of one hour, during daytime or nighttime hours and 24 hours are commonly used in environmental assessments. Because Leq is a measure of the total sound energy, any new community noise source will cause Leq to increase. To estimate how the Third Street Light Rail Project would increase Leq, it is necessary to know the existing Leq and add in the sound energy that would be created by light rail operations. The more train operations and the longer and faster the trains, the more sound energy is added to the existing Leq.

#### **Day-Night Sound Level (Ldn)**

Ldn, also abbreviated DNL, is a 24-hour Leq, but with a 10 dB penalty assessed to noise events occurring at night. Nighttime is defined as 10 p.m. to 7 a.m. The effect of this penalty is that, in the calculation of Ldn, any event during nighttime hours is equivalent to ten events during the daytime hours. This strongly weights Ldn toward nighttime noise to reflect most people being more easily annoyed by noise during the nighttime hours when both background noise is lower and most people are sleeping. Ldn is often used to characterize community noise when assessing community noise impacts. Almost all urban and suburban

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<sup>118</sup> Sound is caused by vibrations that generate waves of minute air pressure fluctuations in the air. Air pressure fluctuations that occur from 20 to 20,000 times per second can be detected as audible sound. The number of pressure fluctuations per second is normally reported as cycles per second or Hertz (Hz). Different vibrational frequencies produce different tonal qualities for the resulting sound.

neighborhoods are in the range of Ldn 50 to 70. An Ldn of 70 dBA represents a relatively noisy area, which might be found near a freeway or a busy surface street. Residential neighborhoods that are not near major sound sources are usually in the range of Ldn 50 to 60 dBA. If there is a freeway or moderately busy arterial nearby, or any substantial nighttime noise, Ldn is usually in the range of 60 to 65 dBA.

### **Vibration Velocity**

Vibration velocity is the basic measure of ground-borne vibration. It is a measure of the rate at which particles in the ground are oscillating relative to the equilibrium point.

### **Vibration Velocity Level**

It is generally accepted that, over the frequency range important for ground-borne vibration from transit systems, human response to vibration is best correlated to the root-mean square (rms) vibration velocity. In this report, rms vibration velocity is always expressed as decibels relative to 1 micro-inch per second. A one second rms time constant is assumed. The units are abbreviated as VdB to avoid any confusion with noise decibels.

Following are typical responses to different levels of building vibration caused by rail transit operations:

- Less than 65 VdB: The building vibration is imperceptible or just barely perceptible.
- 70 to 75 VdB: The vibration may be noticeable, but most people will not consider it intrusive.
- 80 to 85 VdB: The vibration is very noticeable and many people may find the vibration to be unacceptable for residential uses.
- Greater than 85 VdB: If the vibration lasts for more than a couple of seconds, it could make some tasks, such as working at a computer screen, difficult.

### **Peak Particle Velocity (ppv)**

Specifications for allowable levels of vibration from blasting, pile driving and other construction processes with the potential of causing building damage are almost always expressed in terms of peak particle velocity since this is thought to be well correlated with maximum stresses in buildings. Peak particle velocity is the instantaneous positive or negative peak in the vibration signal. The peak may occur for only a small fraction of a second even when the vibration event is several seconds long. As discussed above, it is generally accepted that human response to vibration is better correlated to rms velocity than peak particle velocity. Peak particle velocity is normally expressed in units of inches per

second. Limits to avoid cosmetic building damage from construction vibration are usually in the range of 0.9 to 2 inches per second.

#### 4.12.2 NOISE AND VIBRATION STANDARDS

##### Construction Noise

Most large construction projects have the potential of being sufficiently noisy to be intrusive to adjacent communities, particularly when construction must be performed at night. However, construction noise is temporary in nature and usually has no permanent effects. Although no standardized criteria have been developed for assessing construction noise impact, the FTA guidance manual “Transit Noise and Vibration Impact Assessment” includes guidelines to use when local ordinances or other standards are not applicable. The FTA guidelines are summarized below in Table 4-27.

**TABLE 4-27**

**FTA GUIDELINES FOR IMPACT FROM CONSTRUCTION NOISE**

Land Use	8-hour Leq, dBA		Ldn, dBA
	Day	Night	30-Day Average
Residential	80	70	75 <sup>(1)</sup>
Commercial	85	85	80 <sup>(2)</sup>
Industrial	90	90	85 <sup>(2)</sup>
Notes: <sup>(1)</sup> In urban areas with very high ambient noise levels (Ldn>65 dBA), Ldn from construction should not exceed existing ambient plus 10 dB. <sup>(2)</sup> Twenty-four hour Leq, not Ldn. Source: FTA, 2006			

Since the proposed Central Subway project would be entirely within the City and County of San Francisco, all construction would be subject to San Francisco regulations. Article 29, Regulation of Noise, of the San Francisco Police Code includes specific limits on noise from construction. The basic requirements are:

- Maximum noise level from any piece of powered construction equipment is limited to 80 dBA at 100 ft. This translates to 86 dBA at 50 feet;
- Impact tools are exempted, although such equipment must be equipped with effective mufflers and shields (the noise control equipment on impact tools must be as recommended by the manufacturer and approved by the Director of Public Works); and

- Construction activity is prohibited between 8 p.m. and 7 a.m. if it causes noise that exceeds the ambient noise plus 5 dBA. In many cases, this condition acts to prohibit nighttime construction unless the City grants a variance.

Performing construction in compliance with the City regulations would ensure that construction noise would be below the FTA guidelines.

### **Construction Vibration**

Ground-borne noise, is vibration that is transmitted through the soil to a building where it causes the elements of the building to radiate noise. During construction potential sources of ground-borne noise would be the tunnel boring machine, muck trains removing the tunnel spoils, and other underground activities. It is proposed that 5 dBA be added to the FTA ground-borne noise criteria presented in Table 4-19 as the basis for a noise level limit during construction, for protection of adjacent historic architectural buildings.

### **Damage Risk Vibration Criteria**

Vibration, as it is related to building damage, is generally assessed in terms of peak particle velocity (PPV). PPV is defined as the maximum instantaneous positive or negative peak of the vibration signal in any of three directions, vertical, horizontal or lateral (x, y or z). PPV is the appropriate metric for evaluating the potential of building damage and is often used in monitoring blasting and construction vibration since it relates to the stresses that are experienced by buildings.

Peak particle velocity is typically a factor of 1.7 to 6.0 times greater than root mean square (rms) vibration velocity. Root mean square vibration velocity is used to assess potential human annoyance from vibration. A factor of 4.0 has been used to relate the building damage criteria used in this report to approximate rms vibration velocity levels, which are used by FTA to define the vibration generated by LRT operations.

The severity of vibration-induced structural damage can be categorized as major or minor. Major damage caused by high levels of ground vibration would include serious structural damage, glass breakage, and serious plaster cracking possibly accompanied by falling plaster. For lower levels of vibration, minor damage, which would include fine plaster cracking and the reopening or widening of old cracks, may be observed.

The U.S. Bureau of Mines has identified ground vibration levels that may produce damage in residential structures. By averaging the data of many investigators, the Bureau has found that ground vibration with

peak velocities (PPV) on the order of 7.6 inches/second (in/sec) may cause major damage in residential structures, whereas a PPV near 5.4 in/sec may cause minor damage. The Bureau therefore suggests that a safe limit for structural damage would be a PPV of 2.0 in/sec, as measured in any of the three directions (x, y or z) in the ground adjacent to a structure. This limit is based on the probability that 95 percent of the structures exposed to this level of vibration would not have any structural damage.

A widely accepted criterion is that below 0.5 inch per second peak velocity there is no risk of minor damage to non-historic residential and office buildings. This criterion level is far below the threshold of risk of major structural damage, but it makes some allowance for buildings of all types and for the triggering effect of vibration on stress concentrations that may already be present in the affected buildings.

In the case of old and historic buildings, the situation is not as clear. The level cited as safe from minor damage (0.2 inch per second peak velocity) is probably adequate for historic buildings as a simple guideline level, but it cannot account for long-term fatigue damage that may occur after many years of vibration. Such fatigue damage has been observed in very old structures, e.g. European cathedrals erected in the Middle Ages. In view of this uncertainty, a peak ground vibration velocity of 0.12 in/sec based on German standard, DIN 4150 is recommended as a conservative "minor damage" criterion to be applied in the assessment for buildings of historic value.

The Federal Transit Administration, in their *Transit Noise and Vibration Impact Assessment*, 2006 report recommends applying a vibration damage threshold criterion of PPV 0.20 in/sec for fragile buildings, or PPV 0.12 in/sec for extremely fragile historic buildings.

Based on the research to date, as discussed above, the following criteria levels, presented in Table 4-28 would be used to judge the potential risk of damage to historic buildings or cultural resource structures during construction of the project. These levels are significantly lower than the FTA vibration criteria of 72 to 75 VdB for LRT operations and are also lower than the maximum vibration levels projected from the LRT operations at any structure along the alignment.

### **Operation Noise**

The operation of light rail vehicles along at-grade track presents the greatest potential for noise impact. Impact from operational noise for this project is based on the FTA criteria as defined in the guidance manual "Transit Noise and Vibration Impact Assessment." The FTA noise impact criteria are founded on well-documented research on community reaction to noise. The criteria are based on the change in

**TABLE 4-28**  
**DAMAGE RISK VIBRATION CRITERIA**

	<b>Peak Particle Velocity (in/sec)</b>	<b>RMS Velocity – VdB (re: 1 micro inch/sec)</b>
Structural Building Damage	2.0	120
Architectural Building Damage	0.5	108
Damage Risk to Historic Buildings and Cultural Resource Structures	0.12 to 0.20	95 to 100
Note: Peak particle velocity is assumed to be four times greater than root mean square (rms) vibration velocity.		

noise exposure using a sliding scale. Although the FTA criteria allow more transit noise in neighborhoods with high levels of existing noise, they also reduce the amount that total noise exposure can be increased in neighborhoods with high levels of existing noise.

The FTA Noise Impact Criteria group noise sensitive land uses into the following three categories:

- Category 1: Buildings or parks where quiet is an essential element of their purpose.
- Category 2: Residences and buildings where people normally sleep. This includes residences, hospitals, and hotels where nighttime sensitivity is assumed to be of utmost importance.
- Category 3: Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, and churches.

Ldn is used to characterize noise exposure for residential areas (Category 2). For other noise sensitive land uses, such as parks and school buildings (Categories 1 and 3), the maximum 1-hour Leq during the facility's operating period is used.

There are two levels of impact included in the FTA criteria. The interpretation of these two levels of impact is summarized below:

- **Severe:** Severe noise impacts are considered "significant" as this term is used in NEPA and implementing regulations. Noise mitigation will normally be specified for severe impact areas unless there is no practical method of mitigating the noise.
- **Moderate Impact:** In this range of noise impact, other project-specific factors must be considered to determine the magnitude of the impact and the need for mitigation. These other factors can include the predicted increase over existing noise levels, the types, and number of noise-sensitive land uses

affected, existing outdoor-indoor sound insulation, and the cost effectiveness of mitigating noise to more acceptable levels. Although other factors should be considered when designing mitigation for Moderate Impact, it is assumed by FTA that some sort of mitigation will be specified for most Moderate Impacts.

The noise impact criteria are summarized in Table 4-29. The first column shows the existing noise exposure and the remaining columns show the additional noise exposure caused by the transit project that is necessary for the two levels of impact. The future noise exposure would be the combination of the existing noise exposure, the additional noise exposure caused by the transit project, and the small reduction in noise because of fewer diesel buses and a slightly lower volume of vehicular traffic in the Third Street Corridor. The impact thresholds given in Table 4-29 have been rounded off to the nearest decibel, which is appropriate given that a one decibel difference in noise level is barely perceptible for humans. However, in performing the noise impact assessment, the projections and the impact thresholds are not rounded off until the final step.

### **Operation Vibration**

Ground-borne vibration from light rail operations may be perceived by building occupants in the following manners: 1) perceptible vibration of floors and walls; 2) rattling of windows; 3) rattling of items hanging on walls, or rattling of dishes and bric-a-brac on shelves; or 4) as a low-frequency rumbling noise. The rumbling noise is caused by sound radiated from vibrating room surfaces and is referred to as ground-borne noise. Table 4-30 shows the limits on ground-borne vibration and ground-borne noise that are applicable to this Project. Although there is only limited information on how occupants respond to building vibration, the limits in Table 4-30 are based on available research and on the experience of rail transit systems and their vibration complaints.

International standards have been developed for the effects of vibration on people in buildings with ratings related to annoyance and interference with activities based on frequency distribution of acceptable vibrations. These criteria have been supplemented by industry standards for vibration-sensitive equipment. Both sets of criteria are expressed in terms of one-third octave band velocity spectra, with transient events like train passbys described in terms of the maximum rms vibration velocity level with a one-second averaging time. The measurement point is specified as the floor of the receiving building at the location of the prescribed activity.

The vibration impact criteria are shown in Figure 4-13 where the international standard curves and the industry standards are plotted on the same figure. Interpretations of the various levels are presented in



**TABLE 4-29**  
**FTA NOISE IMPACT CRITERIA**

Existing Noise Exposure Leq or Ldn <sup>(1)</sup>	Project Noise Exposure Impact Thresholds, Ldn or Leq, <sup>(1)</sup> dBA			
	Category 1 or 2 Sites		Category 3 Sites	
	Moderate Impact	Severe Impact	Moderate Impact	Severe Impact
<43	Amb.+10	Amb.+15	Amb.+15	Amb.+20
43	52	59	57	64
44	52	59	57	64
45	52	59	57	64
46	52	59	57	64
47	52	59	57	64
48	53	59	58	64
49	53	59	58	64
50	53	60	58	65
51	54	60	59	65
52	54	60	59	65
53	54	60	59	65
54	55	61	60	66
55	55	61	60	66
56	56	62	61	67
57	56	62	61	67
58	57	62	62	67
59	57	63	62	68
60	58	63	63	68
61	58	64	63	69
62	59	64	64	69
63	60	65	65	70
64	60	66	65	71
65	61	66	66	71
66	61	67	66	72
67	62	67	67	72
68	63	68	68	73
69	64	69	69	74
70	64	69	69	74
71	65	70	70	75
72	65	71	70	76
73	65	72	70	77
74	65	72	70	77
75	65	73	70	78
76	65	74	70	79
77	65	75	70	80
>77	65	75	70	80

Note: <sup>(1)</sup> Ldn is used for land uses where nighttime sensitivity is a factor; maximum 1-hour Leq is used for land use involving only daytime activities.

Category Definitions:

Cat 1: Buildings or parks where quiet is an essential element of their purpose.

Cat 2: Residences and buildings where people normally sleep. This includes residences, hospitals, and hotels where nighttime sensitivity is assumed to be of utmost importance.

Cat 3: Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, and churches.

Source: FTA, 2006.

**TABLE 4-30**  
**GROUND-BORNE VIBRATION (GBV) AND GROUND-BORNE NOISE (GBN)**  
**IMPACT CRITERIA**

Land Use Category	GBV Impact Levels (VdB re: 1 micro-inch/sec)			GBN Impact Levels (dB re" 20 micro Pascals)		
	Frequent Events <sup>1</sup>	Occasional Events <sup>2</sup>	Infrequent Events <sup>3</sup>	Frequent Events <sup>1</sup>	Occasional Events <sup>2</sup>	Infrequent Events <sup>3</sup>
<b>Category 1:</b> Buildings where low ambient vibration is essential for interior operations.	65 VdB <sup>4</sup>	65 VdB <sup>4</sup>	65 VdB <sup>4</sup>	N/A <sup>4</sup>	N/A <sup>4</sup>	N/A <sup>4</sup>
<b>Category 2:</b> Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB	35 dBA	38 dBA	43 dBA
<b>Category 3:</b> Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB	40 dBA	43 dBA	48 dBA
Notes: 1. "Frequent Events" is defined as more than 70 vibration events of the same source per day. Most rapid transit projects fall into this category. 2. "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day. Most commuter trunk lines have operations with this many events. 3. "Infrequent Events" is defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines. 4. This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors. Source: FTA, 2006.						

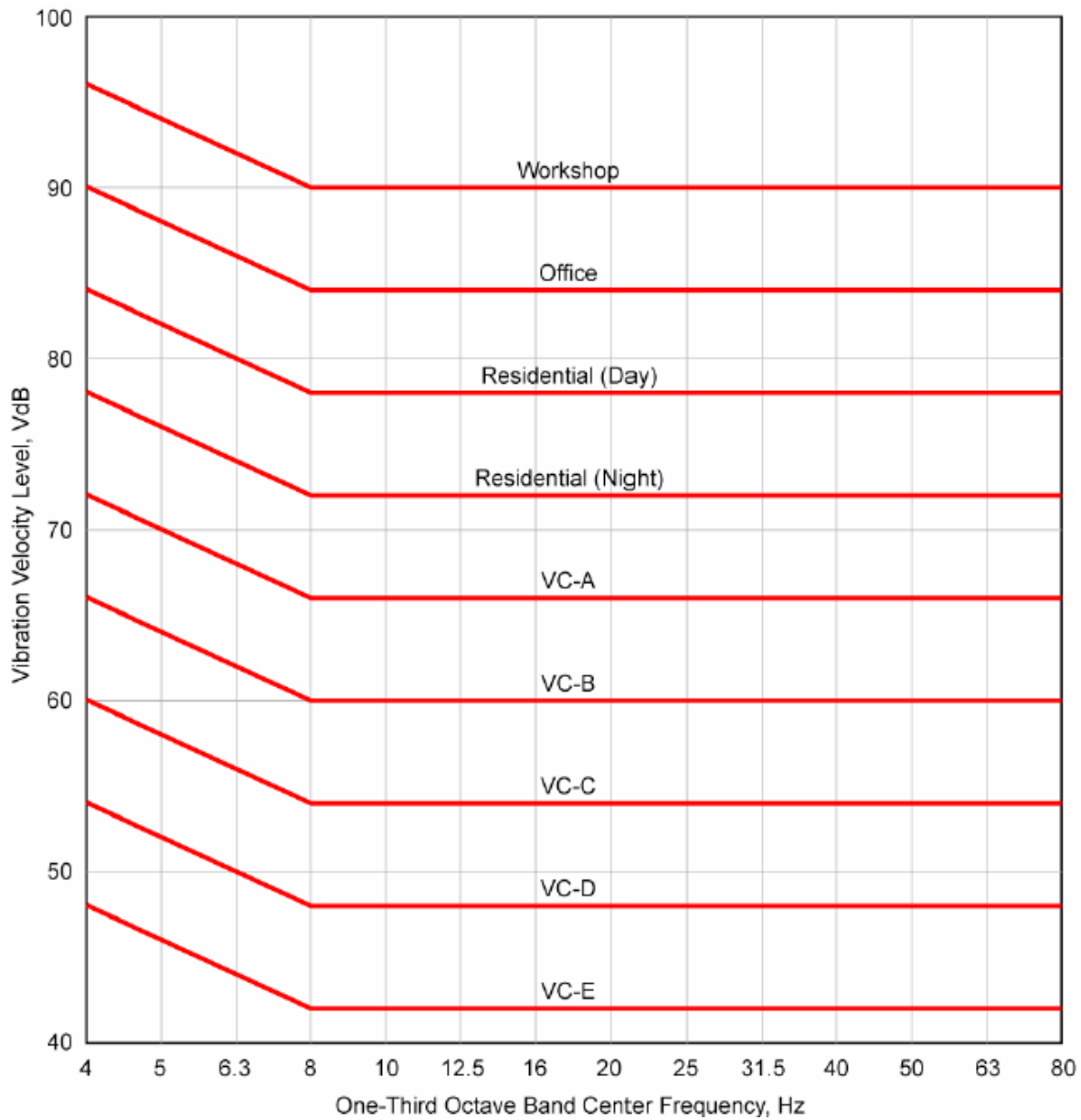
Table 4-31. One-third octave band levels that exceed a particular criterion curve indicate the need for mitigation and the frequency range within which the treatment needs to be effective.

The residential limits presented in Figure 4-13 has been used on a number of previous Muni projects. The vibration is considered acceptable as long as no part of the 1/3 octave band spectrum is exceeded.

#### 4.12.3 EXISTING NOISE CONDITIONS AT SENSITIVE RECEPTORS

Existing noise exposure at sensitive receptors along the Corridor was documented through noise monitoring and analysis. Noise monitoring was performed at a total of 15 locations (6 of the samples used were taken along the Central Subway in 1997) throughout the corridor that are representative of the noise sensitive receptors in the corridor. Measurements taken in 1997 remain representative at noise levels at these locations when compared with nearby measurements taken in 2007. As discussed below, the monitoring showed existing noise exposure to be relatively high in the Corridor due to existing traffic on Third Street, Fourth Street, Stockton Street, and other heavily traveled arterials.

**FIGURE 4-13**  
**DETAILED GROUND-BORNE VIBRATION CRITERIA**



Source: FTA 2006

**TABLE 4-31**  
**INTERPRETATION OF DETAILED VIBRATION ANALYSIS CRITERIA**

Criterion Curve (see Figure 4-13)	Max Lv (VdB) <sup>1</sup>	Description of Use
Workshop	90	Distinctly feelable vibration. Appropriate to workshops and non-sensitive areas.
Office	84	Feelable vibration. Appropriate to offices and non-sensitive areas.
Residential Day	78	Barely feelable vibration. Adequate for computer equipment and low-power optical microscopes (up to 20X).
Residential Night, Operating Rooms	72	Vibration not feelable, but ground-borne noise may be audible inside quiet rooms. Suitable for medium-power optical microscopes (100X) and other equipment of low sensitivity.
VC-A	66	Adequate for medium- to high power optical microscopes (400X), microbalances, optical balances, and similar specialized equipment.
VC-B	60	Adequate for high-power optical microscopes (1000X), inspection, and lithography equipment to 3 micron line widths.
VC-C	54	Adequate for most lithography and inspection equipment to 1 micron detail size.
VC-D	48	Suitable in most instances for the most demanding equipment, including electron microscopes operating to the limits of their capability.
VC-E	42	The most demanding criterion for extremely vibration-sensitive equipment.
<sup>1</sup> As measured in 1/3-octave bands of frequency over the frequency range 8 to 80 Hz. Source: FTA 2006		

Existing noise is an important element of the noise impact assessment as the FTA criteria for noise impact from transit operations are based on the levels of existing noise. Since it is not possible to measure ambient noise at every noise sensitive receptor in the Corridor, the noise monitoring results are generalized so that a limited number of measurements can be used to estimate existing noise exposure at all sensitive receptors in the Corridor. The generalization process is relatively straightforward since traffic is the major existing noise source and the traffic volumes are similar in large sections of the Corridor.

The following sections discuss the approach and results of the noise monitoring program. The generalized noise levels used for the evaluation of noise impact are also described.

### Noise Monitoring Program

Noise monitoring was performed at a total of 15 locations using two approaches:

1. Long-Term Monitoring: Continuous noise monitoring over a 24-hour weekday period was performed at a total of five locations using unattended monitors. The monitors were programmed to provide several measures of noise exposure for each hour and for the entire 24-hour period.
2. Short-Term Monitoring: The 24-hour monitoring was supplemented with short-term noise measurements performed at an additional ten locations throughout the corridor. Traffic counts were

made at the same time as the measurements to provide a means of correlating traffic volumes with ambient noise levels. The short-term measurements were all 30 minutes long on a weekday between 8 a.m. and 6 p.m.

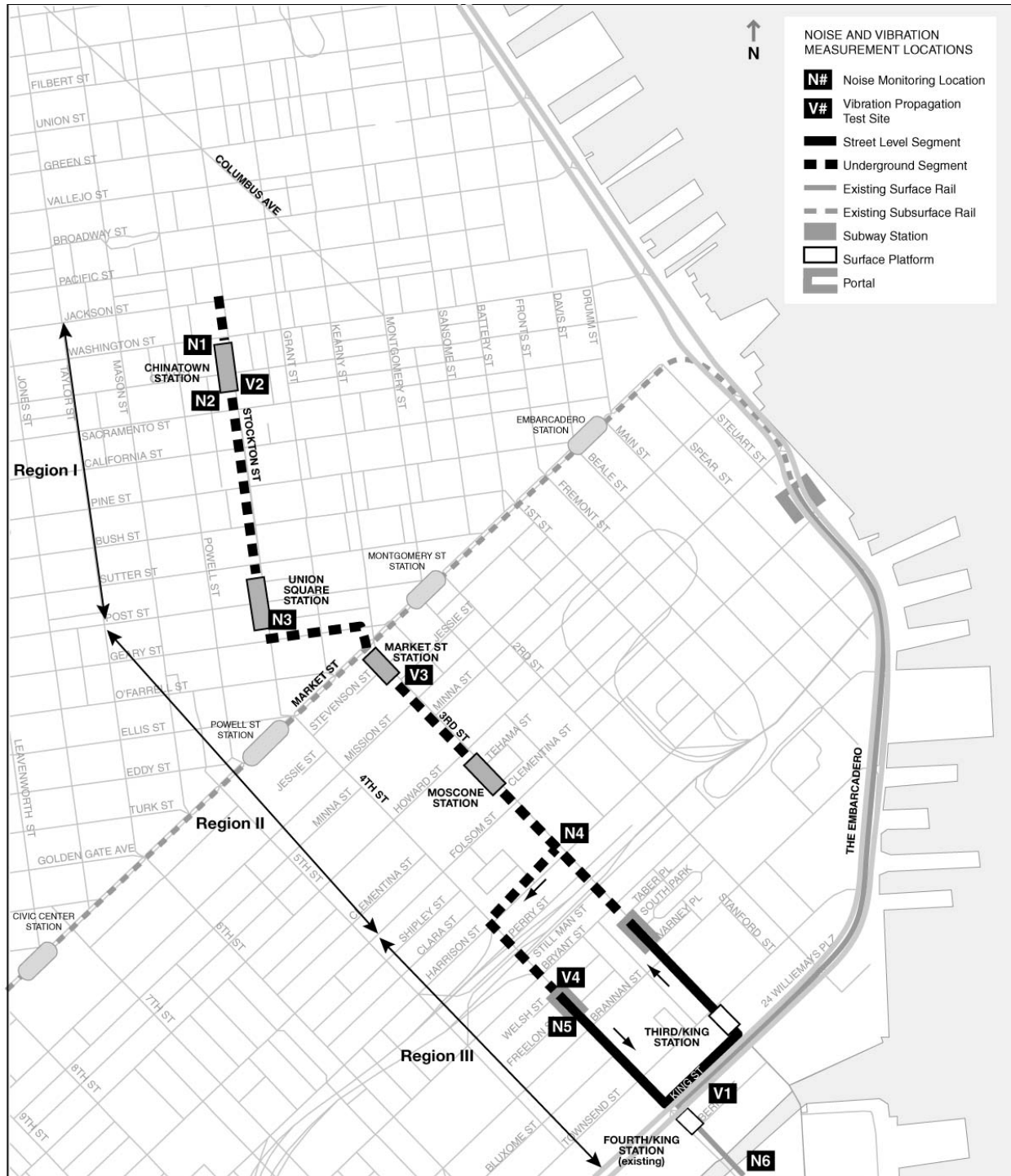
The monitoring sites were selected to be representative of noise sensitive land uses in the Corridor, typically single- or multi-family residences, churches, or parks. Figures 4-14 and 4-15 show the general locations of the monitoring sites for the different alternatives. The measurement microphones were positioned to characterize the exposure of the site to the dominant noise source in the area, which was almost always vehicular traffic on busy arterials. The measurement microphones were located at the approximate set-back lines of residences from the road and were positioned to avoid acoustic shielding by buildings, landscaping, walls, fences, or other obstructions.

The results of the noise monitoring are summarized in Table 4-32 in terms of Ldn and peak hour Leq during daytime and nighttime hours. Each short-term noise measurement is compared to the closest 24-hour measurement site at the same hour of the day. The short-term noise levels are then adjusted relative to the 24-hour levels in order to develop a peak Leq and Ldn for each of the short-term measurement locations.

Traffic counts were performed at representative receiver locations where short-term ambient noise measurements were conducted. Table 4-33 shows the results of the traffic counts at these sites in the traffic count column. Projections of noise levels developed using a simplified version of the approved FHWA model for traffic noise and traffic counts are also presented in Table 4-33. Measurement Site N6, the measurement site near the houseboat community in the China Basin channel west of Fourth Street, is not shown in Table 4-33 because a single source of traffic noise was not dominant at this location. Noise at Site N6 was a composite of traffic noise from a number of sources including the I-280 freeway, Fourth Street, and Channel Street.

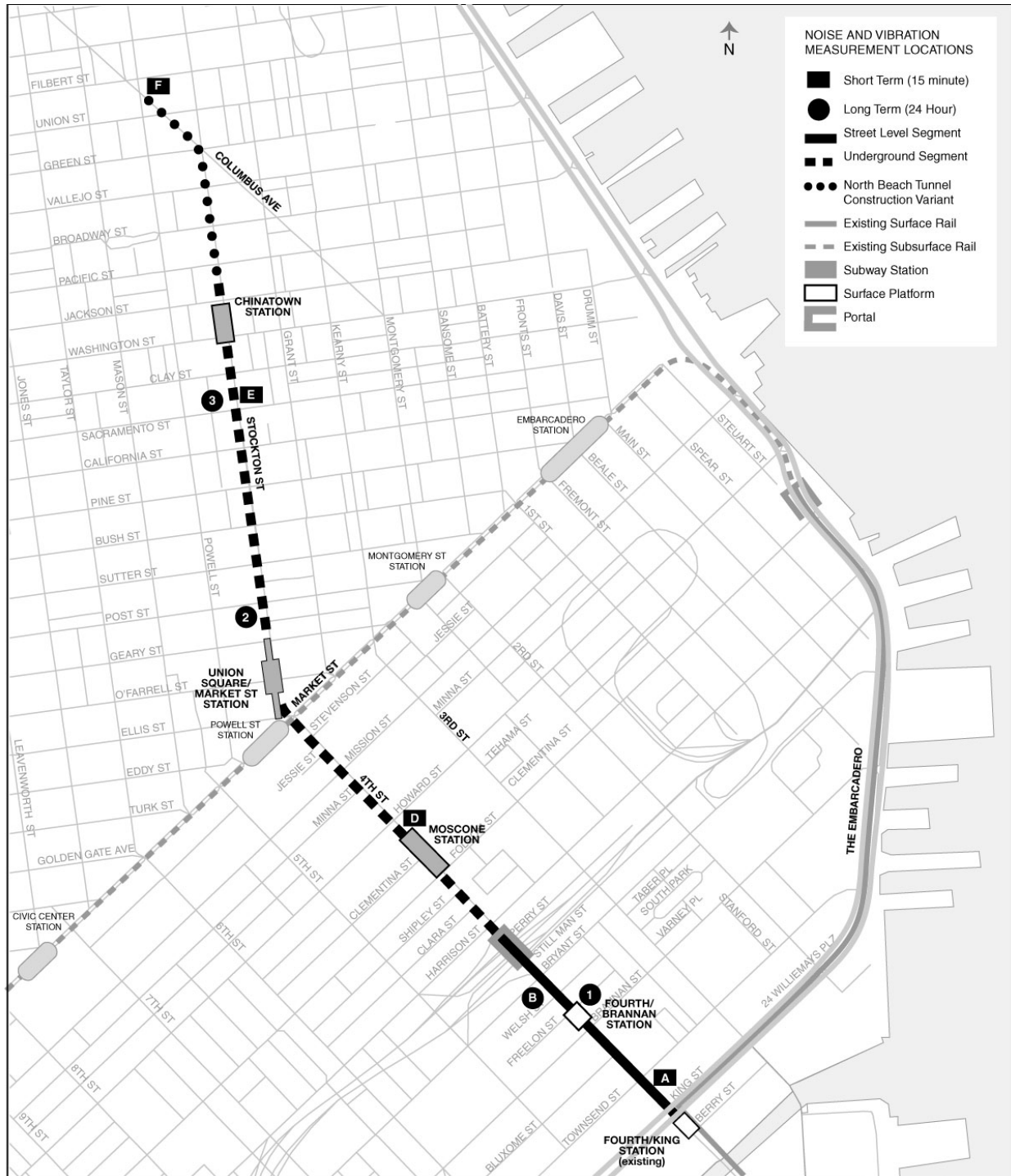
The projected levels of traffic noise in Table 4-32 are within 1 dBA of the measured level at six of the sites and within 3 dBA of the measured level at one site, and 5 dBA at one site. The general trend is that the projections are higher than the measured levels. This is a reasonably good agreement given that the FHWA model is designed for freely flowing traffic at speeds above 30 mph, while the traffic in the measurement area was typically stop and start, with the speed being highly variable. The comparison of the measurements and the projections using the simplified FHWA model validate use of the model to

**FIGURE 4-14: NOISE AND VIBRATION MEASUREMENT POSITIONS**  
**(ENHANCED 1998 EIS/EIR ALIGNMENTS SITES N1 - N6)**



Source: PB/Wong  
 Not to scale

**FIGURE 4-15: NOISE AND VIBRATION MEASUREMENT POSITIONS**  
**(FOURTH/STOCKTON ALIGNMENT - SITES 1 - 3, AND SITES A - F)**



**TABLE 4-32**  
**SUMMARY OF NOISE MONITORING RESULTS**

Site	Description	Type	Noise Monitoring Results, dBA	
			Peak Hour Leq <sup>1</sup>	Ldn <sup>(3)</sup>
N1	Chinatown, Stockton & California	24-hr	66	70
N2	Stockton & Sacramento	short-term	72	74
N3	Stockton Street & Post	short-term	69	71
N4	Third Street, between Harrison & Folsom	short-term	70	72
N5	Third Street, south of Moscone Center	short-term	69	71
N6	Channel Street	short-term	60	62
1	The Palms on 4 <sup>th</sup> Street	24-hr	70	71
2	Union Square at Stockton Street– Grand Hyatt Hotel	24-hr	67	70
3	Chinatown – Stockton Street Upper Floor Residential	24-hr	70	73
A	The Beacon Condominiums – 266 King Street	short-term	72	73
B	Hotel Utah – 4 <sup>th</sup> and Bryant Street	short-term	74	75
C	Avalon Yerba Buena Apartments	short-term	76	77
D	Moscone Station-Apartments on 4 <sup>th</sup> and Howard Street	short-term	71	73
E	Willie “Woo Woo” Wong Playground	short-term	62	NA
F	Washington Square Park - 2 <sup>nd</sup> Floor Residential	short-term	71	74
NA – These sites do not have sleep activity. Ldn existing noise levels are not applicable at these sites.				
1 Each 15-minute noise measurement is compared to the closest 24-hour measurement site at the same hour of the day. The 15-minute noise levels are then adjusted relative to the 24-hour levels in order to develop a peak Leq and Ldn for each of the 15-minute measurement locations.				
Source: PB/Wong 2006				

**TABLE 4-33**  
**TRAFFIC COUNTS DURING SHORT-TERM MEASUREMENTS**

Site	Description/Street	Main Noise Source	Start		Traffic Counts, vehicles/hour			Leq, dBA	
			Date	Time	Autos	Trucks		Actual Measurements	FHWA Model
						Med.	Heavy		
N2	Stockton & Sacramento	Stockton	7/29/97	11:02 a.m.	793	63	57	72	71
N3	Stockton & Post	Stockton	7/29/97	11:43 a.m.	1,434	84	45	69	70
N4	Third Street between Harrison and Folsom	Third	7/29/97	12:23 p.m.	1,494	45	51	70	75
N5	Third Street, south of Moscone Center	Third	7/23/97	06:28 p.m.	1,647	43	46	69	72
A	Fourth & Townsend Streets	Fourth	11/14/07	11:57 a.m.	472	32	16	71	71
1	Fourth Street	Fourth	11/14/07	11:25 a.m.	570	18	18	68	68
C	Fourth & Bryan Streets	Fourth	11/14/07	10:56 a.m.	488	22	18	74	74
D	Fourth & Harrison Streets	Fourth	11/15/07	11:10 a.m.	485	23	18	74	74
Source: PB/Wong 2006									

determine whether the change in the traffic patterns resulting from this project would cause any noise impacts.



#### 4.12.4 EXISTING VIBRATION CHARACTERISTICS

##### **Ambient Vibration**

Existing sources of ground-borne vibration in the Study Area include: vehicular traffic on surface streets, particularly heavy trucks and buses; the BART and Muni subway lines operating under Market Street; vehicular traffic on the Hwy 101 and I-280; Caltrain operations; and the Muni Metro Extension to the Caltrain Terminal at Fourth and King Streets. All of these sources can cause perceptible ground-borne vibration at distances up to about 30 meters (100 feet) from the source, although the vibration from street and freeway traffic is not generally perceptible unless there are some sort of irregularities in the roadway surface such as potholes. As a result, even though there are a number of sources of ground-borne vibration in the Corridor, ambient vibration is not expected to exceed the threshold of human perception except in localized areas near these sources.

Although ambient vibration is rarely an issue, a limited number of measurements are usually performed to document existing vibrations levels. Even when existing ground-borne vibration is not expected to be perceptible, documenting the existing levels of ground-borne vibration can help identify whether the local geology is prone to vibration problems.

Short-term vibration measurements of 20 minutes were carried out near the corner of Stockton and Sacramento Streets (noise monitoring site N2) as a representative location where residential uses would be affected by ambient vibration. The ambient vibration measurements were made with high-sensitivity accelerometers mounted in the vertical direction on flat, paved surfaces and set back from the street at the nearest residential building facade. The acceleration signal was recorded using a digital audio tape (DAT) recorder. The tape recording was subsequently analyzed in the laboratory to determine average and maximum vibration levels.

The results of the ambient vibration measurements are summarized in Table 4-34. The highest observed vibration levels were caused by buses and heavy trucks. As a point of reference, the threshold of human perception is around 65 VdB. The average vibration levels, which are around 50 VdB, are well below the threshold of human perception. Even the maximum levels during the 20-minute measurement periods were below the threshold of human perception. The measurements confirm that existing ground-borne vibration in the Corridor is not sufficient to be intrusive.

**TABLE 4-34**  
**AMBIENT VIBRATION MONITORING RESULTS**

Site	RMS Vib. Velocity Level, VdB	
	Average <sup>(1)</sup>	Max <sup>(2)</sup>
N2. Near corner of Stockton Street & Sacramento Street.	52	63
Notes: <sup>(1)</sup> Energy average over 20-minute measurement period. <sup>(2)</sup> Maximum vibration velocity level with 1-second rms time constant.		

### Vibration Propagation

In addition to the measurements of ambient vibration, a special test was performed to characterize vibration propagation in the Study Area. The vibration propagation test basically consists of using a weight dropped onto a load cell to cause a ground-vibration pulse. The impact force of the dropped weight is measured with the load cell and accelerometers are used to measure the vibration pulse at distances from 25 to 200 feet from the load cell. These measurements are a key component of the ground-borne vibration projection procedure since they eliminate the need to approximate how a particular set of geologic conditions will affect levels of ground-borne vibration.

The quantity used to characterize vibration propagation is transfer mobility, which describes the ground's response to a vibration input at a given distance. The goal is to determine the difference between the transfer mobility measured at a reference site where trains are operating and the transfer mobility at a new site where similar trains are proposed. This difference is then used to adjust train vibration data from the reference site to the conditions of the new site.

The alignment was divided into three regions with similar soil types and layering. Transfer mobility data were collected at three monitoring well boreholes: Pagoda Alley (Chinatown), Jessie and Third Streets, and Welsh and Fourth Streets. Transfer mobility data from these three boreholes were taken as representative for their specific alignment region as shown in Table 4-35.

**TABLE 4-35**  
**VIBRATION PROPAGATION TEST LOCATIONS**

Region	Borehole	Description Station Limits Area
I	V-2	Pagoda Alley 10+000 – 10+850 Chinatown to Post Street
II	V-3	Jessie Street 10+850 – 11+750 Post Street to Folsom Street
III	V-4	Fourth Street 11+750 – 12+740 (SB) Folsom Street to Townsend Street
Groundbourne Noise and Vibration Study Task 1.02-07, Revision 1, February 27, 2004 Source: PB/Wong		

Additional surface vibration-propagation testing was performed at two locations: Freelon Alley (next to 570 Fourth Street), and Varney Place. All measurement locations are shown in Figure 4-14.

Details of the vibration propagation tests are contained in the Noise and Vibration Technical Report. The vibration propagation curves for the four sites were similar even though the sites were distributed along the Corridor. None of the sites displayed any evidence of unusually efficient vibration propagation. For this preliminary analysis, the results at the four test sites were combined into one curve that was used to characterize all of the proposed locations of at-grade track in the Corridor. At the sites where vibration impacts have been predicted (Section 5.12), detailed propagation testing would be performed during the final design phase of the Central Subway project to improve the estimates of vibration propagation and to design specific improvement measures into track design.

## **5.0 ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES**

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This chapter of the SEIS/SEIR identifies and evaluates the potential environmental operational and cumulative consequences of each of the Central Subway alternatives described in Chapter 2.0: Alternative 1 - No Project/TSM, Alternative 2 - Enhanced EIS/EIR Alignment, and Alternative 3 - Fourth/Stockton Alignment with Options A and B. Mitigation measures that would reduce or avoid impacts are then described for each potential adverse impact identified. All construction impacts and mitigation measures are detailed in Chapter 6.0, Construction.

Consistent with CEQA, the San Francisco Planning Department considers mitigation measures when necessary and feasible in order to reduce or eliminate potentially significant environmental effects. Improvement measures may also be proposed to further minimize the affects of impacts that are less-than-significant reducing those effects even further. Under NEPA and FTA procedures, mitigation measures may be recommended to address project-related adverse effects even if impacts would not necessarily be considered significant.<sup>1</sup> This section identifies mitigation measures intended to reduce Project impacts to comply with both CEQA and NEPA requirements. For CEQA purposes, Chapter 7.0 provides the determination of significance and distinction between mitigation and improvement measures.

### **5.1 LAND USE**

#### **5.1.1 INTRODUCTION**

An adverse impact on land use would occur if the Project would conflict with any applicable land use plan, policy, regulation, or zoning code; have a substantial adverse impact upon the existing character of the project's vicinity; or physically divide an established community. An impact would be considered generally significant if it were to change land use in a manner that would be incompatible with surrounding land uses.

The Project alternatives could affect surrounding land use in a variety of ways, both during the construction and operational phases. These impacts include the physical impacts of the right-of-way and ancillary facilities, such as mid-street portals, emergency ventilation shafts, electrical substations, station entrances and the surface street station platform south of Market Street.

In this section, potential land use impacts are assessed in terms of Corridor, neighborhood, and site-specific impacts. The Project alternatives are assessed against the existing and planned developments in

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<sup>1</sup> Council on Environmental Quality, Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 Federal Register, 18026, 1981.

the Corridor and surroundings areas, in order to evaluate the compatibility of the proposed facilities with neighboring land uses. The land use analysis incorporates a 300-foot area along either side of the proposed alignments and a 1,500-foot area around the boundaries of the proposed light rail stations.

Other considerations include whether the Project would disrupt access to neighborhoods, physically divide or isolate some areas within a neighborhood from others. The operation of the Project could adversely affect businesses by disrupting access or by separating a business from its customers. The potential direct and indirect impacts and benefits of the operation on neighborhoods and on business communities are described below.

#### 5.1.2 CONSISTENCY WITH ADOPTED PLANS AND POLICIES AND LAND USE COMPATIBILITY

##### **Alternative 1 - No Project/TSM**

The No Project/TSM Alternative would be consistent with many of the adopted plans and policies reviewed in Section 4.1.1. For example, the No Project/TSM Alternative would support policies contained in San Francisco's *General Plan* aimed at encouraging the development and use of urban mass transportation systems, such as Objective 1, Policy 1.3 contained in the Transportation Element - "Give priority to public transit and other alternatives to the private automobile as the means of meeting San Francisco's transportation needs, particularly those of commuters." Similarly, this alternative would be consistent with goals and objectives contained in the *Regional Transportation Plan* (RTP), including the following: "Improve mobility of persons and freight" and "Support transportation investments that promote community social and economic objectives" through transportation system improvements.

The No Project/TSM Alternative would include a variety of roadway and Muni service improvements, including the operation of the T-Third line as an extension of the Castro Shuttle to Visitacion Valley, extension of N-Judah rail service to a turnaround loop at 18th, Illinois, 19th and Third Streets to serve expected UCSF and Mission Bay ridership volumes, and bus service modifications that would occur independent of this Project. As no new project-related fixed rail facilities would occur, there would be no change in the physical environment and therefore no adverse impacts to land use or neighborhood character associated with this Alternative.

Under the No Project/TSM Alternative, however, transit services would not keep pace with future travel demand in the Study Area. As the quality and efficiency of public transit service deteriorates (see Section 3.0 Transit Impacts), users could be attracted to alternative modes of transportation, including use of private vehicles. For this reason, the No Project/TSM Alternative would be inconsistent with transportation policies contained in Area Plans, including the *South of Market Plan*, *Northeastern*

*Waterfront Plan, Downtown Plan, Chinatown Plan, and Eastern Neighborhoods Community Plan*, that encourage accommodating future employment and population growth in San Francisco through transit, rather than private automobiles.

While the No Project/TSM Alternative would generally support locally adopted “Transit First” policies, it would not support the specific policies that are aimed at providing fixed rail service in the corridor, e.g., as reflected on the Rail Transit map in the Transportation Element, in the San Francisco Transportation Authority’s *Strategic Plan* and *Four Corridor Plan*, and in the MTC *Regional Transportation Plan*. It may also not accommodate future employment and population growth in transit as effectively as the Build Alternatives.

### **Alternative 2 - Enhanced EIS/EIR Alignment**

The Enhanced EIS/EIR Alignment would be generally consistent with San Francisco’s “Transit First” policy, as well as regional government policies aimed at improving transportation access to job centers and recreational opportunities. The alternative also would be consistent with rail project funding priorities identified in the San Francisco County Transportation Authority’s *Strategic Plan* and *Four Corridor Plan* as well as MTC’s RTP, which “supports transportation investments that promote community social and economic objectives.”

The Enhanced EIS/EIR Alignment would be consistent not only with *General Plan* policies aimed at developing transit as the primary mode of transportation within San Francisco, but also with specific policies that encourage the provision of a light rail transit service along the Third Street Corridor from Visitacion Valley in the south to Chinatown in the north. Such policies are contained in the Transportation Element – Rail Transit Plan of the *General Plan*. Area Plans such as the *South of Market Plan, Northeastern Waterfront Plan, Downtown Plan, Chinatown Plan, and Eastern Neighborhoods Community Plan*, all have policies focused on improvements to transit service.

### **Operation Impacts**

Since the Project would be primarily an underground operation, the Enhanced EIS/EIR Alignment would not have significant impacts on surface land uses, disrupt neighborhood character, or physically divide or isolate areas of a neighborhood. Stations would be located in urban areas that are already substantially built out. Land uses in the vicinity of stations could benefit from and be supported by the Central Subway, by making it easier and more efficient for riders to access commercial and residential development in the vicinity of stations.

Along the surface segment, there would be no changes to the land uses and no physical division to the neighborhood because the light rail would be in the existing street right-of-way. The light rail would serve as a unifying element as it will draw pedestrians to the stations.

In the subway segment, the main station entries and emergency ventilation shafts would generally be at off-street locations. The Market Street Station would require new entrances to the station on the south side of Market Street at Third Street and would require the elimination of parking spaces at the Hearst Garage (located at the southeast corner of Stevenson and Third Streets) to accommodate vent shafts. The entrance to the Union Square Station in the plaza would result in a potential loss of 29 parking spaces out of 985 spaces in the Union Square Garage and additional foot traffic in the park. The removal of parking spaces from the Hearst and Union Square garages would not hinder their continued use as parking facilities. (Specific impacts on parking are discussed in Chapter 3.0 Transportation).

Private and public right-of-way would be required to accommodate the Enhanced EIS/EIR Alignment station entries and ventilation shafts, but would minimally affect land use. Further discussion of property acquisition is found in Section 5.2.

#### Cumulative Impacts

The Enhanced EIS/EIR Alignment is not expected to have any long-term cumulative impacts on land use or neighborhood character, since it would primarily serve fully developed, urban areas and would not physically divide existing neighborhoods.

#### Mitigation Measures

No mitigation measures would be required.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

Like the Enhanced EIS/EIR Alignment, the Fourth/Stockton Alignment Option A would be generally consistent with the adopted plans and policies contained in the *General Plan* and Area Plans aimed at improving transit service in corridors with high potential ridership. The Fourth/Stockton Alignment Option A would be consistent with the *Downtown Plan*'s "Transit First" policy, as well as with rail project funding priorities identified in the San Francisco County Transportation Authority's *Strategic Plan* and *Four Corridor Plan*, as well as in the MTC RTP. The additional transit capacity would better provide for increased transit demand associated with growth in the corridor.

### Operation Impacts

Since the proposed Project would be primarily an underground operation, the Fourth/Stockton Alignment Option A would not significantly impact surface land uses, disrupt neighborhood character, or physically divide an existing neighborhood. Stations would be located in urban areas that are already substantially built out. Land uses in the vicinity of stations could benefit from and be supported by the subway, by making it easier and more efficient for riders to access commercial and residential development in the vicinity of stations.

Along the surface segment, the width of the roadway will be maintained and no changes to the adjacent land uses would be required, however, some loss of on-street parking would occur on blocks with station entrances or tunnel portals (see Section 3.2.4, Parking). The roadway would be modified to accommodate surface light rail operations within the street right-of-way, but this would not be expected to disrupt the character of the neighborhood or to physically divide it.

As with the EIS/EIR Enhanced Alignment, in the subway segment, the main station entries and emergency ventilation shafts would be at off-street locations. There would also be street and sidewalk modifications, such as bulb-outs, at certain subway station locations to provide secondary entries. Construction of the Moscone Station would require the accommodation of stairs on the west side of Fourth Street at Howard Street and one elevator on the east side of Fourth Street at Howard Street, but would not disrupt adjacent land uses. The station entrance in the Union Square plaza would add foot traffic in the plaza and would result in a loss of 29 out of 985 parking spaces in the Union Square Garage, but would not hinder its continued use as a parking facility. (Specific impacts on parking are discussed in Chapter 3.0, Transportation.)

Acquisition of private property and use of public right-of-way would be required to accommodate Fourth/Stockton Alignment Option A station entries and ventilation shafts at certain locations, but would minimally affect land use. Sub-sidewalk basements in the public right-of-way along Stockton Street between Geary and Ellis Streets would need to be eliminated to accommodate the Union Square/Market Street Station. Further discussion of property acquisitions is found in Section 5.2.

### Cumulative Impacts

The cumulative impacts would be the same as those described under Alternative 2.

### Mitigation Measures

No mitigation measures would be required.



### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

The consistency with adopted plans and policies would be the same as described for Alternative 3A.

#### Operation Impacts

Operation impacts on land use are the same as for Alternative 3A, except that an amendment of the Planning Code, which prohibits the demolition of residential apartment units, at this location would be required for the Chinatown Station. The impacts would be the same as those discussed in Section 6.5.2, Property Acquisition.”

#### Cumulative Impacts

Cumulative impacts on land use would be the same as for Alternative 3A.

#### Mitigation Measures

No mitigation measures would be required.

## 5.2 SOCIOECONOMIC CHARACTERISTICS

The potential impacts and potential benefits of each Project alternative on population and employment patterns and economic development are described in this section. A socioeconomic impact is considered significant if the alternative would induce substantial growth or concentration of population or if it would displace a large number of people.

### 5.2.1 DEMOGRAPHIC AND ECONOMIC IMPACTS

Major projects can impact a region's or a city's economy. A large construction labor force may not be available, requiring workers to temporarily relocate to the Project vicinity. This could have an effect on housing markets, school enrollment, and many other neighborhood characteristics. Likewise, a major project can generate jobs and local revenues, and this can affect the economy of a city or a neighborhood. Table 5-1 identifies the construction employment impacts of the Project Alternatives. Potential demographic and economic impacts associated with each of the Central Subway Project Alternatives are described below.

**TABLE 5-1**  
**CONSTRUCTION AND EMPLOYMENT IMPACTS**  
**(COSTS IN \$MILLIONS)**

<b>ALTERNATIVE</b>	<b>COST OF FACILITIES</b>	<b>COST OF LRVS</b>	<b>COST OF PROF. SERVICES</b>	<b>TOTAL COST</b>
No Project/TSM	\$0	\$0	\$0	\$0
Enhanced EIS/EIR	\$1,095	\$21	\$229	\$1,345
Alternative 3A	\$908	\$21	\$202	\$1,131
Alternative 3B	\$1,026	\$21	\$188	\$1,235
Note: Costs in 2007 Dollars Source: PB/Wong, 2007				

#### **Alternative 1 - No Project/TSM**

The No Project Alternative/TSM would not generate the local revenues compared to the Build Alternatives shown in Table 5-1 above. This alternative would not affect neighborhoods or businesses along the Corridor. However, the lack of transit improvements could result in a long-term degradation of mobility along the Corridor, and transit services with the adjacent community; particularly relative to other San Francisco neighborhoods that have the benefit of Muni light rail or BART service.

## **Alternative 2 - Enhanced EIS/EIR Alignment**

### Operation Impacts

The operation of Enhanced EIS/EIR Alignment would generate approximately 40 jobs for station operation and maintenance.<sup>2</sup> This would be a beneficial impact.

In addition, the new rail connections to Chinatown provided under the Enhanced EIS/EIR Alternative would facilitate residential and employment growth planned for the Study Area, particularly around station areas and in the South of Market area along the Third and Fourth Street corridors, by improving transit reliability and services; reducing transit travel times to Chinatown; and improving access to Downtown employment opportunities. These Project goals and objectives would be met by this alternative.

### Cumulative Impacts

No long-term cumulative impacts on the labor market or resources would be expected to occur.

### Mitigation Measures

No substantial adverse impacts on demographic or economic conditions are anticipated from the operation of the Enhanced EIS/EIR Alignment. While beneficial to the City and region in terms of employment opportunities and income, the long-term direct employment impacts are not considered to be substantial. No mitigation measures would be required.

## **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

### Operation Impacts

The operation of the Fourth/Stockton Alignment Option A would generate approximately 40 additional jobs; like the Enhanced EIS/EIR Alternative. This would be a beneficial impact.

The economic benefits under the Fourth/Stockton Alignment Option A would be the same as those identified for the Enhanced EIS/EIR Alignment, except they would be focused along Fourth Street in the South of Market area and around stations at Moscone, Union Square, and Chinatown. Greater travel time savings would occur under this alternative, but would not be substantial enough to result in major economic benefits when compared to other alternatives.

### Cumulative Impacts

No long-term cumulative impacts on the labor market or resources would be expected to occur.

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<sup>2</sup> Dan Rosen, MTA, April 2007.

### Mitigation Measures

As with Alternative 2, no mitigation measures would be required.

### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

### Operation Impacts

The operation of the Central Subway Fourth/Stockton Alignment Option B would be the same as those identified for Alternative 3A.

### Cumulative Impacts

No long-term cumulative impacts on the labor market or resources would be expected to occur.

### Mitigation Measures

As with Alternative 2, no mitigation measures would be required.

### 5.2.2 ACQUISITION AND DISPLACEMENT OF EXISTING USES

The acquisition and relocation of businesses or residents as a result of the Project would be a construction-related impact and is discussed in Section 6.5.2.

### **Alternative 1 - No Project/TSM**

The No Project/TSM Alternative would not require the acquisition of any property for stations or ancillary facilities and therefore, would not have any displacement impacts.

### **Alternative 2 - Enhanced EIS/EIR Alignment**

There would be no operation or cumulative impacts.

### Mitigation Measures

No mitigation measures would be required.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

There would be no operation or cumulative impacts.

### Mitigation Measures

No mitigation measures would be required.

### **Alternative 3 - Central Subway Fourth/Stockton Alignment Option B (Modified LPA)**

There would be no operational or cumulative impacts.

#### Mitigation Measures

No mitigation measures would be required.

#### **5.2.3 ENVIRONMENTAL JUSTICE FINDINGS**

Several of the defined goals for the Central Subway Project – achieving equity in transit investments, obtaining community acceptance and political support, and supporting economic revitalization efforts for the Central Subway Corridor – relate to environmental justice principles. Input from community meetings has revealed that the Project is perceived by many area residents as an overdue public investment that will improve transit accessibility in neighborhoods that have been overlooked in the past and will strengthen local businesses. For these reasons, the Project has considerable local support and is viewed by many as a means of mitigating past environmental “injustices” that the City’s minority neighborhoods located along the Corridor may have experienced. (See Tables 11-1 and 11-2 in Section 11.0, Coordination and Consultation.)

A transportation project must consider potential effects to human health or the environment on a community composed of minority or low-income populations. This section includes a discussion of Project impacts on low-income and minority neighborhoods to determine whether or not these are “disproportionate” in comparison with impacts on other neighborhoods within the Corridor.

The population and household income information provided in Section 4.2, indicates that almost the entire Central Subway Corridor traverses low-income and minority neighborhoods, as well as a major retail district and pockets of higher-income neighborhoods in the South of Market area. Implementation of the Central Subway Project would include direct mobility benefits to all of these neighborhoods that are expected to be equitably shared across communities by various demographic groups. The section below considers whether the Project would have disproportionate health and environmental impacts on the high minority or low-income neighborhoods identified as defined by Executive Order No. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*.<sup>3</sup>

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<sup>3</sup> Federal Highway Administration, Federal Transit Administration, *Addressing Environmental Justice in the Environmental Impact Statement*, May 9, 1997.

### **Alternative 1 - No Project/TSM**

The No Project/TSM Alternative would not directly impose adverse health or environmental impacts disproportionately on any of the minority or low-income neighborhoods identified. However, with increases in transit service limited to bus service, this alternative would result in increased traffic congestion, more noise and emissions, and slower travel times throughout the Central Subway Corridor. Adjacent neighborhoods, with the exception of the Financial District, would remain underserved by transit in comparison to other parts of San Francisco under this alternative. Failure to implement the Project would do little to address the lack of public investment in the underserved low-income and minority communities traversed by the Project Corridor.

### **All Build Alternatives**

The Project is intended to provide a long-term improvement in transit mobility and accessibility in the Study Area. Adverse impacts identified in this section of the SEIS/SEIR are distributed throughout the Corridor, which traverses minority and low-income neighborhoods, as well as a major retail district. Adverse impacts do not unduly impact any one neighborhood, except for residential and business displacement. Each of the Build Alternatives would displace ~~residential dwellings and~~ small businesses and Alternative 3B would displace residential units in the predominantly minority and low-income Chinatown District. To mitigate these impacts, it is recommended that redevelopment on the station sites incorporate affordable housing and ground floor retail where possible. Other mitigation measures proposed are consistent throughout the Corridor.

### Operation Impacts

The Build Alternatives would require limited acquisition of properties to accommodate station entrances. Acquisition of one parcel with a gas station at 266 Fourth Street would be required in the South of Market area for the Fourth/Stockton Alignment, Options A and B alternatives. In order to accommodate a station in Chinatown and bring the benefits of the subway to the neighborhood, between 8 and 10 businesses and up to 17 residential units would be displaced in this area of minority concentration. While the greatest impact on businesses and residences would occur in Chinatown, ~~the number of relocations is not substantial and~~ the community has expressed strong support of the Project. The impact of these acquisitions would be mitigated through existing relocation assistance programs and through opportunities for developing affordable housing on the Chinatown Station site.

### Cumulative Impacts

The Project would not contribute substantially to cumulative changes in population or employment in San Francisco, but would serve the existing population in a built-out, urban environment, rather than stimulate new population growth. While the Project would create new operation and maintenance jobs, neither direct nor indirect employment would contribute substantially to cumulative employment growth. (See Section 7.4 for additional discussion of cumulative population and employment impacts.) The Build Alternatives would result in a potential loss of affordable housing units in Chinatown for the Chinatown station. If affordable housing units are incorporated into the redeveloped station, then the Project would not contribute to a cumulative impact on low-income or affordable housing.

### **Community Participation**

As noted in Section 4.2.5 and Chapter 11.0, an extensive community participation effort was undertaken to provide information to the public and solicit input during the development of the Project alternatives. This effort will continue through the Project implementation phase. Not only have over 100 presentations been made to neighborhood groups, community and business organizations, and individual stakeholders, but printed materials have been made available in Chinese and Spanish as well as English. The Central Subway telephone information line provides responses in English, Chinese, and Spanish.

Community meetings have been held in each of the neighborhood areas surrounding proposed stations and Project alternatives have been refined based on community input to ensure that community concerns are addressed. The breadth and depth of community outreach has ensured equal access to the process regardless of income level or ethnicity to ensure the Project is consistent with Environmental Justice objectives.

## **5.3 COMMUNITY FACILITIES AND SERVICES**

### **5.3.1 INTRODUCTION**

Impacts on community services and facilities would result if the Project displaced or physically altered a community facility, restricted access to that facility, or hindered the operation or services offered at the facility, either on a short-term or long-term basis.

Parks and recreational facilities would be affected if they were altered or displaced or their use or function was diminished. In addition, parkland and recreational facilities are subject to guidelines established by Section 4(f) of the U.S. Department of Transportation Act (USC 1653 (f)) (refer to Chapter 10.0, Section 4(f) Evaluation). Taking of parkland or recreational properties for the implementation of the Central Subway Project would be an adverse impact, requiring consultation with the U.S. Department of Transportation, U.S. Department of the Interior, and San Francisco Recreation and Parks Department.

For police and fire services, an impact would be considered adverse if the alternative would require additional equipment or personnel to maintain acceptable service levels or if access to police or fire stations or emergency vehicle routes were impeded.

### **5.3.2 PUBLIC AND COMMUNITY FACILITIES**

#### **Alternative 1 - No Project/TSM**

For the No Project/TSM Alternative, congestion along the Corridor's roadways and highways is expected to increase, adversely affecting mobility and travel times within the Corridor (refer to Section 3.2). As transit and auto traffic slow, the time required to reach public and community facilities would increase. In addition, by 2030, transit operating along Third, Fourth and Stockton Streets is expected to be over capacity, thereby constraining demand and potentially impairing the accessibility and mobility of transit dependent residents who are not within walking distance of these facilities.

#### **Alternative 2 - Enhanced EIS/EIR Alignment**

##### Operation Impacts

The placement of vent shafts, station entrances, and elevators in Union Square plaza would permanently remove an estimated 1,517 square feet of open space out of a total 112,256 square feet—or 1.35 percent—for transportation purposes. The pedestrian traffic in the plaza would also increase to access the escalator on the east side. Otherwise, operation of the Central Subway Enhanced EIS/EIR Alignment would not adversely affect the community and public facilities that are situated along the alignment or near other subway stations. Access to these facilities by transit would improve.



### Cumulative Impacts

The continued growth in the Mission Bay, South of Market and Eastern Neighborhood areas would put increased demand on existing community facilities. Improved transit access to community facilities serving neighborhoods within the Study Area would be consistent with the City's Transit-First policies, but could also increase use of these facilities. This potential increase in use of community facilities due to accessibility improvements would not be so substantial that it could not be managed.

### Mitigation Measures

No mitigation measures would be required.

## **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

### Operation Impacts

Operation impacts of the Central Subway Fourth/Stockton Alignment Option A would be the same as those described for Alternative 2.

### Cumulative Impacts

Cumulative impacts of the Central Subway Fourth/Stockton Alignment Option A would be the same as those described for Alternative 2.

### Mitigation Measures

No mitigation measures would be required.

## **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

### Operation Impacts

Operation impacts of the Central Subway Fourth/Stockton Alignment Option B would be the same as those described for Alternative 2 and 3A, except that less than 1,690 square feet or 1.51 percent of open space would be permanently removed for transportation purposes from Union Square. The vent shafts under this alternative would be located in the Ellis/O'Farrell garage rather than in Union Square.

### Cumulative Impacts

Cumulative impacts of the Central Subway Fourth/Stockton Alignment Option B would be the same as those described for Alternative 2 and 3A.

### Mitigation Measures

No mitigation measures would be required.

### 5.3.3 POLICE, FIRE AND EMERGENCY SERVICES

#### **Alternative 1 - No Project/TSM**

The No Project/TSM Alternative could adversely affect response times for police, fire, and emergency services since traffic congestion on Corridor roadways is expected to increase substantially by 2030 (refer to Section 3.2). The increased response times would also impede the ability of these City departments to quickly respond to safety and security problems involving Muni patrons or facilities.

#### Cumulative Impacts

An increased demand for police, fire, and emergency services may result from cumulative development in the Study Area, including new development in the South of Market, Eastern Neighborhood, and Mission Bay areas, but the demand would not be affected by the lack of a rail transit investment. Muni provides its own security officers, who would respond to safety incidents in the transit system.

#### Mitigation Measures

No mitigation would be required.

#### **Alternative 2 - Enhanced EIS/EIR Alignment**

#### Operation Impacts

Operation of the Enhanced EIS/EIR Alignment would require the development of security and emergency response systems that can be integrated with Muni's existing procedures and facilities. For example, Muni provides its own (contracted) security guards for patrolling its fixed facilities and uses a closed circuit system for monitoring subway stations. In addition, Muni in concert with the San Francisco Fire Department and the Department of Public Health, holds two to three emergency drills per year and emergency orientation sessions to ensure a coordinated response effort for emergencies occurring in the Market Street Subway. Expanding these services to include the Central Subway is not expected to require additional police, fire, or emergency services personnel. However, if the surveillance system were expanded to include the Central Subway, additional Muni resources would be required. Muni will provide the resources necessary to secure the stations and other fixed facilities associated with the Central Subway. As an added safety measure, ventilation shafts for all new stations will be placed in secure above-grade locations.

#### Cumulative Impacts

An increased demand for police, fire, and emergency services may result from cumulative development in the Study Area including new development in the South of Market, Eastern Neighborhood, and Mission

Bay areas. Muni provides its own security officers, who would respond to safety incidents in the Central Subway system, therefore implementation of the Enhanced EIS/EIR Alignment would not result in an increased demand for emergency services.

#### Mitigation Measures

No mitigation measures would be required.

### **Alternative 3 - Central Subway Fourth/Stockton Alignment Option A(LPA)**

#### Operation Impacts

The operation impacts would be the same as described above for Alternative 2, except improvements to the existing Powell Street station, as needed for the connection to the UMS Station, will be addressed in cooperation with BART during final design of the station connections. This will include assessment and, if necessary, implementation of improvements to the existing vertical circulation, platform capacity, lighting, ventilation system, fire suppressant system, and way-finding will be assessed in cooperation with BART during final design of the station connections. the emergency ventilation system shall be designed and operating procedures written/revised and tested to ensure that the UMS and Powell Street station emergency ventilation systems do not adversely affect each other during an emergency event or system test.

#### Cumulative Impacts

The cumulative impacts would be the same as described above for Alternative 2.

#### Mitigation Measures

No mitigation measures would be required.

### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

#### Operation Impacts

The operation impacts would be the same as described above for Alternative-2 3A.

#### Cumulative Impacts

The cumulative impacts would be the same as described above for Alternative 2.

#### Mitigation Measures

No mitigation measures would be required.

#### 5.3.4 PARKS AND RECREATIONAL FACILITIES

##### **Alternative 1 - No Project/TSM**

No impacts to parks and recreational facilities would result from the No Project/TSM Alternative. However, access and parking for these facilities may moderately be impaired because of the increase in Corridor roadway congestion causing travel delays and increasing parking demand along the streets adjacent to parks.

## **Alternative 2 - Enhanced EIS/EIR Alignment**

### Operation Impacts

Parks and recreational facilities, such as Yerba Buena Gardens, would not be displaced nor would land be acquired for the construction of Enhanced EIS/EIR Alignment. However, Union Square Station entries, elevators, and vent shafts would be located at the east edge of the Union Square plaza, taking about 1,517 square feet of the 112,256 square foot plaza (1.35 percent), displacing 29 of 985 parking spaces in the garage below, but providing direct and convenient transit access to the park (see Chapter 10.0, Section 4(f) Report). This alternative could result in additional pedestrian traffic through the park to access the station entry.

At the Chinatown Station, secondary access to the station would be provided via Hang Ah Alley, an alleyway under the jurisdiction of the Recreation and Parks Department. While pedestrian traffic would increase on Hang Ah and Pagoda Alleys, which provide secondary access to Willie “Woo Woo” Wong Playground (primary access is from Sacramento Street), there would be no reduction in the alley or playground areas. Public access to the parks and recreational facilities near station locations for the Enhanced EIS/EIR Alignment would be improved.

The use of Union Square plaza and Hang Ah Alley for station access facilities would require a Section 4(f) determination of impact on the parks and recreational resources by the Recreation and Parks Department. If the Recreation and Parks Department does not make a “de minimis” finding, the Section 4(f) report would be subject to review by the Department of Interior.

### Cumulative Impacts

No other proposed projects were identified in the Study Area that would impact the same parks and recreational facilities, so no additional cumulative impacts were identified for this alternative.

### Mitigation Measures

To reduce the impacts of additional pedestrian traffic on Hang Ah and Pagoda Alleys, the secondary access to the Chinatown Station could be eliminated.

## **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

### Operation Impacts

The operation impacts would be the same as described above for Alternative 2.

### Cumulative Impacts

No additional cumulative impacts were identified for this alternative.

### Mitigation Measures

Mitigation measures would be the same as described above for Alternative 2.

## **Alternative 3 - Central Subway Fourth/Stockton Alignment Option B (Modified LPA)**

### Operation Impacts

The Union Square Station entries and elevators located at the east and southeastern edge of the Union Square plaza, would take about 1,690 square feet of the park, or 1.51 percent, (compared with 1.35 percent for Alternatives 2 and 3A), displacing parking spaces below, but providing direct and convenient transit access to the park. The vent shafts in this alternative have been located at the Ellis/O'Farrell Garage. Pedestrian access to the station entry would be from Geary Street, and would not result in increased pedestrian traffic through the plaza. Public access to the parks and recreational facilities near station locations for Central Subway Fourth/Stockton Alignment Option B would be improved. There would be no impacts to Willie "Woo Woo" Wong playground or to Hang Ah Alley for this alternative.

The use of Union Square plaza for station access would require a Section 4(f) determination of impact on the parks and recreational resources by the Recreation and Parks Department. ~~If the Recreation and Parks Department does not make a~~ has concurred with the "de minimis" finding, for this alternative, which satisfies the Section 4(f) report would be subject to review by the Department of Interior review requirements (see Appendix J).

### Cumulative Impacts

No additional cumulative impacts were identified for this alternative.

### Mitigation Measures

Mitigation measures would be the same as described above for Alternative 2 and 3A.

## **5.4 CULTURAL RESOURCES**

### **5.4.1 INTRODUCTION**

In the context of a federally reviewed and permitted project, the significance of architectural and archaeological resources is measured with reference to the evaluation criteria of the National Register of Historic Places (NRHP). These criteria state that the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects which possess integrity of location, design, setting, materials, workmanship, feeling, and association, and which

- are associated with events that have made a significant contribution to the broad patterns of our history; or
- are associated with the lives of persons significant in our past; or
- embody the distinctive characteristics of a type, period, or method of construction, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- have yielded, or may be likely to yield, information important in prehistory or history (36 CFR 60.4).

The criteria are essential to evaluation of NRHP eligibility because they “indicate what properties should be considered for protection from destruction or impairment” (36 CFR 60.2). Any action that, as part of an undertaking, could affect significant cultural resources is subject to review and comment under Section 106 of the National Historic Preservation Act of 1966 (NHPA). All projects in California undergoing environmental review must also address the cultural resources requirements of CEQA, with resources evaluated under the California Register of Historical Resources (CRHR) criteria, which are similar to those of the NRHP. Under CEQA, if a project would cause a substantial adverse change in the significance of an historical resource or archaeological resource as defined in Section 15064.5 of CEQA, it may have a significant effect on the environment.

In addition, cultural resources are subject to guidelines established by Section 4(f) of the U.S. Department of Transportation Act (USC 1653(f) (refer to Chapter 10.0, Section 4(f) Evaluation). Taking of cultural resources for implementation of the Central Subway would be an adverse impact requiring consultation with the U.S. Department of Transportation, U.S. Department of Interior, San Francisco Historic Preservation Officer, and SHPO.

#### 5.4.2 PREHISTORIC AND HISTORICAL ARCHAEOLOGICAL RESOURCE IMPACTS

The methods used to identify known and potential archaeological resources within the Central Subway APE are described in Section 4.4. Archaeological impacts and mitigation measures are generally construction-related and are discussed in Section 6.7. The prehistoric and historical archaeological resources that may be affected by the Project construction are also described in Section 6.7 and Section 7.3.3.

##### **Alternative 1 – No Project/TSM**

No subsurface disturbance would take place with operation of the No Project/TSM Alternative. No impacts to prehistoric or historical archaeological resources would occur with this alternative.

##### **Alternative 2 – Central Subway Enhanced EIS/EIR Alignment**

###### Operation Impacts

Because operation of the proposed light rail system for Alternative 2 will not involve subsurface disturbance, no impacts to archaeological resources are anticipated.

###### Cumulative Impacts

No cumulative impacts to archaeological resources would occur.

###### Mitigation Measures

No mitigation measures would be required.

##### **Alternative 3 – Central Subway Fourth/Stockton Alignment Option A (LPA)**

###### Operation Impacts

No operation impacts on archaeological resources are anticipated.

###### Cumulative Impacts

No cumulative impacts to archaeological resources would occur.

###### Mitigation Measures

No mitigation measures would be required.



### **Alternative 3 – Central Subway Fourth/Stockton Alignment Option B (Modified LPA)**

#### Operation Impacts

No operation impacts on archaeological resources would be expected to occur.

#### Cumulative Impacts

No cumulative impacts to archaeological resources would occur.

#### Mitigation Measures

No mitigation measures would be required.

#### **5.4.3 HISTORIC ARCHITECTURAL RESOURCE IMPACTS**

An impact to historic architectural resources would result from acquiring, demolishing, or altering the integrity of individual architectural properties within the APE for the project, or altering a property that is a contributor to a historic district, or a district that is eligible for listing on the NRHP or CRHR.<sup>4</sup>

Historic architectural resources described in Section 4.4 of this SEIS/SEIR and identified in the Project APE for Alternatives 2, 3A, and 3B include buildings, structures or objects that qualify as either individual buildings that appear eligible for the NRHP or CRHR or as contributing elements to a NRHP-eligible or CRHR-eligible historic district. The Project crosses through eight listed or proposed historic districts and one local conservation district, including the South End Historic District, Rincon Point/South Beach Historic Industrial Warehouse District, South Park Historic District, Kearny-Market-Mason-Sutter Conservation District, Lower Nob Hill Apartment Hotel District (part of the larger CRHR listed San Francisco Apartment Hotel District), Chinatown Historic District, North Beach Historic District, Washington Square Historic District, and Powell Street Shops Historic District. The South End Historic District is a City of San Francisco-identified Article 10 historic district and the Kearny-Market-Mason-Sutter (KMMS) District is a locally-identified Article 11 conservation district. Their boundaries are larger and more inclusive than the NRHP and CRHR boundaries. For that reason, there is an overlap of the local South End Historic District and the Rincon Point/South Beach Historic Industrial Warehouse District, which is on the CRHR.

In this section, potential impacts to historic properties in each alternative are discussed first and then impacts to contributors of the NRHP, CRHR, and local historic districts. It should be noted that although the Lower Nob Hill Apartment Hotel District is included within the Study Area, it is not located within an

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<sup>4</sup> NRHP – National Register of Historical Places; CRHP – California Register of Historic Places.

area proposed for stations or portals. As a result, no impacts to the historic buildings in this district would result from the Project.

### **Alternative 1 – No Project/TSM**

The No Project/TSM Alternative would not result in adverse effects to historic architectural resources, given that the Alternative does not include new rail operations.

### **Alternative 2 – Enhanced EIS/EIR Alignment**

#### Operation Impacts

During operation of the Central Subway along the Enhanced EIS/EIR Alignment, vibrations from passenger trains would not constitute an adverse effect to historic properties, as indicated in the Noise and Vibration Impact Analysis (Section 5.12). There would not be substantial visual impacts to historic architectural resources because most of the Central Subway would be underground, and the surface tracks on Third and Fourth Streets – in addition to the tunnel portals – would be in the center of the existing streets and would be visually compatible with existing street features.

In the Market Street Station area, the escalators and stairs would be in the sidewalk area, with the elevators positioned next to them, on the southwest corner of Market and Third streets. Their placement next to the street would not create visual impacts to 703-705 Market Street and the other neighboring historic buildings. The ventilation shaft ductbanks, extending 26 feet above the roofline of the Ellis/O'Farrell parking garage, would not visually detract from any of the historic buildings in the area because they would be located at the back end of the roof.

In the Union Square Station area, the Stockton Street station entry, station vents along the eastern side of Union Square, and two elevators north of the northern-most vent shaft would not constitute substantial impacts to the historic character of the KMMS conservation district, or to the park, which was substantially altered in 2002. (See also Visual Impacts, Section 5.3.3 and Chapter 10.0, Section 4(f) Evaluation.) No significant changes to the historic use of the NRHP-eligible subterranean Union Square garage are proposed. The two additional station entries are located in the sidewalk area next to Stockton Street at either side of Maiden Lane, in front of 218-222 Stockton Street and 234-240 Stockton Street, both NRHP-eligible properties. The station entries would not constitute a substantial impact to these historic buildings in the KMMS District. Although Union Station features would be visible from historic buildings on Maiden Lane, they would blend with the existing landscape features of the recently renovated plaza and would not adversely affect the KMMS District.

A Negative Declaration (Case # 98.257E), prepared for the Union Square Improvement Project in 1998, described Union Square's historic importance as "significant because of its relationship to surrounding buildings and the urban setting, its history as one of San Francisco's first public squares, and the successful integration of an underground garage, which was the first of its kind in the world," and not "from its internal configuration or landscape features." Extensive physical alterations to Union Square occurred in 2002, including the replacement of the grass lawns and nearly all existing park features with concrete terraces, paving, plants, palm trees, buildings, a new café, and a ticket booth.

Because the proposed station entry and elevators and vent shafts would be introduced to a modernized Union Square, which has lost historic integrity, the impacts would not constitute an adverse impact on Union Square or the underground garage. As such, modifications to Union Square that conform to its present physical character would not adversely impact buildings within the KMMS Conservation District, many of them NRHP-eligible properties.

As discussed under Construction Impacts (Chapter 6.7), in the Chinatown Station area, where a new Muni station building would replace an existing historic building, the potential for adverse effects to historic architectural resources exists. Demolition of building 814-828 Stockton Street would be considered a significant adverse effect because of the building's status as a contributor to a NRHP-eligible Chinatown district. Removal of the building would create a break in the cohesive grouping of contextually-related buildings and would visually isolate the corner building at 800-810 Stockton Street.

NRHP eligible historic districts are a cohesive grouping of buildings that share a common history, visual appearance, or development. Historic districts can be contiguous or non-contiguous groupings of buildings; in this instance, the Chinatown Historic District is contiguous. Demolition of contributing elements to a NRHP-eligible district constitutes an adverse effect under Section 106 and under the California Environmental Quality Act. Under Criterion A, 814-828 Stockton Street is contextually important for its association with the development of the Chinatown community. This area has been a part of Chinatown since at least the 1880s and has continuously remained a vibrant part of the community. Constructed in 1923, 814-828 Stockton Street is noted for its initial Chinese ownership in the 1920s, use of its basement as a Chinese school, and for housing the World Journal Chinese newspaper during the 1970s and 1980s.

The visual representation of this building is less important than its history. Under Criterion C, there are architectural similarities shared with a large percentage of the Chinatown buildings. The architecture is loosely tied to the significance of the Chinatown Historic District, although it is not exclusive to this part of the City. Most of these buildings conform to two-part commercial block compositions also found in

other areas of San Francisco, and they convey Renaissance or Baroque design influences produced by architects whose designs were found throughout the City. Visual differences expressed in Chinatown include bright banners and awnings, and in some cases, Chinese design elements have been infused in the architecture. In this case, although many of its storefronts retain some integrity, the building suffers from integrity issues due to the removal of ornamental elements on the upper portion of the façade.

#### Mitigation Measures

The design for each of the stations will be reviewed by the Environmental Review Officer, the City Historic Preservation Officer, and a historic architect hired by MTA for compliance with the Secretary of the Interior's Standards based on their compatibility with the character-defining features of each of the districts. New buildings would be designed to reinforce the established character of the historic district and visual continuity of the streetscape and an historic architectural specialist would be consulted during design development.

#### **Alternative 3 – Fourth/Stockton Alignment Option A (LPA)**

##### Operation Impacts

Operation impacts would be the same as described above for Alternative 2.

##### Mitigation Measures

The same mitigation measures would apply as those described for Alternative 2.

#### **Alternative 3 – Fourth/Stockton Alignment Option B (Modified LPA)**

##### Operation Impacts

There would not be substantial visual impacts to historic architectural resources from the operation of the Alternative 3B because the surface tracks and tunnel portals would be located in the center of existing streets south of Market Street and in subway north of Bryant Street and would not detract from the historic context of the buildings.

In the Chinatown Station area, where a new Muni station building would replace an existing historic building, there is the potential for visual impacts to the historic context of architectural resources in Block 211. Demolition of building 933-949 Stockton Street would be considered a significant adverse effect because of the building's status as a contributor to a NRHP-eligible district, and its removal would create a break in the cohesive grouping of important buildings within the block and the neighboring block on the west side of Stockton Street.

The placement of a station entry along the Geary Street side of the recently renovated Union Square would not impact the historic context or use of the Square and underground garage. Impacts will be further minimized for this alternative because the emergency vents would be placed inside an air well in the Ellis/O'Farrell garage.

#### Mitigation Measures

Mitigation measures would be the same for Alternative 3B as those described above for Alternative 3A. The mitigation measures identified for 814-828 Stockton Street under Alternative 2 would also apply to 933-949 Stockton Street for this alternative.

## **5.5 VISUAL AND AESTHETIC RESOURCES**

### **5.5.1 INTRODUCTION**

Visual impacts were identified by comparing plan and profile drawings, visual simulations and shadow analysis for the proposed facilities with photographs and descriptions of the existing setting. Field visits were conducted at sites where proposed Central Subway structures might cast shadows, alter the scale or visual context of the surrounding landscape or distract from visual resources that distinguish landscapes in the project viewshed. Examples of such visual changes were created using computer simulation techniques at three locations: the tunnel portal at Third and Brannan Streets, station entries at Union Square and in Chinatown. The visual simulations offer the reader an impression of the scale of the proposed facility relative to the surrounding visual features in the existing landscape. These simulations are not to be assumed to show how the future buildings may actually be configured. Other visual changes are described in the text.

### **5.5.2 IMPACT CRITERIA**

The following criteria for identifying potentially significant impacts to visual and aesthetic resources were used to assess the Project impacts. Would the Project:

- Have a substantial adverse effect on a scenic vista?
- Substantially damage scenic resources, including, but not limited to trees, degrade, or obstruct publicly accessible views and resources?
- Substantially degrade the existing visual character or quality of the site and its surroundings?
- Substantially contrast with the scale or visual context of the surrounding landscape?
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

In San Francisco, a project is determined to have a significant shadow effect if it were to result in a substantial new shadow on public open space under the jurisdiction of the Recreation and Park Commission during the one hour before sunrise to one hour before sunset at any time of the year, or if shadows were cast so as to obscure direct sunlight on certain downtown sidewalks.

### **5.5.3 VISUAL IMPACTS**

Using the criteria described above, and the visual simulations and shadow analysis, visual impacts are described below for each alternative.

### **Alternative 1 - No Project/TSM**

The No Project/TSM Alternative would not alter or change the existing landscape. Therefore, no visual impacts would occur.

### **Alternative 2 - Enhanced EIS/EIR Alignment**

#### Operation Impacts

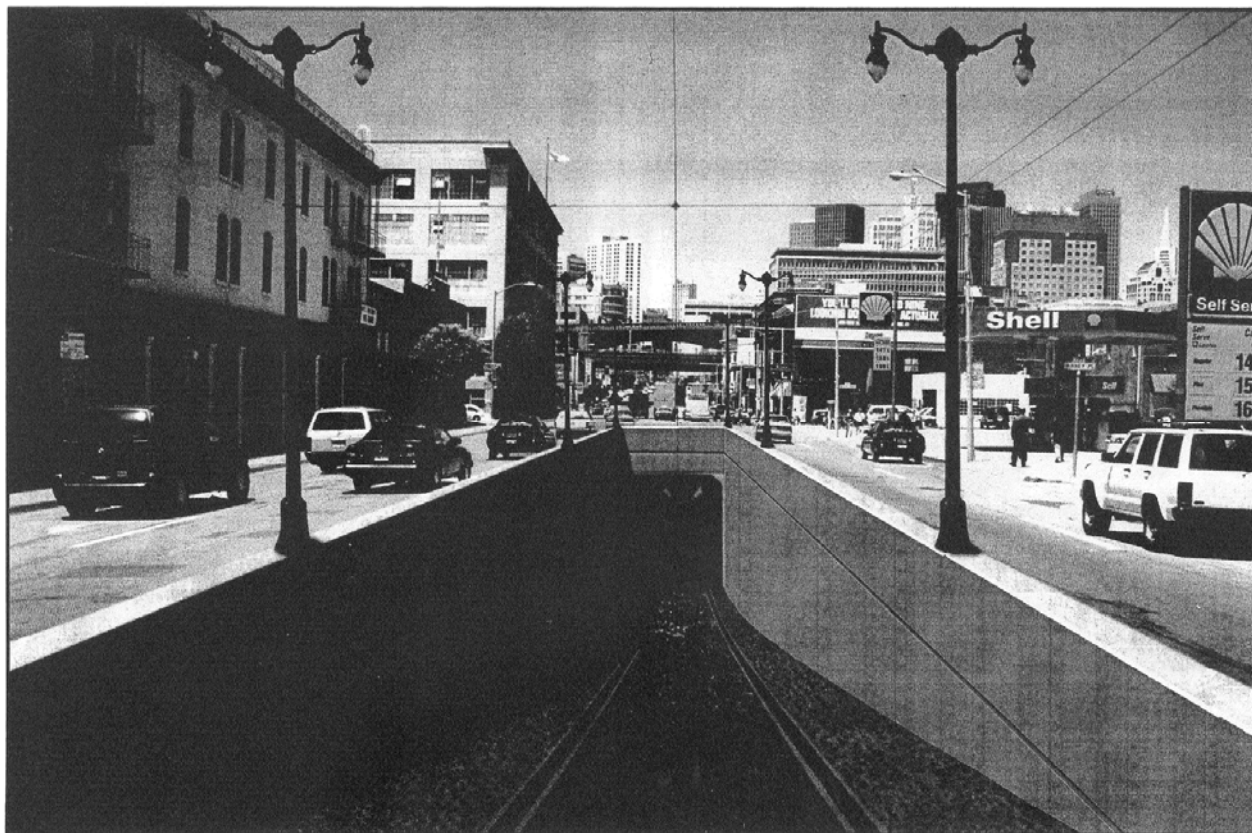
For the Enhanced EIS/EIR Alignment, the subway would begin at tunnel portal locations, in the center of the street, between Brannan and Bryant Streets on Third and Fourth Streets. The wide streets are surrounded by commercial and live/work, and industrial structures, parking facilities and signage. The portals would introduce a new visual element in the streetscape as presented by the computer simulation of a tunnel at Third Street (see Figure 5-1). The visual impact of the portal on Fourth Street would be similar. The portals would be visible to motorists and pedestrians and adjacent live/work properties but would not significantly detract from the dominant features of existing buildings, street trees, and Moscone Center because the portal walls would rise less than three feet from the street. The portal would be visible from the historic Hotel Utah on Fourth and Bryant Streets, but would not detract from the existing landscape setting or character-defining features for the hotel.

A surface station with a side platform would be located on Third Street, just north of King Street, across from the ballpark. The surface platform on Third Street and tracks and overhead catenaries for surface alignments along Third and Fourth Streets would be visually compatible with existing transit features in the surrounding landscape.

The Enhanced SEIS/SEIR Station entries at Moscone, Market Street, and Union Square would be located in pedestrian alleyways or in sidewalks where escalators and stairs would be protected with low-walls. Entrances at these stations may be designed with canopy covers, as shown in the simulations.

The Moscone Station entrance (escalators and stairs) would be in Tehama Pedestrian Way next to retail bays on the north side of the Moscone Garage (see Figure 5-2). Two elevators would be located at street level at the northwest corner of the garage. Two ventilation shaft ductbanks would extend east of Third Street under Clementina Street, rising along the southeast exterior of the Moscone Convention Center Garage to a height 16 feet above the garage roof. Neither the station entry, nor the ventilation shafts would detract from existing landscape features in scale, color or visual context of the existing landscape, nor would these features substantially degrade the existing visual character or quality of the area. There are no public parks near the vent shaft where shadows would be a concern.

**FIGURE 5-1**  
**TUNNEL ALTERNATIVE AT THIRD/BRYANT - VISUAL SIMULATION**  
**ALTERNATIVE 2**



Source: 1998 EIS/EIR

If the siphon and pumping station were selected as the mitigation for the North Point trunk sewer line relocation (refer to Section 5.6), two approximately eight-foot high utility cabinets would be installed in the sidewalk on the east and west sides of the Mission and Third Street intersection. These cabinets, which would house pumping and ventilation equipment, would have an exterior design that conforms to existing kiosks in the Yerba Buena Gardens area. The new utility cabinets would be visible to pedestrians. However, these new features would be unobtrusive compared with the surrounding densely-developed mid- and high-rise buildings. The remainder of the siphon facilities would be underground.

For the Market Street Station, the main street entrances (escalators and stairs) would be located in the sidewalk area on the south side of Market Street just west and east of Third Street (see Figure 5-3). Two



**FIGURE 5-2**  
**MOSCONE GARAGE - SIMULATION OF STATION ENTRY**  
**ALTERNATIVE 2**



Source: Kwan Henmi

elevators would be located on the southwest corner of Market and Third Streets next to the escalators and stairs. A subsurface pedestrian connection would be provided between the Market Street Station and the BART/Muni Metro Montgomery Station and would have no surface visual impacts. Two ventilation shaft ductbanks would extend east of Third Street under Stevenson Street, rising at the northeast interior corner of a private garage (Hearst) to a height 26 feet above the roofline. The design features of the Market Street Station would be compatible with existing landscape features in this Downtown location. The vent shaft would not cast shadows on any public park.

**FIGURE 5-3**  
**MARKET STREET STATION ENTRY SIMULATION**  
**ALTERNATIVE 2**



For Union Square Station, the main pedestrian entry would be located on the eastern edge of the Union Square plaza, in a stairway leading to the plaza, near the Plaza café. It would include escalators and stairs (and possible canopy), rising from the sidewalk level at Stockton Street to the plaza entrance. Two elevators would be located north of the northern-most vent shaft with access from the sidewalk on Stockton Street (Figure 5-4). Additional station entries would be located in sidewalk bulb-outs north (stairs) and south (escalators) of Maiden Lane. Two vent shafts would be integrated into the plaza terrace between the plaza café and the sidewalk on the west side of Stockton Street. Vent shafts would be located on either side of the escalators and stairs. The vent shafts would be about 11 feet high, but would not rise above the plaza because of their location on the terraced eastern edge of the park. These station features would be visible from Maiden Lane and the sidewalk on the east side of Stockton Street, but would not significantly distract from the Union Square landscape character in the foreground that was renovated in 2002, or from the dominant features of surrounding retail buildings and hotels that are the dominant character defining features that characterize the historic Union Square landscape. Union Square is considered historic as an open space, which would not change. The designs shown in the visual simulations are representative only and final design would undergo design review to ensure that the

**FIGURE 5-4**  
**UNION SQUARE STATION ENTRY SIMULATION**  
**ALTERNATIVES 2 AND 3A**



Source: Kwan Henmi

Project features not distract from the existing features of the park and Historic District. Because of their location and height, the vent shafts would not cast shadows on Union Square Park.

The Chinatown Stations would be centered on Clay Street at Stockton Street, and would have a mezzanine and (concourse) level and one platform level. The main pedestrian entrance would be in a building that Muni would construct on Stockton Street near Sacramento Street to accommodate escalators, stairs, two elevators, and two emergency ventilation shafts (see Figure 5-5). The Muni facility would require only one story, however, for the purposes of this analysis it is assumed that a structure 40-foot in height would be constructed on this parcel. The maximum allowable height for this property is 65-feet, but Muni would restrict the building height to 40 feet to meet the height constraints of

Proposition K and minimize casting shadows on the Willy “Woo Woo” Wong Playground located to the east of the station property.

**FIGURE 5-5**  
**CHINATOWN STATION ENTRY SIMULATION**  
**ALTERNATIVES 2 AND 3A**



Source: Kwan Henmi

The vent shafts would rise to a height 10 feet above the development roofline (or 50 feet above ground level) on the southeast end of the parcel near Pagoda Alley. This station would be visible from Willie “Woo Woo” Wong Playground and Hang Ah Alley, but because the station building would replace an existing building of similar scale, and would be visually compatible in scale with surrounding buildings, it would not substantially degrade or obstruct publicly accessible views or vistas and would not degrade the existing visual character or quality of the site and its surroundings (see Figure 5-6). This visual assessment focuses on scenic resources, and visual character, unlike the previous Historic Architectural



**FIGURE 5-6**  
**CHINATOWN STATION SIMULATION VIEWED FROM PAGODA ALLEY**  
**ALTERNATIVES 2 AND 3A**



Source: Kwan Henmi

Resource section, Section 5.1.1, that assessed changes to historic character-defining features in the Chinatown Historic District. These two are not mutually exclusive, but use different criteria in the assessment of impacts. There would be some minor shading of the playground tennis courts as shown in the shadow analysis during some months of the year and some times of the day, however, this shading would not be substantial in the context of existing shading from adjacent four- to six-story buildings surrounding the Playground (see Figure 5-7). Existing shadows on the playground would increase by 3 percent in March, 1 percent in June, 4 percent in September, and 3 percent in December. Similarly, the station building viewed from Stockton Street would not distract from adjacent buildings in terms of building scale or substantially degrade the existing visual character or quality of the area.

#### Cumulative Impacts

Because no other major projects have been identified in the station Study Area for Alternative 2, no cumulative visual impacts have been identified.

#### Mitigation Measures

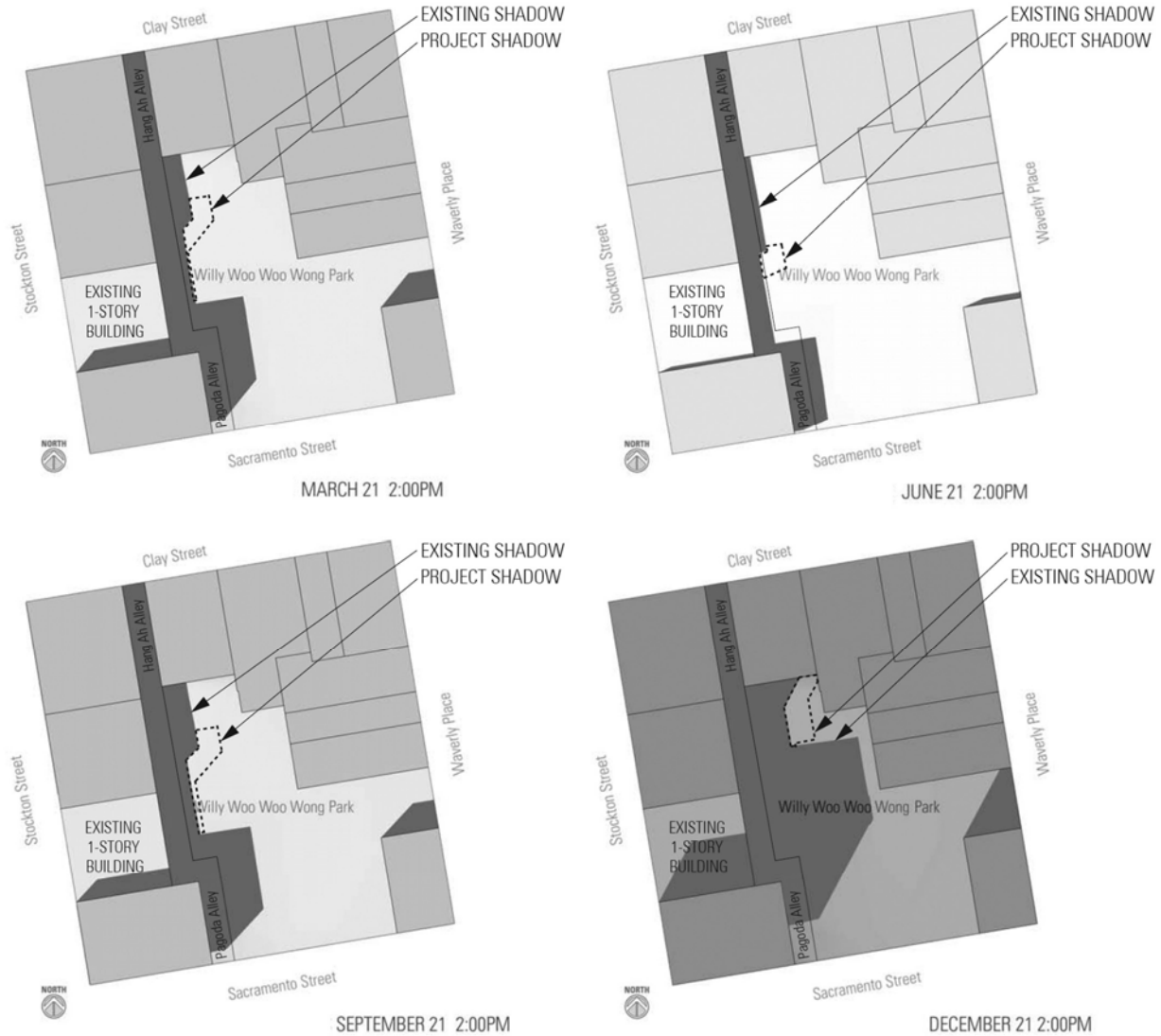
Architectural treatment of the station escalator canopy, elevator exterior treatment and vent shaft exterior finish at Union Square would be developed in consultation with the Recreation and Parks Department, the Planning Department and the Union Square business associations. Exterior treatment of the Chinatown Station and vent shaft would be developed in consultation with the Planning Department, architectural historians, the City Historic Preservation Officer, and the Chinatown community during preliminary and final design.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

#### Operation Impacts

For Fourth/Stockton Alignment Option A, the subway would begin at the portal location in the center of Fourth Street between Townsend and Brannan Streets. The street is bordered by commercial, live/work, industrial structures, parking facilities, and signage. The tunnel portal would introduce a new visual element in the streetscape as represented in the computer simulation of Fourth Street at this location (see Figure 5-8, refer to Figure 4-8 for existing conditions). The portal would be visible by motorists and pedestrians and adjacent properties, but would not detract from other dominant features because the portal walls would rise less than three feet from the street. Unlike Alternative 2, this alternative would not have a tunnel portal or surface alignment on Third Street, further reducing the visual presence of the light rail features in the South of Market neighborhood.

**FIGURE 5-7**  
**SHADOWS ON WILLY “WOO WOO” WONG PLAYGROUND**  
**ALTERNATIVES 2 AND 3A**

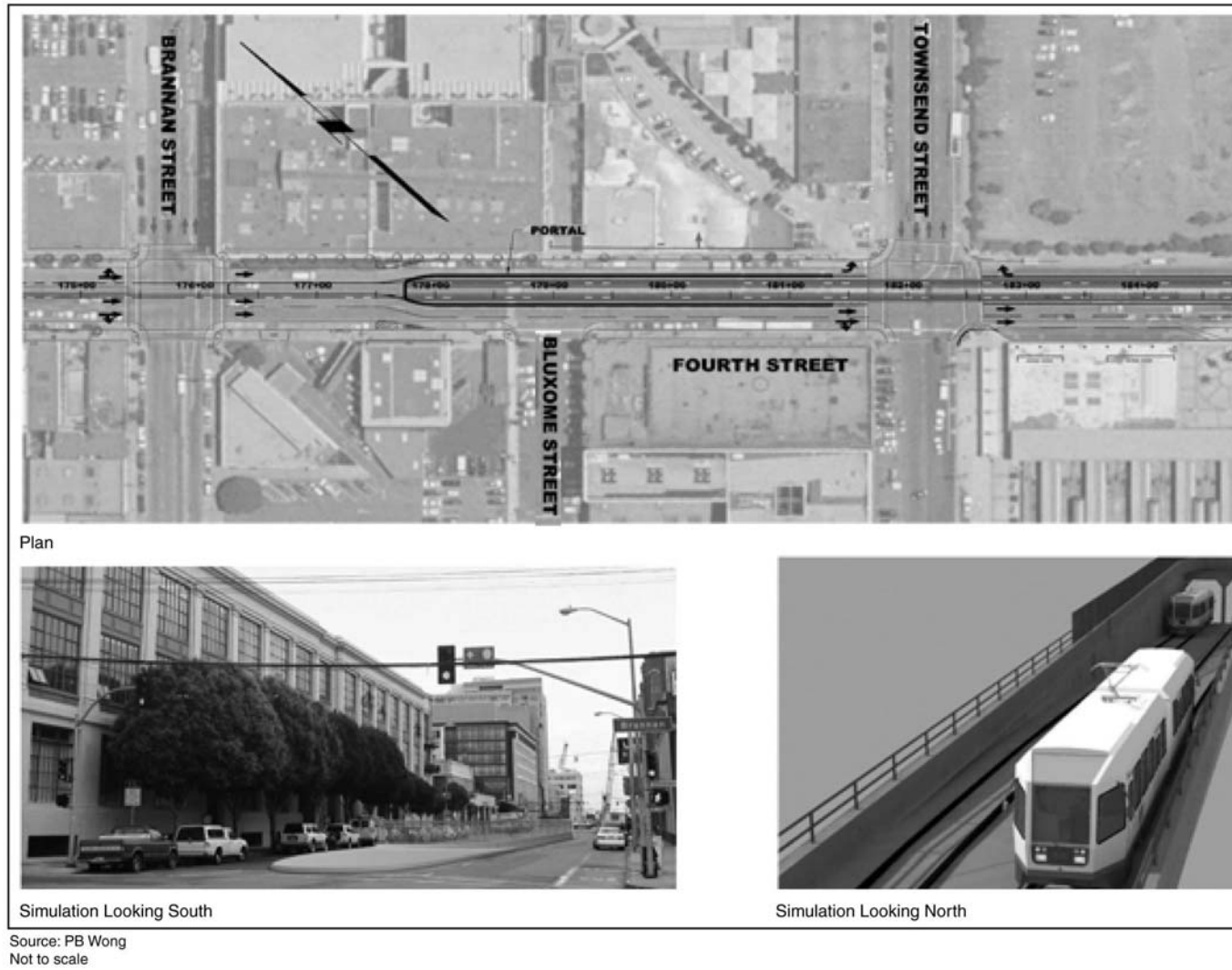


Source: Kwan Kenmi

The same as for Alternative 2, Fourth/Stockton Alignment Option A station entries at the Union Square/Market Street Station would be located in pedestrian areas or in sidewalks where escalators and stairs would be protected with low walls. Elevator entrances at these stations may be protected by canopy covers. At Moscone and Chinatown Stations, the stairs, escalators and elevators would be located in off-street buildings. As with Alternative 2 above, these new features would blend with the surrounding landscape features in the South of Market and Downtown area.



**FIGURE 5-8: FOURTH STREET PORTAL SIMULATION**  
**ALTERNATIVE 3A**



The Moscone Station entries (escalators, stairs, and elevators) would be located entirely within an off-street property that Muni would acquire, currently the site of a gas station west of Moscone Center at 266 Fourth Street (see Figure 5-9). The Muni facility would require only one story and would house two ventilation shafts. The station entry would be located in a 40-foot high building with a setback of 85-feet for the vent shaft tower as permitted under existing zoning. The vent shafts would rise 26 feet above the 40-foot roofline on the north end of the parcel or to a height of 66 feet. An additional stair set would be located in the sidewalk on the west side of Fourth Street just north of Howard Street and on the south side of Howard Street just west of Fourth Street. A third elevator would be located directly across the street on the east side of Fourth Street near the corner of Howard Street. Neither the station entry, nor the ventilation shafts would detract from existing landscape features dominated by Moscone Center buildings in scale, color or context.

The same as Alternative 2 described above, the station entry at Union Square for Alternative 3A would be located on the eastern edges of the Union Square plaza, centered within the stairs leading to the plaza, near the existing café. The station entry would include escalators and stairs, rising from the sidewalk level at Stockton Street to the plaza entrance. Additional entries would be located in sidewalk bulb-outs on the east side of Stockton Street, north (stairs) and south (escalators) of Maiden Lane. Two vent shafts would be integrated into the plaza terrace between the plaza café and the sidewalk on the west side of Stockton Street. Vent shafts would be located on either side of the escalators and stairs. The vent shafts would be about 11 feet high, but would not rise above the plaza because of their location on the terrace grade. Two elevators would be located south of the southern-most vent shaft with access from the sidewalk on Stockton Street. The same as Alternative 2 above, the Central Subway features would be compatible with design features of the plaza and would not detract from the open-space and landscape features of Union Square or the dominant features of surrounding retail buildings and hotels and Historic KMMS District.

The same as for Alternative 2 above, the Chinatown Station entrance for Alternative 3A would be located on the east side of Stockton Street between Sacramento and Clay Streets in a new facility replacing an existing two-story building. The building above the new station would be limited to less than 40 feet tall to reduce possible shadows on the playground and tennis courts (Willie “Woo Woo” Wong Playground ) to the east of the station ~~at~~ location. The shadow analysis for this location is shown in Figure 5-7 above). Though the station would be visible from viewing points within the playground and alley, it would be compatible with the surrounding buildings and would not substantially damage, degrade or obstruct publicly accessible views or vistas from the park or cast significant shadows on park uses. The same as

**FIGURE 5-9**  
**MOSCONE STATION ENTRANCE SIMULATION**  
**ALTERNATIVES 3A AND 3B**



Source: Kwan Henmi

Alternative 2 described above, the proposed station in Chinatown for Alternative 3A would not detract from the dominant features or visual character or quality along Stockton Street in the Chinatown Historic District.

#### Cumulative Impacts

No other projects have been identified that would effect the visual character of the station areas. No cumulative visual impacts have been identified.

#### Mitigation Measures

Mitigation measures would be the same as identified above for Alternative 2.

### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

#### Operation Impacts

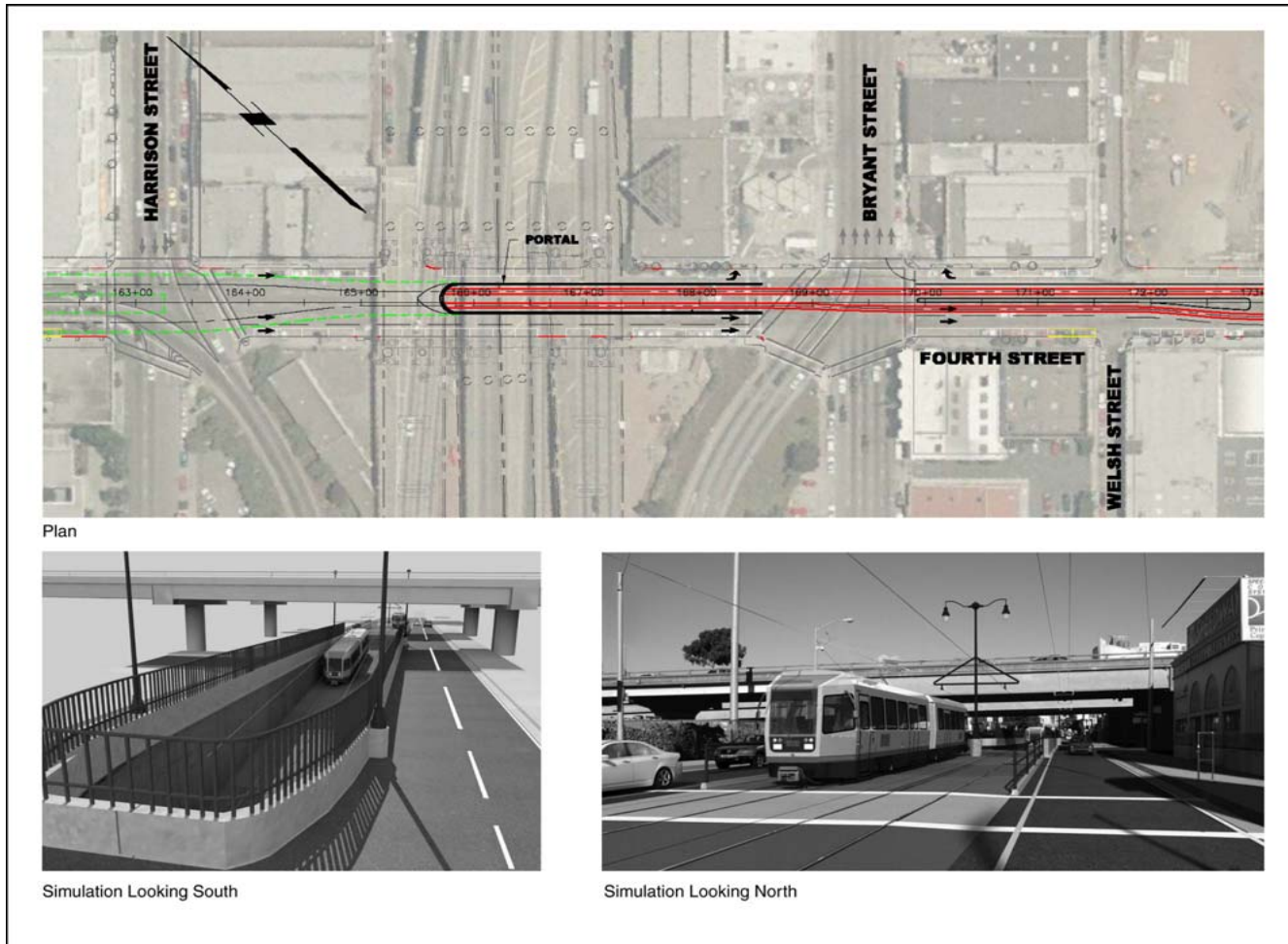
In Fourth/Stockton Alignment Option B, the operation impacts would be the same as those described for Alternative 3A, except the portal would be located between Bryant and Harrison Streets (see Figure 5-10, refer to Figure 4-6 for existing conditions). The location of the Union Square/Market Street and Chinatown Stations would also vary as noted below.

A combined Union Square/Market Street Station would be located under Stockton Street between Geary and Market Streets, with an underground platform centered on O'Farrell Street. At the north end of the station the main entrance would be located at the southeast corner of Union Square on Geary Street just west of Stockton Street. The entry would include escalators and stairs. This station entry design is different from Fourth/Stockton Alignment Option A described above and would not be visible from Maiden Lane. The station entry would be located within the terraced edge of the Plaza and would be visible from some vantage points along the sidewalks on Geary Street. Two elevators would be located on the western edge of Union Square in the terraced level along Stockton Street near the corner at Geary Street. A second set of stairs would be located in the sidewalk on the north side of Geary Street, just east of Stockton Street, behind an existing Muni bus stop. Two emergency ventilation ducts would extend west of Stockton Street under Ellis Street, rising inside the air-well of the Ellis/O'Farrell Garage to a height of 26 feet above the garage roof. The same as Fourth/Stockton Alignment Option A above, the Option B station features would be designed to blend with existing architectural features of Union Square and would not detract from the dominant features of the surrounding landscape (see Figure 5-11). Because the vent shafts would not be located along the western edge of Union Square as in Alternative 2 and 3A, the visual impacts to the Park would be less than the other alternatives. The station entry would not be visible from Maiden Lane.

The access to the Chinatown Station for Fourth/Stockton Alignment Option B would be located on the west side of Stockton Street between Washington and ~~Jackson~~ Clay Streets (see Figures 5-12 and 5-13). The underground station platform would extend to Jackson Street. It would not be visible from Willie "Woo Woo" Wong Playground on the east of Stockton Street. This underground station would have a mezzanine and ~~(concourse)~~ and one platform level for north and southbound trains. The main pedestrian entrance would be in a building that Muni would construct on the west side of Stockton Street at the corner of Washington Street to accommodate escalators, stairs, two elevators, and two emergency ventilation shafts. This station location is adjacent to Gordon Lau elementary school playground (not a

public park) and would be across from the Mandarin Tower, one of the tallest buildings in Chinatown. The Muni facility would require only one story. For the purposes of this analysis it is

**FIGURE 5-10: FOURTH STREET PORTAL SIMULATION**  
**ALTERNATIVE 3B**



Source: PB/Wong  
Not to scale  
Revised 1/08

**FIGURE 5-11**  
**UNION SQUARE STATION GEARY STREET ENTRY SIMULATION**  
**ALTERNATIVE 3B**



Source: Kwan Henmi

assumed to be part of a 65-foot high building as permitted under existing zoning. The vent shafts would rise 26 feet above the development roofline on the southwest end of the parcel. The proposed station and vent shafts would be compatible in scale with existing architectural features in the surrounding landscape and would not substantially degrade the existing visual character or quality of the area (not including the historic character-defining features discussed in Section 5.1.1).

#### Cumulative Impacts

No cumulative visual impacts have been identified.

#### Mitigation Measures

Mitigation measures would be the same as identified under Alternative 2.



**FIGURE 5-12**  
**CHINATOWN STATION STOCKTON STREET ENTRY SIMULATION**  
**ALTERNATIVE 3B**



Source: Kwan Henmi



**FIGURE 5-13**  
**CHINATOWN STATION SIMULATION LOOKING EAST FROM WASHINGTON STREET**  
**ALTERNATIVE 3B**



Source: Kwan Henmi

## **5.6 UTILITIES AND ENERGY**

### **5.6.1 INTRODUCTION**

The following section describes the impacts and mitigation measures for major subsurface and above-ground utilities. Conceptual plan drawings showing the location of the proposed facilities for the Central Subway Alternatives were used to identify impacts on existing utilities listed in Section 4.6. In addition, energy considerations for Central Subway Alternatives are summarized below.

A Project is considered to have an adverse impact on utilities if it would conflict with waste water treatment requirements of the Bay Area Regional Water Quality Control Board (BARWQCB) or require construction of new storm water drainage facilities or if there were not sufficient water, wastewater treatment, or landfill facilities available to serve the Project needs. Energy impacts would occur if the Project would encourage activities that result in large amounts of fuel, water, or energy or use of these resources in a wasteful manner.

The traction power substations for the Central Subway would be located underground in the Moscone and Chinatown Stations and would not be visible to the general public. The design of these facilities would be integrated into the non-public areas of the stations.

### **5.6.2 IMPACTS TO MAJOR UTILITIES**

#### **Alternative 1 - No Project/TSM**

The No Project/TSM Alternative would not require modifications to utility lines in the Central Subway Corridor. No utility impacts would occur.

#### **Alternative 2 - Enhanced EIS/EIR Alignment**

##### Operation Impacts

No operation impacts have been identified in association with the siting of the traction power substations.

##### Cumulative Impacts

No cumulative impacts have been identified.

##### Mitigation Measures

No mitigation measures would be required.

### **Alternative 3 - Central Subway Fourth/Stockton Alignment Option A (LPA)**

#### Operation Impacts

No operation impacts have been identified.

#### Cumulative Impacts

No cumulative impacts have been identified.

#### Mitigation Measures

No mitigation measures would be required.

### **Alternative 3 - Central Subway Fourth/Stockton Alignment Option B (Modified LPA)**

#### Construction Impacts

#### Operation Impacts

No operation impacts have been identified.

#### Cumulative Impacts

No cumulative impacts have been identified.

#### Mitigation Measures

No mitigation measures would be required.

### **5.6.3 ENERGY IMPACTS**

The estimated energy consumption under each Alternative is summarized in Table 5-2. The formula used to calculate energy is stipulated by FTA. Since the formula does not consider articulated buses or light rail vehicles, the British Thermal Units (BTUs) represented in the table are approximate.

### **Alternative 1 – No Project/TSM**

The No Project/TSM Alternative would result in increased diesel fuel and electric power consumption when compared to the current conditions as a result of growth in travel demand. Without the rail investment proposed in the Build Alternatives, more auto trips would occur resulting in higher energy consumption.

**TABLE 5-2**

**ESTIMATED CHANGE IN 2030 REGIONAL ENERGY CONSUMPTION BETWEEN THE NO PROJECT/TSM ALTERNATIVE AND THE CENTRAL SUBWAY ALTERNATIVES**

Technology/Fuel Type	BTUs (millions)	Change in BTU/Year (millions)		
	No Project/TSM	Central Subway Enhanced EIS/EIR	Central Subway Fourth/Stockton Option A	Central Subway Fourth/Stockton Option B
Passenger Vehicle	1,215,286	-2,688	-1,677	-3,345
Heavy-Duty Vehicle	0	0	0	0
Diesel Bus	7,583	-1,231	-1,231	-1,231
Electric Bus	6,850	-469	-469	-469
Electric Light Rail	10,965	4,372	3,620	3,996
<b>Total</b>	<b>1,240,683</b>	<b>-16</b>	<b>243</b>	<b>-1,049</b>
Note: Based on Vehicle Miles Traveled multiplied by an energy consumption factor for each technology/fuel type, and compared to the No Project/TSM Alternative. In accordance with FTA guidance, the No Project/TSM Alternative serves as the baseline for calculations. Source: VMT – San Francisco Model, March 2007; Energy consumption factors - Oak Ridge National Laboratory, <i>Transportation Energy Book: Edition 16</i> , 1996.				

**Alternative 2 – Enhanced EIS/EIR Alignment**

Operation Impacts

Implementation of the Enhanced EIS/EIR Alignment would require electric power to operate the light rail line. Muni’s traction power distribution system would be expanded as a part of the construction of the Project for this purpose. The electrical energy for the Enhanced EIS/EIR Alignment would be generated at the City’s Hetch Hetchy hydroelectric (clean-burning fuel) facility. Table 5-3 indicates that the Enhanced EIS/EIR Alignment would consume 16 million fewer total BTUs per year of energy than the No Project/TSM Alternative.

Additionally, the Enhanced EIS/EIR Alignment would reduce the consumption of fossil fuel for autos and diesel buses when compared to the No Project/TSM Alternative.

No additional Hetch Hetchy generating or transmission capacity would be necessary to accommodate the Enhanced EIS/EIR Alternative. The Enhanced EIS/EIR Alignment would not result in energy impacts.

Mitigation Measures

No mitigation measures would be required.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

#### Operation Impacts

As with the Alternative 2, implementation of the Fourth/Stockton Alignment Option A would require expansion of Muni's traction power distribution system. Table 5-3 indicates that the Fourth/Stockton Alignment Option A would consume slightly more, 243 million total BTUs per year of energy, than the No Project/TSM Alternative. The Fourth/Stockton Alignment Option A would reduce the consumption of fossil fuel for autos and diesel buses when compared to the No Project/TSM Alternative, but not to the same extent as under Alternatives 2 or 3B. Under this alternative, the increase in energy consumption associated with the increased operation of light rail vehicles would not be offset by the reduction in passenger vehicle use, as this alternative has the lowest transit ridership.

Though some additional BTU's would be consumed by Alternative 3A, no additional Hetch Hetchy generating or transmission capacity would be necessary to accommodate for this small amount. Fuel consumption by power construction equipment also could be accommodated with existing energy resources. Therefore, the Fourth/Stockton Alignment Option A would not result in significant energy impacts to meet power demands.

#### Mitigation Measures

No mitigation measures would be required.

### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

#### Operation Impacts

As with Alternative 2 and 3A, implementation of the Fourth/Stockton Alignment Option B would require expansion of Muni's traction power distribution system. Table 5-3 indicates that the Central Subway Fourth/Stockton Alignment Option B would consume 1,049 million fewer total BTUs per year of energy than the No Project/TSM Alternative. Additionally, the Central Subway Fourth/Stockton Alignment Option B would reduce the consumption of fossil fuel for autos and diesel buses, as this alternative would generate the highest ridership on the new rail line (more than 10,000 additional riders than either Alternative 2 or 3A).

No additional Hetch Hetchy generating or transmission capacity would be necessary. Fuel consumption by power construction equipment also could be accommodated with existing energy resources. Therefore, the Central Subway Fourth/Stockton Alignment Option B would not result in significant energy impacts to meet power demands.

Mitigation Measures

No mitigation measures would be required.

## **5.7 GEOLOGY AND SEISMICITY**

### **5.7.1 INTRODUCTION**

Implementation of the Central Subway would be considered to have an adverse effect relating to geology, soils, and seismicity if it would: expose people or structures to major geological hazards, create or exacerbate geologic instability, or result in substantial soil erosion, loss of topsoil, or substantially change a unique geologic or physical feature.

### **5.7.2 EXPOSURE OF CONSTRUCTION WORKERS AND/OR THE PUBLIC TO GEOLOGIC HAZARDS AND POTENTIAL DAMAGE TO PROJECT COMPONENTS**

#### **Alternative 1 - No Project/TSM**

The No Project/TSM Alternative would not be expected to result in adverse effects on geology or soils, and would not result in increased hazards associated with seismic activity. The No Project/TSM Alternative does not include new construction, and therefore would not expose new structures, or the users of new structures, to geologic hazards or soil erosion.

#### **Alternative 2 - Enhanced EIS/EIR Alignment**

##### Operation Impacts

The alignment does not cross any known active faults, and therefore rupture of tunnels resulting from displacement along a fault is not likely to occur. The tunnels would be subjected to “extremely high” levels of groundshaking. However, the tunnels would be designed to withstand effects from the design earthquake on the San Andreas Fault (Magnitude ~7). No identifiable damage to the BART/Muni Metro subway was caused by the Loma Prieta earthquake in 1989.<sup>5</sup> The Enhanced EIS/EIR Alignment would be designed and built to current seismic standards to withstand the design earthquake, which would reduce potential Project impacts.

##### Cumulative Impacts

Other Projects (e.g., public transportation, commercial, and residential Projects) would also be constructed and operated in this seismically active region. While the population of San Francisco and the region is projected to grow in the future and therefore additional people would be potentially exposed to hazards during a major seismic event, the Project would be built to current seismic standards to minimize the potential safety impact on the general population. Therefore implementation of the Enhanced EIS/EIR Alignment would not result in a cumulative impact.

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<sup>5</sup> Ramirez, Robert, Track Superintendent, Cable Car and Rail Systems, Municipal Railway (Muni), City and County of San Francisco, personal communication with BASELINE, 11 July, 1997.

### Mitigation Measures

No mitigation measures would be required.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA) and Option B (Modified LPA)**

#### Operation Impacts

Operation impacts would be the same as described above for Alternative 2.

#### Cumulative Impacts

Cumulative impacts would be the same as described above for Alternative 2.

### Mitigation Measures

No mitigation measures would be required.

### **5.7.3 DAMAGE TO EXISTING AND FUTURE IMPROVEMENTS FROM SETTLEMENT OR INSTABILITY OF SUBSURFACE MATERIALS**

#### **Alternative 1 - No Project/TSM**

The No Project/TSM Alternative would not be expected to result in substantial impacts to geology, soils, and seismicity. The No Project/TSM Alternative does not include new construction, and therefore would not expose new structures, or the users of new structures, to geologic hazards.

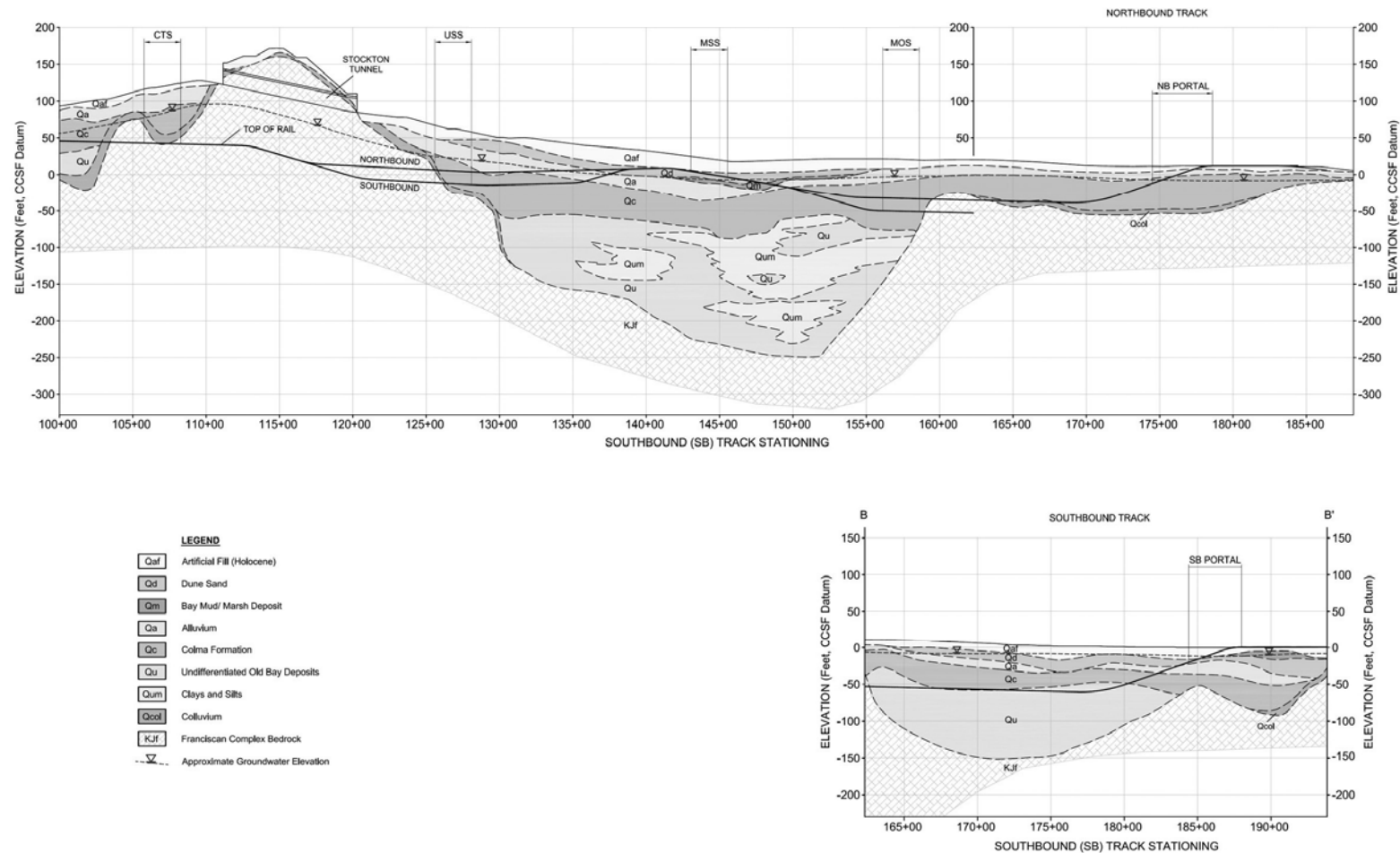
#### **Alternative 2 - Enhanced EIS/EIR Alignment**

#### Operation Impacts

Portions of this alignment (Third and Fourth Streets between King and Brannan Streets) would consist of light rail track placed on existing road surfaces, and therefore would not be expected to result in significant settlement related to instability of geologic materials. The remainder of this alignment would consist of subway tunnels under existing City streets. Based on geologic profile as shown on Figure 5-14, the subway tunnels would be constructed in geologic materials consisting of artificial fill, dune sand, Bay Mud, and Alluvium. Operational effects on the stability of geologic materials around the tunnels would not be expected since the reinforced tunnel lining would be placed against the exposed material upon excavation, limiting the expansion or contraction potential of the sediments.



**FIGURE 5-14**  
**GEOLOGIC PROFILE FOR ALTERNATIVE 2**



Source: Geomatrix  
Not to Scale

#### Cumulative Impacts

Settlement and geologic instability of subsurface materials is a site-specific condition that would not result in cumulative impacts.

#### Mitigation Measures

No mitigation measures would be required.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

#### Operation Impacts

A portion of this alignment (Fourth Street between King and Townsend Streets) would consist of light rail track placed on existing road surface, and therefore would not be expected to result in significant settlement related to instability of geologic materials. The remainder of this alignment would consist of subway tunnels under existing city streets. Based on the geologic profile shown in Figure 5-15, the subway tunnels would be constructed in geologic materials consisting of artificial fill, dune sand, Bay Mud, dense Colma Sand, and Bedrock. Operational effects on the stability of geologic materials around the tunnels would not be expected since the reinforced tunnel lining would be placed against the exposed material upon excavation, limiting the expansion or contraction potential of the sediments.

#### Cumulative Impacts

Settlement and geologic instability of subsurface materials is a site-specific condition that would not result in cumulative impacts.

#### Mitigation Measures

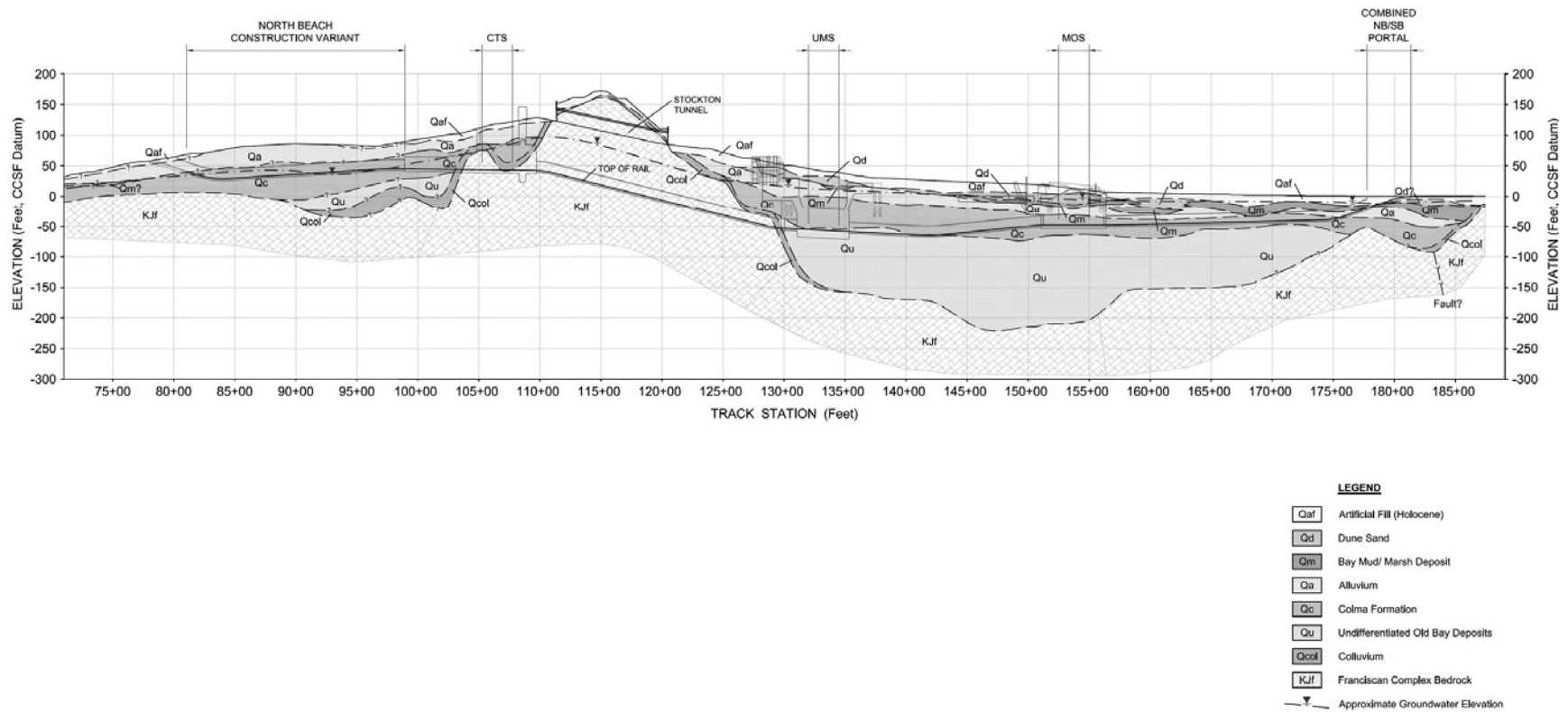
No mitigation measures would be required.

### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

#### Operation Impacts

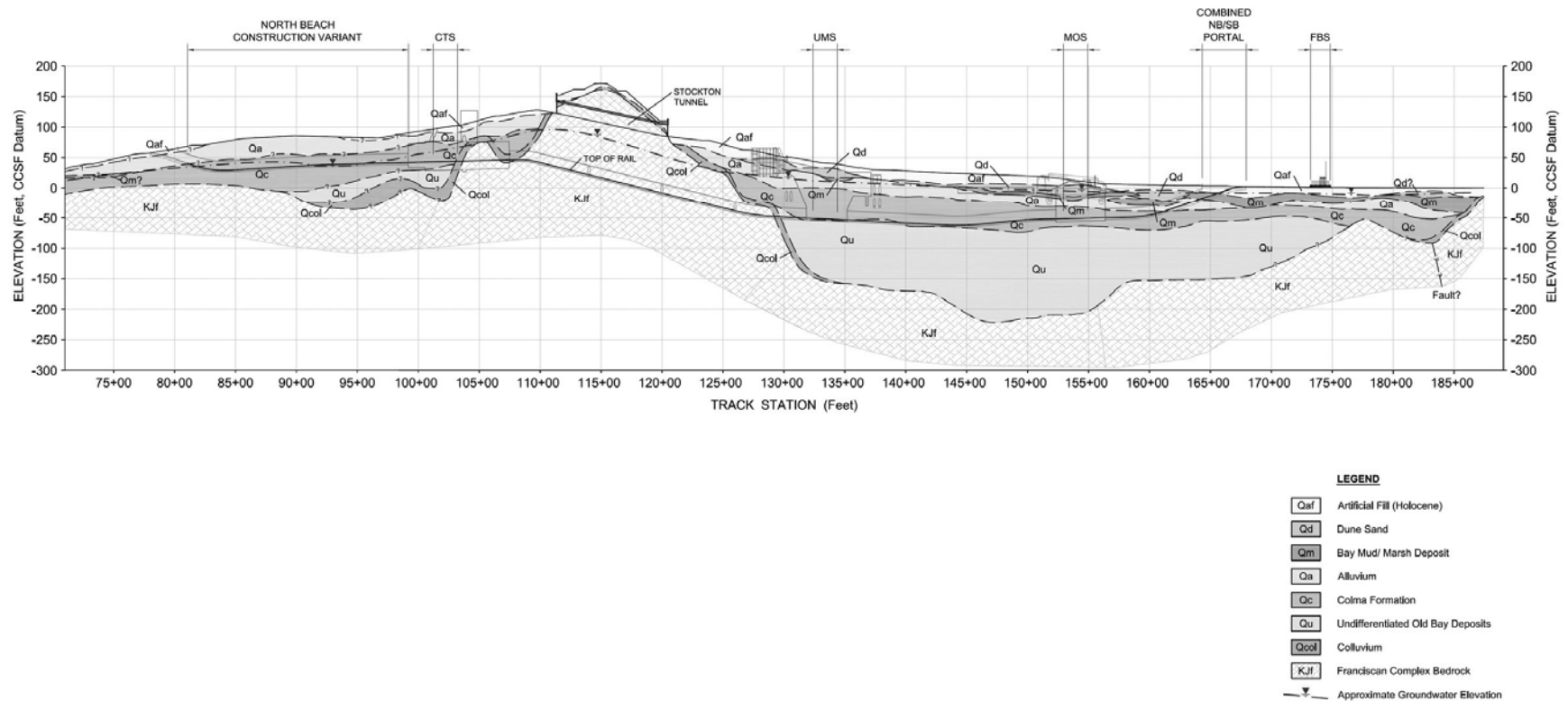
A portion of this alignment (Fourth Street between King and Bryant Streets) would consist of light rail track placed on existing road surface, and therefore would not be expected to result in significant settlement related to instability of geologic materials. The remainder of this alignment would consist of subway tunnels under existing City streets. Based on data obtained from soil borings along the alignment, the subway tunnels would be constructed in geologic materials consisting of artificial fill, dune sand, Bay Mud, and Alluvium (see Figure 5-16). Operational effects on the stability of geologic materials

**FIGURE 5-15**  
**GEOLOGIC PROFILE FOR FOURTH/STOCKTON ALTERNATIVE OPTION A**



Source: Geomatrix  
Not to Scale

**FIGURE 5-16**  
**GEOLOGIC PROFILE FOR FOURTH/STOCKTON ALTERNATIVE OPTION B**



Source: Geomatrix  
Not to Scale

around the tunnels would not be expected since the reinforced tunnel lining would be placed against the exposed material upon excavation, limiting the expansion or contraction potential of the sediments.

#### Cumulative Impacts

Settlement and geologic instability of subsurface materials are site-specific conditions that would not result in cumulative impacts.

#### Mitigation Measures

No mitigation measures would be required.

## **5.8 HYDROLOGY AND WATER QUALITY**

### **5.8.1 INTRODUCTION**

Implementation of the Project would be considered to have an effect on hydrology or water quality if it would: violate any water quality standards or waste discharge requirements; expose people or structures to substantial new or increased flooding; result in the substantial degradation of surface or groundwater quality; substantially interfere with groundwater recharge; deplete groundwater supplies; substantially alter the existing drainage pattern of the site or area; or create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems.

### **5.8.2 FLOODING**

#### **Alternative 1 - No Project/TSM**

Implementation of the No Project/TSM Alternative would not be expected to result in adverse flooding effects. This alternative does not include facilities in flood-prone areas and, therefore, would not expose people or structures to new flooding hazards.

#### **Alternative 2 - Enhanced EIS/EIR Alignment**

##### Operation Impacts

The alignment for the Enhanced EIS/EIR Alignment is at elevations above 100-year tides or tsunami events. Implementation of this alternative would not result in flooding impacts.

##### Cumulative Impacts

The Enhanced EIS/EIR Alignment is outside the 100-year high tide or tsunami impact area and therefore would not contribute to cumulative impacts.

##### Mitigation Measures

No mitigation measures would be required.

#### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

##### Operation and Cumulative Impacts

Operation and Cumulative impacts would be the same as described for Alternative 2 above.

##### Mitigation Measures

No mitigation measures would be required.

### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

#### Operation and Cumulative Impacts

Operation and Cumulative impacts would be the same as described for Alternative 2 above.

#### Mitigation Measures

No mitigation measures would be required.

### **5.8.3 WATER QUALITY**

#### **Alternative 1 - No Project/TSM**

Implementation of the No Project/TSM Alternative would not be expected to result in adverse effects from increases in storm water runoff.

#### **Alternative 2 - Enhanced EIS/EIR Alignment**

##### Operation Impacts

Operation of the Enhanced EIS/EIR Alignment would result in the potential discharge of contaminants to the environment that could be transported by runoff to the City's combined storm and sanitary sewer system. The primary pollutants associated with operation of a light rail system include heavy metals, solvents, and petroleum hydrocarbons. Metals enter the environment in several ways, such as through dust or grit produced from metal-on-metal (light rail vehicles on track) wear and spillage of materials containing metals (e.g. lubricants and waste oil).

Drainage conveyance structures already exist along the Enhanced EIS/EIR Alignment. All storm water runoff from the alignment would be directed toward the City's combined storm and sanitary sewer system. The City's combined storm and sanitary sewer system, which collects and treats storm water, is operated in accordance with existing NPDES permits. The collection and treatment of storm water by the combined sewer system is an appropriate method of reducing the potential adverse effects of urban runoff on receiving waters.

Based on the high water table conditions and permeable soils, along with inflows of groundwater to the Powell Street Station, measures, such as horizontal wells, to encourage lateral groundwater flow past the Union Square Station will be incorporated into the project design if determined necessary based on hydrologic modeling.

Covering pervious surfaces, such as landscaped areas and exposed soil, with pavement or other impervious cover reduces the infiltration of water to the subsurface and increases surface runoff. The

Enhanced EIS/EIR Alignment would result in the construction of a light rail line with a portion constructed on existing roadway surfaces and the majority of the facility located underground; therefore no net increase in impervious surfaces would be expected. Construction of the Enhanced EIS/EIR Alignment would not be expected to materially increase storm water runoff volume.

#### Cumulative Impacts

Increases in pollutant load resulting from construction of the Enhanced EIS/EIR Alignment, in conjunction with increases in pollutant load resulting from other projects, could result in cumulative impacts. Under existing programs and procedures, the operators of the City's treatment plants are required to manage inputs to the combined sewer system. Applications for industrial discharge permits, if required for any of the cumulative projects, would be reviewed by the Public Utilities Commission to confirm that the treatment plants could accommodate the increased load prior to project approval. Therefore, potential operational cumulative effects associated with storm water runoff would be reduced by existing programs. However, there is heightened public interest in the issue of cumulative increases in flows to the City's combined storm and sanitary sewer system, and the resulting potential for increases in the volume and duration of overflow events during wet weather. Several major projects near the Study Area including the Mission Bay development, residential towers on Rincon Hill, and proposed Transbay Redevelopment Plan could result in increased flows to the City's combined storm and sanitary sewer system. Given the required industrial discharge permits for these other proposed projects and total flows to the system's Southeast Water Pollution Control Plant, which treats wastewater from the eastern portion of the City, it is expected that any increase in flows resulting from the Enhanced EIS/EIR Alignment would be within City guideline and standards.

In accordance with San Francisco Ordinance 19-92, Sections 118 and 123, a contractor would prepare and implement a SWPPP. The SWPPP would include Best Management Practices (BMPs) designed to reduce potential adverse effects on surface water quality and off-site sedimentation throughout the construction phase of the Project. Specific measures shall be included in the SWPPP to ensure that runoff from the construction sites does not drain directly to the Bay. The SWPPP would include:

- Construction Storm Water Management Controls. These controls would include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with storm water. The SWPPP would specify properly designed centralized storage areas that would keep these materials out of the rain. Spill cleanup materials (e.g. rags, absorbent materials, and secondary containment) would be kept at the work site when handling chemicals.



An important component of the storm water quality protection effort is knowledge of the SWPPP by the site supervisors and workers. To educate on-site personnel and maintain awareness of the importance of storm water quality protection, site supervisors would conduct regular tailgate meetings to discuss pollution prevention. The frequency of the meetings and required personnel attendance list would be specified in the SWPPP.

The SWPPP would specify a monitoring program to be implemented by the construction site supervisor, and would include both dry and wet weather inspections. City personnel shall conduct regular inspections to ensure compliance with the SWPPP; an accepted standard procedure.

- Erosion and Sediment Control. BMPs designed to reduce erosion of exposed soil may include, but are not limited to: soil stabilization controls, watering for dust control, perimeter silt fences, placement of straw wattles, and sediment basins. The potential for erosion is generally increased if grading is performed during the rainy season as disturbed soil can be exposed to rainfall and storm runoff. If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control, that is, keeping sediment in-place. End-of-pipe sediment control measures (e.g., basins and traps) shall be used only as secondary measures. Entry and egress from the construction site shall be carefully controlled to minimize off-site tracking of sediment. Vehicle and equipment washdown facilities shall be designed to be accessible and functional during both dry and wet conditions. Additional sources of information regarding BMPs are the California Storm Water Municipal and Construction Activity BMP Handbooks.<sup>6</sup>

#### Mitigation Measures

No mitigation measures would be required.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

#### Operation Impacts

Operation impacts would be the same as those described for Alternative 2. During operation, runoff would be collected from drainage facilities incorporated into the design of the tunnels. Drainage would be conveyed to the City's combined storm and sanitary sewer system and storm water facilities. Design measures to address groundwater flow to the Powell Street BART/Muni Metro Station would be incorporated into the Union Square/Market Street Station.

#### Cumulative Impacts

Cumulative impacts would be the same as described above for Alternative 2.

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<sup>6</sup> California Stormwater Quality Association (CASQA). *Stormwater Best Management Practice Handbooks*, 2003.

#### Mitigation Measures

No mitigation measures would be required.

#### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

#### Operation Impacts

Operation impacts would be the same as those described for Alternative 2. During operation, runoff would be collected from drainage facilities incorporated into the design of the tunnels. Drainage would be conveyed to the City's combined sewer and storm water facilities. Design measures to address groundwater flow to the Powell Street BART/Muni Metro Station would be incorporated into the Union Square/Market Street Station.

#### Cumulative Impacts

Cumulative impacts would be the same as described above for Alternative 2.

#### Mitigation Measures

No mitigation measures would be required.

#### 5.8.4 GROUNDWATER RECHARGE

#### **Alternative 1 - No Project/TSM**

Implementation of the No Project/TSM Alternative would not interfere with groundwater recharge.

#### **All Build Alternatives**

#### Operation Impacts

Implementation of this alternative would not result in significant impacts to groundwater recharge.

#### Cumulative Impacts

No substantial amount of water would be recharged into the groundwater therefore this alternative would not contribute to cumulative impacts.

#### Mitigation Measures

No mitigation measures would be required.

## **5.9 BIOLOGICAL AND WETLAND RESOURCES**

### **5.9.1 INTRODUCTION**

Under CEQA implementation of the Project would be considered to have an adverse effect on biological or wetland resources if it would result in disturbance of critical habitat (including wetlands) or affect special-status species. Removal of landscaping is also considered since trees and shrubbery provide wildlife habitat. No special status species or wetlands were found in the Study Area.

### **5.9.2 IMPACTS**

#### **Alternative 1 - No Project /TSM**

Implementation of the No Project/TSM Alternative would not result in effects to critical habitat, special-status species, or removal of existing landscaping. Therefore, implementation of this alternative would not result in impacts.

#### **Alternative 2 - Central Subway Enhanced EIS/EIR Alignment**

##### Operation Impacts

Operation of the Enhanced EIS/EIR Alignment would not result in biological or wetland impacts, since no vegetation or wildlife would be affected.

##### Cumulative Impacts

No impacts to biological and wetland resources have been identified for the Enhanced EIS/EIR Alignment; therefore, there would be no cumulative impact from operation of the light rail.

##### Mitigation Measures

No mitigation measures would be required.

#### **Alternative 3 - Central Subway Fourth/Stockton Alignment Option A (LPA) and Option B (Modified LPA)**

##### Operation Impacts

Operation of Fourth/Stockton Alignment Option A would not result in biological or wetland impacts, since no vegetation or wildlife would be affected.

##### Cumulative Impacts

No impacts to biological and wetland resources have been identified from operation of the Fourth/Stockton Alignment Option A; therefore, there would be no cumulative impact from operation of the light rail.

Mitigation Measures

No mitigation measures would be required.

## **5.10 HAZARDOUS MATERIALS**

### **5.10.1 INTRODUCTION**

Implementation of the alternatives would be considered to have an effect on the environment and public health if the transport, use, production or disposal of materials would pose a hazard to people, animal, or plant populations in the area affected or if the Project would emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school or be located on a listed hazardous materials site pursuant to Government Code 659625 or Article 20 of the San Francisco Health code or degradation of water quality based on regulatory threshold and maximum contaminant levels. Additional detailed information on hazardous materials is included in the background technical file available for review by appointment at the Planning Department, 1650 Mission Street, San Francisco.

### **5.10.2 EXPOSURE OF SITE WORKERS AND PUBLIC TO HAZARDOUS MATERIALS**

#### **Alternative 1 - No Project/TSM**

The No Project/TSM Alternative would not introduce additional hazardous materials into the Study Area, require new construction, require hazardous materials handling, nor result in increased exposure to the public or to the environment. Therefore, implementation of this alternative would not result in adverse effects associated with hazardous materials.

#### **Alternative 2 – Enhanced EIS/EIR Alignment**

##### Operation Impacts

Operation of the Central Subway Enhanced EIS/EIR Alignment would include the use, handling, and storage of hazardous materials. Degreasers, lubricants, cleaning solutions, solvents, paints, and miscellaneous petroleum products may be used for maintenance activities. In addition, maintenance of the light rail utility corridors may expose workers to hazardous materials if future excavation were to extend beyond the limits of excavation during construction.

Site workers exposed to potentially contaminated soils during light rail repair and maintenance and to hazardous materials during the use, handling, or storage of these materials may be adversely affected. In addition, an accidental release of hazardous materials could occur at the maintenance facility, which could potentially affect the environment (soil, surface water, and groundwater).

State regulations have been established to ensure generally safe workplaces and employee work practices. The California General Industry Safety Order requires all employers in California to prepare and implement the following plans and programs:

- Emergency Action Plan. The Plan designates employee responsibilities, evacuation procedures and routes, alarm systems, and training procedures.
- Fire Prevention Plan. The Plan identifies potential hazard areas, persons responsible for maintenance of fire prevention equipment or systems, fire prevention housekeeping procedures, and fire hazard training procedures.
- Injury and Illness Prevention Program. The Plan identifies safe practices for each job category, methods for informing workers of hazards, and procedures for correcting identified hazards.

Preparation and implementation of the plans, programs, and requirements identified above as well as those mentioned in Section 5.8, Hydrology and Water Quality would meet City requirements for workers, the public, and the environment.

#### Cumulative Impacts

The City's combined storm and sanitary sewer system could potentially be affected if dewatered groundwater from planned or ongoing Projects, in addition to the Enhanced EIS/EIR Alignment, were to discharge into the City's system. Excessive discharge could potentially exceed the system's capacity.

Procurement of a BWWD permit would be required prior to discharging into the combined sewer system; the permit requires identification of total estimated volume and duration of proposed discharge. Therefore, the City would only allow discharges that would be within the capacity of the system. If contaminant levels in the groundwater exceeded the BWWD permit levels, treatment of the groundwater could be required prior to discharge. Therefore, potential cumulative construction effects associated with dewatered groundwater would be avoided with implementation of the existing requirements established by the City.

#### Mitigation Measures

No mitigation measures would be required.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

#### Operation Impacts

Operation impacts would be the same as described above for Alternative 2.

#### Cumulative Impacts

Cumulative impacts would be the same as those described above for Alternative 2.

#### Mitigation Measures

No mitigation measures would be required.

### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

#### Operation Impacts

Operation impacts would be the same as described above for Alternative 2.

#### Cumulative Impacts

Cumulative impacts would be the same as those described above for Alternative 2.

#### Mitigation Measures

No mitigation measures would be required.

## 5.11 AIR QUALITY

### 5.11.1 INTRODUCTION

Implementation of the alternatives would be considered to have an effect on air quality if construction and/or operational effects would result in: violations of ambient air quality standards, contribution to an existing or Projected air quality violation, or exposure of sensitive receptors to substantial pollutant concentrations. A Project impact resulting from construction operations would be considered significant if feasible BAAQMD construction control measures listed in the BAAQMD CEQA Guidelines were not incorporated into the design of any of the alternatives.<sup>7</sup>

Since publication of the 1998 EIS/EIR, approaches and analysis tools for evaluating air quality have changed. The changes in methodological approaches are outlined below:

- Construction emissions vary substantially from day-to-day, depending on the level of activity, the specific type of construction operations and the prevailing weather in the case of dust emissions. The BAAQMD does not recommend quantification of construction emissions. As a result, attempts were not made in this document to estimate construction emissions. Rather the discussion is based on feasible control measures that are being incorporated into the Project.
- The current approved motor vehicle emission factor model is EMFAC2002, which is an update to the EMFAC7G model used for the 1998 EIS/EIR.
- Since most of California is in attainment for CO, a Transportation Project-Level Carbon Monoxide Protocol (the Protocol) was developed by Caltrans and the Institute of Transportation Studies at the University of California, Davis (December 1997) to provide procedures for evaluating potential impacts without having to do dispersion modeling.<sup>8</sup> The Protocol includes three potential tests: a qualitative analysis based on decision flowcharts, a quantitative screening analysis and a dispersion modeling analysis. The goal of the decision flowcharts is to prescreen Project data to determine if the Project would cause CO violations of standards without actually running the model. If results from the first test are not conclusive, then the next test is conducted.

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<sup>7</sup> BAAQMD CEQA Guidelines for Assessing Impacts of Projects and Plans, December 1999.

<sup>8</sup> California Department of Transportation and the Institute of Transportation Studies at the University of California, Davis, December, 1997.



## 5.11.2 SIGNIFICANCE THRESHOLDS

BAAQMD has developed project operation thresholds of significance for CO, ROG, NO<sub>x</sub>, and PM<sub>10</sub> (Table 5-3).<sup>9</sup> Estimated CO, ROG, NO<sub>x</sub>, and/or PM<sub>10</sub> emissions generated from project operations would be considered significant if any project emissions were to exceed BAAQMD thresholds.<sup>10</sup>

**TABLE 5-3**  
**GENERAL THRESHOLDS OF SIGNIFICANCE**  
**FOR PROJECT OPERATIONS**

Pollutant	Threshold of Significance
CO	550 lb/day and 20 ppm (1-hour) 9 ppm (8-hour)
ROG	80 lb/day
NO <sub>x</sub>	80 lb/day
PM <sub>10</sub>	80 lb/day
<p><u>Notes:</u> ppm = parts per million. lb/day = pounds per day. CO = carbon monoxide ROG = reactive organic gases NO<sub>x</sub> = nitrogen oxides PM<sub>10</sub> = particulate matter less than 10 microns in diameter (also includes PM<sub>2.5</sub>)</p> <p>Source: Bay Area Air Quality Management District, CEQA Guidelines Assessing the Air Quality Impacts of Projects and Plans, December 1999.</p>	

Projects that result in a modification to the forecasted total vehicle miles traveled (VMT) in a region have the potential of altering mobile source-related regional emissions in that area. Regional emissions of CO, ROG, NO<sub>x</sub>, and PM<sub>10</sub> have been estimated for existing conditions in 2006 and for 2030 for all alternatives. Emission factors for PM<sub>2.5</sub> are not included in current approved emission factor models, so PM<sub>2.5</sub> emissions were not calculated. Particulate matter from fuel-combustion sources is primarily composed of PM<sub>2.5</sub>. Therefore, the PM<sub>2.5</sub> fraction of PM<sub>10</sub> emissions is estimated as approximately 99 percent. Emissions were estimated based on the forecasted VMT, and composite emission factors obtained from the EMFAC2002 (for motor vehicles) and URBEMIS2002 (for re-entrained dust) models developed by CARB.

The 2030 No Project/TSM conditions were compared to existing conditions (2006) to identify any air quality issues that would occur if the proposed Project were not built. It should be noted that the 2030 No

<sup>9</sup> The BAAQMD has not developed a specific threshold for PM<sub>2.5</sub>.

<sup>10</sup> Thresholds of significance for construction-related emissions have not been developed by BAAQMD.

Project/TSM conditions reflect development, growth, and infrastructure improvements that have been accounted for in regional planning documents.

Due to the nature of air quality, it is more appropriate to evaluate Project impacts based on the net difference in future conditions (i.e., how the proposed Project would affect future traffic patterns that already consider regional growth) than to compare to existing conditions. This type of analysis also allows for changes in vehicle technology and fuels that may occur over the years to be removed from the comparison. As a result, the No Project/TSM Alternative emission estimates (Table 5-4) serve as the baseline emissions against which to evaluate potential impacts for the other alternatives. The net differences were then compared to BAAQMD significance thresholds.

**TABLE 5-4**  
**ESTIMATED 2030 REGIONAL EMISSIONS**  
**GENERATED FROM VEHICULAR TRAFFIC (POUNDS PER DAY)**

Alternative	Emissions				Emission Reduction (Compared to No Project / TSM Alternative)			
	CO	ROG	NO <sub>x</sub>	PM <sub>10</sub>	CO	ROG	NO <sub>x</sub>	PM <sub>10</sub>
Existing Conditions 2006	33,795	3,405	4,225	445	N/A	N/A	N/A	N/A
No Project/TSM	7,212	640	606	755	0	0	0	0
Enhanced EIS/EIR <sup>1</sup>	7,196	639	605	754	16	1	1	1
Fourth/Stockton Option A	7,202	640	605	754	10	0	1	1
Fourth/Stockton Option B	7,193	639	605	753	19	1	1	2
Notes: <sup>1</sup> Emissions based on VMT data and emission factors from the EMFAC2002 and URBEMIS2002 models. VMT data provided by the San Francisco Model, January 2007.  CO = Carbon Monoxide ROG = Reactive organic gases. NO <sub>x</sub> = Nitrogen oxides. PM <sub>10</sub> = Particulate matter less than ten microns in diameter (includes PM <sub>2.5</sub> ) . N/A = not applicable								

The traffic analysis for the Project, and thus the air quality analysis, concentrated on five intersections (Third/King, Fourth/King, Fourth/Harrison, Sixth/Brannan, and Fourth/Bryant). These intersections were chosen because they are representative of the key intersections that would be affected by implementation of the Project. It is recognized that the entire Study Area experiences traffic congestion and that many of the intersections in the area operate at poor Level of Service (LOS). The five intersections chosen, particularly the Sixth/Brannan, represent the highest traffic volumes and greatest delays in the Study Area. Table 5-5 summarizes the peak hour traffic volumes and LOS for each intersection on which the air quality analysis is based.

**TABLE 5-5**

**2030 PEAK HOUR TRAFFIC VOLUMES AND LEVEL OF SERVICE FOR STUDY INTERSECTIONS**

<b>Intersection</b>	<b>No Project</b>		<b>Enhanced EIS/EIR</b>		<b>Fourth/Stockton Option A</b>		<b>Fourth/Stockton Option B Mixed Flow*</b>		<b>Fourth/Stockton Option B Semi-Exclusive*</b>	
	Traffic Volume	LOS	Traffic Volume	LOS	Traffic Volume	LOS	Traffic	LOS	Traffic Volume	LOS
Third/King	6,490	F	6,540	F	6,770	F	6,570	F	6,900	F
Fourth/King	5,430	F	5,420	F	5,550	F	5,510	F	5,570	F
Fourth/Bryant	2,920	C	2,970	B	2,960	D	2,800	D	2,550	D
Fourth/Harrison	4,450	E	4,450	D	4,370	E	4,250	F	4,200	F
Sixth/Brannan	6,960	F	7,070	F	6,960	F	7,000	F	6,990	F
* Under the Fourth/Stockton Option B Alternative, two sub-options are being considered. On Fourth Street, the light rail vehicles would operate in one of two lane configurations: semi-exclusive or mixed-flow. In a semi-exclusive operation, trains are physically separated from adjacent traffic except at intersections. In a mixed-flow operation, trains and other vehicles share a trackway that is embedded in the street.										

### 5.11.3 AIR POLLUTANT EMISSIONS

#### **Alternative 1 - No Project/TSM**

##### Operation Impacts

**Regional Emissions.** Although development in San Francisco Bay Area would result in an increase in VMT in the future compared to 2006 conditions (refer to Table 4-15), CO, ROG and NO<sub>x</sub> emissions would be less in 2030. The emission factor model assumes that between 2006 and 2030 older motor vehicles would be replaced with cleaner vehicles and approved emission reduction programs would be implemented resulting in lower CO, ROG, and NO<sub>x</sub> emissions per vehicle. The lower emissions from new vehicles and the emission reduction programs would have less impact on PM<sub>10</sub> emission factors because vehicles emit PM<sub>10</sub> not only from exhaust; but also from tire wear, brake wear and re-entrained dust from the motor vehicle traveling over dusty roads. In contrast, PM<sub>10</sub> emissions from vehicles are expected to increase with population growth.

**Localized CO Analysis.** There has not been a violation of CO standards in San Francisco since 1988.<sup>11</sup> This is attributable to more efficient motor vehicle controls and the introduction of cleaner fuels. Therefore, it is assumed that the Study Area intersections under a No Project/TSM condition in 2030 would not violate CO standards.

##### Mitigation Measures

No mitigation measures would be required.

#### **Alternative 2 - Enhanced EIS/EIR Alignment**

##### Operation Impacts

**Regional Emissions.** Implementation of the Enhanced EIS/EIR Alignment would result in a net reduction of daily VMT of about 1,390, compared to the No Project/TSM Alternative. The reduction in VMT would consequently reduce regional emissions very slightly, compared to the No Project/TSM Alternative (refer to Table 5-4). The reduction for most pollutants, with the exception of CO, would be about a pound per day. CO emissions are reduced by 16 pounds per day.

**Localized CO Analysis.** A CO analysis of the alternative was conducted following guidance provided in the Transportation Project-Level Carbon Monoxide Protocol developed to assess the CO impacts from changes in traffic patterns and congestion in the Study Area.<sup>12</sup>

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<sup>11</sup> California Air Resources Board, the California Almanac of Emissions and Air Quality – 2006 Edition, April 2006.

<sup>12</sup> California Department of Transportation and the Institute of Transportation Studies at the University of California, Davis, December, 1997.

To determine if the proposed Project is likely to worsen air quality compared to a No Project/TSM for the same analysis year, the following questions must be answered:

- Does the proposed Project substantially increase (greater than two percent) the number of vehicles operating in cold start mode (starting a vehicle with a cold engine)?
- Does the proposed Project substantially increase traffic volumes (i.e., increases greater than five percent)?
- Does the proposed Project worsen traffic flow (i.e., any reduction in average travel speed within a range of 3 to 50 miles per hour for uninterrupted roadways or increase in average delay for intersections)?

The nature of the Project would not result in a substantial increase in cold start vehicles. The Project would reduce the overall number of motor vehicle trips in the Study Area and therefore would reduce the number of vehicles operating in cold start mode.

Two roadway segments (King Street westbound between Third Street and Fourth Street and Brannan Street eastbound between Fifth Street and Third Street) would have increases in traffic volume greater than five percent. The Enhanced EIS/EIR Alignment would increase the average delay at some of the intersections selected for analysis. Because of these two issues, there is the potential for the Enhanced EIS/EIR Alignment to worsen air quality.

The Protocol requires a determination as to whether or not the Project could result in higher CO concentrations than those that currently exist in the Bay Area Air Basin, which is an attainment/maintenance area. Since the Bay Area Air Basin currently meets ambient CO standards, no transportation facility operating within it creates a CO violation. The assumption is that if a current intersection in an attainment area were modeled, the results would show concentrations less than ambient standards. If it is determined that a Project-affected intersection is no worse than an existing intersection, the proposed Project is considered acceptable (i.e., would not violate any CO standard or contribute substantially to any existing or projected CO standard) and no further analysis is needed.

As required by the Protocol, a comparative analysis was conducted for the Study Area intersections that operate at LOS E or F or become E or F due to Project implementation (refer to Table 5-6). These intersections under the Enhanced EIS/EIR Alignment include Third/King, Fourth/King, and Sixth/Brannan.

The comparative analysis evaluates receptor locations, roadway geometry, traffic volumes, meteorology, percentage of vehicles in cold start mode, percentage of heavy-duty gas trucks, average delay, and background CO concentrations.

The Foothill Boulevard/Mission Boulevard intersection in Hayward was chosen for comparative purposes.<sup>13</sup> This intersection is well known for having traffic congestion and high traffic volumes. The peak hour traffic volume in 2005 was 13,600 vehicles.<sup>14</sup> The Foothill Boulevard/Mission Boulevard intersection was also chosen because it is similar in climate, CO background levels, and existing peak hour traffic counts were readily available from the Traffic and Vehicle Data Systems Unit portion of Caltrans' website.

The Enhanced EIS/EIR Alignment passes the comparative intersection test outlined in the Protocol because the Study Area intersections were found to have lower traffic volumes and better meteorological conditions than the Foothill/Mission intersection. Receptor locations, roadway geometry, average delay, percent of vehicles in cold start mode, percent of heavy-duty gas trucks, and background CO concentrations are similar.

The Enhanced EIS/EIR Alignment would satisfy transportation conformity requirements. The proposed Project is included in current conforming regional transportation plans (the *Transportation 2030 Plan* and the *2005 Transportation Improvement Program*). Completion of the localized CO impact analysis indicates that CO concentrations would not cause or contribute to violations of ambient air standards. Therefore, the Enhanced EIS/EIR Alignment is found to be in conformance.

**Odors.** It is expected that the Enhanced EIS/EIR Alignment would not generate odor emissions. The BAAQMD has developed a list of the types of facilities known to emit objectionable odors. This list does not include light rail facilities like the Central Subway.

#### Cumulative Impacts

An increase in Project-related short-term construction emissions in addition to emissions from other Projects in the Bay Area may result in cumulative effects to air quality for the Enhanced EIS/EIR Alignment. However, construction activities are subject to control measures established by BAAQMD to reduce impacts from the Project.

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<sup>13</sup> Caltrans often uses this as a comparative intersection for their air quality analyses.

<sup>14</sup> California Department of Transportation, 2005 All Traffic on the California State Highway System, Traffic and Vehicle Data Systems Unit, [www.dot.ca.gov/hg/traffops/saferesr/trfdata/2005all.htm](http://www.dot.ca.gov/hg/traffops/saferesr/trfdata/2005all.htm)

Generally, if operation of a Project results in an increase of a pollutant above a significance threshold, then it would also be considered to contribute substantially to the cumulative effect. The Enhanced EIS/EIR Alignment does not exceed BAAQMD significance thresholds for criteria pollutants; rather emissions for each pollutant are slightly lower than the No Project/TSM Alternative.

All planned development and growth has been included in the assumptions used to generate the traffic data. Consequently, cumulative development is implicitly included in the air quality analysis because it made direct use of traffic volume data and assessed air emissions based on cumulative future traffic conditions. Project emissions of criteria pollutants would not exceed thresholds when compounded with other cumulative emissions.

**Climate Change/Greenhouse Gas Impacts.** An individual Project does not generate enough greenhouse gas emissions to substantially influence global climate change. Climate change is a cumulative impact. However, changes to CO<sub>2</sub> emissions from the Project were estimated (Table 5-6). CO<sub>2</sub> emissions are expected to increase between 2006 and 2030 due to an increase in VMT. While motor vehicles are expected to be less polluting in the future, the improvement is not enough to offset the projected increase in VMT. Since more than 80 percent of the total amount of greenhouse gases is CO<sub>2</sub>, changes to CO<sub>2</sub> emissions is an indicator of impacts from all greenhouse gases.<sup>15</sup>

**TABLE 5-6**  
**ESTIMATED CARBON DIOXIDE EMISSIONS FOR EXISTING CONDITONS (2006)**  
**AND 2030 GENERATED BY VEHICULAR TRAFFIC (pounds per day)**

<b>Alternative</b>	<b>CO<sub>2</sub> Emissions</b>	<b>Emission Reduction (Compared to No Project/TSM Alternative)</b>
Existing Conditions 2006	1,122,045	N/A
No Project/TSM	1,322,866	0
Enhanced EIS/EIR	1,319,940	-2,926
Fourth/Stockton Option A	1,321,039	-1,827
Fourth/Stockton Option B	1,319,224	-3,641
N/A = not applicable		

Implementation of the Enhanced EIS/EIR Alignment would result in relatively small changes in greenhouse gases. During construction, Alternative 2 would increase greenhouse gases due to emissions generated by construction equipment. Once the alternative is operational, there would be an overall reduction in greenhouse gases. This is due to the fact that the reduction in motor vehicle miles traveled

<sup>15</sup> Energy Information Administration, *Emissions of Greenhouse Gases in the United States* 2005, November 2006.

caused by the Project results in a bigger reduction in greenhouse gases than the increase in greenhouse gases generated by the electricity used to power the light rail trains.

There are currently no published thresholds of significance for measuring the impact of global climate change from a Project. However, it can be noted that the Central Subway Project does not conflict with the greenhouse gas reduction strategies listed in Executive Order S-3-05 and the Climate Action Plan for San Francisco. In accordance with these documents, the Central Subway Project will include measures to reduce idling of diesel-fueled construction equipment and vehicles. It will also encourage the use of public transit as an alternative to driving by expanding light rail service. The Project would also be consistent with City policy for Transit-Oriented Development because the Chinatown Station would include space for future housing development above the station.

#### Mitigation Measures

No mitigation measures would be required.

### **Alternative 3 - Central Subway Fourth/Stockton Alignment A (LPA)**

#### Operation Impacts

**Regional Emissions.** Implementation of the Fourth/Stockton Alignment Option A would result in a net reduction of daily VMT of about 870, compared to the No Project/TSM Alternative. The reduction in VMT would consequently reduce regional emissions very slightly, compared to the No Project/TSM Alternative (refer to Table 5-4). The reduction for most pollutants, with the exception of CO, would be one pound per day or less. CO emissions are reduced by 10 pounds per day.

**Localized CO Analysis.** A CO analysis of the Fourth/Stockton Alignment Option A was conducted following the same methodology as described under Alternative 2. Seven roadway segments would have increases in traffic volume greater than five percent. The Fourth/Stockton Alignment Option A would increase the average delay at all of the intersections selected for analysis. Because of these two issues, there is the potential for the Fourth/Stockton Alignment Option A to worsen air quality.

As required by the Protocol, a comparative analysis was conducted for the Study Area intersections that operate at LOS E or F or become E or F due to Project implementation (refer to Table 5-6). These intersections under the Fourth/Stockton Alignment Option A include Third/King, Fourth/King, Fourth/Harrison, and Sixth/Brannan.

The Fourth/Stockton Alignment Option A passes the comparative intersection test outlined in the Protocol because the Study Area intersections were found to have lower traffic volumes and better meteorological



conditions than the Foothill/Mission intersection. Receptor locations, roadway geometry, average delay, percent of vehicles in cold start mode, percent of heavy-duty gas trucks, and background CO concentrations are pretty similar.

Like Alternative 2, the Fourth/Stockton Alignment Option A would satisfy transportation conformity requirements.

**Odors.** As identified under Alternative 2, it is expected that the Fourth/Stockton Alignment Option A would not generate odor emissions.

#### Cumulative Impacts

The cumulative impacts including greenhouse gas impacts for the Fourth/Stockton Alignment Option A would be the same as those identified under Alternative 2.

#### Mitigation Measures

No mitigation measures would be required.

### **Alternative 3 - Central Subway Fourth/Stockton Alignment B (Modified LPA)**

#### Operation Impacts

**Regional Emissions.** Implementation of the Fourth/Stockton Alignment Option B would result in a net reduction of daily VMT of about 1,730, compared to the No Project/TSM Alternative. The reduction in VMT would consequently reduce regional emissions very slightly, compared to the No Project/TSM Alternative (refer to Table 5-4). The reduction for most pollutants, with the exception of CO, would be one to two pounds per day. CO emissions are reduced by 19 pounds per day.

**Localized CO Analysis.** A CO analysis of the Fourth/Stockton Alignment Option B was conducted following the same methodology as described under Alternative 2.

Nine roadway segments would have increases in traffic volume greater than five percent if the Fourth/Stockton Alignment Option B Alternative with a mixed flow lane configuration is chosen. The number of roadway segments with traffic volume increases of greater than five percent increases to eleven if a semi-exclusive lane configuration is chosen. The Fourth/Stockton Alignment Option B with either the mixed flow or semi-exclusive lane configuration would increase the average delay at all of the intersections selected for analysis. Because of these two issues, there is the potential for the Fourth/Stockton Alignment Option B to worsen air quality.

As required by the Protocol, a comparative analysis was conducted for the Study Area intersections that operate at LOS E or F or become E or F due to Project implementation (refer to Table 5-5). These intersections under the Fourth/Stockton Alignment Option B include Third/King, Fourth/King, Fourth/Harrison, and Sixth/Brannan.

The Fourth/Stockton Alignment Option B passes the comparative intersection test outlined in the Protocol because the Study Area intersections were found to have lower traffic volumes and better meteorological conditions than the Foothill/Mission intersection. Receptor locations, roadway geometry, average delay, percent of vehicles in cold start mode, percent of heavy-duty gas trucks, and background CO concentrations are pretty similar.

Like Alternatives 2 and 3A, the Fourth/Stockton Alignment Option B would satisfy transportation conformity requirements.

**Odors.** As identified under the Enhanced EIS/EIR Alignment, it is expected that the Fourth/Stockton Alignment Option B would not generate odor emissions.

#### Cumulative Impacts

The cumulative impacts including greenhouse gas effects for the Fourth/Stockton Alignment Option B would be the same as those identified under Alternative 2.

#### Mitigation Measures

No mitigation measures would be required.

## **5.12 NOISE AND VIBRATION**

### **5.12.1 INTRODUCTION**

The FTA criteria for noise and vibration are described in Section 4.12. In addition to the FTA criteria, the following noise and vibration criteria used by the San Francisco Planning Department are also applicable.

An adverse impact would occur if the Project would substantially increase the ambient noise levels above levels common and accepted in urban areas resulting in the exposure of people to noise levels in excess of local noise ordinance established standards and affect the use of enjoyment of nearby areas. A noise increase of 10 db is perceived as a doubling of noise, and is generally considered substantial. An adverse impact would also occur if the Project were to expose people to existing excessive ambient noise levels in the Project vicinity.

For vibration, an adverse impact would occur if the Project would expose people to excessive and intrusive ground-borne vibration or a ground-borne noise level substantially affecting adjacent land uses. A vibration level of 75 VdB is generally considered intrusive for residential land uses.

### **5.12.2 IMPACTS**

#### **No Project/TSM Alternative**

The principal source of future noise levels under the No Project/TSM Alternative would be increased traffic movements on the local arterials in the Study Area. In general, a doubling of the traffic activity would be required for the noise levels to increase by 3 dBA; the point at which most listeners detect the change. Changes in traffic volumes and speeds are also subject to the existing roadway capacities. Increases in traffic volume would result in reduced speeds along streets with limited capacity.

Traffic noise modeling was conducted at receivers along Third and Fourth Streets where the proposed LRT would operate at-grade. As shown in Table 5-7, changes from the existing PM peak hour noise levels to projected levels in the year 2030 would range from 0.6 dB at the Avalon Yerba Buena Apartments (Site C) to 2.2 dB at the Beacon Condominiums (Site A). As these increases would not reach 3 dBA, no noise impacts from increased traffic are anticipated under the No Project/TSM Alternative. Although all rubber-tired transit vehicles and vehicular traffic can cause ground-borne vibration, the vibration is not usually perceptible because of the vibration is isolated to the roadway surface. Therefore, vibration impacts are also not anticipated.

**TABLE 5-7**  
**PROJECT TRAFFIC NOISE LEVELS**

Receiver	Building	Existing Noise Level- Leq(h) (dBA)		2030 PM Peak Hour Traffic Noise Levels – Leq(h) (dBA)				
		Measured	Modeled PM Peak Hour	No Project/ TSM Alt.	Alt. 2 Enhanced EIS/EIR	Alt. 3 Option A	Alt. 3 Option B Mixed- Flow	Alt. Option B Semi- Exclusive
A	Third Street side of the Beacon Condominiums	70.0	71.0	73.2	73.1	N/A	N/A	N/A
A	Fourth Street side of the Beacon Condominiums	71.7	72.5	74.7	74.2	73.7	74.2	73.7
I	The Palms Condominiums on Fourth Street	70.1	69.9	71.7	71.7	71.7	70.1	69.7
B	Hotel Utah on Fourth Street at Bryant Street	74.2	76.1	77.7	77.7	78.1	76.5	77.2
C	Avalon Yerba Buena Apartments on Fourth Street at Harrison Street	74.7	78.1	78.7	78.7	78.6	78.4	78.3
N/A – Not Applicable. Third Street is not affected under the Alternative 3 alignment.								
Source: PB/Wong, 2007								

### Alternative 2 - Enhanced EIS/EIR Alignment

Under this alternative LRT operations would occur at-grade along Third and Fourth Streets. The northbound at-grade alignment on Third Street would extend from King Street to Freelon Street and the southbound alignment on Fourth Street from King Street to South Park. The southbound alignment would then extend underground along Third Street to Harrison Street, Harrison to Fourth Street where it connects with the northbound alignment. Both northbound and southbound alignments continue on Third Street through Market Street and along Stockton Street to the termini at Jackson Street.

#### Operation Impacts

**Traffic Noise.** Under this alternative, Fourth Street would be one-way in the southern direction Townsend Street. Between Townsend and King Streets, Fourth Street would maintain three southbound lanes and two northbound lanes. Traffic noise levels under this alternative are expected to be the same or lower than the No Project/TSM Alternative (refer to Table 5-7).

**LRT Noise.** At-grade operations would result in both wayside noise from train passby and the use of on-board warning devices that are sounded as the vehicles enter the stations and at grade crossings. These on-board warning devices consist of a gong, bells, and horn that are used during various degrees of necessity. In general, either the gong or bells are used when the LRT vehicles enter a station to alert

passengers on the platforms of oncoming vehicles. Since there are no at-grade crossings with gates as part of this alignment, warning horns would only be used in an emergency and are not included in the noise analysis. The reference levels for the different on-board warning devices are 75 dBA for the gong and 95 dBA for the bells at a distance of 10 feet.

Where the alignment is located in an underground subway section, airborne noise levels from train operations would not be audible. Potential noise impacts at the closest representative residential receivers located along the at-grade alignment have been identified as: no impact, moderate impact, or severe impact, in accordance with FTA Noise Impact Criteria (see Table 5-8). There are no moderate or severe noise impacts expected under this alternative.

**LRT Ground-borne Noise and Vibration.** Table 5-9 shows the estimated ground vibration levels for those building structures along the at-grade and underground sections of the alignment. Table 5-10 presents the projected interior ground-borne noise levels for those building structures along the underground subway section of the alignment. The FTA vibration criteria used to determine both ground-borne noise and vibration impacts is based on frequent events of 70 or more train passbys per day. Ground-borne noise impacts are limited to the underground subway segments. Vibration impacts would be limited to interior land use activities and would not be perceptible for outdoor land uses such as parks and recreation facilities. The ground-borne noise and vibration analysis includes the increased vibration levels at receivers close to the crossover trackwork under Stockton Street between Washington and Clay Streets. The FTA vibration criteria of 72 VdB would be exceeded at one residential building, 570 Fourth Street at Freelon Alley (second and third floor apartments over a first floor restaurant). The FTA ground-borne noise criteria of 35 dBA would be exceeded at two residential buildings at 527 and 529 Third Street (apartments and lofts located over ground floor commercial spaces). During final engineering design, vibration propagation will be conducted at 570 Fourth Street and 527/529 Third Street to confirm the predicted impact and finalize the mitigation measures.

**Vent Shafts and Traction Power Substations.** Vent shafts are planned at the following locations: Moscone, Market Street, Union Square, and Chinatown Stations. Potential noise levels at these locations would be from the passby of underground trains transmitting through the vent shaft to the street and the testing and operation of the emergency ventilation fans. Traction power substations (TPSS) are planned to be integrated as part of the underground station design at Moscone and Chinatown Stations. The vent shafts would be designed to meet the noise level limits of the San Francisco Noise Ordinance. No adverse impacts are anticipated since these facilities would be designed to comply with the San Francisco Noise Ordinance.

**TABLE 5-8**  
**PROJECT NOISE LEVELS AT BUILDING STRUCTURES ALONG THE AT-GRADE ALIGNMENT**

Receiver	Street that Alignment Follows	Building	Number of Buildings	FTA Noise Sensitive Category (1,2,3)	Train Speed (mph)	Distance of Trackwork to Receiver (feet)	Existing Noise Level- Ldn (dBA)	Alternative 2		Alternative 3 – Option A		Alternative 3 – Option B	
								Project Generated Noise-Ldn (dBA)	FTA Level of Noise Impact	Project Generated Noise-Ldn (dBA)	FTA Level of Noise Impact	Project Generated Noise-Ldn (dBA)	FTA Level of Noise Impact
A	Third Street	Beacon Condominiums	1	2	25	40	70.0	61	no impact	N/A	N/A	N/A	N/A
A	Fourth Street	Beacon Condominiums	1	2	25	37	71.7	62	no impact	N/A	no impact	62	no impact
1	Fourth Street	The Palms Condominiums	1	2	25	42	70.1	62	no impact	62	no impact	62	no impact
B	Fourth Street	Hotel Utah at Bryant Street	1	2	25	44	74.2	N/A	N/A	N/A	N/A	61	no impact
N/A – At these locations the Alternative is underground and would have no impact on noise levels. Source: PB/Wong, 2007													

**TABLE 5-9**  
**SUMMARY OF INTERIOR GROUND VIBRATION ESTIMATES – ALTERNATIVE 2**

Street Location	Type of Building Structures	Horizontal Distance to Track (feet)	Tunnel Depth	Train Speed (mph)	FTA Vibration Criteria (VdB)	Wood Frame Buildings		Concrete & Steel Buildings	
						Number of Buildings	Predicted Vibration Levels (VdB)	Number of Buildings	Predicted Vibration Levels (VdB)
Stockton Street from Jackson to Washington Streets	Multi-family residential and hotels	18	40 to 50	45	72	3	62	0	--
	Institutional	18	50 to 60	45	75	0	--	1	54
Stockton Street from Washington to Clay Streets	Multi-family residential and hotels	18	50 to 60	45	72	2	59	1	48
Stockton Street just south of Washington Street	Multi-family residential and hotels	18	60 to 70	25	72	1	58	1	50
	Institutional	18	60 to 70	25	75	0	--	2	50

**TABLE 5-9 (CONT.)**

**SUMMARY OF INTERIOR GROUND VIBRATION ESTIMATES – ALTERNATIVE 2**

<b>Street Location</b>	<b>Type of Building Structures</b>	<b>Horizontal Distance to Track (feet)</b>	<b>Tunnel Depth</b>	<b>Train Speed (mph)</b>	<b>FTA Vibration Criteria (VdB)</b>	<b>Wood Frame Buildings</b>		<b>Concrete &amp; Steel Buildings</b>	
Stockton Street from Clay to Geary Streets	Multi-family residential and hotels	18	>70	45	72	25	53	3	42
	Institutional	18	>70	45	75	0	--	3	<49
Geary Street from Stockton Street to Market Street	Multi-family residential and hotels	5	>70	45	72	0	--	1	<47
Third Street from Market to Minna Streets	Multi-family residential and hotels	25	>70	45	72	0	--	1	<45
Third Street between Minna and Howard Streets	Yerba Buena Auditorium	50	>70	45	65 to 72	0	--	1	52
Third Street and Mission Street <sup>1</sup>	Multi-family residential and hotels	25	>70	25	72	0	--	2	<54
Third Street from Minna to Clementina Streets	Multi-family residential and hotels	25	60 to 70	45	72	0	--	1	49
	Multi-family residential and hotels	25	60	45	72	0	--	1	49
Third Street from Folsom to Harrison Streets	Multi-family residential and hotels	5	60	45	72	1	55	0	--
Harrison Street at Fourth Street	SBC Building	5	60	45	65	0	--	1	55
Harrison Street from Fourth to Third Street	Multi-family residential and hotels	25	50 to 60	45	72	0	--	3	50
	Multi-family residential and hotels	35	40 to 50	45	72	3	56	1	55
	Multi-family residential and hotels	35	30 to 40	45	72	2	56	1	50
	Multi-family residential and hotels	25	20 to 30	45	72	1	66	0	--
	Multi-family residential and hotels	25	10 to 20	25	72	0	--	1	62
Third Street from Harrison to King Streets	Multi-family residential and hotels	25	0 to 10	25	72	0	--	4	61
Fourth Street from Harrison to Brannan Streets	Multi-family residential and hotels	25	0 to 10	25	72	1	<b>75<sup>2</sup></b>	2	71
Fourth Street from Brannan to King Streets	Multi-family residential and hotels	25	0	25	72	2	71	1	70
<sup>1</sup> Special trackwork was assessed at this location. <sup>2</sup> Interior vibration levels are estimated to exceed the FTA criterion at 570 Fourth Street at Freelon Alley, 2 <sup>nd</sup> and Third floor apartments over a 1 <sup>st</sup> floor restaurant. Source: PB/Wong, 2007									

**TABLE 5-10**  
**SUMMARY OF INTERIOR GROUND-BORNE NOISE ESTIMATES – ALTERNATIVE 2**

Street Location	Type of Building Structures	Horizontal Distance to Track (feet)	Tunnel Depth	Train Speed (mph)	FTA Vibration Criteria (dBA)	Wood Frame Buildings		Concrete & Steel Buildings	
						Number of Buildings	Predicted Vibration Levels (dBA)	Number of Buildings	Predicted Vibration Levels (dBA)
Stockton Street from Jackson to Washington Streets	Multi-family residential and hotels	18	40 to 50	45	35	3	34	0	--
	Institutional	18	50 to 60	45	40	0	--	1	29
Stockton Street from Washington to Clay Streets	Multi-family residential and hotels	18	50 to 60	45	35	2	32	1	29
Stockton Street just south of Washington Street	Multi-family residential and hotels	18	60 to 70	25	35	1	35	1	32
	Institutional	18	60 to 70	25	40	0	--	2	34
Stockton Street from Clay to Geary Streets	Multi-family residential and hotels	18	>70	45	35	25	28	3	<25
	Institutional	18	>70	45	40	0	--	3	25
Geary Street from Stockton to Market Streets	Multi-family residential and hotels	5	>70	45	35	0	--	1	<32
Third Street from Market to Minna Streets	Multi-family residential and hotels	25	>70	45	35	0	--	1	<28
Third Street between Minna and Howard Streets	Yerba Buena Auditorium	50	>70	45	<30	0	--	1	25
Third Street and Mission Street <sup>1</sup>	Multi-family residential and hotels	25	>70	25	35	0	--	2	33
Third Street from Minna to Clementina Streets	Multi-family residential and hotels	25	60 to 70	45	35	0	--	1	31
Third Street from Clementina to Folsom Streets	Multi-family residential and hotels	25	60	45	35	0	--	1	26
Third Street from Folsom to Harrison Streets	Multi-family residential and hotels	5	60	45	35	1	<34	0	--
Harrison Street at Fourth Street	SBC Building	5	60	45	40	0	--	1	26
Harrison Street from Fourth to Third Streets	Multi-family residential and hotels	25	50 to 60	45	35	0	--	3	28
	Multi-family residential and hotels	35	40 to 50	45	35	3	33	1	34
	Multi-family residential and hotels	35	10 to 40	45	35	2	35	1	32
Third Street from Harrison to Freelon Streets	Multi-family residential and hotels	25	0 to 10	25	35	0	--	0	--
Fourth Street from Harrison to Freelon Streets	Multi-family residential and hotels	25	0 to 10	25	35	1	<b>33-37<sup>2</sup></b>	1	<b>33-37<sup>2</sup></b>
<sup>1</sup> Special trackwork was assessed at this location. <sup>2</sup> Interior ground-borne noise levels are estimated to exceed the FTA criterion at 527 and 529 Third Streets. Source: PB/Wong, 2007									



### Cumulative Impacts

As the Enhanced EIS/EIR would exceed the FTA vibration and ground-born noise criteria, it would contribute to cumulative vibration and noise impacts, though the contribution would not be considered substantial.

### Mitigation Measures

No mitigation would be required for wayside noise occurring as a result of the operation of the light rail service. Measures for the abatement of noise levels from the vent shafts and TPSS will be determined during preliminary and final design. Noise control measures used to meet the San Francisco Noise Ordinance will include enclosing TPSS in masonry structures with sound-rated doors or gates and providing sound attenuation on all ventilation openings of any ancillary facility buildings.

There are several operational measures that can be taken to assure that noise and vibration levels related to light rail operation remain at the levels Projected in the analysis. Table 5-11 provides a list of measures that could be performed on a regular basis and identifies the benefit that each of the measures would provide. Purchasing quiet light rail vehicles is another important step in minimizing noise impacts.

**TABLE 5-11**  
**OPERATIONAL MITIGATION MEASURES**

<b>Operational Measure</b>	<b>System Benefit</b>
Rail Grinding and Replacement	As rails wear, both noise levels from light rail by-passes and vibration levels can increase. By grinding down or replacing worn rail, noise, and vibration levels will remain at the initial operating levels. Rail grinding or replacement is normally performed every three to five years.
Wheel Truing and Replacement	Wheel truing is a method of grinding down flat spots (commonly called “wheel flats”) on the light rail’s wheels. Flat spots occur primarily because of hard braking. When flat spots occur they can cause increases in both the noise and vibration levels produced by the light rail vehicles.
Vehicle Maintenance	Vehicle maintenance includes performing scheduled and general maintenance on items such as air conditioning units, bearings, wheel skirts, and other mechanical units on the light rail vehicles. Keeping the mechanical system on the light rail vehicles in top condition will also help to control noise and vibration levels.
Operator Training	Operators will be trained to maintain light rail travel speeds at those speeds given in the operation plan and to avoid “hard-braking” whenever possible. As stated, “hard-braking” can cause wheel flats and may also damage track. Furthermore, by training operators to identify potential wheel flats and other mechanical problems with the trains, proper maintenance can be performed in a more timely manner.

During final engineering design, vibration propagation testing will be conducted at 570 Fourth Street and 527/529 Third Street to confirm the predicted impact and finalize the mitigation measures. Where vibration impacts are confirmed, they will be reduced to meet the FTA criteria using one of the trackwork design measures described below, in addition to the operation measures presented in Table 5-12.

**TABLE 5-12**

**SUMMARY OF INTERIOR GROUND VIBRATION ESTIMATES – ALTERNATIVE 3**

Street Location	Type of Building Structures	Horizontal Distance to Track (feet)	Tunnel Depth	Train Speed (mph)	FTA Vibration Criteria (VdB)	Wood Frame Buildings		Concrete & Steel Buildings	
						Number of Buildings	Predicted Vibration Levels (VdB)	Number of Buildings	Predicted Vibration Levels (VdB)
Stockton Street from Jackson Street to Washington Street	Multi-family residential and hotels	18	40 to 50	45	72	3	62	0	--
	Institutional	18	50 to 60	45	75	0	--	1	54
Stockton Street from Washington Street to Clay Street	Multi-family residential and hotels	18	50 to 60	45	72	2	59	1	48
Stockton Street just south of Washington Street <sup>1</sup>	Multi-family residential and hotels	18	60 to 70	25	72	1	58	1	50
	Institutional	18	60 to 70	25	75	0	--	2	50
Stockton Street from Clay Street to Market Street	Multi-family residential and hotels	18	>70	45	72	25	53	3	42
	Institutional	18	>70	45	75	0	--	3	<49
Fourth Street from Market Street to Minna Street	Multi-family residential and hotels	25	>70	45	72	0	--	1	<45
Fourth Street between Minna Street and Howard Street	Yerba Buena Auditorium	50	>70	45	65 to 72	0	--	1	52
Fourth Street from Minna Street to Clementina Street	Multi-family residential and hotels	25	60 to 70	45	72	0	--	1	49
Fourth Street from Clementina Street to Folsom Street	Multi-family residential and hotels	25	60	45	72	0	--	1	49
Fourth Street from Folsom Street to Harrison Street	Multi-family residential and hotels	5	60	45	72	1	55	0	--
Fourth Street at Harrison	SBC Building	5	60	45	65	0	--	1	55
Fourth Street from Harrison Street to Brannan Street <sup>3</sup>	Multi-family residential and hotels	25	0 to 60	25	72	1	<b>75<sup>2</sup></b>	3	70
<sup>1</sup> Special trackwork was assessed at this location. <sup>2</sup> Interior vibration levels are estimated to exceed the FTA criterion at 570 Fourth Street at Freelon Alley, 2 <sup>nd</sup> and Third floor apartments over a 1 <sup>st</sup> floor restaurant. <sup>3</sup> Option A ends at Brannan Street and Option B ends at Bryant Street. Source: PB/Wong, 2007									

- High resilience (soft) direct fixation fasteners for embedded track and in underground subway tunnels; or
- Ballast mat for ballast and tie track.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

#### Operation Impacts

**Traffic Noise.** Fourth/Stockton Alignment Option A would keep Fourth Street as a one-way street in the southern direction to Townsend Street. Between Townsend and King Street, Fourth Street would maintain three southbound lanes and two northbound lanes. Traffic noise levels under this alternative are expected to be lower than the No Project/TSM Alternative at the Beacon Condominiums (Site A) and the Avalon Yerba Buena Apartments (Site C), no change at the Palms Condominiums (Site 1), and 0.4 dB higher at the Hotel Utah (Site B) (refer to Table 5-8).

**LRT Noise.** The LRT noise impacts would be similar to those described under Alternative 2. The Hotel Utah would not be expected to experience noise impacts from the Project.

**LRT Ground-borne Noise and Vibration.** Table 5-13 shows the estimated ground vibration levels for those building structures along the at-grade and underground sections of the alignment. Table 5-16 presents the projected ground-borne noise levels for those building structures along the underground subway section of the Fourth/Stockton Alignment Option A. Ground-borne noise impacts are limited to the underground subway segments. Vibration impacts would be limited to interior land use activities and would not be perceptible for outdoor land uses such as parks and recreation facilities. The FTA vibration criteria of 72 VdB would be exceeded at one residential building, 570 Fourth Street at Freelon Alley (second and third floor apartments over a first floor restaurant). The FTA ground-borne noise criteria would not be exceeded at any of the buildings along this alignment. During final engineering design, vibration propagation testing will be conducted at 570 Fourth Street to confirm the predicted impact and finalize the mitigation measures.

**Vent Shafts and Traction Power Substations.** The impacts would be the same as described for Alternative 2.

#### Mitigation Measures

The mitigation measures would be the same as described for Alternative 2.

**TABLE 5-13**  
**SUMMARY OF INTERIOR GROUND-BORNE NOISE ESTIMATES – ALTERNATIVE 3**

Street Location	Type of Building Structures	Horizontal Distance to Track (feet)	Tunnel Depth (feet)	Train Speed (mph)	FTA Vibration Criteria (dBA)	Wood Frame Buildings		Concrete & Steel Buildings	
						Number of Buildings	Predicted Vibration Levels (dBA)	Number of Buildings	Predicted Vibration Levels (dBA)
Stockton Street from Jackson to Washington Streets	Multi-family residential and hotels	18	40 to 50	45	35	3	34	0	--
	Institutional	18	50 to 60	45	40	0	--	1	29
Stockton Street from Washington to Clay Streets	Multi-family residential and hotels	18	50 to 60	45	35	2	32	1	32
Stockton Street just south of Washington Street <sup>1</sup>	Multi-family residential and hotels	18	60 to 70	25	35	1	35	1	32
	Institutional	18	60 to 70	25	75	0	--	2	34
Stockton Street from Clay to Geary Streets	Multi-family residential and hotels	18	>70	45	35	25	28	3	<25
	Institutional	18	>70	45	75	0	--	3	25
Geary Street from Stockton to Market Streets	Multi-family residential and hotels	5	>70	45	35	0	--	1	<32
Fourth Street from Market to Minna Streets	Multi-family residential and hotels	25	>70	45	35	0	--	1	<28
Fourth Street between Minna and Howard Streets	Yerba Buena Auditorium	50	>70	45	<30	0	--	1	25
Fourth Street from Minna to Clementina Streets	Multi-family residential and hotels	25	>70	25	35	0	--	2	33
Fourth Street from Clementina to Folsom Streets	Multi-family residential and hotels	25	60 to 70	45	35	0	--	1	31
Fourth Street from Folsom to Harrison Streets	Multi-family residential and hotels	25	60	45	35	0	--	1	26
Fourth Street at Harrison	SBC Building	5	60	45	35	1	<34	0	--
Fourth Street from Harrison to Brannan Streets <sup>2</sup>	Multi-family residential and hotels	5	60	45	40	0	--	1	26
<sup>1</sup> Special trackwork was assessed at this location. <sup>2</sup> Option A ends at Brannan Street and Option B ends at Bryant Street. Source: PB/Wong, 2007									

### **Alternative 3 – Fourth/Stockton Alignment Option B (Modified LPA)**

#### Operation Impacts

**Traffic Noise.** Traffic noise has been analyzed for the mixed-flow and semi-exclusive suboptions:

- **Option B Mixed Flow** - Under this option, Fourth Street would become a two-way street between King Street and Bryant Street, with two southbound lanes and two northbound lanes. Peak hour traffic noise are expected to range from 0.3 dB lower at the Avalon Yerba Buena Apartments (Site C) to 1.6 dB lower levels at the Palms Condominiums (Site 1) than the No Project/TSM Alternative (refer to Table 5-8).
- **Option B Semi Exclusive** - Under this option, Fourth Street would become a two-way street between King Street and Bryant Street, with two southbound lanes and one northbound lane. Peak hour traffic noise would be lower than Option B Mixed Flow and would range from 0.4 dB lower at the Avalon Yerba Buena Apartments (Site C) to 2.0 dB lower at the Palms Condominiums (Site 1) than the No Project/TSM Alternative (refer to Table 5-8).

**LRT Noise.** The LRT noise impacts would be the same as described under Alternatives 2 and 3A.

**LRT Ground-borne Noise and Vibration.** The impacts would be the same as those described under Alternative 3A.

**Vent Shafts and Traction Power Substations.** The location of the vent shafts and TPSS are the same under Alternative 3B, except the Union Square/Market Street Station vent shaft would be located in the Ellis/O'Farrell parking garage. The vent shafts would be designed to meet the noise level limits of the San Francisco Noise Ordinance. No adverse impacts are anticipated since these facilities would be designed to comply with the San Francisco Noise Ordinance.

#### Cumulative Impacts

As the Fourth/Stockton Alignment Option B would exceed FTA vibration criteria at one location, this alternative would contribute to cumulative vibration impacts, but not at a substantial level.

#### Mitigation Measures

Mitigation measures would be the same as those identified for Alternative 2.

## **6.0 CENTRAL SUBWAY CONSTRUCTION METHODS, IMPACTS, AND MITIGATION MEASURES**

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This chapter of the SEIS/SEIR describes the construction techniques and schedules for building the Central Subway. The locations along the alignment where each of the construction methods would be used and how each of the methods are incorporated into construction of various Project elements are also described. Because the construction schedule would extend for 5.5 to 6 years, with an additional six months of pre-revenue testing, and temporary disruption around portals and stations represent the majority of impacts for the Project, this section has been created as a separate chapter to discuss impacts and mitigation measures related to construction for each environmental topic.

Temporary impacts from construction of the Central Subway Project are described for each Build Alternative and design option starting in Section 6.3. The impacts discussion is organized by environmental topic in the same order as in Chapters ~~3.0~~ 4.0 and 5.0. No construction impacts would occur for Alternative 1, No Project/TSM because no project-related construction is proposed. Therefore, Alternative 1 will not be discussed further in this chapter.

### **6.1 PROPOSED CONSTRUCTION METHODS**

The Central Subway requires a number of underground structures, including guideway tunnels, stations, tail tracks, rail crossovers, and emergency cross-passages. These structures would be constructed in a variety of geologic conditions, ranging from rock to soft ground, and would be located adjacent to existing structures and utilities that are sensitive to ground movements. Available geologic information for the alternative Central Subway alignments indicates the tunnels would encounter highly variable conditions ranging from saturated sand, silt and clays to weathered and highly fractured sandstone and siltstone bedrock of the Franciscan Formation. Mixed-face conditions (i.e., rock and soil in the excavation face) are expected where the tunnels transition into and out of the bedrock. To deal with the different alignment and profile options and the varying geologic and groundwater conditions, several different tunnel construction methods are being considered, including excavation by Tunnel Boring Machine (TBM), cut-and-cover (C&C), and sequential excavation methods (SEM). Another method, referred to as the Special Excavation Method (SXM), was introduced in the 1998 FEIS/FEIR.

Some of these excavation and ground support methods require the use of ground modification methods, such as dewatering, deep soil mixing, ground freezing, jet grouting, permeation grouting, compaction grouting, and compensation grouting. Each of these construction methods is described below for the Central Subway Alternatives.

#### 6.1.1 TUNNEL BORING MACHINE (TBM) (ALTERNATIVE 3 - FOURTH/STOCKTON ALIGNMENT, OPTIONS A AND B)

A TBM consists of a rotating cutterhead within a cylindrical steel shell that is pushed forward along the axis of the tunnel while excavating the ground through the cutterhead. The steel shield supports the excavated ground as required until the preliminary or final tunnel lining is built in the rear of the shield. The shield is propelled using hydraulic jacks that thrust against the erected tunnel lining system. The TBM is used in conjunction with a prefabricated ground support system, which most commonly consists of pre-cast concrete segments that are bolted and gasketed to form a watertight lining.

Pressure-face TBMs that are capable of exerting a balancing pressure against the tunnel face are used to control excavation rates and groundwater inflow, as well as to maintain stability of the tunnel face. The two most common types of pressurized-face TBMs are earth pressure balance (EPB) machines and slurry shields. Figure 6-1 shows a typical EPB TBM. For the expected high groundwater and variable geologic conditions, both EPB and slurry machines would be well suited for construction of the Central Subway running tunnels.

After completion of TBM excavation and installation of the lining, the temporary rail is removed, the invert is cleaned, and a flat invert for the permanent rail fixation and a raised walkway are usually constructed as reinforced, cast-in-place concrete. The invert contains embedded pipes and inlets for track drainage. Placement of invert concrete does not require a form, and can be placed continuously.

#### 6.1.2 CUT-AND-COVER (C&C) (ALTERNATIVE 2 – ENHANCED EIS/EIS ALIGNMENT AND ALTERNATIVE 3 - FOURTH/STOCKTON ALIGNMENT, OPTIONS A AND B)

The cut-and-cover method involves construction of a box frame structure within a trench excavation that is subsequently backfilled. In urban settings the cut-and-cover method requires utility relocation, traffic re-routing, and creates construction impacts in the form of noise, dust, and traffic, transit and business access disruption.

Decking can be placed over the cut immediately following the first lift of excavation to reduce traffic disruption. The decking is removed and the surface restored at the end of construction. Figure 6-2 illustrates the placement of concrete decking on a cut-and-cover subway station. Temporary excavation support walls (or shoring) are installed before significant excavation commences. These walls must be supported with internal struts or tiebacks as the excavation is deepened to avoid instability and control settlement at the sides of the cut. Depending upon the depth of excavation and the ground conditions the following methods of shoring would be used:

**FIGURE 6-1**  
**EARTH PRESSURE BALANCE TUNNEL BORING MACHINE**

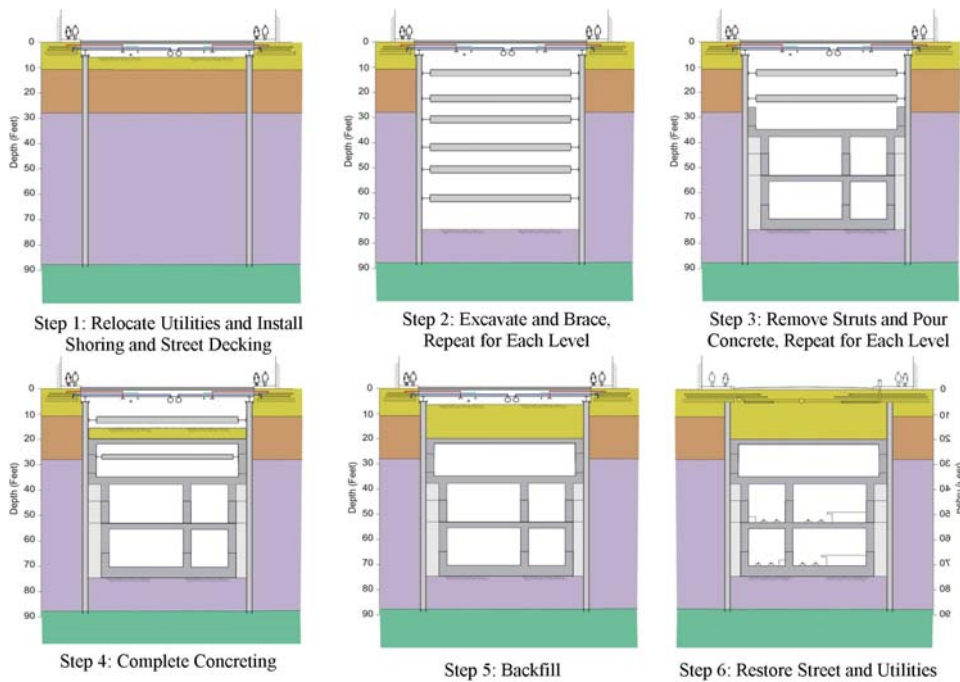


Source: PB/Wong

- Cased secant piles - Cased secant piles are non-driven piles that can be used for ground support in soft ground and hard ground. Secant pile walls are formed by constructing interlocked concrete piles reinforced with either steel rebar or beams. Used extensively in dense population areas due to the minimal disturbance they cause to adjacent structures, secant pile walls are commonly used for shafts and stations in saturated soil conditions. The steel reinforcement in the form of reinforcing bar or wide-flange sections can be dropped or vibrated into place.
- Soldier pile and lagging walls - Soldier pile wall construction is feasible in unsaturated or dewatered soils with sufficient stand-up time to allow some soil exposure prior to placement of lagging walls to hold back soils. This method of construction can cause difficulties during excavation in loose sands that tend to ravel or soft clays that fast ravel or squeeze. Soldier pile and lagging support is not watertight and requires dewatering below the groundwater table. This construction method would be most applicable where compressible materials such as Bay Mud are not present since dewatering can generate excessive settlement adjacent to the walls.



**FIGURE 6-2**  
**CUT-AND-COVER TUNNEL CONSTRUCTION**



Source: PB/Wong

- **Sheet pile walls** - Sheet pile walls are watertight and do not require dewatering, although they cannot be driven where obstructions or hard materials are present in the soil profile. Sheet piles can be driven to depths up to approximately 60 feet in dense sands and up to approximately 85 feet in soft to medium clays. A disadvantage of this method is that it is not adaptable to utility crossings. Like soldier pile and lagging walls, sheet pile walls would most likely be employed at the south end of the Central Subway alignment, where utility crossings do not preclude its use.
- **Diaphragm slurry walls** - Several types of diaphragm slurry walls are applicable to construction of the subway section of the Project. Diaphragm walls have been constructed in virtually all soil types, but mainly in soft to medium stiff clays, saturated silts, and saturated, loose silty or clayey sands. These walls provide a watertight support system like sheet pile walls and, in addition, provide greater wall stiffness, which helps to control settlement. Construction of diaphragm walls also has the advantage of causing much less noise and vibration than driving sheet pile walls. Diaphragm slurry walls are

sometimes used as permanent walls within the cut. As with sheet pile walls, diaphragm walls are not adaptable to utility crossings since all utilities crossed by the wall must be relocated.

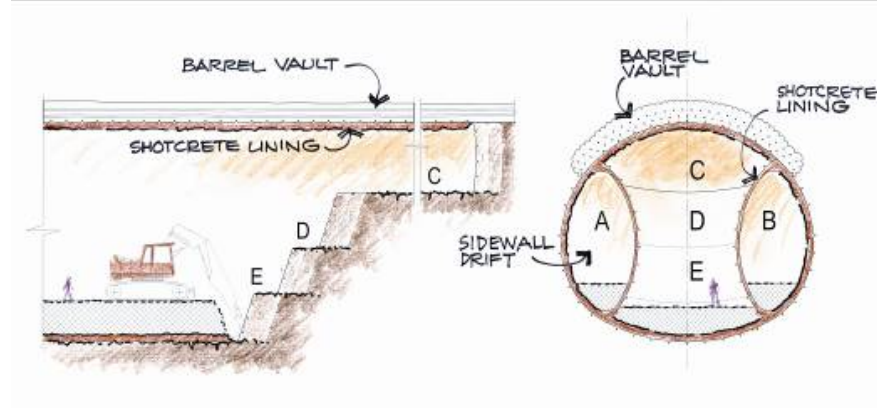
- **Soil-cement-mixed walls** – Continuous soil-cement walls are installed underground using mechanical soil-mixing technology for the purposes of excavation support, ground water control and containment of contaminated soil. The equipment for this purpose usually has multiple shaft augers to install a panel element consisting of multiple overlapped soil-cement columns. The panels overlap each other to form continuous soil-cement walls. A recent development uses large trench cutting equipment equipped with the chainsaw-like cutter, which moves horizontally while cutting and mixing in-situ soil with cement grout to form seamless soil-cement walls. A narrow trench is excavated under bentonite slurry. The excavation is completed to the final trench depth with the slurry acting as a stabilizing agent to keep the walls of the trench from collapsing. Once the excavation of the trench has progressed to some point clear of the starting point, it is backfilled with a blended mixture of soil, bentonite slurry, dry bentonite and cement. Backfill is placed in the trench after the excavation is completed by forming a slope of the mixed material that slumps down and displaces the liquid slurry forward. The excavation proceeds at the same rate as backfilling, so that the distance between the excavator and the backfill placement point remains relatively constant.

Some form of internal bracing or tiebacks is required with each of the wall types discussed above. Internal bracing is the most commonly used support for narrow cut-and-cover excavations. An alternative to internal bracing support is the use of tiebacks. Tiebacks may be feasible for some elements of cut-and-cover construction on the Central Subway, but have several disadvantages. Tiebacks may require additional right-of-way to extend anchors beyond the excavation line, which may not be possible where basements exist, and they generally are not economical for excavations less than 60 feet wide.

#### 6.1.3 SEQUENTIAL EXCAVATION METHOD (SEM) - (ALTERNATIVE 2 – ENHANCED EIS/EIR ALIGNMENT AND ALTERNATIVE 3 - FOURTH/STOCKTON ALIGNMENT, OPTIONS A AND B)

The sequential excavation method (SEM, also known as NATM or New Austrian Tunneling Method) is a mined method of tunnel construction used worldwide for small to large openings in a variety of ground types ranging from rock to soil. The objective of the method is to control deformations and thereby mobilize and maximize the self supporting capacity of the surrounding rock or soil. The tunnel excavation is carried out in increments (headings or rounds) in numerical sequence (as shown in Figure 6-3), which are supported with sprayed concrete immediately after exposure, followed by installation of additional steel and shotcrete support elements until a safe stable opening is created. SEM provides a

**FIGURE 6-3**  
**TUNNEL CONSTRUCTION USING SEQUENTIAL EXCAVATION METHOD (SEM)**



Source: PB/Wong

high degree of flexibility during construction and makes it possible to control virtually all kinds of ground conditions, thereby greatly reducing the risks of construction.

After completion of the excavation and initial support, a waterproofing system is installed between the initial and the final lining. The final lining, which can be either reinforced cast-in-place concrete or reinforced shotcrete, is then installed.

#### 6.1.4 SPECIAL EXCAVATION METHOD (SXM) (ALTERNATIVE 2 - ENHANCED EIS/EIR ALIGNMENT)

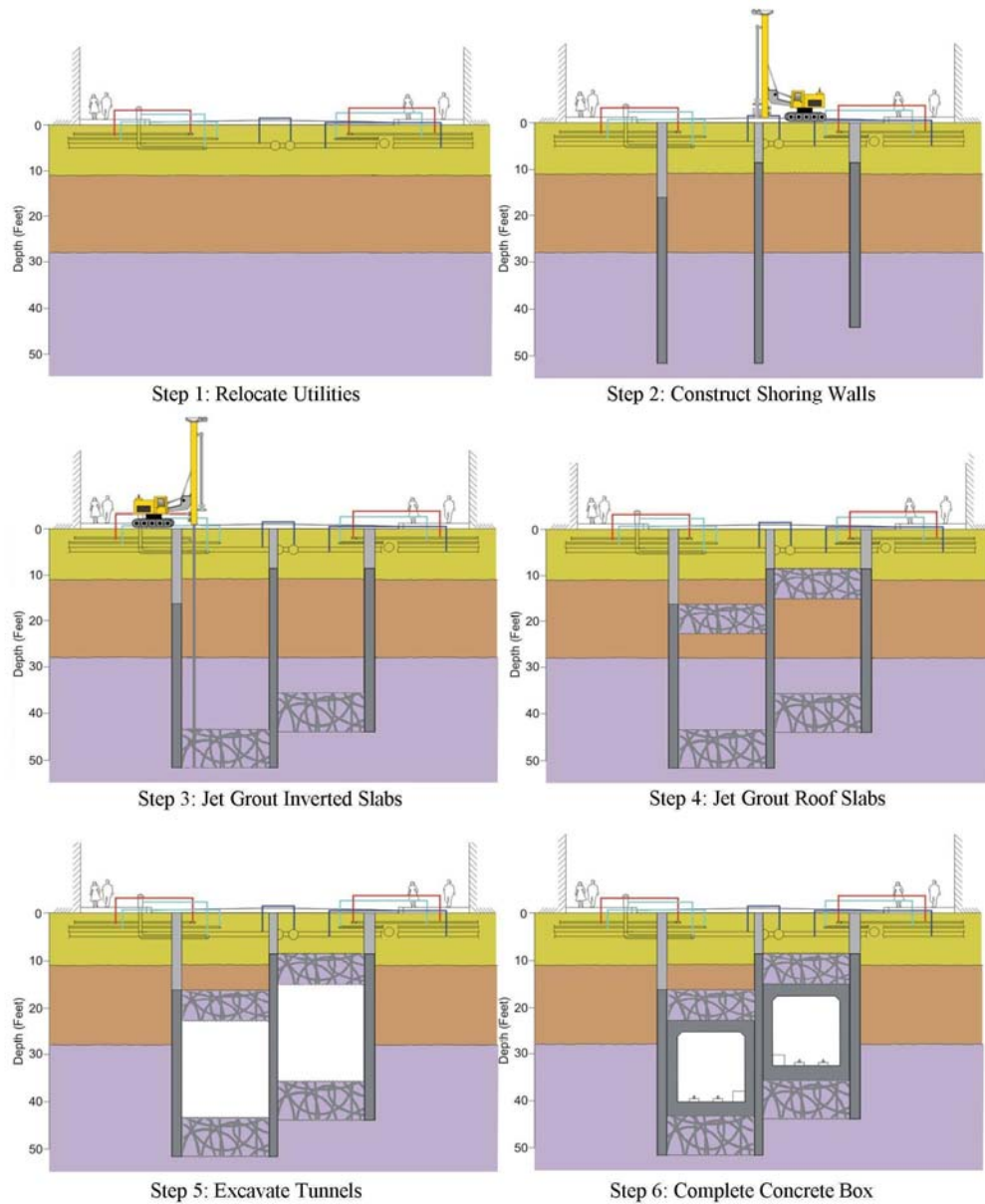
The Special Excavation Method (SXM) illustrated in Figure 6-4 is a hybrid tunnel construction approach for a shallow tunnel profile developed by Dames & Moore for the 1998 FEIS/FEIR.<sup>1</sup> SXM combines elements of conventional cut-and-cover with mining procedures with the objective of reducing the surface impacts associated with conventional cut-and-cover. An underground box is constructed to form an enclosure around the permanent underground structures. Soil confined within the limits of the box is excavated by mined methods, followed by installation of a cast-in-place final lining for the guideway.

The SXM method of construction requires continuous installation of ground support walls (shoring) using deep cement-soil mixing methods followed by installation of subsurface jet-grouted slabs above and below the guideway tunnels between the shoring, excavation of the contained soil between the jet grouted slabs and the shoring followed by construction of the cast-in-place permanent guideway structure.

<sup>1</sup> Dames & Moore, *Special Excavation Methods for Central Subway*, August 20, 1997.

**FIGURE 6-4**

**SPECIAL EXCAVATION METHOD (SXM) CONCEPT DEVELOPED FOR THE 1998  
FEIS/FEIR**



Source: Dames & Moore, *Special Excavation Methods for Central Subway*, August 20, 1997

Installation of large-section, closely spaced, steel support beams and plates would be required to support the roof of the excavation beneath the jet grouted slab. Heavy construction vehicles would be required to deliver these support elements to various locations along the alignment between the portals and Union Square Station. Storage of construction materials would require temporary elimination of curb side parking.

SXM does not eliminate surface disruption to the same extent that mined or bored methods do. Construction of the soil-cement walls would require numerous utility relocations along the entire length of the walls, which run continuously down the streets. Heavy construction equipment would be required to mix the soil in-place to construct the walls and to install the steel soldier piles. In addition, the soil-cement process results in construction debris on the street surface, which must be contained and cleaned continuously.

## **6.2 DESCRIPTION OF CONSTRUCTION METHODS FOR BUILD ALTERNATIVES**

### **6.2.1 ENHANCED EIS/EIR ALIGNMENT – ALTERNATIVE 2**

Construction of the Enhanced EIS/EIR Alignment would be accomplished using a combination of SEM, SXM and cut-and-cover techniques described in Section 6.1. A summary of construction methods for the Enhanced EIS/EIR Alignment and the time-frame for performing the activities are presented in Table 6-1 and Figure 6-5.

#### **Guideway Construction and Staging Areas – Alternative 2**

A single tunnel structure would be constructed south of Moscone Station on Third and Fourth Streets using SXM methods. The Third Street structure would extend from the northbound portal to Third and Harrison Streets and the single-tunnel structure on Fourth Street would extend approximately 2,500 feet between the southbound portal and the point where it would join the northbound guideway at Third and Harrison Streets. The segment between Moscone Station and Union Square Station would require several transitions from vertically stacked to side-by-side tunnel. The SXM construction method would be used for the stacked tunnels and cut-and-cover methods for the side-by-side shallow portion at Market Street. The segment from Moscone Station to the Market Street Station covers a distance of 950 feet and transitions from a vertically stacked arrangement at Moscone Station to a side-by-side cut-and-cover configuration at Market Street Station. The segment from Market Street Station to Union Square Station via Kearny and Geary is approximately 1,450 feet long and would be constructed using SXM.

The line segment between Union Square Station and Chinatown Station would be mined by SEM as a tall cavern, approximately 40 feet high, to accommodate vertically stacked guideway tunnels starting in the

**TABLE 6-1**  
**SUMMARY OF GUIDEWAY CONSTRUCTION METHODS**

<b>Alternatives</b>	<b>Between Portals and King Street</b>	<b>Between Portals and Moscone</b>	<b>Between Moscone and Union Square</b>	<b>Between Union Square and Chinatown</b>	<b>North of Chinatown</b>	<b>North Beach Construction Variant</b>
<b>Alternative 2</b>	At-Grade Surface	Special Excavation Method (SXM)	Special Excavation Method (SXM), Cut-and-cover (C&C)	Mined Sequential Excavation Method (SEM)	Mined Sequential Excavation Method (SEM)	NA

	<b>Between Brannan and King Streets</b>		<b>Between Portal and Brannan St</b>		<b>Between Portal and Moscone</b>	<b>Between Moscone and Union Square/Market Street</b>	<b>Between Union Square/Market Street and Chinatown</b>	<b>North of Chinatown</b>	<b>North Beach Construction Variant</b>
	<b>NB</b>	<b>SB</b>	<b>NB</b>	<b>SB</b>					
<b>Alternative 3A</b>	U-box and At-Grade Surface		Cut-and-cover		Mined Tunnel Boring Machine (TBM)	Mined (TBM)	Mined (TBM)	Mined (SEM or TBM)	Mined (TBM)
<b>Alternative 3B</b>	At-Grade Surface		U-Box and At-Grade Surface		Mined (TBM)	Mined (TBM)	Mined (SEM and TBM)	Mined (SEM or TBM)	Mined (TBM)

**FIGURE 6-5**  
**CONSTRUCTION DURATIONS FOR ALTERNATIVES 2, 3A AND 3B**

Activity	YEARS FROM PROJECT START						
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
<b>ALTERNATIVE 2</b>							
Pre-Construction Activities							
Relocate Utility and Transit lines							
Construct Subway Portals							
Construct Guideway Tunnels (Mined, Cut-and-Cover, and SXM)							
Construct Union Square Station							
Construct Moscone Station							
Construct Market Street Station							
Construct Chinatown Station, Crossover and Tailtrack							
Track and Systems Installation							
Pre-revenue Testing							
<b>ALTERNATIVE 3A</b>							
Pre-Construction Activities + Excavation of Tunnel Construction Shaft							
Relocate Utility and Transit Lines							
Construct Bored Guideway Tunnels (TBM)							
Construct Cut-and-Cover Tunnels and Portal							
Construct Union Square/ Market Street Station							
Construct Moscone Station							
Construct Chinatown Station, Crossover and Tailtrack							
Track and Systems Installation							
Pre-Revenue Testing							
<b>ALTERNATIVE 3B</b>							
Pre-Construction Activities+ Excavation of Tunnel Construction Shaft							
Relocate Utility and Transit Lines							
Construct Bored Guideway Tunnels (TBM)							
Construct Cut-and-Cover Tunnels and Portal							
Construct Union Square/ Market Street Station							
Construct Moscone Station							
Construct Chinatown Station and Crossover							
Construct Surface Guideway and Platform							
Track and Systems Installation							
Pre-Revenue Testing							

Source: PB/Wong

vicinity of the Union Square Station and would transition to a side-by-side configuration, approximately 35 feet wide, over the 1,530-foot distance to Chinatown Station. Excavation of this segment would commence at Union Square Station below Sutter Street and proceed north to Chinatown Station. Excavated spoils would be hauled away from the Union Square Station. The line segment north of Chinatown Station, comprised of the tail tracks and crossover, would consist of a twin-track tunnel approximately 35 feet wide by 575 feet long that would be mined from the Chinatown Station.

### **Stations Construction and Staging Areas – Alternative 2**

Moscone Station, on Third Street between Howard and Folsom Streets, would be decked cut-and-cover construction staged from a primary off-street construction access shaft on Clementina Street. See Figure 6-6 for approximate area of surface disruption during construction. Cut-and-cover excavation of Moscone Station would require one lane of Third Street, to the south of Clementina Street and north of Tehama Street, to be temporarily closed to traffic for the duration of station construction (approximately 36 months) maintaining access to the Moscone Center Garage. Although access to the truck ramps leading to the loading docks underneath the Moscone Convention Center and vehicle access to the Moscone Garage would be impacted during the shoring and decking stages. Pedestrian access along Third Street between Howard and Folsom Streets and on Tehama Street would require protective cover for the entire duration of station construction.

Market Street Station, on Third Street south of Market Street, would also be decked cut-and-cover construction staged from a principal construction access shaft on Stevenson Street (see Figure 6-7). Cut-and cover methods would be used to construct a pedestrian connection tunnel from the Market Street Station to the BART/Muni Metro Montgomery Street Subway Station in the Market Street sidewalk.

Union Square Station would be constructed on Stockton Street between Post and Geary Streets using decked cut-and-cover methods (see Figure 6-8). Staging areas for construction would occupy the westerly sidewalk and traffic lanes on Stockton Street east of Union Square between Post and Geary Streets.

Chinatown Station would be mined using SEM methods for the platform cavern, crossover and tail track tunnel; all staged from the off-street station access shaft (see Figure 6-9). This shaft would be decked over and used as a headhouse for access to subsurface excavation and for spoils removal. It would later be fitted out as the station entrance. All station structural work, architectural finishes, and mechanical systems would be installed from the surface through the same off-street headhouse shaft. Stockton Street would be used to access the station construction site for hauling materials, equipment, and spoils.



**FIGURE 6-6**  
**ALTERNATIVE 2 – MOSCONE STATION**  
**AREA OF SURFACE DISTURBANCE DURING CONSTRUCTION**

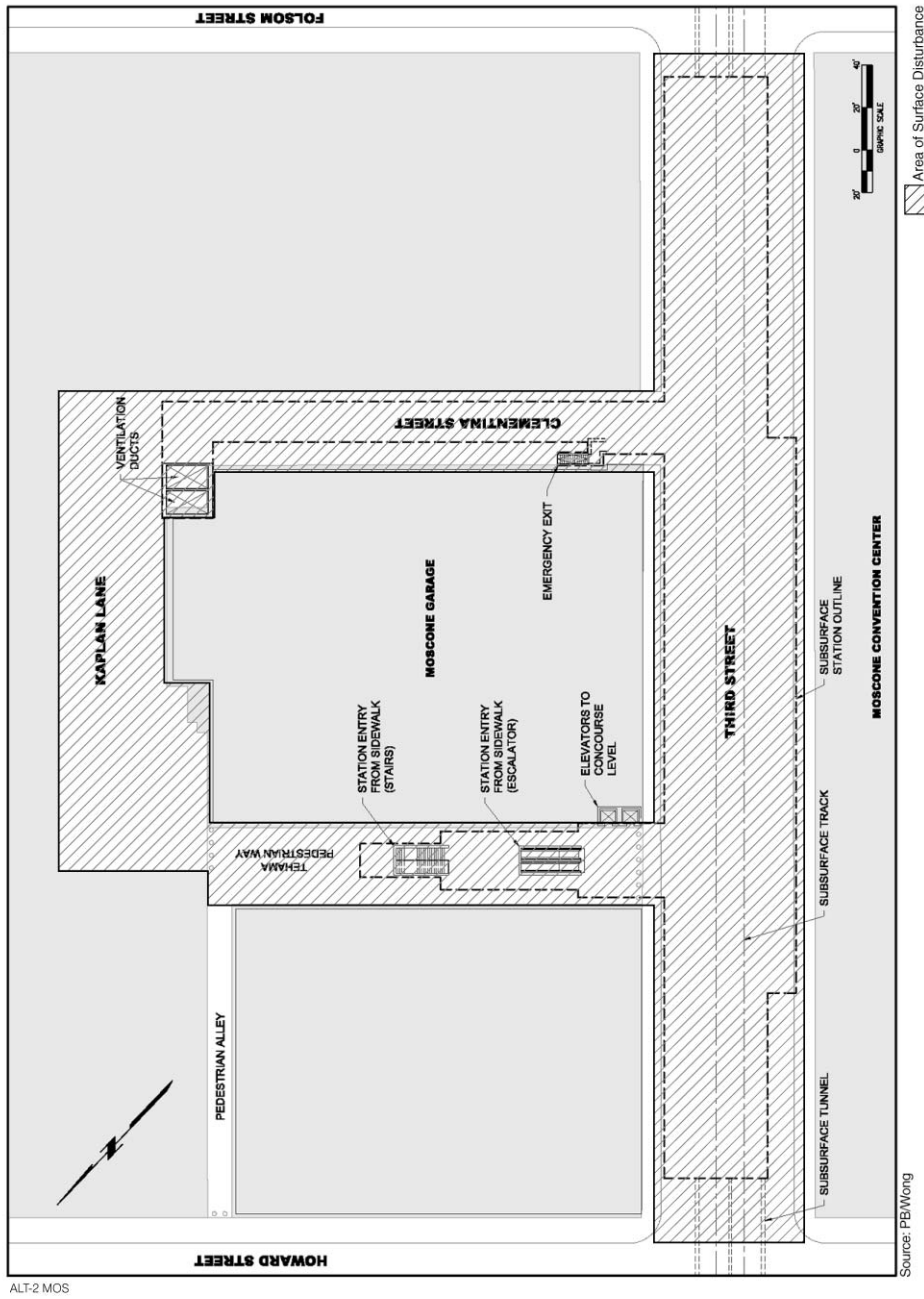
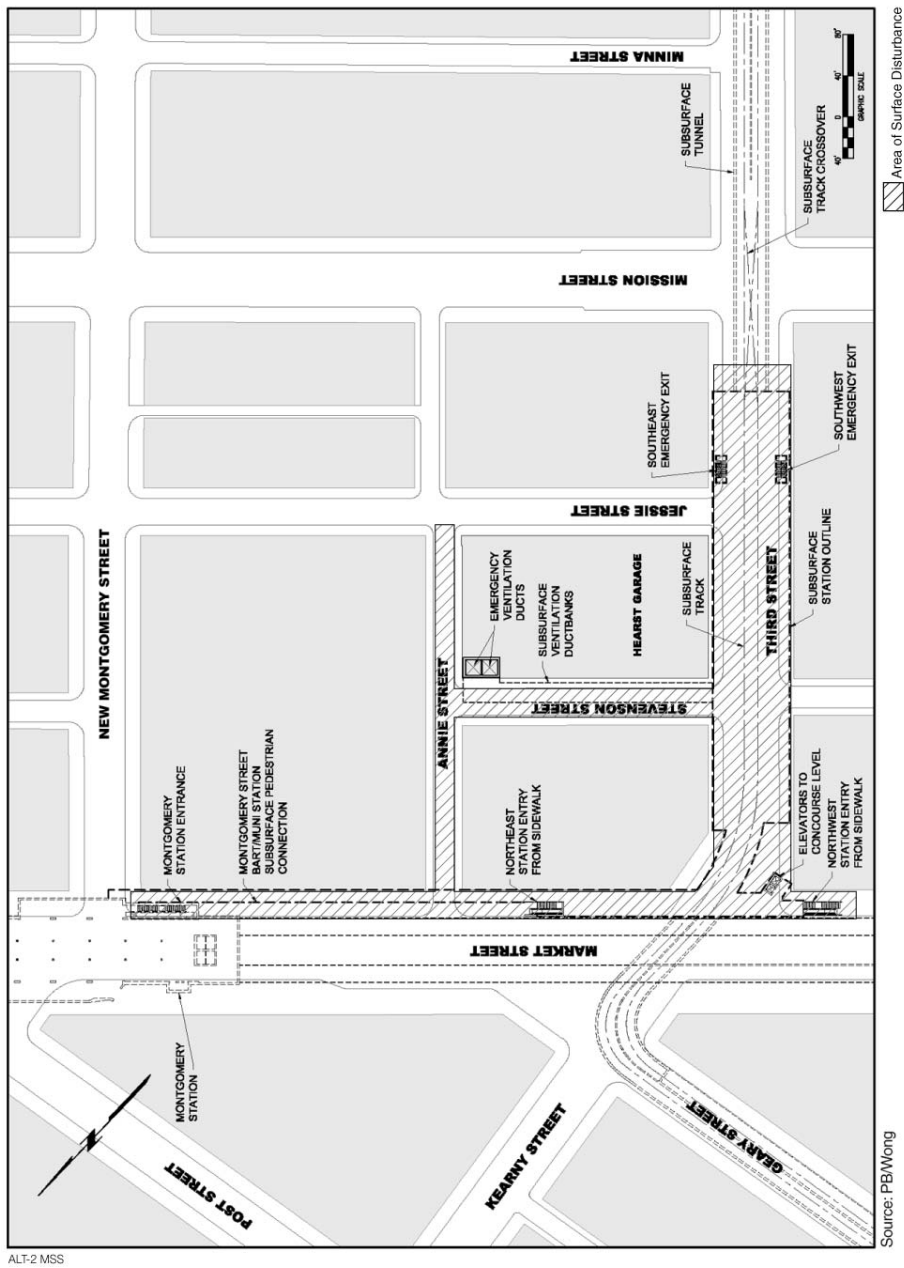


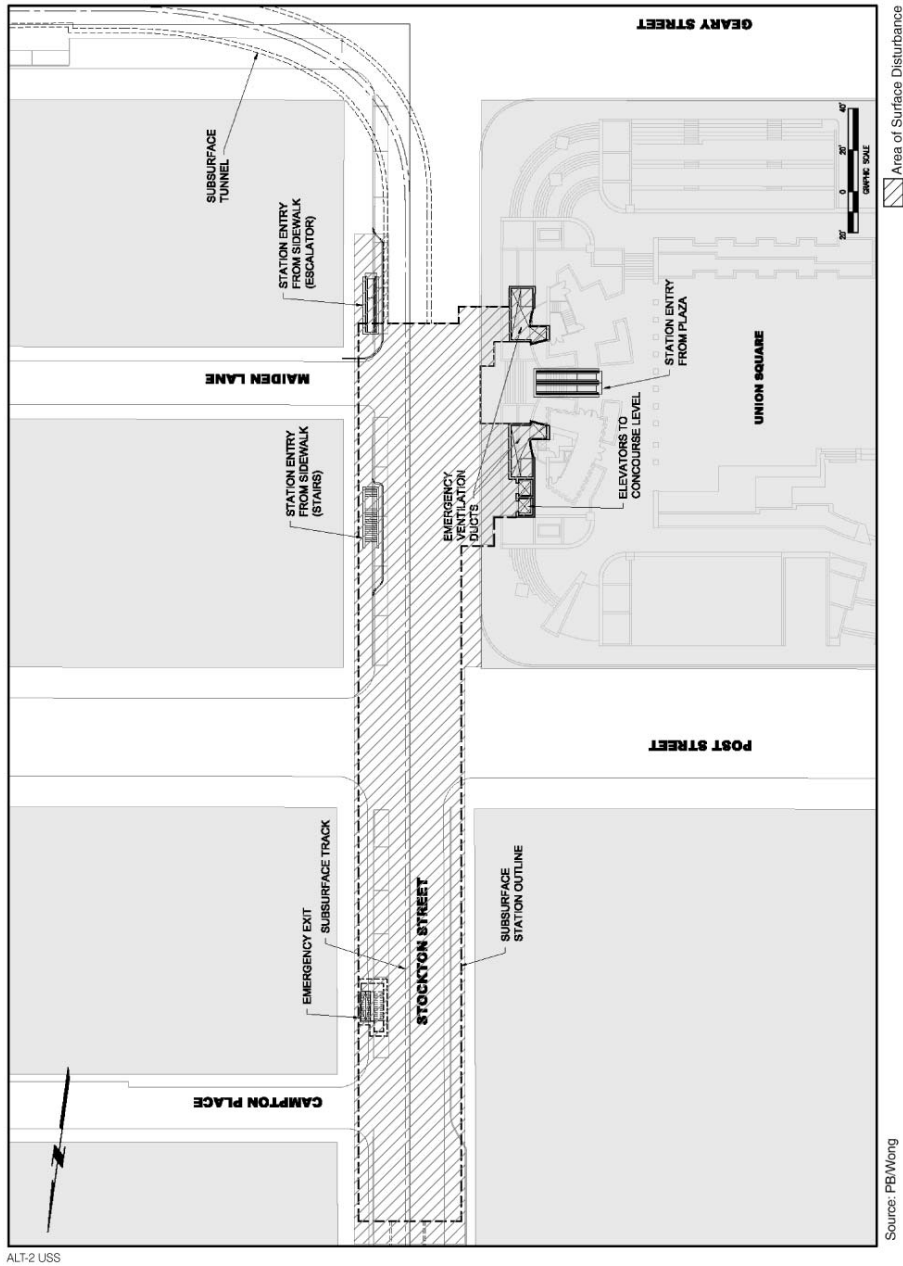
FIGURE 6-7

ALT. 2 MARKET STREET STATION

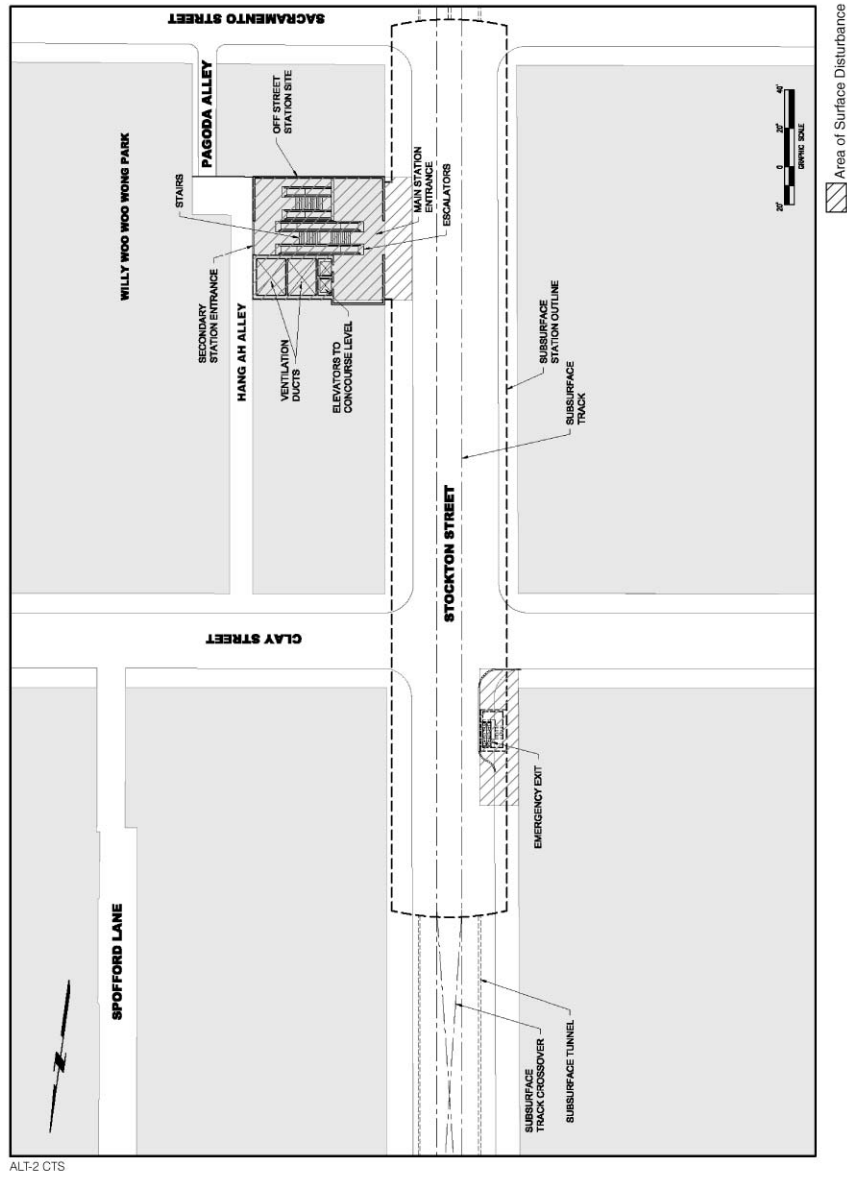
AREA OF SURFACE DISTURBANCE DURING CONSTRUCTION



**FIGURE 6-8**  
**ALT. 2 UNION SQUARE STATION**  
**AREA OF SURFACE DISTURBANCE DURING CONSTRUCTION**



**FIGURE 6-9**  
**ALT. 2 CHINATOWN STATION**  
**AREA OF SURFACE DISTURBANCE DURING CONSTRUCTION**



ALT-2 CTS

### **Utility Relocations – Alternative 2**

The SXM method of construction requires relocation of all utilities ahead of the guideway construction and/or placement of utilities in utility corridors where feasible—an effort that will take about 24 months (see Figure 6-5). Utility relocation for the subway would occur on Fourth Street, between Brannan and Harrison Streets; on Harrison Street, between Third and Fourth Streets; on Third Street, between Brannan and Market Streets; along Geary Street, between Market, Kearny, and Stockton Streets; and on Stockton Street between Geary and Sutter Streets.

At Mission and Third Streets, the subway profile conflicts with the 8-foot diameter North Point Main sewer line, which carries storm drain runoff and sanitary sewer flows. Several options are possible, including abandoning or rerouting the sewer line or installing a siphon and pump station to force the effluent under the subway. All options would occur within the public right-of-way. Installation of the siphon or rerouting the sewer line would require the longest pre-construction period, up to approximately 18 months. Curb parking in each block requiring utility diversions would need to be temporarily eliminated to accommodate traffic flow.

Cut-and-cover excavation of Market Station would require one lane of Third Street, from Stevenson Street to Jessie Street, to be closed to traffic for the duration of station construction (about 36 months). This would impact, though not entirely eliminate, access to Stevenson Street and the Hearst Parking Garage. Pedestrian access along both sidewalks on Third Street between Mission and Market Streets would require protective cover for the entire duration of station construction.

Cut-and-cover excavation of Union Square would require two lanes of Stockton Street, from Post Street to just south of Maiden Lane, to be closed to traffic for the duration of station construction (48 months). Access to the Union Square Parking Garage on Geary Street would not be obstructed. Pedestrian access along the west sidewalk on Stockton Street between Geary and Post Street would be closed for the entire duration of station construction.

### **Spoils Handling – Alternative 2**

Guideway excavation would proceed in a northerly direction from the portals south of Bryant Street towards Union Square. As guideway excavation proceeded, muck would be transported through the constructed portions of the guideway to each portal before being hauled off-site for permanent disposal. The south portal on Fourth Street would be the primary truck loading site. Trucks carrying materials from the portal site would be routed directly to the I-80 freeway for disposal sites to be determined by the contractor. Truck travelling east on I-80 would travel south on Fourth Street, west on Brannan Street, and

north on Fifth Street to the I-80 eastbound on-ramp. Trucks travelling westbound on I-80 (southbound) would travel south on Fourth Street, east on Brannan Street, north on Third Street, and west on Harrison Street to the I-80 westbound on-ramp. The southbound trucks from the Third Street portal would follow this same route. The trucks from the Third Street portal going east on I-80 would continue west on Harrison Street, turning south on Fifth Street to the I-80 eastbound on-ramp.

Spoils from excavation of the Chinatown Station, the crossover cavern and the tail track tunnels would be removed by way of the Chinatown Station access shaft and hauled off-site for disposal. Trucks from Chinatown would travel on Stockton Street to eastbound Broadway, south on Battery Street, and continuing south on First Street to the I-80 eastbound freeway-ramp or continuing west on Harrison Street to the I-80 westbound on ramp.

Spoils generated from excavation of the Union Square Station and the guideway tunnels north of Union Square would be

hailed to the surface at Union Square and hauled off-site for disposal. Trucks from the Union Square Station construction site would travel south on Stockton Street continuing on Fourth Street to the I-80 eastbound on-ramp or turning west on Harrison Street and south on Fifth Street to the I-80 eastbound on-ramp.

Spoils generated from excavation of Market Street Station and Moscone Station would be hauled to the surface at Stevenson and Clementina Streets, respectively, before being hauled off-site for permanent disposal. An estimated 524,000 cubic yards of spoils would be disposed of for Alternative 2, resulting in approximately 8 truck trips per day during the 4.5 year construction for the guideway and 8 to 10 daily truck trips from each station during the station excavation periods. Trucks from the Moscone and Market Street Stations construction sites would travel south on Fourth Street to the I-80 eastbound on-ramp or take Fourth Street, west on Harrison, and south on Fifth Street to the I-80 westbound on-ramp.

### **Construction Sequencing and Duration – Alternative 2**

The 1998 FEIS/FEIR staged the subway construction in two phases, the south of Market Street segment first followed by the north segment from Market Street to Chinatown. For the Enhanced EIS/EIR Alignment, it is assumed that construction of both segments would be done concurrently thereby significantly reducing the overall construction schedule. Construction of the Enhanced EIS/EIR Alignment would be accomplished in a single phase. Refer to Figure 6-5 for a summary of construction activities and the schedule.

Because of the intensity of utility relocations required to enable construction of the guideway tunnels and station by SXM and cut-and-cover methods between Brannan and Post Streets, the first 24 months of the Enhanced EIS/EIR Alignment would be devoted to pre-construction activities and relocation of impacted utility lines, and trolley bus routes on Fourth, Third, Harrison, Market, and Geary Streets. At Mission and Third Streets, the guideway alignment would require relocation of the eight-foot North Point sewer line which carries storm drain runoff and sanitary flows or installation of a siphon.

The subsequent 40 months would focus on construction of the portals on Third and Fourth Streets, the cut-and-cover stations at Moscone and Market Street, and the guideway tunnels between these points. Following diversion of utilities and transit lines, Fourth Street between Brannan and Harrison Streets, Harrison Street between Fourth and Third Streets, and Third Street between Brannan and Market Streets would require at least two lanes closures plus temporary loss of curb parking for installation of the jet grouted slabs above and below the guideway tunnels and for installation of the soil cement or secant pile ground support walls. Sequential lane closures of Market, Kearny, and Geary Streets would be required

to allow the cut-and-cover and SXM sections of the guideway tunnel to be constructed between Moscone Station and Union Square Station.

The SXM method would require sequential movement of construction activities, block by block. When the jet grouting installation in one block is completed, the drilling rigs and grouting equipment would be moved to the next block and the piling rigs and soil cement placement equipment would move in behind it. The work would be staged to coordinate both sets of activities. The closure of at least two lanes for



any two consecutive blocks on Third Street between Harrison Street and Market Street would be required for periods of at least four months.

The construction of the Union Square Station would start six months in advance of the Moscone and Market Street Stations. A typical sequence of activities for the construction of the Union Square station and the estimated durations of the activities is presented in Figure 6-10. Excavation of the guideway tunnels between the Union Square and Chinatown Stations would commence north from the Union Square Station box using SEM. Spoils from excavation of this segment of the guideway tunnels would be hauled off-site from Union Square.

Excavation, ground support and structural elements for guideway tunnels and stations for the Enhanced EIS/EIR Alignment would require approximately 66 months (5.5 years) to complete (refer to Figure 6-5).

#### 6.2.2 FOURTH/STOCKTON ALIGNMENT OPTION A – ALTERNATIVE 3A

Construction of the Fourth/Stockton Alignment Option A would be accomplished using a combination of SEM, TBM and cut-and-cover techniques as described in Section 6.1.2. A summary of construction methods and schedule for this alternative are presented in Table 6-1 and Figure 6-5.

##### **Guideway Construction and Staging Areas – Alternative 3A**

The majority of the subway segment between the portal at Fourth and Brannan Streets and Chinatown Station would be constructed by TBM as twin, approximately 20-foot diameter, single-track bores. The segment north of Chinatown Station would consist of a crossover and twin tail tracks in a single SEM cavern that would extend approximately 600 feet north of the station cavern.

The Fourth/Stockton Alignment Option A could be constructed using one or two TBMs. As originally conceived, the construction method proposed for this alternative used a single TBM launched at the tunnel construction shaft located on Fourth Street adjacent to the I-80 Freeway and recovered from the off-street access shaft at Chinatown Station. After completing the northbound guideway tunnel, the TBM would be transported back to the tunnel construction shaft and re-launched to excavate the southbound guideway tunnel. If two TBMs were to be used, both machines would be launched from the tunnel construction shaft.

The tunnel construction shaft would be located on Fourth Street ~~between~~, just south of Perry Street, between Harrison and Bryant Streets. The guideway tunnel construction staging areas would occupy the area beneath I-80, to the west of Fourth Street.



Cut-and-cover methods would be used for construction of the approximately 1,100 foot subway segment between the tunnel construction shaft and the portal. Staging areas for the cut-and-cover tunnel would consist of decked-over portions of the street and would generally follow construction as it proceeded south from the tunnel construction shaft.

If the North Beach Construction Variant is adopted, the tail track would be constructed by the extended TBM tunnel and would include a mined cross passage; otherwise it would be mined as a single, twin-track cavern using SEM.

For support of TBM tunnel construction, the I-80 tunnel construction shaft, including the cut-and-cover TBM launch box immediately north of the shaft, would be the primary staging area. For the North Beach Construction Variant, the TBM retrieval shaft located on Columbus Avenue would be used periodically for night time delivery and removal of materials.

### **Stations Construction and Staging Areas – Alternative 3A**

Moscone Station would be decked cut-and-cover construction located on Fourth Street between Howard and Folsom Streets with station entrances north of Howard Street. See Figure 6-11 for approximate area of surface disturbance during station construction. Construction of Moscone Station would require two lanes of Fourth Street to be closed to traffic for approximately 15 months for installation of the shoring and decking. Although not entirely eliminated, access to the truck ramps leading onto Fourth Street from the Moscone Convention Center loading docks would be temporarily disrupted during placement of shoring and decking for the Moscone Station. Pedestrian access along the west side of Fourth Street between Howard and Folsom Streets would be impacted during installation of shoring.

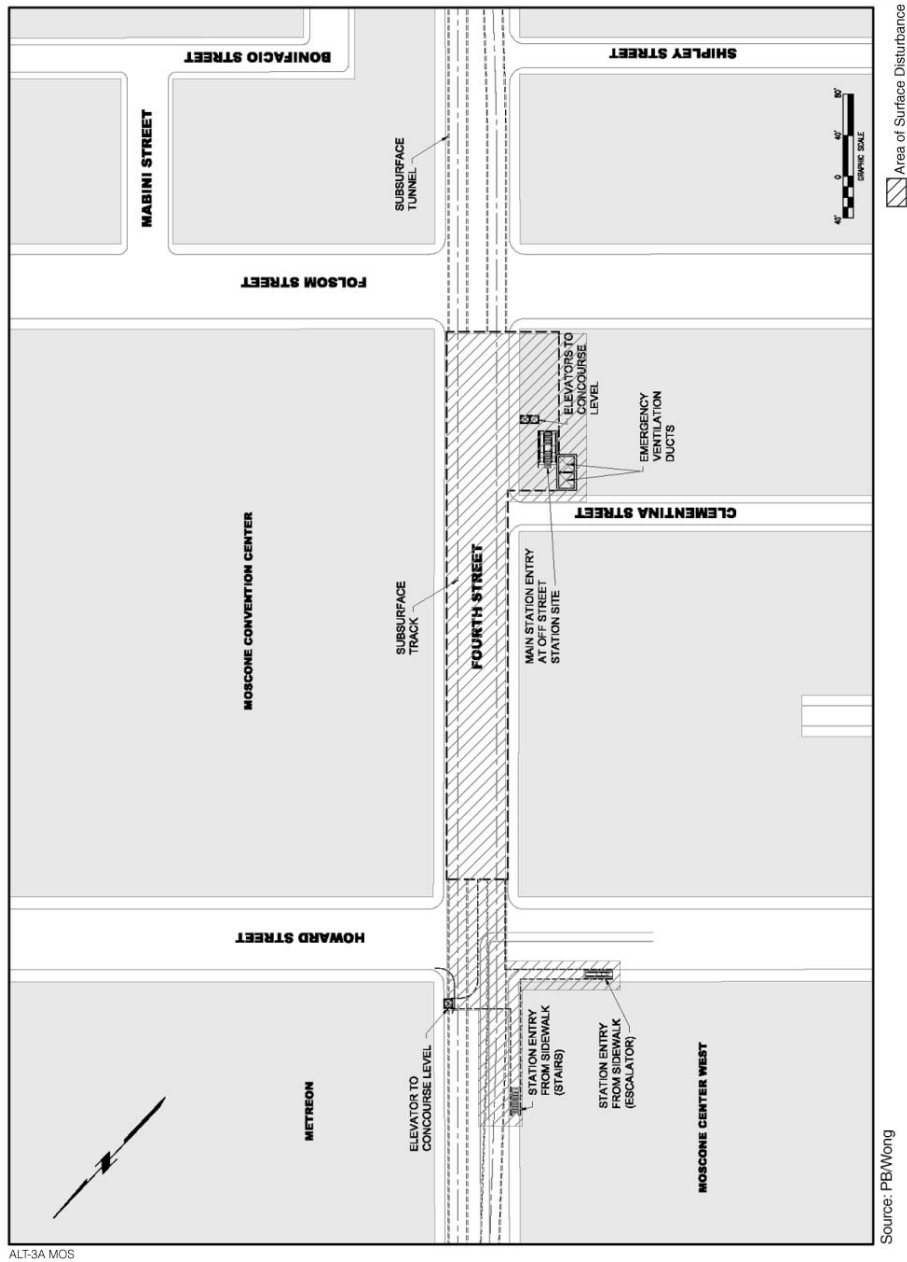
~~Clementina Street and the adjacent~~ The lot at the southwest corner of Clementina and Fourth Streets (14,800 square feet) presently occupied by a gas station would serve as the staging area for the Moscone Station and the temporary construction shaft.

Union Square/Market Street Station would be a combination of decked cut-and-cover construction and an SEM mined cavern located on Stockton Street between Geary Boulevard and Market Street (see Figure 6-12). The cut-and-cover sections of Union Square/Market Street Station would require at least two lanes of Stockton Street to be closed to traffic for approximately 10-12 months for installation of shoring and decking. Ellis Street would be reduced to one lane of traffic to accommodate the construction staging area. Pedestrian access along both sidewalks on Stockton Street between Geary Street and Market Streets would require protective cover for the entire duration of secant pile shoring installation.

FIGURE 6-11

ALT. 3A MOSCONE STATION

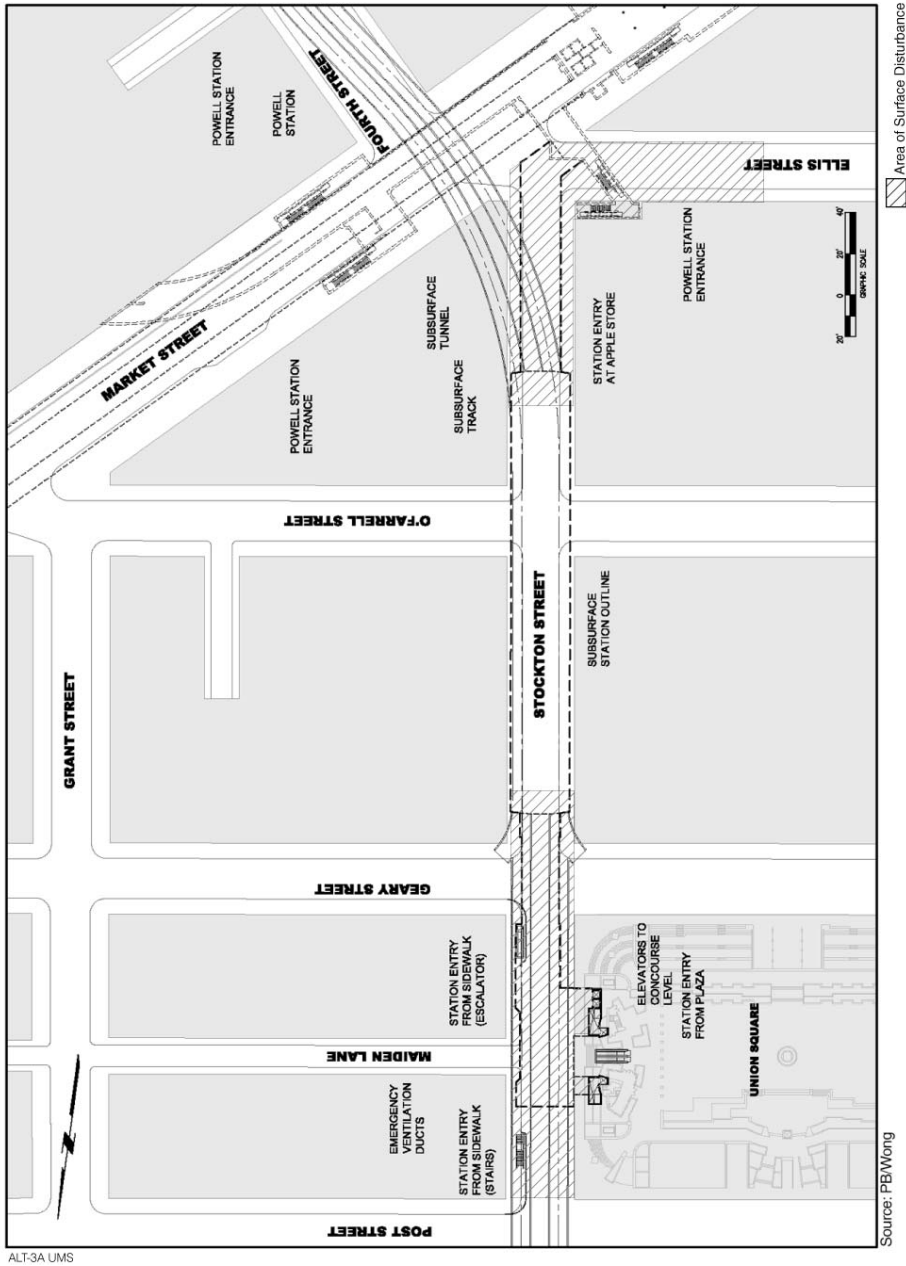
AREA OF SURFACE DISTURBANCE DURING CONSTRUCTION



ALT-3A MOS

FIGURE 6-12

ALT. 3A UNION SQUARE/MARKET STREET STATION  
AREA OF SURFACE DISTURBANCE DURING CONSTRUCTION



Union Square/Market Street Station would require two primary staging areas, one on Ellis Street (4,400 square feet) for the South Concourse and one on Stockton Street (7,600 square feet) adjacent to Union Square, which would support construction of the North Concourse. The westerly sidewalk and traffic lanes on Stockton Street between Post and Geary Streets would be closed for about 36 months. Other temporary closures of Stockton Street would be required and would be done at night when possible. Construction of the north and south cavern access shafts would require the temporary use of at least two lanes of Stockton Street and would need to accommodate a crane and trucks for muck hauling. After construction of the shaft, intermittent use of Stockton Street would be needed for removal of the microtunneling machines that would be used for the platform cavern pipe canopy.

The Chinatown Station would be a mined excavation. SEM methods would be used for excavation of the platform cavern, crossover and tail track tunnels, and all operations would be conducted from the off-street station access shaft (see Figure 6-13). This shaft would be decked over and used as a headhouse for access to subsurface excavation and for spoils removal. It would later be fitted out as the station entrance. All station structural work, architectural finishes, and mechanical systems would be installed from the surface through the same off-street headhouse shaft. Stockton Street would be used to access the station construction site for hauling materials, equipment, and spoils. A construction barrier wall on the eastside of the site, about 20 to 30 feet high, would protect the adjacent alley and playground (Willie “Woo Woo” Wong) from construction noise, dust, and visual disturbance.

The off-street portion of the station access/headhouse shaft would be partially decked over and used as a staging area (approximately 4,700 square feet). A crane would be required for station and shaft excavation and construction. Curb parking on Stockton Street would be used to accommodate trucks. Temporary (one to two weeks) use of a higher capacity crane would be required to hoist the TBMs if they are retrieved through the Chinatown access shaft.

#### **Utility Relocations – Alternative 3A**

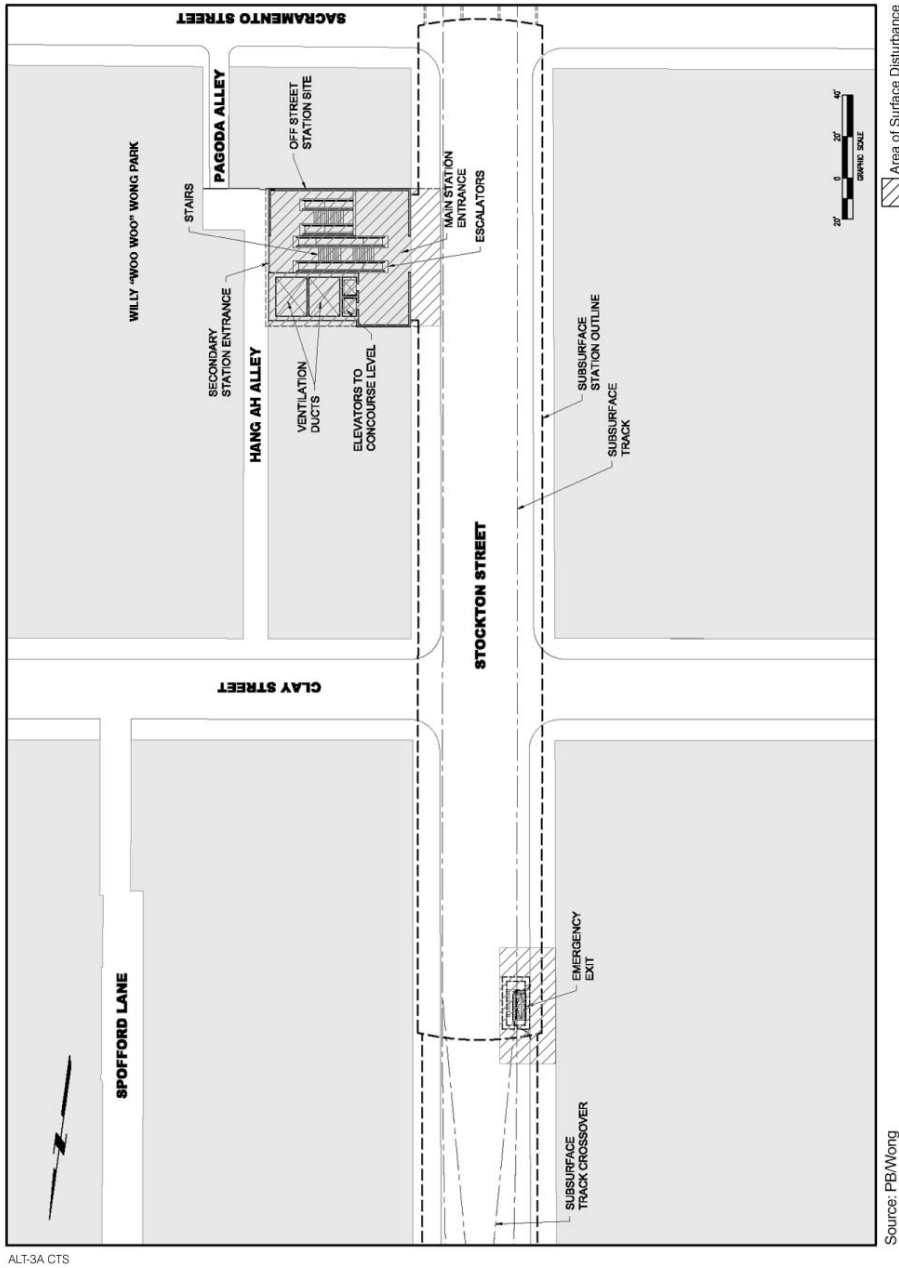
Relocation of utilities ahead of station construction would be required on Stockton Street between Post Street and Market Street; on Fourth Street between Howard and Folsom Streets; and on Fourth Street between Harrison and Townsend Streets for the construction shaft, the cut-and-cover construction south of the tunnel construction shaft and the portal. These utility relocations would take about 12 months.

Curb parking in each block along the utility diversions would be eliminated during this work to accommodate traffic flow around the work area.

FIGURE 6-13

ALT. 3A CHINATOWN STATION

AREA OF SURFACE DISTURBANCE DURING CONSTRUCTION



### **Spoils Handling – Alternative 3A**

Tunnel excavation by TBM would proceed in a northerly direction from the tunnel construction shaft towards the Chinatown Station. Muck produced by the TBMs would be transported through the tunnels back to the tunnel construction shaft and stockpiled before being hauled off-site for permanent disposal. Spoils generated from the excavation of each of the stations, Moscone Station, Union Square/ Market Street Station and Chinatown Station, the crossover cavern and the tail track tunnels would be hauled to the surface through off-street shafts at each of the station locations before being hauled off-site for permanent disposal. Spoils generated from excavation of the segment between the tunnel construction shaft and the portal by cut-and-cover method would be loaded when excavated as the construction progressed and hauled off-site for permanent disposal. An estimated 489,000 cubic yards of spoils would be disposed of for Alternative 3A, resulting in approximately 18 truck trips per day during the 2.5-year guideway excavation period; 13 daily truck trips during the 2.0-year excavation period for the Moscone Station; and about 7 trips per day during the Union Square/Market Street Station (3.0 years) and Chinatown Station (2.5 years) excavation periods.

The south portal on Fourth Street would be the primary truck loading site. Trucks carrying materials from the portal site would be routed directly to the I-80 freeway for disposal sites to be determined by the contractor. Trucks travelling east on I-80 would travel south on Fourth Street, west on Brannan Street, and north on Fifth Street to the I-80 eastbound on-ramp. Trucks travelling westbound on I-80 (southbound) would travel south on Fourth Street, east on Brannan Street, north on Third Street, and west on Harrison Street to the I-80 westbound on-ramp. Trucks from the from the Moscone Street Station construction site would travel south on Fourth Street to the I-80 eastbound on-ramp or continue west on Harrison Street and south on Fifth Street to the I-80 westbound on-ramp. Trucks from the Union Square/Market Street Station construction site would travel south on Fourth Street then follow the same route south as the trucks from the Moscone Station. Trucks from Chinatown would travel on Stockton Street to eastbound Broadway, south on Battery Street, and continuing south on First Street to the I-80 eastbound freeway-ramp or continuing west on Harrison Street to the I-80 westbound on ramp.

If the North Beach Tunnel Construction Variant is adopted, spoils generated from excavation of the TBM retrieval shaft on Columbus Avenue would be hauled to the surface at the shaft location before being hauled off-site for permanent disposal. An estimated 3,200 cubic yards of spoils would be removed at the retrieval shaft on Columbus Avenue resulting in an estimated five truck trips per day during the six-month long excavation period. Approximately 20 truck trips would be required to remove the tunnel boring machines.



Eastbound trucks hauling debris from the TBM extraction pit would go southeast on Columbus Avenue, east on Washington Street, south on Battery Street, and continue south on First Street to the I-80 eastbound on-ramp. Southbound trucks would follow the same route continuing west on Harrison Street to the I-80 westbound on-ramp.

### **Construction Sequencing and Durations – Alternative 3A**

Construction of the Fourth/Stockton Alignment Option A would be accomplished in a single phase. A summary of construction activities and schedule for this alternative is presented in Figure 6-5.

The first 15 months of the Alternative 3A pre-construction activities would include relocation of existing utility lines and impacted transit services, and excavation of the tunnel construction shaft beneath I-80 between Harrison and Bryant Streets. Procurement, delivery, and assembly of the TBM would take approximately 12 months. Guideway tunnels would commence from the tunnel construction shaft at Fourth and Harrison Streets northward towards the Chinatown Station. The TBM would advance at approximately 30 feet per day. Removal of excavated spoils and delivery of construction materials for the guideway tunnels would primarily occur at the tunnel construction shaft. Station shells at Moscone Station and Union Square/Market Street Station would be excavated down to below track level in advance of the TBM reaching those locations so that the machine can be “walked” through the station and re-launched at its north end. The platform cavern at Chinatown station would be excavated in advance of the TBM reaching that location to enable the machine to be recovered from the off-street access shaft and transported back to the tunnel construction shaft and relaunched to excavate the other guideway tunnel.

Construction of the guideway tunnels would take approximately 40 months using a single TBM. If two TBMs were used to excavate the tunnels simultaneously, there would be approximately one month lag between the two machines being launched and the construction duration would be shortened to approximately 18 months (refer to Figure 6-5). At the end of guideway (tunnel) construction the TBM cutterhead would be retrieved through the Chinatown Station headhouse, an approximately one week effort. The trailing sections of the TBM would be pulled back through the tunnel to the construction shaft.

If the North Beach Tunnel Construction Variant is adopted, the TBMs would be “walked” through the SEM mined platform and station caverns at the Chinatown station and re-launched and driven to North Beach and recovered from a shaft located in the middle of Columbus Avenue, rather than from the Chinatown Station headhouse. Retrieval of the TBM would take about one week at this location. TBM tunneling would not require any surface work or lane closures other than at the TBM recovery shaft on Columbus Avenue. The shaft construction on Columbus Avenue is estimated to take approximately six months.

Moscone Station and the construction access shafts at the Union Square/Market Street Station would require temporary lane closures for a period of 10 and 12 months on Fourth Street between Folsom and Howard Streets and on Stockton Street between Ellis and Post Streets for installation of the shoring systems. This would occur before the streets are fully decked over, at which point excavation of the stations would continue underground and spoils or materials would be delivered through access points on Clementina and Ellis Streets and adjacent to Union Square between Post and Geary Streets (refer to Figure 6-10). During installation of the secant piles used for shoring, the sidewalks would be either closed to pedestrians (only on segments that do not provide direct access to adjacent buildings) or protective barriers erected to separate the public from the construction activities. After the decking is completed all lanes would be reopened to traffic, however truck traffic required for hauling of excavated spoils and delivery of construction materials would be necessary at each of these locations for the full duration of construction.

Construction of Chinatown Station and the adjacent cross-over and tail track tunnel would be carried out from an off-street shaft and is scheduled to take approximately 54 months. With the exception of short periods of time when large equipment is being delivered to the station or when the TBMs are being retrieved from the shaft, no lane closures on Stockton Street in Chinatown are planned for construction of the station. However, truck traffic required for hauling of excavated spoils and delivery of construction materials would be necessary for the full duration of construction, occupying the curb-side lane.

### 6.2.3 FOURTH/STOCKTON ALIGNMENT OPTION B – ALTERNATIVE 3B

Construction of the Fourth/Stockton Alignment Option B would be accomplished using a combination of SEM, TBM and cut-and-cover techniques as described in Section 6.1.2. A summary of construction methods and schedule for this alternative are presented in Table 6-1 and Figure 6-5.

#### **Guideway Construction and Staging Areas – Alternative 3B**

The Fourth/Stockton Alignment Option B assumes the use of two TBMs for construction of the guideway tunnels, launched in parallel from the tunnel construction shaft and recovered from the access shaft at Chinatown Station, or, if the North Beach Construction Variant is adopted, from a TBM retrieval shaft located on Columbus Avenue.

The underground guideway segment between Harrison Street and the Chinatown Station would be constructed by TBM as twin, approximately 20-foot diameter, single-track bores. The guideway segment from the Tunnel Construction Shaft to Moscone Station includes approximately 240 feet of twin box cut-and-cover tunnel that is used as part of the tunnel construction shaft for erecting and launching the TBMs. The guideway segment between Moscone Station and Union Square/Market Street Station is approximately 1,800 feet long and includes one mined (SEM) cross passage with a sump pump at the low point in the profile. The segment between Union Square/Market Street and Chinatown Station is approximately 2,500 feet long and includes a mined (SEM) crossover cavern and three mined (SEM) cross passages for emergency egress between the twin bored tunnels.

The guideway segment, which extends 200 feet north beyond the Chinatown Station platform cavern, comprises the tail track tunnels. If the North Beach Construction Variant is included, the construction methods would be the same as described under Alternative 3A.

#### **Stations Construction and Staging Areas – Alternative 3B**

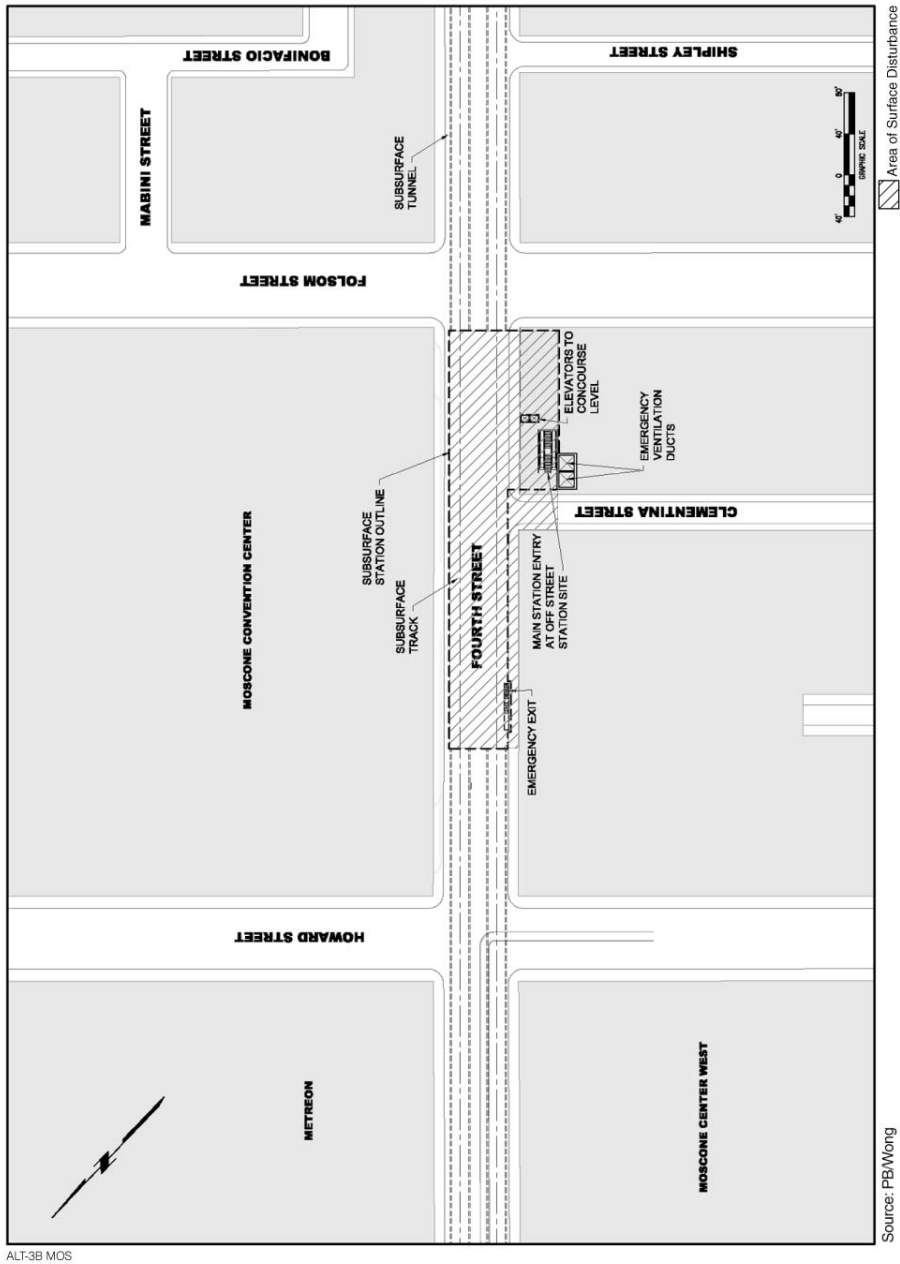
Moscone Station would be located on Fourth Street between Howard and Folsom Streets and also would use a decked cut-and-cover construction approach. See Figure 6-14 for approximate area of surface disturbance during station construction. Clementina Street and the adjacent lot (14,800 square feet) presently occupied by a gas station would serve as the staging area for the Moscone Station and the temporary construction shaft.

Cut-and-cover excavation of Moscone Station would require two lanes of Fourth Street to be closed to traffic for approximately 10 to 12 months for installation of the shoring and decking. Although not entirely eliminated, access to the truck ramps leading onto Fourth Street from the Moscone Convention

FIGURE 6-14

ALT. 3B MOSCONE STATION

AREA OF SURFACE DISTURBANCE DURING CONSTRUCTION



Center loading docks would be temporarily disrupted during placement of shoring and decking for the Moscone Station. Pedestrian access along the west side of Fourth Street between Howard and Folsom Streets would be impacted during installation of shoring.

Union Square/Market Street Station, located on Stockton Street between Geary and Ellis Streets, would be constructed using a decked cut-and-cover approach for the entire length of the station (refer to Figure 6-15). Union Square/Market Street Station would require at least two lanes of Stockton Street to be closed to traffic for installation of shoring and decking (about 10 to 12 months). During installation of shoring for the platform section of the station, there may be a need to shut down Stockton Street to traffic completely for a period of six to eight months. Ellis Street would be reduced to one lane of traffic to accommodate the construction staging area. Pedestrian access along both sidewalks on Stockton Street between Geary Street and Market Street would require protective cover for the entire duration of secant pile shoring installation.

Two primary staging areas would be required, one on Ellis Street (5,000 square feet) to support construction of the South Concourse, the main platform box, and the emergency vent ducts that extend west under Ellis Street to the Ellis/O'Farrell Garage, and one on Stockton and Geary Streets (8,000 square feet), which would support construction of the North Concourse and the reconstruction of the southeast corner of Union Square to serve as the north station entrance.

The Chinatown Station at Stockton and Washington Streets would be constructed entirely by mined (SEM) methods from an off-street access shaft similar in approach, but different in dimensions and general layout from the Chinatown Station configurations developed for the Enhanced EIS/EIR and Fourth/Stockton, Option A Alternatives (see Figure 6-16). All station headhouse structural work, architectural finishes, and mechanical systems would be installed from the surface through the off-street shaft.

The off-street portion of the station access/headhouse shaft would be partially decked over and used as a staging area (approximately 10,000 square feet). A crane would be required for station and shaft excavation and construction. Curb parking on the west side of Stockton Street would be used to accommodate trucks. Temporary (one to two weeks) use of a higher capacity crane would be required to hoist the TBMs if they are retrieved through the Chinatown access shaft.

### **Utility Relocations – Alternative 3B**

Relocation of utilities ahead of station construction would be required on Stockton Street between Post Street and Market Street; on Fourth Street between Howard and Folsom Streets; and on Fourth Street

FIGURE 6-15

ALT. 3B UNION SQUARE/MARKET STREET STATION  
AREA OF SURFACE DISTURBANCE DURING CONSTRUCTION

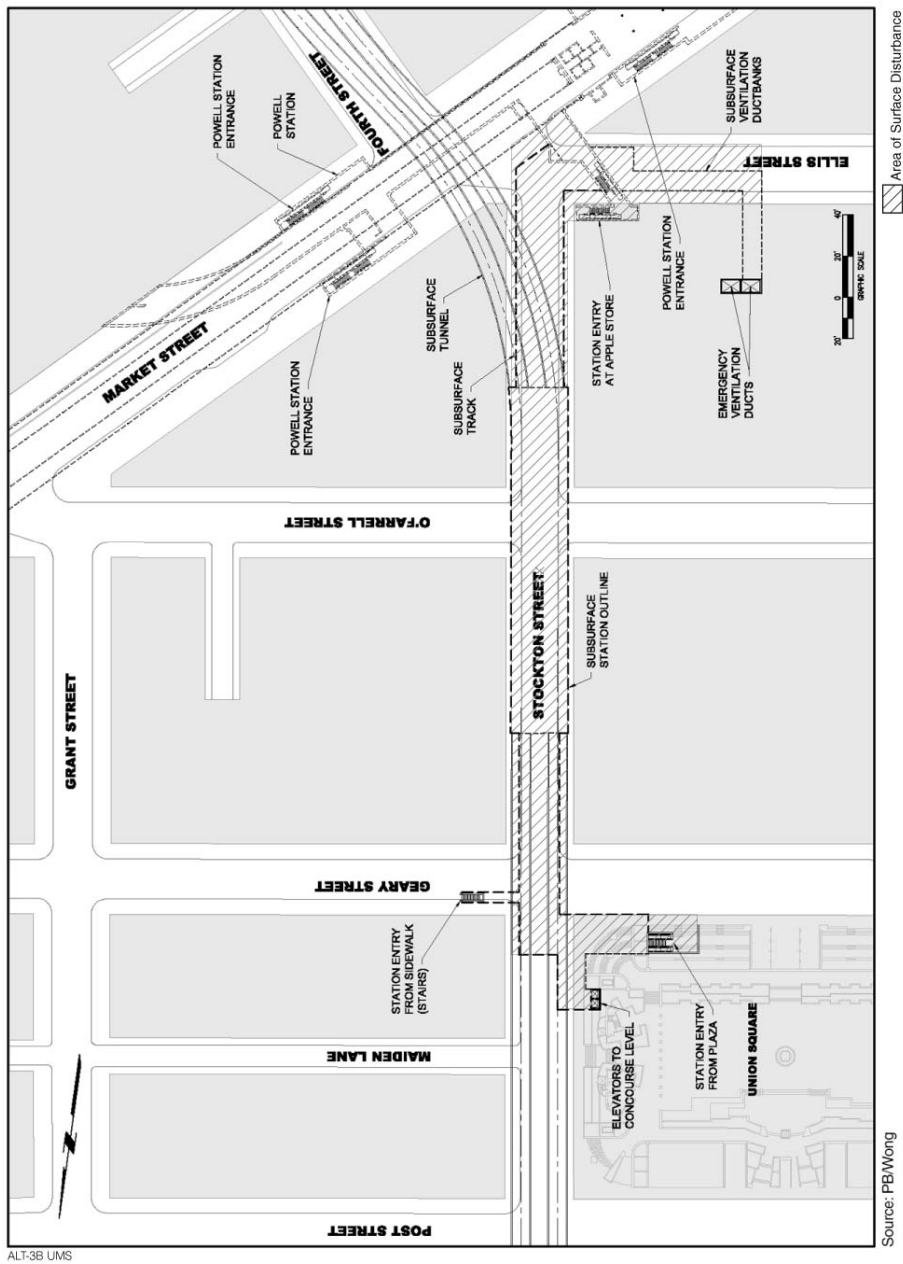
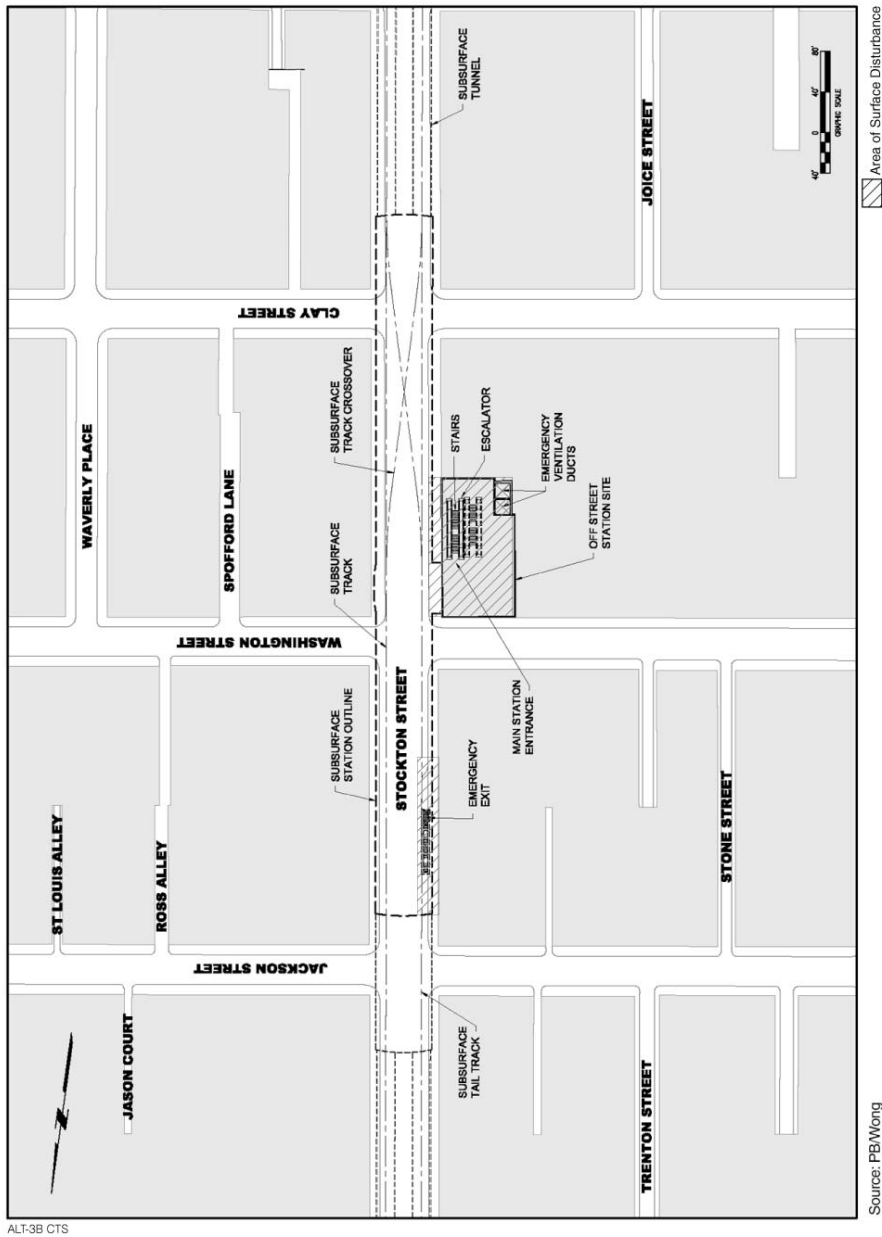


FIGURE 6-16

ALT. 3B CHINATOWN STATION

AREA OF SURFACE DISTURBANCE DURING CONSTRUCTION



between Harrison and Bryant Streets for the construction shaft and the portal. These utility relocations will take about six months if carried out concurrently in each location. Curb parking in each block impacted by the utility diversions would be temporarily eliminated to accommodate traffic flow.

### **Spoils Handling – Alternative 3B**

Similar to Alternative 3A described above, tunnel excavation by TBM would proceed in a northerly direction from the tunnel construction shaft towards Chinatown Station. Muck produced by the TBMs would be transported through the tunnels back to the tunnel construction shaft at I-80 and Harrison and Bryant Streets and stockpiled before being hauled off-site for permanent disposal. Spoils generated from the excavation of each of the stations, Moscone, Union Square/Market Street and Chinatown, the crossover cavern and the tail track tunnels would generally be hauled to the surface through off-street shafts at each of the station locations before being hauled off-site for permanent disposal. An estimated 637,000 cubic yards of spoils would be generated by Alternative 3B, resulting in an estimated 23 truck trips per day during the 2.0-year excavation period for the guideway; 25 truck trips per day during the 1.0-year excavation period for Moscone Station; 20 daily truck trips during the 2.0-year excavation period of the Union Square/Market Street Station; and 9 daily truck trips during the 2.0-year excavation period for the Chinatown Station.

If the North Beach Tunnel Construction Variant is adopted, spoils generated from excavation of the TBM retrieval shaft on Columbus Avenue would be hauled to the surface at the shaft location before being hauled off-site for permanent disposal. An estimated 3,200 cubic yards of spoils would be removed at the retrieval shaft on Columbus Avenue resulting in an estimated five truck trips per day during the six-month long excavation period. Approximately 20 truck trips would be required to remove the tunnel boring machines.

The haul routes for the portal and the station construction sites would be the same as described for Alternative 3A.

### **Construction Sequencing and Durations – Alternative 3B**

Construction of the Fourth/Stockton Alignment Option B would be accomplished in a single phase. A summary of construction activities and schedule for this alternative are presented in Figure 6-5.

The first 18 months of the Fourth/Stockton Alignment Option B pre-construction activities would include relocation of existing utility lines and impacted transit services, and excavation of the tunnel construction shaft beneath I-80 at Harrison and Bryant Streets. Excavation of the guideway tunnels would commence



from the tunnel construction shaft northward towards Chinatown Station and would commence approximately 18 months after start of construction. The TBMs would advance at approximately 30 feet per day. Removal of excavated spoils and delivery of construction materials for the guideway tunnels would occur at the tunnel construction shaft. Two options are possible for sequencing the TBM excavation with the station excavation: 1) the TBMs would be allowed to proceed first followed by the station excavation; or 2) the station shells at Moscone Station and Union/Square Market Street Station

would be excavated down to below track level in advance of the TBM reaching those locations so that the TBM could be “walked” through the stations and relaunched. The platform cavern at Chinatown Station would be excavated in advance of the TBM reaching that location to enable the machine to be recovered from the off-street access shaft. Construction of the guideway tunnels with two TBMs would take approximately 18 months. At the end of guideway (tunnel) construction the TBM cutter head would be retrieved through the Chinatown Station headhouse, an approximately one week effort.

If the North Beach Tunnel Construction Variant is adopted, the TBM would be “walked” through the SEM mined platform and station caverns at Chinatown Station, driven to North Beach, and recovered from a shaft located in the middle of Columbus Avenue rather than from the Chinatown Station headhouse. Retrieval of the TBM cutter head would also take about one week at this location. TBM tunneling would not require any surface works or lane closures other than at the TBM recovery shaft on Columbus Avenue. The shaft construction is estimated to take approximately six months.

Moscone Station and Union Square/Market Street Station would require lane closures for 10 to 12 months on Fourth Street between Folsom and Howard Streets and on Stockton Street between Ellis and Geary Streets, respectively. This would occur before the streets are fully decked over, at which point excavation of the stations would continue underground and spoils or materials would be delivered through access points on Clementina and Ellis Streets. During installation of the secant piles used for shoring, the sidewalks would be either closed to pedestrians or protective barrier erected to separate the public from the construction activities. After the decking is completed all lanes would be reopened to traffic, however truck traffic required for hauling of excavated spoils and delivery of construction materials would be necessary at each of these location for the full duration of construction.

The north entrance and station concourse of the Union Square/Market Street Station is located adjacent to Union Square on the corner of Stockton and Geary Streets. Temporary traffic diversions and a lane closure on Geary Street would be required for a period of approximately six months to install the shoring and decking.

Construction of the Chinatown Station, crossover tunnel, and tail track tunnel would be carried out from an off-street shaft and is scheduled to take approximately 48 months. With the exception of short periods of time when large equipment is being delivered to the station or when the TBMs are being retrieved from the shaft, no lane closures on Stockton Street in Chinatown are planned for construction of the station. Truck traffic planned for hauling of excavated spoils and delivery of construction materials would be necessary for the full duration of construction.

### 6.3 CONSTRUCTION IMPACTS AND MITIGATION FOR TRANSPORTATION

#### 6.3.1 TRANSIT

##### **Alternative 2 – Enhanced EIS/EIR Alignment**

This alternative would result in the greatest surface disruption during the construction period due to the nature of the SXM construction methods. This alternative requires a longer and more extensive utility relocation process and a greater degree of construction activity at street level.

Temporary transit impacts (transit delays and rerouting) would occur off and on over an estimated 5.5 year period along King, Third, Fourth, Harrison, Kearny, Geary, and Stockton Streets. During construction of the tunnels between Union Square and the portals between Brannan and Bryant Streets, at least one lane of traffic would be temporarily closed.

During construction at the Moscone and Market Street Stations and at the portals, at least one lane of traffic would need to be temporarily closed on Third and Fourth Streets for approximately 36 months. Congested traffic conditions would occur during both commute and non-commute periods, resulting in potential disruption to the bus routes operating on these streets. During the construction of the crossing of Market Street there would be disruption to the F-Line service requiring bus service to replace the F-Line.

For 12 to 18 months during the 48 month construction period for the Union Square Station, there would be times when only one traffic lane would be open on Stockton Street between Geary and Sutter Streets. For short durations there may be a need to shut down Stockton Street to traffic completely. ~~Although it is not feasible to~~ Temporary re-routing of the 30-Stockton and 45-Union/Stockton electric trolley bus lines to alternative streets during the for the entire construction period (six to eight months) duration, temporary re-routing of these lines may be required. Also a lane of Geary Street between Stockton and Market Streets, would be closed down for three to six months during the construction period, but bus service would be maintained.

During construction at the Chinatown Station, closure of one lane of traffic on Stockton Street may occur for short periods of time (one to three days) potentially disrupting transit service.

The increased congestion on King, Third, Fourth, Harrison, Kearny, Geary, and Stockton Streets would also lead to disruption of the transit service on these routes, resulting in an adverse impact on transit.

##### Mitigation Measures

To reduce some of the congestion that would result adjacent to construction of the Enhanced EIS/EIR Alignment, DPT would develop detour routes for non-transit traffic. Use of alternative routes by non-

transit vehicles would reduce the level of congestion for all traffic, including buses along streets under

construction for the Project. DPT would try to limit traffic along construction routes to transit, local deliveries, and construction vehicles only, with appropriate signing and traffic control personnel.

Re-routing the 30-Stockton and the 45-Union/Stockton trolley coaches would require moving the existing overhead wires to allow the trolley buses to reach lanes not presently served, construction of new overhead wires, or temporary substitution of motor coaches for the trolley coaches; a cost that is included in the project cost estimates. Use of auxiliary power units (APUs) may be feasible for limited lengths traveling downhill on Stockton Street. Moving the overhead wires would add substantial cost to the Project. Given the length of the construction and the length of travel, and the congestion in which the buses would have to maneuver, use of the auxiliary power units (APUs) would not be feasible for the buses to travel off wire.

In general it is preferable to have all buses adhere as close as possible to their existing routes. Muni will monitor the performance of bus lines affected during construction, and if necessary increase the number of buses to provide reliable service. MTA will provide signing related to transit changes in Chinese as well as English. MTA will coordinate with BART to develop public outreach and other programs to minimize impacts to transit riders during construction.

#### **Alternative 3 – Fourth/Stockton Alignment Option A (LPA)**

Transit impacts for the Fourth/Stockton Alignment Option A would be less than for Alternative 2 as the use of a TBM for tunnel excavation would reduce the level of surface disruption. At the tunnel construction shaft, Muni buses would be rerouted to the west side of Fourth Street between Bryant and Harrison Streets during installation of the tunnel construction shaft and cut-and-cover sections between Bryant and Townsend Streets. As road decking is completed, buses would return to the east side of the street. The two west lanes of Fourth Street between Bryant and Harrison Streets would remain closed for the duration of the construction of the guideway tunnels.

Excavation of the construction shaft under the I-80 freeway between Bryant and Harrison Streets would also impact Golden Gate Transit bus operations under Alternative 3A. Buses will use Harrison, Fourth, and Perry Streets to enter the Transbay Terminal mid-day bus storage facility that is proposed for the site between Perry and Stillman Streets, east of Fourth Street. Generally buses would be entering the proposed Transbay Terminal bus layover facility after the morning peak commute period and exiting the site before the afternoon peak commute period (3 p.m.). The reduction in lanes on Fourth Street during the construction period would temporarily affect access to the bus storage facility.

The two westerly lanes of traffic on Fourth Street, between Howard and Folsom Streets, would be closed for approximately four months during installation of the shoring at the Moscone Station. The bus stop at the southwest corner of the Fourth and Howard Streets intersection would need to be temporarily relocated during this period.

At the Union Square/Market Street Station, Stockton Street would be reduced to two lanes between Post and Geary Streets and one lane between Geary and Ellis Streets. Overhead trolley lines for the 30-Stockton and the 45-Union/Stockton lines would need to be ~~removed~~temporarily relocated for a period of six to eight months-to facilitate installation of the shoring and decking. One option would be to reroute the transit lines to Sutter, Mason, and Market Streets. Temporary disruption to BART service could occur during construction.

Construction of a TBM retrieval shaft near Washington Square Park for the North Beach Tunnel Construction Variant would require the temporary relocation of bus stops for the 30-Stockton and 45-Union/Stockton lines, along Columbus Avenue between Union and Powell Streets. This construction approach would require the closure of one side of the street while the shaft is excavated, keeping one

travel lane in each direction, and then switching over to the other side of the street to complete the shaft. This shift in traffic lanes may also require the temporary relocation of overhead wires on the 30-Stockton and 45-Union/Stockton to accommodate continued transit operations. This construction activity is estimated to take six months, at which point the shaft would be covered and normal street operations would be restored. If the North Beach Tunnel Construction Variant is not approved, the TBM extraction shaft would be at the Chinatown off-street station site and would last approximately one week. Trucks and cranes would occupy the nearside curb parking lane to haul materials and load the TBM.

#### Mitigation Measures

Mitigation measures would be same as those proposed under Alternative 2, except as described below. The MTA would continue to coordinate with the TJPA and Golden Gate Bridge, Highway and Transportation District (GGBHTD) to minimize construction impacts on Golden Gate Transit bus operations. MTA would stage excavation shaft construction and utility relocation to maintain access to the bus storage facility by Golden Gate buses and work with GGBHTD to develop bus detour routing plans to ensure continued access. If access to the construction shaft is needed, it would be scheduled so as not to conflict with the periods when buses are entering or exiting the bus storage site.

MTA and BART will prepare and enter into a Station Improvement Coordination Plan to include construction management procedures and processes to address any and all construction and operational impacts resulting from the tunnel boring. MTA will also coordinate with BART to develop bus bridges, if needed, public outreach, and other programs to minimize impacts to transit riders during construction.

#### **Alternative 3 – Fourth/Stockton Alignment Option B (Modified LPA)**

Transit impacts would be the same as those described under the Alternative 3A although the overall duration of construction would be shorter by one half year for the Fourth/Stockton Alignment Option B as tunnel construction would be completed more rapidly. Unlike Alternative 3A, the bus stop located at the southwest corner of the Fourth and Howard Streets intersection would remain at its current location throughout the construction period as a result of the reduced length of the Moscone Station. Also, Stockton Street, between Geary and Ellis Streets may need to be closed completely for an estimated six to eight months for installation of the secant piles for the deep cut-and-cover platform section of the station. To shorten the duration in which total closure of Stockton Street to traffic would be required, night time and weekend work would be undertaken.

#### Mitigation Measures

Mitigation measures would be same as those proposed under Alternative ~~2~~3A.

### 6.3.2 TRAFFIC

#### **Alternative 2 – Enhanced EIS/EIR Alignment**

This alternative would result in the greatest surface disruption during the construction period due to the nature of the SXM construction methods. This alternative requires a longer and more extensive utility relocation process and the greater degree of construction activity at street level.

As discussed in Section 6.2, at most times when construction is underway south of Market Street, only two travel lanes would be operational next to the construction areas along Third and Fourth Streets. With only two travel lanes, congested traffic conditions would occur during commute and non-commute periods. Construction would affect surface street operations for up to 36 months. To alleviate congestion



along Third and Fourth Streets during construction, the DPT identified potential detour routes (see Figures E-1 and E-2 in Appendix E).

During construction of the subway across Market Street, traffic operations along Market Street could be affected for up to six weeks, following the relocation of utilities. During construction of the subway segment north of Market Street, a lane on Geary Street would be closed for three to six months. For 12 to 18 months, there would be times when Stockton Street, from Geary Street to Sutter Street, would be reduced to one lane and short durations when complete closure may be required. Potential detour routes during construction along these streets are illustrated in Figures E-3 and E-4 (see Appendix E).

During construction of the Chinatown Station closure of one traffic lane, in addition to curb-side parking, would occur along Stockton Street to accommodate loading and unloading of heavy equipment for approximately one to three days at a time.

Removal of spoils and delivery of backfill for this Alternative would generate an estimated 8 truck trips per day during the 4.5 year construction period of the guideway plus an additional 8 to 10 truck trips during the two-year excavation period for each of the four stations.

#### Mitigation Measures

The construction-related traffic impacts could be alleviated or reduced with the following measures.

To alleviate some of the congestion that would result adjacent to construction of the subway, the DPT has identified potential traffic detours (refer to Figures E-1 through E-4 in Appendix E). Prior to final design, the MTA would select the most appropriate detour routes, working in cooperation with community and business organizations, and develop temporary transportation system management measures along these routes, e.g. additions of turn lanes at key intersections, conversion of parking lanes into peak period travel lanes, etc. Detour routes would be advertised prior to construction in the appropriate media. When detours are initially implemented, traffic control police would monitor critical locations along the detours to promote uncongested traffic flow. All traffic detour measures would be implemented in coordination with other concurrent construction projects, e.g., Mission Bay Redevelopment.

#### **Alternative 3 – Fourth/Stockton Alignment Option A (LPA)**

Traffic impacts would be the same as those described for Alternative 2, except as noted below. Third, Harrison, Kearny, and Geary Streets would not be directly impacted. Potential construction detour routes for the Fourth/Stockton Alignment Option A are shown in Appendix E, Figure E-5 through E-8.

Two lanes of traffic on Fourth Street, between Howard and Folsom Streets, would be closed for approximately four months during installation of the shoring at Moscone Station. At Union Square/Market Street Station, Stockton Street would be reduced to two lanes between Post and Geary Streets and one lane between Geary and Ellis Streets.

In order to extract the TBM north of the Chinatown Station, an underground shaft would be constructed with a surface opening on Columbus Avenue between Union and Filbert Streets. During the six-month construction period of the shaft and during the approximately one week required for extraction of the machine, the number of traffic lanes on this block of Columbus Avenue would be reduced to just one lane in each direction. The traffic lanes would be shifted away from the construction area, depending on which side of Columbus Avenue is closed. Overhead wires for the 30-Stockton, 41-Union, and 45-Union-Stockton trolley coach service may need to be shifted over one lane during this period to accommodate continued transit operation on these lines. Figure E-8 illustrates the potential detour routes around the construction site.

This Alternative would generate an estimated 18 truck trips per day during the 2.5 year excavation of the guideway, 13 truck trips during the two-year excavation period for the Moscone Station, and 7 truck trips per day for the excavation of the Union Square/Market Street Station (3.0 year construction period) and the Chinatown Station (2.5 year construction period) associated with soils excavation and backfill.

#### Mitigation Measures

The construction-related mitigation measures would be the same as those described under Alternative 2, except as noted. Muni could implement motor coach service for the 30-Stockton, 41-Union, and 45-Union/Stockton lines if the overhead wires need to be de-energized and removed for the duration of the shaft construction on Columbus Avenue. To alleviate some of the congestion that would result adjacent to construction of the light rail line, the DPT has identified potential traffic detours (refer to Figures E-5 and E-8 in Appendix E).

#### **Alternative 3 – Fourth/Stockton Alignment Option B (Modified LPA)**

Traffic impacts would be the same as those described for Alternative 3A, except as noted below. The overall duration of construction would be shorter by one half year. Construction of the Chinatown Station may require the shifting of the traffic lanes on Stockton Street between Clay and Washington Streets away from the construction site and detouring traffic in the Chinatown area. Potential construction detour routes for the Fourth/Stockton Alignment Option B are shown in Appendix E, Figures E-9 through E-12.

This alternative would generate an estimated 23 truck trips per day during the 2.0-year excavation period of the guideway, 25 daily truck trips during the 1.0-year excavation period for the Moscone Station, 20 truck trips per day for the 2.0-year excavation period of the Union Square/Market Street Station, and 9 truck trips per day for the 2.0-year excavation period for the Chinatown Station associated with soils excavation and backfill.

#### Mitigation Measures

Mitigation measures would be the same as those described under Alternative 3A, except that traffic detour routes for this alternative are shown in Appendix E, Figures E-9 through E-12.

#### 6.3.3 FREIGHT AND LOADING

##### **Alternative 2 – Enhanced EIS/EIR Alignment**

As discussed previously, during construction of the Enhanced EIS/EIR Alignment, congested traffic conditions would result throughout the day along the roadways under construction. Trucks using the affected streets would be subject to the same delays as passenger traffic.

During construction of the Enhanced EIS/EIR Alignment, when portions of King, Third, Fourth, and Harrison Streets are under construction, parking would not be allowed on either side of the street in the construction zone. This would prohibit the use of curb lanes for parking of trucks to load and unload goods. Trucks would be required to park on nearby side streets, or two or more blocks away where no construction is underway. Similar freight loading impacts would occur north of Market Street during construction along Kearny, Geary, and Stockton Streets. Access to the Moscone Center loading area would be maintained during construction along Third Street between Clementina and Howard Streets.

Construction of the Union Square/Market Street Station would impact loading and freight activities on Stockton Street between Sutter and Geary Streets. Loading and freight would also be affected on Geary Street between Market/Kearny and Stockton Streets due to the guideway tunnel construction. Curb parking would be eliminated along these streets during various stages of construction to accommodate traffic flow around the work area and trucks for equipment and materials delivery and spoils removal.

Freight and loading activities near the Chinatown Station would be impacted, although the direct impacts would only be limited to the east side of Stockton Street between Clay and Sacramento Streets. The demolition of the existing structures and construction of the new station headhouse at this location would require curb space on the east side of Stockton Street to accommodate trucks for equipment and materials delivery and spoils removal.

### Mitigation Measures

To alleviate some of the congestion that would result adjacent to construction of the light rail line, the DPT has identified potential traffic detours (refer to Figures E-1 and E-4 in Appendix E).

During construction of the Enhanced EIS/EIR Alignment, a portion of the curb parking lanes remaining open in the construction area, or just upstream or downstream of the construction area, may be converted to short-term loading zones to enable truck loading and unloading and delivery of goods to nearby businesses. Temporary truck loading zones on the side streets may need to be established for the duration of the Project construction to offset any impacts along the streets that are directly affected by construction (Third, Fourth, Harrison, Kearny, Geary, and Stockton Streets).

**Alternative 3 – Fourth/Stockton Alignment Option A (LPA)**

As discussed previously, during construction of the Fourth/Stockton Alignment Option A (LPA), congested traffic conditions would result throughout the day along the roadways under construction. Trucks using the affected streets would be subject to the same delays as passenger traffic.

During construction of the Fourth/Stockton Alignment Option A (LPA), when portions of Fourth Street are under construction, parking would not be allowed on either side of the street in the construction zone. This would prohibit the use of curb lanes for parking of trucks to load and unload goods. Trucks would be required to park on nearby side streets, or two or more blocks away where no construction is underway. Similar freight loading impacts would occur during construction along Stockton Street.

Construction of the Union Square/Market Street Station would impact loading and freight activities on Stockton Street between Post and Market Streets and a portion of Ellis Street between Stockton and Powell Streets. Curb parking would be eliminated along these streets during various stages of construction to accommodate traffic flow around the work area and trucks for equipment and materials delivery and spoils removal.

Freight and loading activities near the Chinatown Station would be impacted, although the direct impacts would only be confined to the east side of Stockton Street between Clay and Sacramento Streets. The demolition of the existing structures and construction of the new station head house at this location would require curb space on the east side of Stockton Street to accommodate trucks for equipment and materials delivery and spoils removal.

If the North Beach Tunnel Construction Variant is adopted, construction of the extraction shaft on Columbus Avenue between Powell and Union Streets would have no effect on loading and freight activities as there are no loading zones on this block. However, access to loading and freight zones on Union Street between Stockton and Powell Streets and on Columbus Avenue between Union and Stockton Streets may be impacted due to restrictions in traffic circulation and detours in the area for the duration of the shaft construction.

**Mitigation Measures**

Mitigation measures would be the same as those described above under Alternative 23A, ~~except as noted below~~ Union Street and Columbus Avenue would also be directly impacted by construction and would require converting a portion of curb parking upstream or downstream from construction site to loading and unloading zones for temporary access to businesses. DPT will work with the property and business

owners on Perry and Stillman Streets to develop temporary detour routes for traffic to maintain access to their properties throughout the construction period.

### **Alternative 3 – Fourth/Stockton Alignment Option B (Modified LPA)**

Freight and loading impacts would be the same as described under Alternative 3A, except as noted below. The construction of the portal under the I-80 freeway would affect the access to Perry and Stillman Streets. Temporary closure of the eastern most lane of Fourth Street between Bryant and Harrison Streets would be required for limited durations to complete the excavation for the portal. Access to the businesses and residences along Perry and Stillman Streets would be maintained at all times during the construction, however, access to the two streets may be limited to Third Street for short periods when the closure of the eastern lane is required.

Cumulative construction impacts would be experienced by businesses and residences bordering the block bounded by Perry, Third, Stillman, and Fourth Streets as a result of three sequential construction projects in the vicinity. The I-80 retrofit project is currently under construction, the construction of the Golden Gate Transit bus storage facility will follow, and the Central Subway Project construction is expected to begin in 2010. While construction and muck removal for the Central Subway Project would be confined to Fourth Street, temporary short-term modifications to traffic circulation and access would likely be required on Perry and Stillman Streets.

Construction of the Union Square/Market Street Station would impact loading and freight activities on Stockton Street between Geary and Ellis Streets and a portion of Ellis Street between Stockton and Powell Streets since the method of construction used would be cut-and-cover. As described in Section 6.2.3, the installation of shoring for the platform section of the station may require Stockton Street to be shut down to traffic completely for a period of six to eight months. In addition, the installation of shoring and decking would also require at least two traffic lanes on Stockton Street to be closed for about 10 to 12 months. During these stretches of construction activity, there would be no access to the loading and freight zones on Stockton Street. Ellis Street would experience similar impacts to loading and freight as it would be reduced to one traffic lane to accommodate the construction staging area.

Freight and loading activities near the Chinatown Station would be impacted, although the direct impacts would only be confined to the southwest corner of Stockton and Washington Streets. The demolition of the existing structures and construction of the new station head house at this corner would require curb space on the west side of Stockton Street and the south side of Washington Street to accommodate trucks.

If the North Beach Tunnel Construction Variant is adopted, construction of the extraction shaft on Columbus Avenue between Powell and Union Streets would have no effect on loading and freight activities as there are no loading zones on this block. However, access to loading and freight zones on Union Street between Stockton and Powell Streets and on Columbus Avenue between Union and Stockton Streets may be impacted due to restrictions in traffic circulation and detours in the area for the duration of the shaft construction.

#### Mitigation Measures

Mitigation measures would be the same as those described above under Alternative 23A, except as noted below. DPT will work with the property and business owners on Perry and Stillman Streets to develop temporary detour routes for traffic to maintain access to their properties throughout the construction period.

#### 6.3.4 PARKING

##### **Alternative 2 – Enhanced EIS/EIR Alignment**

As discussed in Section 6.2, all on-street parking would be prohibited in construction zones. Therefore, substantial curb parking areas would be temporarily removed during construction, placing higher parking demands upstream and downstream of the construction zone, and on nearby streets. Parking spaces that would be permanently lost as a result of the Central Subway Project are discussed in Section 3.2.4. Prior to final design, the SEMTA would select the most appropriate detour routes, working in cooperation with community and business organizations, and develop temporary transportation system management measures along these routes, e.g. additions of turn lanes at key intersections, conversion of parking lanes into peak period travel lanes, etc. The SXM method of construction would require sequential movement of activities block by block along the Corridor. With this sequence of utility diversions, jet grouting, and installation of soil cement walls for shoring of the guideway tunnels, parking on consecutive blocks would be temporarily eliminated throughout the duration of Project construction.

##### Mitigation Measures

During construction of the Enhanced EIS/EIR Alignment, signs denoting alternative parking areas (e.g., public parking garages) could be placed upstream of and through the construction zones. To improve the accessibility to businesses in the Corridor, it is recommended that retained and added (where applicable) parking spaces be designated for short-term parking and loading, especially in commercial districts. Near commercial establishments, parking turn-over should be encouraged through the use of time limits (e.g., parking meters, signed restrictions, etc.). These improvements would be incorporated into the development of the project's final plans.

##### **Alternative 3 – Fourth/Stockton Alignment Option A (LPA)**

Parking impacts would be less than those described for Alternative 2 as there would be less surface disruption with this alternative.

##### Mitigation Measures

The mitigation measures would be the same as those described for Alternative 2.

##### **Alternative 3 – Fourth/Stockton Alignment Option B (Modified LPA)**

Parking impacts would less than those described for Alternative 2 as there would be less surface disruption with this alternative.



### Mitigation Measures

Mitigation measures would be the same as described for Alternative 2.

### 6.3.5 PEDESTRIANS

#### **Alternative 2 – Enhanced EIS/EIR Alignment**

During construction of the Enhanced EIS/EIR Alignment, the sidewalks on both sides of Third, Fourth, Harrison, Market, Kearny, and Geary Streets would remain open, except as noted below.

The following temporary sidewalk closures would be required during construction of Alternative 2 (access to adjacent businesses would be maintained during business hours):

- East side of Third Street, between Folsom and Howard Streets and between Tehama Pedestrian Way and Clementina Street, for construction of Moscone Station;
- Each side of Third Street, between Mission and Market Streets, for construction of the Market Street Station;
- South side of Market Street, between Third and New Montgomery Streets, including Annie and Stevenson Streets for construction of the Market Street Station;
- Each side of Stockton Street, between Sutter and Geary Streets, for construction of the Union Square Station.
- The west sidewalk of Stockton Street, between Sacramento and Clay Streets, would be partially closed during construction of the Chinatown Station.

Pagoda Alley and Hang Ah Alley would remain open to pedestrian use during construction of the Chinatown Station. During construction, all open sidewalks would be at least six feet wide and efforts would be undertaken to retain the full widths during construction. Some pedestrian crossings of the above streets would need to be temporarily closed, but pedestrians would be re-routed through nearby crosswalks or assisted across the street by traffic control personnel. This would increase walking distances for pedestrians during construction.

#### Mitigation Measures

During excavation of the subway stations, access to all abutting businesses would be maintained either through the existing or a reduced sidewalk area or via temporary access ways, e.g., ramps, planking, etc. Signs would be installed indicated that the businesses are “open during construction.” All temporary access ways would be in compliance with the ADA. Temporary pedestrian walkways would be covered to protect pedestrians from noise, dust, and visual annoyances during construction.

**Alternative 3 – Fourth/Stockton Alignment Option A (LPA)**

The following sidewalk closures would be required during construction of Alternative 3 (access to adjacent businesses would be maintained during business hours):

- The west side of Fourth Street, temporarily between Howard and Clementina Streets and fully closed between Clementina and Folsom Streets for the construction of the Moscone Station;
- The northwest corner of Howard and Fourth Streets fully closed during construction of station entrances and partially closed during construction of the elevator shaft at Moscone Station.
- The west side of Stockton Street, fully closed between Post and Geary Streets for construction of the Union Square/Market Street Station;
- The east side of Stockton Street, temporarily closed between Post and Geary Streets for construction of the Union Square/Market Street Station;
- Each side of Stockton Street, between Geary and O'Farrell Streets, temporary partial closure (one side at a time) during construction of the Union Square/Market Street north platform cavern access shaft;
- Each side of Stockton Street, between Ellis and O'Farrell Streets, temporary closure (one side at a time) during construction of the Union Square/Market Street south platform cavern access shaft;
- Ellis Street, temporary partial closure on the south side, and fully closed on the north side adjacent to One Stockton Street (the Apple Store), for the Union Square/Market Street Station;

Pagoda Alley and Hang Ah Alley and the sidewalks between Sacramento and Clay Streets, in front of the station access site, would remain open to pedestrian use during construction of the Chinatown Station. Temporary closure of a section of sidewalk would be necessary for construction of the emergency exits on the west side of Stockton Street adjacent to Clay Street. During construction, all open sidewalks would be at least six feet wide and efforts would be undertaken to retain the full widths during construction. Some pedestrian crossings of the above streets would need to be temporarily closed, but pedestrians would be re-routed through nearby crosswalks or facilitated across the street by traffic control personnel. This would increase walking distances for pedestrians during construction.

**Mitigation Measures**

The mitigation measures would be the same as described for Alternative 2.

**Alternative 3 – Fourth/Stockton Alignment Option B (Modified LPA)**

During construction of the Fourth/Stockton Alignment Option B (Modified LPA), the sidewalks on both sides of Fourth Street, and Stockton Street would remain open, except during installation of shoring for the Moscone and Union Square/Market Street subway stations, when only one sidewalk would be open on each side of the station area at a time.

During construction, all open sidewalks would be at least six feet wide and efforts would be undertaken to retain the full widths, whenever possible, during construction. Some pedestrian crossings of the above streets would need to be temporarily closed, but pedestrians would be re-routed through nearby crosswalks or facilitated across the street by traffic control personnel. This would increase walking distances for pedestrians during construction.

Mitigation Measures

The mitigation measures would be the same as described for Alternative 2.

**6.3.6 BICYCLES****Alternative 2 – Enhanced EIS/EIR Alignment**

During construction of the Enhanced EIS/EIR Alignment, only two travel lanes would be operational next to the construction areas on along Third and Fourth Streets. With only two travel lanes, congested traffic conditions would occur during commute and non-commute periods and bicycle travel in the shared lanes could be challenging. Diversion of traffic onto Second and Fifth Streets may also impact bicycle travel on Bicycle Route #11 and Bicycle Route #19, respectively. During construction along Geary and Stockton Streets, only one travel lane would be maintained at times, temporarily impacting bicycle travel, especially on Bicycle Route #17.

Mitigation Measures

To alleviate or reduce the anticipated impacts, it is recommended that during construction of the Enhanced EIS/EIR Alignment, every effort would be made to retain a wide curb or outside travel lane to facilitate bicycle travel. Where this is not possible, signage should be erected indicating temporary alternative routes for bicyclists. Existing bicycle traffic on Fourth Street could be diverted to Fifth Street. If bicycle lanes are provided, as identified in the San Francisco Bicycle Program's May 2005 Proposition K 5-Year Prioritization Program, this would further facilitate bicycle travel. The same is true for existing bicycle traffic on Third Street diverting to Second Street.

**Alternative 3 – Fourth/Stockton Alignment Option A (LPA)**

Construction impacts would be the same as those described under Alternative 2, during installation of shoring at Moscone Station. At Union Square/Market Street Station travel lanes would be reduced to a single lane on Stockton Street, between Post and Ellis Streets. Third, Harrison, Kearny and Geary Streets would not be disrupted by construction.

Mitigation Measures

The mitigation measures would be the same as described for Alternative 2.

**Alternative 3 – Fourth/Stockton Alignment Option B (Modified LPA)**

Construction impacts at Moscone Station would be the same as described under Alternative 3A. During construction of the Union Square/Market Street, Stockton Street, between Geary and Ellis Streets would be reduced to a single lane and at times, may need to be closed entirely.

Mitigation Measures

The mitigation measures would be the same as described for Alternative 2.

**6.3.7 EMERGENCY VEHICLE ACCESS****Alternative 2 – Enhanced EIS/EIR Alignment**

It is expected that the emergency access from Fire Station #8 on Bluxome Street and Fire Station #1 on Howard Street would be impacted by the construction along Third and Fourth Street, as discussed in Section 3.2.2. Although two travel lanes would be operational next to the construction areas along Third and Fourth Streets, congested traffic conditions would occur during commute and non-commute periods. Construction in the vicinity of the fire stations would affect surface street operations for 18 to 24 months.

During construction of the North of Market segment, the number of traffic lanes on Geary Street, and then on Stockton Street, would be reduced (see Section 6.3.2). Potential detour routes during construction along these streets are illustrated in Figures E-3 and E-4 (see Appendix E). As with Fire Station #8 on Bluxome Street near Fourth Street, these detour routes for vehicular traffic could be used as alternative emergency access routes for Fire Station #1.

Construction of the Chinatown Station on Stockton Street may require closure of one lane for loading and unloading of heavy equipment, in addition to curbside parking areas. These temporary closures for the duration of the loading and unloading activities could take approximately one to three days. This may affect the access and response times of emergency vehicles from Fire Station #2 (1340 Powell Street between Broadway and Pacific Avenue) if Stockton Street is used in an emergency response.

### Mitigation Measures

MTA would require contractors to submit a site specific emergency access response plan as part of compliance with bid specifications. The plan would include fire department and emergency services access to construction areas, maintainability of emergency services such as fire hydrants, and demobilization of plant and equipment impacting access to adjacent properties and buildings. Potential detour routes have been identified, which could be used as alternative emergency access routes, in order to alleviate congestion along Third and Fourth Streets during construction (see Figures E-1 and E-2 in Appendix E).

### **Alternative 3 – Fourth/Stockton Alignment Option A (LPA)**

Emergency access impacts would be the same as described under Alternative 2, except as noted below.

Guideway tunnels would be constructed by TBMs so impacted emergency access is limited to parcels on the west side Fourth Street, between Clementina and Howard Streets, and to Moscone Center West, on the northwest corner of Howard and Fourth Streets. During construction of the Union Square/Market Street Station, temporary lane closures would require emergency vehicles to use alternate routes.

If the Tunnel Boring Machine were extracted in North Beach rather than at the Chinatown station, there would be an approximately one less week during which access in Chinatown would be disrupted to extract the TBM.

### Mitigation Measures

Mitigation measures would be the same as described under Alternative 2, except proposed construction detour routes are shown in Appendix E, Figures E-5 through E-8.

### **Alternative 3 – Fourth/Stockton Alignment Option B (Modified LPA)**

Emergency access impacts would be the same as described under Alternative 3A, except there would be no impacts to the Moscone Center West on Fourth and Howard Streets for the Moscone Station; no impacts on Stockton Street, between Post Street and Maiden Lane at the Union Square/Market Street Station; and access to property on the west side of Stockton Street, between Jackson and Washington Streets, would be restricted during construction of the Chinatown Station exit.

### Mitigation Measures

Mitigation measures would be the same as described under Alternative 2, except proposed construction detour routes are shown in Appendix E, Figures E-9 through E-12.

## **6.4 CONSTRUCTION IMPACTS AND MITIGATION FOR LAND USE**

### **6.4.1 LAND USE**

#### **Alternative 2 - Enhanced EIS/EIR Alignment**

Construction of the Enhanced EIS/EIR Alignment would not cause substantial changes in land use or neighborhood character. Temporary construction impacts associated with parking and access to land uses in the Study Area are addressed in Section 6.3, Transportation.

#### Mitigation Measures

Public information programs, including signage, as well as steps to ensure uninterrupted access to all uses along the Corridor, shall be used to minimize the construction impacts on neighboring land uses.

#### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

Construction of the Fourth/Stockton Alignment Option A would not cause any substantial changes in land use, disrupt neighborhood character, or physically divide an existing neighborhood. Parking spaces in the Corridor in the vicinity of the portal and stations, and along the surface segment would be temporarily lost during the construction period. Vehicular and pedestrian access and freight deliveries to buildings in the vicinity of the tunnel portal and stations may be affected during the construction period, but this impact would generally be temporary during the construction period and would not substantially alter the use of properties adjacent to construction activities. (See Chapter 3.0 and Section 6.3, Transportation, for a detailed discussion of parking and access issues that affect land use.)

#### Mitigation Measures

Mitigation measures would be the same as identified for Alternative 2.

#### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

Land use impacts associated with the Fourth/Stockton Alignment Option B would be the same as those described for Fourth/Stockton Alignment Option A except as noted here. The main difference would be a greater area of parking and traffic disruption along Fourth Street due to the longer segment of at-grade railway and construction of a surface station at Fourth and Brannan Streets that would require the use of more street space and require longer periods of surface disruption. These impacts are discussed in Section 6.3.

An amendment of the Planning Code, which prohibits the demolition of residential apartment units in the Chinatown Residential Neighborhood Commercial District, would be required for the Chinatown Station. The impacts would be the same as those discussed in Section 6.5.2, Property Acquisition.

### Mitigation Measures

Mitigation measures would be the same as identified for Alternative 2.



## **6.5 CONSTRUCTION IMPACTS AND MITIGATION FOR SOCIOECONOMICS**

### **6.5.1 SOCIOECONOMICS**

#### **Alternative 2 - Enhanced EIS/EIR Alignment**

Design and construction of the Enhanced EIS/EIR Alignment would cost an estimated \$229 million for professional services and labor and the expenditure of approximately \$1,095 million for materials/facilities (refer to Table 5-1). This would provide temporary employment opportunities for the City and/or region and would be considered a beneficial impact.

#### Mitigation Measures

No substantial adverse impacts on demographic or economic conditions are anticipated from the construction of the Enhanced EIS/EIR Alignment. While beneficial to the City and region in terms of employment opportunities and income, short-term employment impacts are not considered to be substantial. No mitigation measures would be required.

#### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

Design and construction of Fourth/Stockton Alignment Option A would cost an estimated \$202 million for professional services and labor and the expenditure of approximately \$908 million for materials/facilities (refer to Table 5-1). As described above for the Enhanced EIS/EIR Alignment, this would be a beneficial impact.

#### Mitigation Measures

No mitigation measures would be required.

#### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

Design and construction of the Central Subway Fourth/Stockton Alignment Option B would cost an estimated \$188 million for professional services and labor and the expenditure of approximately \$1,026 million for materials/facilities (refer to Table 5-1). As described above for the Enhanced EIS/EIR Alternative, this would be a beneficial impact.

#### Mitigation Measures

No mitigation measures would be required.

### **6.5.2 ACQUISITION AND DISPLACEMENT**

This section addresses potential impacts related to the acquisition and relocation of businesses or residents as a result of the Project. The federal Uniform Relocation Assistance and Real Property Acquisition

Policies Act of 1970 (Public Law 91-646) and the State of California Relocation Act (Chapter 16, Section 7260 et seq. of the Government Code) contain specific requirements that govern the manner in which a government entity can acquire property for public use. The public entity is required to establish the fair market value of the property before acquisition. Adherence to the state and federal laws is designed to ensure just compensation for all acquired properties, and to minimize adverse impacts on the affected property owners.

The same federal and state laws that govern acquisition also govern relocation. Under these laws MTA would be required to develop a detailed relocation plan designed to minimize impacts on the businesses to be displaced by the Project. The plan would assess the relocation needs of all potential displacees and develop a program that would provide relocation assistance and payments. Minimum relocation payments are set by law, and include moving expenses and search expense payments for businesses. Relocation assistance programs include, at a minimum, referrals to comparable locations for displacees. For displaced on-site service delivery space or dedicated parking, suitable replacement spaces would be identified or a determination made of the viability of the displacee's business without the displaced vehicle access.

The California Code of Civil Procedure (Sections 1230 to 1273) outlines regulations and guidelines governing the exercise of the power of eminent domain to acquire property for a public use. The owner of property acquired by eminent domain is entitled to just compensation for that property. If the power of eminent domain is necessary to acquire property for this Project, all applicable procedures outlined in the civil code will be followed.

For the purpose of this analysis, properties that would need to be acquired for the construction and operation of an alternative are identified. Field surveys were conducted to identify potential acquisitions and displacements, as well as to estimate current employment at potentially affected businesses, based on the type and size of the potentially affected business. Acquisition and displacement impacts are considered significant if an alternative would 1) displace a substantial number of residents; 2) result in the loss of housing units affordable to people with low or moderate incomes; 3) displace businesses unable to relocate to economically viable areas; 4) result in a substantial loss of business clientele; or 5) result in the loss of a substantial number of jobs.

Table 6-2 lists the acquisitions that would be necessary to implement the alternatives. The information contained in this table is discussed in the section below.

**TABLE 6-2**  
**ACQUISITION AND RELOCATION REQUIREMENTS**

LOCATION	REASON FOR ACQUISITION	ACQUISITION	RELOCATION	ALTERNATIVE
370 Third Street APN 3751-157	Subway alignment	60 square feet (easement underneath building)	No	Alternative 2
425 Fourth Street APN 3762-112	Subway alignment	150 square feet (easement underneath building)	No	Alternative 2
255 Third Street (Moscone Garage) APN 3735-060	Location of vent shafts for Moscone Station	Agreement/easement for placement of vent shafts on the southeast corner of building and elevators under the entrance at northwest corner	No	Alternative 2
Tehama Pedestrian Way	Location for entrance to Moscone Station on Third Street	None	Possible Vendor Relocation	Alternative 2
Hearst Garage 45 Third Street APN 3707-058	Location of vent shafts	Agreement/easement for locating vent shafts inside space in garage (30 parking spaces displaced).	No	Alternative 2
Union Square Garage APN 0308-001	Location of vent shafts and entrance to Union Square Station	Agreement for locating vent shafts and station entry in the Union Square terrace and plaza, (29 parking spaces displaced in Alternatives 2 and 3A; 34 parking spaces displaced in Alternative 3B)	No	Alternative 2 and Alternative 3A, Alternative 3B
814-828 Stockton Street APN 0225-014	Location of vent shafts and entrance to Chinatown Station	4,600 square feet (acquisition entire lot)	Yes	Alternative 2 and Alternative 3A
266 Fourth Street APN 3733-093	Location of vent shafts and entrance to Moscone Station on Fourth Street	14,800 square feet (entire gas station lot)	Yes	Alternative 3A Alternative 3B
<del>790-798 Market Street APN 0328-002</del>	<del>Easement</del>	<del>Market Street tunnel</del>	<del>No</del>	<del>Alternative 3A Alternative 3B</del>
801 Market Street APN 3705-048 (Old Navy)	Subway alignment	1,700 square feet easement underneath the building	No	Alternative 3A Alternative 3B
44 Stockton Street	Subway alignment	5 square feet (Easement A underneath building)	No	Alternative 3A
790-798 Market Street/2 Stockton Street APN 0328-002 and 37052-001 to 004 (Virgin Records)	Subway alignment	3,900 square feet easement for Option A and 3,300 square feet easement for Option B (Option A easement area underneath building)	No	Alternative 3A Alternative 3B
BART Entries on Market Street at Powell Station	Access to station	None – Use Agreement	No	Alternative 3A Alternative 3B
123 O'Farrell Street (Ellis/O'Farrell Garage) APN 0327-021	Location of vent shafts	Agreement for locating vent shafts in the parking garage. 24 parking spaces displaced	No	Alternative 3B
933-949 Stockton Street APN 0211-001	Location of vent shafts and entrance to Chinatown Station	10,100 square feet (acquisition of entire lot)	Yes	Alternative 3B
1455 Stockton Street	Subway alignment for North Beach Tunnel Construction Variant	1,400 square feet (easement underneath building)	No	Alternative 3A Alternative 3B
Sidewalk Basements – Various Locations	Station construction at Union Square and on Market Street between Third Street and the Montgomery Station (Alternative 2).	Revocation of permits for use of public right-of-way	No	All Alternatives

Source: PB/Wong, 2007

**Alternative 2 - Enhanced EIS/EIR Alignment**

Construction of the Enhanced EIS/EIR Alignment would require securing easements for the Moscone and Market Street Stations and a long-term encroachment permit for the Union Square Station. The entrance to the Moscone Station would be located along a pedestrian corridor (Tehama Street) on the east side of Third Street between Howard and Clementina Streets. Easements would be required at 255 Third Street for the vent shafts at the southeast exterior of the garage, as well as, the installation of two elevators under the canopy entrance at the northwest corner of the garage. This would displace an entrance to the western-most retail bay, but would not require elimination of any parking spaces. At the Market Street Station, the vent shafts would require an easement under Stevenson Street between Third and Annie Streets and the elimination of 30 spaces in the Hearst garage. The Union Square Station entrance and vent shafts would eliminate 29 parking spaces at the Union Square garage. The MTA, which has authority over the Union Square Garage, would need to amend the management and operator agreements for the garage to address the reduction in parking. Union Square is a public park under the jurisdiction of the San Francisco Recreation and Park Department. Compensation for the loss of parking spaces would be required in accord with the Uniform Relocation Act. Use of a portion of this Park would require a long-term encroachment permit and a Section 4(f) approval (see Section 10.0).

Two additional easements would be needed for the subway alignment under buildings at 425 Fourth Street (southeast corner at Harrison) and 370 Third Street (northwest corner at Harrison). Neither easement would affect the use of the buildings. There would be one acquisition in fee of a parcel at 814-848 Stockton Street, between Sacramento and Clay Streets, for the Chinatown Station entrance and vent shafts. This displacement would require the relocation of five small businesses along Stockton Street and five small businesses along Hang Ah Alley with an estimated fewer than 10 employees each ~~and one to two residential units in the second floor of the building.~~ As stated in Section 4.2.4, the population in the Chinatown area is predominantly Asian and has a high percentage of low income residents; therefore the residential displacement would likely displace affordable housing units, resulting in an adverse impact.

Utility relocation in sidewalks may require access to or use of existing basements located beneath the sidewalks, particularly in the Union Square area and along Market Street for the pedestrian concourse between Third Street and the Montgomery Station. Property owners with sub-sidewalk basements may be required to vacate this space to make room for relocated utilities. Temporary access to buildings that are identified as susceptible to settlement along the alignment may be required to perform inspections. If settlement of a building is observed during construction, compensation grouting would be injected into the ground beneath these buildings from the street right-of-way.

MTA would follow the provisions of the Uniform Relocation Act and, where applicable, eminent domain law. For the limited amount of acquisition that would occur for any Project alternative, Muni would act in accordance with existing federal and state relocation and acquisition laws to minimize the impact on affected property and business owners and on residents.

#### Mitigation Measures

No mitigation measures would be required beyond compliance with the Uniform Relocation Act and eminent domain law; however, development of affordable housing units on the Chinatown Station site above the station and ground floor retail where it is compatible with station access could further reduce the adverse impacts of displacement of existing ~~residential units and~~ small businesses in Chinatown.

#### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

Construction of Fourth/Stockton Alignment Option A would require use of the Union Square plaza and garage to accommodate station entries and vent shafts resulting in removal of 29 parking spaces in the Union Square garage. MTA would need to authorize the garage use and amend the management and operator agreements to address the reduction in parking, the Recreation and Park Department would need to approve a long-term encroachment permit for the use of the Union Square plaza, and Section 4(f) approval would be required (see Chapter 10.0). Compensation for the loss of parking spaces would be required in accord with the Uniform Relocation Act. Three additional easements would be needed for the subway alignment under private buildings at 2 Stockton Street, 790-798 Market Street, and 44 Stockton Street. None of these easements would affect the use of the buildings. An existing agreement with BART for use of the joint entries at the Powell Street Station would need to be amended to provide additional access to the Union Square/Market Street Station.

Construction of the Fourth/Stockton Alignment Option A would require two acquisitions in fee. The first acquisition would be a parcel with a gas station at the northwest corner of Fourth and Folsom Streets (266 Fourth Street), required for the Moscone Station main entrance and vent shafts. The second would be a parcel at 814-828 Stockton Street, between Sacramento and Clay Streets, required for the Chinatown Station entry and vent shafts. The Stockton Street parcel acquisition would require the relocation of 10 small Chinatown businesses ~~and one to two residential uses above the businesses. The residential displacement would likely displace affordable housing units and would result in adverse impacts to low income residents.~~

Utility relocation in sidewalks may require access to or use of existing basements located beneath the sidewalks, particularly in the Union Square area. Property owners with sub-sidewalk basements may be required to vacate this space to make room for relocated utilities. Temporary access to buildings along

the alignment that are identified as susceptible to settlement may be required to perform inspections. If

settlement of a building is observed during construction, compensation grouting would be injected into the ground beneath these buildings from the street right-of-way.

The North Beach Tunnel Construction Variant would require an easement under a parcel at 1455 Stockton Street to accommodate the tunnel alignment.

~~Muni~~ MTA would follow the provisions of the Uniform Relocation Act and, where applicable, eminent domain laws. MTA would act in accordance with existing federal and state relocation and acquisition laws to minimize the impact on affected property and business owners and residents.

#### Mitigation Measures

No mitigation measures would be required beyond compliance with the Uniform Relocation Act and eminent domain law; however, redevelopment of affordable housing units on the Chinatown Station site above the station and ground floor retail where it is compatible with station access could further reduce the adverse impacts of displacement of existing residential units and small businesses in Chinatown.

#### **Alternative 3 - Central Subway Fourth/Stockton Alignment Option B (Modified LPA)**

Construction of Central Subway Fourth/Stockton Alignment Option B would require use of Union Square plaza and Union Square Garage for station entries and vents resulting in removal of 34 parking spaces and use of the Ellis/O'Farrell Garage resulting in the removal of 24 parking spaces. As with Option 3A, this would require MTA to amend the parking management and operator agreements in both the Union Square and Ellis/O'Farrell garages. Compensation for the loss of parking spaces would be required in accord with the Uniform Relocation Act. The Department of Recreation and Parks would need to authorize ~~a long-term encroachment permit for the use of Union Square plaza and a Section 4(f) approval would also be required.~~ Additional easements would be needed for the subway alignment under private buildings at 790-798 Market Street and at 2 Stockton Street. These easements would not affect the use of these buildings. An agreement for use of the BART entries on Market Street would need to be negotiated to provide additional access to the Union Square/Market Street Station. The BART entry (escalator and stairs) at One Stockton Street (in the Apple Store) at Ellis Street would need to be closed temporarily during construction and may need to be expanded to meet BART's request. There would be two acquisitions in fee. The first acquisition would be a parcel occupied by a gas station at 266 Fourth Street, required for the Moscone Station entry and vent shafts. The second would be a parcel at 933-949 Stockton Street, between Washington and Jackson Streets, required for the Chinatown Station entry and vent shafts. These displacements would require the relocation of eight businesses (seven at the Chinatown property) plus 17 residential units located above the Chinatown businesses. The Chinatown area is predominantly Asian

and has a high percentage of low income residents; therefore the residential displacement of 17 housing units would have adverse impacts. An amendment to the San Francisco Planning Code would be required for the demolition of the residential apartment units at this station site and the mitigation measures would be the same as those proposed for acquisition of the parcels.



Utility relocation in sidewalks may require access to or use of existing basements located beneath the sidewalks, particularly in the Union Square area. Property owners with sub-sidewalk basements may be required to vacate this space to make room for relocated utilities. Temporary access to buildings along the alignment that are identified as susceptible to settlement may be required to perform inspections. If settlement of a building is observed during construction, compensation grouting would be injected into the ground beneath these buildings from the street right-of-way.

The North Beach Tunnel Construction Variant would require an easement under a parcel at 1455 Stockton Street to accommodate the tunnel alignment.

MTA would follow the provisions of the Uniform Relocation Act and, where applicable, eminent domain law. MTA would act in accordance with existing federal and state relocation and acquisition laws to minimize the impact on affected property owners, businesses, and residents.

#### Mitigation Measures

No mitigation measures would be required beyond compliance with the Uniform Relocation Act and eminent domain law; however, redevelopment of affordable housing units on the Chinatown Station site above the station and ground floor retail could further reduce the adverse impacts of displacement of existing residential units and small businesses in Chinatown. MTA will provide rental or property leasing assistance to impacted businesses in addition to the relocation costs.

### 6.5.3 ENVIRONMENTAL JUSTICE FINDINGS

#### **All Build Alternatives**

Construction staging areas would be located at tunnel portals and station locations along the Central Subway Corridor. Construction impacts, including traffic disruption, loss of on-street parking, noise, and dust would occur along the entire alignment, primarily in the areas around the tunnel portals and stations. These temporary impacts would not disproportionately impact low-income populations or neighborhoods.

## **6.6 CONSTRUCTION IMPACTS AND MITIGATION FOR COMMUNITY FACILITIES AND SERVICES**

### **6.6.1 PUBLIC AND COMMUNITY FACILITIES**

#### **Alternative 2 - Enhanced EIS/EIR Alignment**

Construction of the Enhanced EIS/EIR Alignment would temporarily affect vehicular access and on-street parking for the public facilities along Third Street during construction of the tunnels, portal, and the Moscone and Market Street Stations. Construction of the Union Square Station would temporarily affect pedestrian access along the eastern edge of Union Square plaza as this sidewalk (west side of Stockton Street) would be closed off during construction. There is the potential for construction-related noise and dust impacts for the Chinatown station on the Willie “Woo Woo” Wong Playground, which is located behind the building that would be removed to accommodate the Chinatown Station on Stockton Street. These impacts will lessen after the existing building is demolished and the excavated construction shaft is decked over at the station entrance site. In addition, there would also be temporary impacts to the vehicular access to community facilities (including the Post Office on the west side of Stockton Street) along Stockton Street near the Chinatown Station entrance. During various stages of the station construction, it is likely that portions of the street would have restricted vehicular access and the west sidewalk of Stockton Street would be closed during the station construction. Construction activities also would temporarily increase noise and dust in these areas.

#### Mitigation Measures

In the vicinity of each station and along Third and Fourth Streets, alternative vehicular and pedestrian circulation patterns that permit continued access to community and public facilities in these locations during construction would be developed and clearly identified during final design, in consultation with Department of Parking and Traffic (DPT) staff. Conditions of approval would be part of the permit process for construction of the Union Square Station, which would require a portion of the plaza and underground parking. The facilities and access to the plaza would remain open for public use. Noise limits will be included in the construction specifications to ensure that the construction is in compliance with City regulations. A temporary noise wall would be constructed east of the construction site in Chinatown to minimize impacts to the adjacent alley and Willie “Woo Woo” Wong Playground from construction noise and dust. Public access to the playground would not be affected.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

Construction impacts for the Central Subway Fourth/Stockton Alignment Option A would be less than those identified for Alternative 2 as Third, Harrison, Kearny, and Geary Streets, east of Stockton Street, would not be disrupted.

#### Mitigation Measures

The mitigation measures would be the same as described above for Alternative 2.

### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

Construction of Fourth/Stockton Alignment Option B would be the same as those discussed above for Alternative 3A, however, no impacts to Willie “Woo Woo” Wong Playground would occur with this alternative. Rather, temporary construction-related noise and dust impacts would occur at the Gordon Lau Elementary School (located immediately west of the 933-949 Stockton Street Chinatown station site) during construction. Vehicular access and on-street parking for the public facilities along Fourth Street in the Moscone Center/Yerba Buena Gardens area would be disrupted during construction of the Moscone Station. Construction of the entrance to the Union Square/Market Street Station would temporarily affect pedestrian use and access along the eastern edge and southeastern corner of Union Square plaza, as this sidewalk would be closed off during construction. There would also be temporary impacts to the vehicular access to community facilities located across the street from the proposed station entrance for the Chinatown Station along Stockton Street. During various stages of the station construction, portions of the street would have restricted vehicular access, as described in Section 6.3, Transportation.

#### Mitigation Measures

Mitigation measures would be the same as described above for Alternative 2 and 3A, however, a temporary noise wall would not be required at Willie “Woo Woo” Wong Playground.

## **6.6.2 POLICE, FIRE, AND EMERGENCY SERVICES**

### **Alternative 2 - Enhanced EIS/EIR Alignment**

Staging areas are often subject to vandalism and crime. The proposed general staging areas for the Enhanced EIS/EIR Alignment would be located on the west side of Fourth Street north of Bryant Street. This site would be used for the duration of the Project construction effort. Secondary staging areas would be located near subway station sites: Clementina and Kaplan Streets at Moscone Station, Stevenson and Annie Streets at Market Street Station, the west side of Stockton at Union Square Station, and the off-street site at the Chinatown Station. Staging areas would be fenced and secured by Muni contractors and would not affect existing police services. Emergency access and circulation would be maintained on

streets leading to construction sites. Reduction in traffic lanes or detours along Third, Fourth, Harrison, Kearny, Geary, and Stockton Streets could temporarily impact emergency service response times during construction. (Refer to Section 6.3.7 for a more detailed discussion of construction impacts on emergency services.)

#### Mitigation Measures

During construction of above grade segments and stations it may be desirable to have a uniformed traffic control officer, paid for by Muni, at construction sites to facilitate traffic flow during peak use periods. This would not impact police services throughout the City.

#### **Alternative 3 - Central Subway Fourth/Stockton Alignment Option A(LPA)**

Construction impacts would be the same as described above for Alternative 2, except that lane closures during construction would not occur on King, Third, Harrison, Kearny, or Geary Streets.

#### Mitigation Measures

Mitigation measures would be the same as described above for Alternative 2.

#### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

Construction impacts would be the same as described above for Alternatives 2 and 3A, except the off-street site at the Chinatown Station would be located at 933-949 Stockton Street.

#### Mitigation Measures

Mitigation measures would be the same as described above for Alternative 2 and 3A.

### **6.6.3 PARKS AND RECREATION FACILITIES**

#### **Alternative 2 - Enhanced EIS/EIR Alignment**

Cut-and-cover station construction and guideway, tunnel construction using the special excavation method (SXM) along Third Street would temporarily affect traffic and pedestrian circulation at Yerba Buena Gardens. Because the public plaza is set back from the street and because much of the excavation work would occur underground, construction noise, vibration, and dust would be limited to installation of shoring and would not be expected to affect the use of this area. Union Square is located adjacent to the proposed excavation for the Union Square Station. The sidewalk on the eastern edge of the plaza (on Stockton Street between Post and Geary Streets) would be closed for station construction and would serve as the principal work shaft site for the station. In addition, the middle stairs along the eastern edge of the Union Square plaza would be closed to construct the station entries and vent shafts. Noise, dust, and vibration would temporarily affect the use of the eastern portion of the plaza. (See also Chapter 10.0,

Section 4(f) Report.) Construction at the Chinatown Station would not affect access to Pagoda Alley, Hang Ah Alley or to the Willy “Woo Woo” Wong Playground located to the east of the off-street station site. Access to the construction site would be provided via Stockton Street. Noise, dust, and vibration would be minimized through provision of a noise buffer wall between the Playground and the construction site.

#### Mitigation Measures

For construction-related impacts to parks, recreational, or other public facilities, noise and vibration would be controlled by use of temporary construction walls along sidewalks and by muffling construction equipment. Excessive idling of construction equipment would be controlled as a way of minimizing temporary increases in emissions. In addition, construction activities will adhere to the guidelines provided in the San Francisco Noise Ordinance. To control dust and particulate matter, construction crews would spray water or use dust palliatives in construction areas and cover dump truck loads with canvas or tarps. Access to parklands and public facilities would be maintained during construction. Construction activities (above-ground) at the Union Square Station would be scheduled to minimize disruption to the plaza during peak holiday periods. A temporary noise wall would be constructed east of the construction site in Chinatown to minimize impacts to the adjacent alley and Willie “Woo Woo” Wong Playground from construction noise and dust. Public access to the playground would not be affected.

#### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

Construction impacts due to cut-and-cover station construction on Fourth and Stockton Streets would be the same as described along Third Street for Alternative 2 above. However, the use of the TBM methods for guideway tunnel construction would result in substantially less impact to the surface than is required for the near surface excavation method.

The North Beach Tunnel Construction Variant would require the excavation of the tunnel shaft within Columbus Avenue adjacent to the western edge of Washington Square Park. No work would occur within the park, although there would be temporary affects to park users due to noise, dust, and vibration.

#### Mitigation Measures

Mitigation measures would be the same as described above for Alternative 2.

#### **Alternative 3 - Central Subway Fourth/Stockton Alignment Option B (Modified LPA)**

The construction impacts would be the same as those described above for Alternatives 3A, except there would be no impacts to Willie “Woo Woo” Wong Playground. There would be temporary noise,

vibration, and dust impacts during construction at the school playground at Gordon Lau Elementary School.

Mitigation Measures

Mitigation measures would be the same as described above for Alternative 2; however, a temporary noise wall would not be required at Willie “Woo Woo” Wong Playground.

## **6.7 CONSTRUCTION IMPACTS AND MITIGATION FOR CULTURAL RESOURCES**

### **6.7.1 PREHISTORIC AND HISTORICAL ARCHAEOLOGICAL RESOURCES**

#### **Alternative 2 – Central Subway Enhanced EIS/EIR Alignment**

**Prehistoric Archaeological Resources.** The prehistoric CA-SFR-2 may be impacted as a result of construction trenching in two of the Alternative 2 sections: on Third Street, between Folsom and Harrison Streets; and on Third Street, between Harrison and Bryant Streets. Based on the range and quantity of cultural materials that are documented from CA-SFR-2, and the presence of human remains, the site appears potentially eligible for inclusion on the NRHP/ CRHR under Criterion D/4. It is not certain that deposits associated with CA-SFR-2 extend into the project's vertical Area of Potential Effect (APE). (Refer to Figure 5-14, Geology.)

As a result of the geoarchaeological analysis summarized in Section 4.4 of this SEIS/SEIR and described in detail in the Historic Context Archaeological Survey Report (HCASR) (ASC 2007), at least 14 locations have been identified as sensitive for the presence of prehistoric archaeological resources along the Alternative 2 alignment. These locations, from south to north, are as follows:

- Construction Reaches 6 and 5, south of Market Street between King and Folsom Streets along Third Street, have two locations that are highly sensitive;
- Moscone Station is highly sensitive;
- Reach 4, between Howard and Mission Streets along Third Street, has two locations that are highly sensitive;
- Market Street Station has varying sensitivity (two highly sensitive locations and one of low sensitivity) depending on depth;
- Reach 3, between Mission Street and Geary/Stockton Street, has two locations that are highly sensitive;
- Union Street Station has varying sensitivity (one moderately sensitive area and one highly sensitive area) depending on depth;
- Reach 2, between Post and Clay Streets along Stockton Street, has one highly sensitive location;
- Chinatown Station has one location of varying sensitivity (one moderately and one highly sensitive area), depending on depth;
- Reach 1, between Washington Street and Columbus Avenue and Union Street, has one location of high sensitivity.

No specific evidence confirms that subsurface prehistoric cultural deposits are present at these locations; the sensitivity assessments are based on preliminary geoarchaeological research.

**Historical Archaeological Resources.** Construction of Alternative 2 would not affect known historical archaeological resources. The block-by-block historic overview, developed in the HCASR to predict areas of potential historical archaeological sensitivity, identified six locations at which previously unrecorded archaeological resources might be encountered. The locations, from south to north, are as follows:

- The Third Street Portal is moderately sensitive for the presence of early historic refuse deposits in fill (1840s-1850s);
- Market Street Station is highly sensitive for the presence of archaeological features and/or sheet refuse (1840s-1850s);
- Union Square Station is moderately sensitive for early historic refuse deposits in fill (1840s-1850s);
- Chinatown Station headhouse is highly sensitive for buried architectural remains, archaeological features, and/or sheet refuse (1840s-1906);
- Two locations of Chinatown Station emergency stairs are highly sensitive for buried architectural remains, archaeological features, and/or sheet refuse (1840s-1906).

Among the specific resources indicated by the block-by-block overview are: potential caches of artifacts, as well as isolated objects within the Gold Rush era fill layer at the northbound portal on Third Street; historic tent pads and artifacts at the Market Street Station that may have been buried during filling of the Third Street roadway prior to 1854; and artifact caches dating prior to 1854 where the roadway was filled to grade at Union Square Station. At Chinatown Station, potential finds are artifact-filled features dating to the Gold Rush era or earlier, prior to street paving at the Chinatown Station Emergency Stairs; and architectural remains and archaeological features, dating up to and including 1906, beneath the modern sidewalks (based on an 1850s photograph), including basement room or niche extensions and tunnels of the type reported in San Francisco's Chinatown and found elsewhere in California. Also possible are garden features, as well as artifact caches and architectural deposits, from the Gold Rush or earlier up to 1906, at the Chinatown Station headhouse location.

#### Mitigation Measures

The Central Subway Project is subject to Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations at 36 CFR 800. These regulations are carried out through a



detailed set of procedures—known as the Section 106 Process—for the assessment and treatment of Project impacts on important resources. As part of Section 106 Process compliance for the Third Street Light Rail Project; Muni, FTA, SHPO, and the Advisory Council on Historic Preservation signed a Programmatic Agreement (PA) in 1999. The PA identified the steps to be taken to mitigate potential adverse effects of the Project on important archaeological resources (Appendix C).

FTA has initiated Section 106 consultation with the State Historic Preservation Officer concerning the Phase 2 Central Subway Project. This process will lead to the negotiation of a new PA that will specify in detail how important archaeological resources within the current APE shall be treated. Mitigation measures that are included in the present document will likely be complemented by additional treatments required by the PA.

Specific strategies for the treatment of legally important archaeological resources are presented in the Secretary of the Interior’s “Standards and Guidelines for Archaeological Documentation” (48 FR 44734-44737). Mitigation programs for addressing potential impacts would be prepared within that context, based on specific finds, circumstances, and the resources’ potential eligibility to the NRHP and CRHR.

Two principal strategies for the mitigation of adverse Project effects on important resources are available: avoidance or data recovery through archaeological excavation. Avoidance of resources would be difficult, if not impossible, due to engineering constraints, and it is prudent to assume that data recovery will be the measure required by the PA. Specific field methodologies will be developed for specific resources within the context of a Research Design and Treatment Plan; the PA will require this document. All archaeological work on NRHP- and CRHR-eligible and potentially eligible properties shall be conducted in accordance with “Treatment of Archaeological Properties: A Handbook” (ACHP 1990) and “Archaeology and Historic Preservation: the Secretary of the Interior’s Standards and Guidelines” (48 FR 44716-44742). Investigations shall be performed under the supervision of professionals whose education and experience meet or exceed the Secretary of the Interior’s “Professional Qualifications Standards” (48 FR 44738-44739).

The Project Sponsor (MTA) shall, in consultation with a qualified archaeologist, ensure that all State and federal laws and regulations regarding Native American concerns are strictly enforced. Prior to construction, the Project Sponsor or representative shall initiate consultation with a representative of the Native American group having traditional authority over the Study Area; the goal of this consultation will be to come to agreement on protocols to be followed if prehistoric resources are discovered. A consultant from this Native American group shall be solicited and, if possible, engaged to monitor all prehistoric archaeological testing and excavation. If human remains are encountered during either construction or

archaeological excavation, State Health and Safety Code Section 7050.5 shall be applied. This regulation states that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code 5097.88.

Despite high potential for archaeological resources within the project APE, it is not certain that resources will be affected or where this may occur. Engineering and other logistical concerns constrain most forms of pre-construction archaeological testing. However, limited subsurface testing using a push sampling device—such as a Geoprobe sampler—may be feasible for determining whether archaeological deposits are present within the horizontal and vertical APE in certain especially sensitive locations identified in the Project HCASR. A field program of geoarchaeological exploration, conducted in conjunction with Project-related geotechnical investigations as described in the Project HCASR, may help refine subsurface sensitivity assessments and rule out unproductive geologic units. The feasibility and scope of this program shall be determined through consultation between the MTA, the Environmental Review Officer of the City and County of San Francisco, and the consulting archaeologist. The program may be conducted once a preferred alignment has been identified. The goal of the study shall be to determine the presence or absence of prehistoric cultural deposits, site boundaries (within the APE) and potential for project impacts to resources; if the presence of archaeological deposits is substantiated, the program may be expanded to determine depositional integrity, cultural complexity, and potential NRHP/CRHR eligibility.

During construction, archaeological monitoring is warranted within those sections identified as moderately to highly sensitive for prehistoric and historical archaeological deposits, as identified in the HCASR and through pre-construction exploration, and as determined through consultation with the consulting archaeologist. Identified resources shall be evaluated and treated in accordance with the requirements of the PA.

In addition to mitigation specified in the PA, measures listed below consist of Standard Archaeological Mitigation Measure III adopted by the City and County of San Francisco's Major Environmental Analysis Section, some of which are similar to those previously described.

Based on a reasonable presumption that archeological resources may be present within the Project site, the following measures shall be undertaken to avoid any potentially significant adverse effect from the proposed Project on buried or submerged historical resources. The Project Sponsor shall retain the services of a qualified archeological consultant having expertise in California prehistoric and urban historical archeology. The archeological consultant shall undertake an archeological testing program as specified herein. In addition, the consultant shall be available to conduct an archeological monitoring

and/or data recovery program if required pursuant to this measure. The archeological consultant's work shall be conducted in accordance with this measure at the direction of the Environmental Review Officer (ERO). All plans and reports prepared by the consultant as specified herein shall be submitted first and directly to the ERO for review and comment, and shall be considered draft reports subject to revision until final approval by the ERO. Archeological monitoring and/or data recovery programs required by this measure could suspend construction of the Project for up to a maximum of four weeks. At the direction of the ERO, the suspension of construction can be extended beyond four weeks only if such a suspension is the only feasible means to reduce to a less-than-significant level potential effects on a significant archeological resource as defined in CEQA Guidelines Sect. 15064.5 (a)(c).

*Archeological Testing Program.* The archeological consultant shall prepare and submit to the ERO for review and approval an archeological testing plan (ATP). The archeological testing program shall be conducted in accordance with the approved ATP. The ATP shall identify the property types of the expected archeological resource(s) that potentially could be adversely affected by the proposed Project, the testing method to be used, and the locations recommended for testing. The purpose of the archeological testing program will be to determine to the extent possible the presence or absence of archeological resources and to identify and to evaluate whether any archeological resource encountered on the site constitutes an historical resource under CEQA.

At the completion of the archeological testing program, the archeological consultant shall submit a written report of the findings to the ERO. If based on the archeological testing program the archeological consultant finds that significant archeological resources may be present, the ERO in consultation with the archeological consultant shall determine if additional measures are warranted. Additional measures that may be undertaken include additional archeological testing, archeological monitoring, and/or an archeological data recovery program. If the ERO determines that a significant archeological resource is present and that the resource could be adversely affected by the proposed Project, at the discretion of the Project Sponsor either:

- The proposed Project shall be re-designed so as to avoid any adverse effect on the significant archeological resource; or
- A data recovery program shall be implemented, unless the ERO determines that the archeological resource is of greater interpretive than research significance and that interpretive use of the resource is feasible.

*Archeological Monitoring Program.* If the ERO in consultation with the archeological consultant determines that an archeological monitoring program shall be implemented the archeological monitoring program shall minimally include the following provisions:

- The archeological consultant, Project Sponsor, and ERO shall meet and consult on the scope of the AMP reasonably prior to any Project-related soils disturbing activities commencing. The ERO in consultation with the archeological consultant shall determine what Project activities shall be archeologically monitored. In most cases, any soils-disturbing activities, such as demolition, foundation removal, excavation, grading, utilities installation, foundation work, driving of piles (foundation, shoring, etc.), site remediation, etc., shall require archeological monitoring because of the risk these activities pose to potential archaeological resources and to their depositional context;
- The archeological consultant shall advise all Project contractors to be on the alert for evidence of the presence of the expected resource(s), of how to identify the evidence of the expected resource(s), and of the appropriate protocol in the event of apparent discovery of an archeological resource;
- The archeological monitor(s) shall be present on the Project site according to a schedule agreed upon by the archeological consultant and the ERO until the ERO has, in consultation with Project archeological consultant, determined that Project construction activities could have no effects on significant archeological deposits;
- The archeological monitor shall record and be authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis;
- If an intact archeological deposit is encountered, all soils-disturbing activities in the vicinity of the deposit shall cease. The archeological monitor shall be empowered to temporarily redirect demolition/excavation/pile driving/construction activities and equipment until the deposit is evaluated. If in the case of pile driving activity (foundation, shoring, etc.), the archeological monitor has cause to believe that the pile driving activity may affect an archeological resource, the pile driving activity shall be terminated until an appropriate evaluation of the resource has been made in consultation with the ERO. The archeological consultant shall immediately notify the ERO of the encountered archeological deposit. The archeological consultant shall make a reasonable effort to assess the identity, integrity, and significance of the encountered archeological deposit, and present the findings of this assessment to the ERO.

Whether or not significant archeological resources are encountered, the archeological consultant shall submit a written report of the findings of the monitoring program to the ERO.

*Archeological Data Recovery Program.* The archeological data recovery program shall be conducted in accord with an archeological data recovery plan (ADRP). The archeological consultant, Project Sponsor, and ERO shall meet and consult on the scope of the ADRP prior to preparation of a draft ADRP. The archeological consultant shall submit a draft ADRP to the ERO. The ADRP shall identify how the proposed data recovery program will preserve the significant information the archeological resource is expected to contain. That is, the ADRP will identify what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods shall not be applied to portions of the archeological resources if nondestructive methods are practical.

The scope of the ADRP shall include the following elements:

- *Field Methods and Procedures.* Descriptions of proposed field strategies, procedures, and operations.
- *Cataloguing and Laboratory Analysis.* Description of selected cataloguing system and artifact analysis procedures.
- *Discard and Deaccession Policy.* Description of and rationale for field and post-field discard and deaccession policies.
- *Interpretive Program.* Consideration of an on-site/off-site public interpretive program during the course of the archeological data recovery program.
- *Security Measures.* Recommended security measures to protect the archeological resource from vandalism, looting, and non-intentionally damaging activities.
- *Final Report.* Description of proposed report format and distribution of results.
- *Curation.* Description of the procedures and recommendations for the curation of any recovered data having potential research value, identification of appropriate curation facilities, and a summary of the accession policies of the curation facilities.

*Human Remains and Associated or Unassociated Funerary Objects.* The treatment of human remains and of associated or unassociated funerary objects discovered during any soils disturbing activity shall comply with applicable State and Federal laws. This shall include immediate notification of the Coroner of the City and County of San Francisco and in the event of the Coroner's determination that the human remains are Native American remains, notification of the California State Native American Heritage

Commission (NAHC) who shall appoint a Most Likely Descendant (MLD) (Pub. Res. Code Sec. 5097.98). The archeological consultant, Project Sponsor, and MLD shall make all reasonable efforts to develop an agreement for the treatment of, with appropriate dignity, human remains and associated or unassociated funerary objects (CEQA Guidelines. Sec. 15064.5(d)). The agreement should take into consideration the appropriate excavation, removal, recordation, analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects.

*Final Archeological Resources Report.* The archeological consultant shall submit a Draft Final Archeological Resources Report (FARR) to the ERO that evaluates the historical significance of any discovered archeological resource and describes the archeological and historical research methods employed in the archeological testing/monitoring/data recovery program(s) undertaken. Information that may put at risk any archeological resource shall be provided in a separate removable insert within the final report.

Once approved by the ERO, copies of the FARR shall be distributed as follows: California Archaeological Site Survey Northwest Information Center (NWIC) shall receive one (1) copy and the ERO shall receive a copy of the transmittal of the FARR to the NWIC. The Major Environmental Analysis division of the San Francisco Planning Department shall receive three copies of the FARR (one copy will be in PDF OCR converted searchable text format) along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of high public interest in or the high interpretive value of the resource, the ERO may require a different final report content, format, and distribution than that presented above.

### **Alternative 3 – Central Subway Fourth/Stockton Alignment Option A (LPA)**

**Prehistoric Archaeological Resources.** No construction impacts would affect known prehistoric resources within Alternative 3A. As a result of geoarchaeological analysis, described in detail in the HCASR (ASC 2007) and in Section 4.4 of this SEIS/SEIR, at least six locations of prehistoric archaeological sensitivity were identified in the Alternative 3A alignment. These locations, from south to north, are as follows:

- South of Market Street (in construction Reaches 6 and 5, King Street to I-80 overpass) has one location of varying sensitivity (one highly sensitive zone and one low), depending on depth;
- Reach 4, I-80 overpass to Folsom Street along Fourth Street, has one location of varying sensitivity (one highly sensitive zone and one low), depending on depth;

- Moscone Station has varying sensitivity (two moderately to highly sensitive zones and one low), depending on depth;
- Union Square/Market Street Station is highly sensitive;
- Chinatown Station is moderately to highly sensitive, depending on depth;
- Reach 1, Washington Street to Columbus Avenue and Union Street, has one highly sensitive location.

No specific evidence confirms that subsurface prehistoric cultural deposits are present; the sensitivity assessments are based on preliminary geoarchaeological research.

**Historical Archaeological Resources.** One known historical archaeological resource may be affected by Project activities within this alternative. CA-SFR-137H consists of the buried remains of a historic city block (bounded by Fourth, Fifth, Harrison, and Bryant Streets, and intermediate streets). The location will be used for a construction yard. Resources include the archaeological remains of residential and commercial buildings, 1906 earthquake/fire debris, intact ground surfaces, and hollow-filled features from the 1870s. The site is eligible to the NRHP/ CRHR under Criterion D/4.

The block-by-block historic overview, developed in the HCASR to predict areas of potential historical archaeological sensitivity, identified 15 locations at which archaeological resources may be encountered in the Alternative 3A alignment. The locations, from south to north, and their potential affected property types include the following:

- The Fourth Street Portal is moderately sensitive for the presence of early historic refuse deposits in fill, which may also contain watercraft remains (1840s-1850s);
- Moscone Station is highly sensitive for buried architectural remains, archaeological features, and/or sheet refuse (1850s-1906);
- Union Square/Market Street Station has one location that is moderately sensitive for historic refuse deposits in fill (1840s-1850s), and one location highly sensitive for archaeological features, buried architectural remains, and/or sheet refuse (1850s-1860s);
- Union Square Station stairs location is moderately sensitive for early historic refuse deposits in fill (1840s-1854);
- Chinatown Station headhouse is highly sensitive for buried architectural remains, archaeological features, and/or sheet refuse (1840s-1906);

- The two Chinatown Station emergency stair locations are each highly sensitive for buried architectural remains, archaeological features, and/or sheet refuse (1840s-1906);
- The Tunnel has five locations that are highly sensitive for the presence of cisterns (1850s) and one location that is highly sensitive for wells and the artifacts they contain (1840s-1875);
- The TBM Retrieval Pit is moderately sensitive for the presence of historical archaeological park remains (1840s-1873).

Among the specific resources indicated by the block-by-block overview are artifact-rich fill and the remains of small watercraft from the 1840s to 1860s at the Fourth Street portal, within former marshlands and Mission Bay. Moscone Station headhouse construction may encounter archaeological deposits associated with commercial buildings and residences dating from the 1850s to 1906. At the Union Square/Market Street Station, a variety of deposits may be associated with a building constructed between 1852 and 1857 within the alignment of Stockton Street between O'Farrell and Ellis Streets, and sheet refuse and/or artifact caches below or within fill placed prior to 1854 at the intersection of Stockton, Ellis, and Market Streets. The Chinatown Station area has several potential resources: the Station headhouse may contain garden features, artifact caches, and architectural deposits; the Chinatown Station emergency stairs location may contain artifact-filled features dating to the Gold Rush era or earlier, prior to street paving; and beneath modern sidewalks may be architectural remains and archaeological features dating up to 1906, including basement room or niche extensions and tunnels of the type reported in San Francisco's Chinatown and found elsewhere in California. Where Columbus Avenue cuts through City Block 117, tunneling may encounter wells backfilled with domestic or commercial artifacts between the Gold Rush and about 1873. Cisterns dating to the 1850s and extending to more than 20 feet below the surface may be present within Stockton Street at the intersections of Green, Vallejo, Broadway, Pacific, and Washington Streets; remnants may survive even if they were replaced. The TBM retrieval shaft in Columbus Avenue is within the former boundary of Washington Square created in 1848 and modified in 1873 when Columbus Avenue cut through it; deposits associated with the park may be present beneath the roadway.

#### Mitigation Measures

Mitigation measures would be the same as described for Alternative 2.

#### **Alternative 3 – Central Subway Fourth/Stockton Alignment Option B (Modified LPA)**

**Prehistoric Archaeological Resources.** Construction would not affect known prehistoric resources within Alternative 3B. As a result of geoarchaeological analysis described in detail in the HCASR (ASC



2007) and summarized in Section 4.4 of this SEIS/SEIR, at least six locations of prehistoric archaeological sensitivity were identified of the Alternative 3B alignment. These locations, from south to north, are as follows:

- Reach 4, I-80 overpass to Folsom Street along Fourth Street, has both surface and subsurface components (both components are highly sensitive);
- The Moscone Station has varying sensitivity (one highly sensitive zone, one moderately to highly sensitive, and one low), depending on depth;
- Reach 3, Howard Street to Market Street along Fourth Street, has a surface component that is highly sensitive;
- Union Square/Market Street Station is highly sensitive;
- The Chinatown Station has one location that is moderately to highly sensitive;
- Reach 1, Washington Street to Columbus Avenue and Union Street, is highly sensitive.

No specific evidence confirms that subsurface prehistoric cultural deposits are present; the sensitivity assessments are based on preliminary geoarchaeological research.

**Historical Archaeological Resources.** One known historical archaeological resource is within Alternative 3B. CA-SFR-137H consists of buried remains of a historic City block (bounded by Fourth, Fifth, Harrison, and Bryant streets, and intermediate streets). The location would be used for a construction yard. Resources include remains of residential and commercial buildings, 1906 earthquake/fire debris, intact ground surfaces, and hollow-filled features from 1870s. The site is eligible to the NRHP/ CRHR under Criterion D/4.

The block-by-block historic overview, developed in the HCASR to predict areas of potential historical archaeological sensitivity identified 13 locations where archaeological resources may be encountered in the Alternative 3B alignment. The locations, from south to north, and their potential affected resources include the following:

- Fourth Street—Moscone Station, Utilities relocation, and the Fourth Street Portal—is moderately sensitive for the presence of 1840s to 1860s refuse deposits in fill;
- Moscone Station is highly sensitive for the presence of buried architectural remains, archaeological features, and sheet refuse (1840s-1906);

- Union Square/Market Street Station has one location that is moderately sensitive for the presence of early historic refuse deposits in fill (1840s-1850s), for both station construction and utilities relocation, and one location that is highly sensitive for the presence of buried architectural remains, archaeological features, and/or sheet refuse (1850s-1860s);
- Chinatown Station headhouse is highly sensitive for the presence of buried architectural remains, archaeological features, and/or sheet refuse (1840s-1906);
- Chinatown Station emergency stairs have one location that is highly sensitive for the presence of buried architectural remains, archaeological features, and/or sheet refuse (1840s-1906);
- The Tunnel has five locations that are highly sensitive for the presence of cisterns and the artifacts they contain (1850s), and one location that is highly sensitive for the presence of wells (1840s-1875) and their associated artifacts;
- The TBM Retrieval Pit is moderately sensitive for the presence of historical archaeological park remains (1840s-1873).

Among the potential specific resources indicated by the block-by-block overview are artifact-rich fill at the Fourth Street portal, within former marshlands and Mission Bay. Moscone Station may encounter archaeological deposits associated with commercial buildings and residences dating from the 1850s to 1906. A variety of deposits may be present at the Union Square/Market Street Station, associated with a building constructed between 1852 and 1857 within the alignment of Stockton Street between O'Farrell and Ellis Streets, and sheet refuse and/or artifact caches below or within fill placed prior to 1854 at the intersection of Stockton, Ellis, and Market Streets. The Chinatown Station headhouse may contain garden features, artifact caches, and architectural remains; the Chinatown Station emergency stairs location may contain artifact-filled features dating to the Gold Rush era or earlier, prior to street paving; and beneath modern sidewalks may be architectural remains and archaeological features dating up to and including 1906, including basement room or niche extensions and tunnels of the type reported in San Francisco's Chinatown and found elsewhere in California. Where Columbus Avenue cuts through City Block 117, tunneling may encounter wells backfilled with domestic or commercial artifacts between the Gold Rush and about 1873. Cisterns containing artifacts dating to the 1850s and extending to more than 20 feet below the surface may be present within Stockton Street at the intersections of Green, Vallejo, Broadway, Pacific, and Washington Streets; remnants may survive even if they were replaced. The TBM retrieval shaft in Columbus Avenue is within the original boundary of Washington Square as laid out in 1848 and until Columbus Avenue cut through it in about 1873; deposits associated with the park may be present beneath the roadway.

### Mitigation Measures

Mitigation measures would be the same as described above for Alternative 2.

#### 6.7.2 HISTORICAL ARCHITECTURAL RESOURCES

In this section, impacts to buildings proposed for demolition and removal during construction are discussed first, followed by potential impacts to historic properties in each alternative, and then impacts to contributors of the NRHP, CRHR, and local historic districts. It should be noted that although the Lower Nob Hill Apartment Hotel District is included within the Study Area, it is not located within an area proposed for stations or portals. As a result, no impacts to the historic buildings in this district would result from the Project.

#### **Alternative 2 – Enhanced EIS/EIR Alignment**

One historic architectural resource located in the Chinatown Historic District would be demolished and replaced by a new Muni station building during construction of the Enhanced EIS/EIR Alignment (there are 371 contributing buildings in the Chinatown Historic District). The building at 814-828 Stockton Street (Assessor's Parcel No. 225-014) was identified as a Class 3D contributor to the NRHP-eligible and CRHR-listed Chinatown Historic District during the Corbett et al. (1997) study for the Third Street Light Rail EIS/EIR in 1998 (see Figure 6-17). Demolition of contributing elements to a NRHP-eligible district

**FIGURE 6-17**

**814-828 STOCKTON STREET PROPOSED FOR DEMOLITION  
UNDER ALTERNATIVES 2 AND 3A**



Source: PB/Wong

constitutes an adverse effect under Section 106 of the National Historic Preservation Act of 1966 and under the California Environmental Quality Act. Within Block 225, each of the three remaining buildings on the east side of Stockton Street, is also contributing elements to the historic district, as are properties on the west side of the street. Proposed demolition of the building on the east side of Stockton Street would create a visual break in this cohesive grouping of related buildings that are contextually important to the Chinatown Historic District. The colorful awnings and signage demarcating the store fronts along Stockton Street, each contribute to the cohesive unit of buildings along this block between Sacramento and Clay Streets. Removal of this building with its character-defining features and history of use by businesses (Chinese school and newspaper) important to the Chinese community would adversely affect the Historic District.

In addition to the Chinatown Station, significant historic architectural resources identified in the APE (see Denardo et al. 2007) for this Alternative would be temporarily affected by the visual presence of construction equipment and could have vibration effects from construction of the Enhanced EIS/EIR Alignment. Construction-related activities could result in ground shifts (settlement) that would affect adjacent properties determined as eligible for listing on the NRHP. The areas most prone to settlement effects would be where cut-and-cover construction methods are implemented, including the station areas and portals. This construction method involves a trench excavation using secant pile ground-supporting walls and construction of a box frame structure. Equipment for this process would include heavy construction vehicles, 80-foot high augers and cranes for a period of approximately two to six months. Settlement would be stabilized after the supporting walls have been installed. (See also: Section 6.15, Noise and Vibration.)

Some of the historic architectural resources are contributors to NRHP-eligible districts crossed by this Alternative, others are individual properties that are NRHP-eligible on their own merit (see Appendix F). These are described below.

**Northbound Portal and Third Street Surface Tracks.** Six historic buildings, including 660-670 Third Street, 689-699 Third Street, 679-685 Third Street, 665 Third Street, 625 Third Street, and 601 Third Street, were identified as NRHP-eligible contributors to the South End Historic District. Each has the potential for temporary vibration and visual impacts from construction of the Third Street surface tracks under Alternative 2, depending on the fragility of the building. Two additional historic architectural resources, 566-586 Third Street and 500 Third Street, are outside of the historic district but are individually eligible for the NRHP. Expected effects would be limited to minor architectural damage. No structural damage is expected. Visual impacts would be limited to the duration of construction.

**Southbound Portal and Fourth Street Surface Tracks.** One historic architectural resource at 508-514 Fourth Street, in the southbound tunnel portal area along Fourth Street, has the potential for temporary vibration impacts during construction and visual impacts from the presence of construction equipment. The building is not in a historic district, but is eligible for an individual listing on the NRHP.

**Market Street Station.** In the Market Street Station area for Alternative 2, there are five significant historic architectural resources. Due to the depth of the construction at this location there is little potential for impacts from ground-borne vibration during construction of the station. None of the resources are associated with a historic district, but all are individually NRHP-listed or -eligible. 700-706 Mission Street and 703-705 Market Street (26 Third Street) front Third Street on the west side of the proposed Market Street Station. Three more historic architectural resources, including 17-29 Third Street, 691-699 Market Street, and 673-687 Market Street, are all individually NRHP-eligible, and each is on the east side of Third Street. Two are in the first parcel next to the proposed station, and the third is in the second row.

**Union Square Station.** In the Union Square Station area, there are eight significant historic architectural resources. Due to the depth of the construction at this location there is little potential for impacts from vibration during construction of the station. All eight properties are within the boundaries of the KMMS Conservation District, and each is also eligible for listing on the NRHP as an individual property. They include 218-222 Stockton Street, 234-240 Stockton Street, 275-299 Post Street, 278-298 Post Street, 177-179 Maiden Lane, 259 Post Street, and 272 Post Street; they comprise four properties fronting the station and another three in the second row. The presence of construction activities would temporarily affect the historic visual character of the block, but would not affect individual properties.

The eighth property, Union Square (the plaza and the underground parking garage) serves as the heart of the KMMS Conservation District. Union Square is eligible for listing on the NRHP as an individual property and it is listed as California State Landmark No. 623. As with the other properties, it would have little potential for impacts from vibration during deep station excavation and tunneling. The visual presence of construction equipment and traffic barriers and signage would temporarily affect the Union Square landscape, but would not be considered a significant adverse affect because of the temporary nature of the disturbance. (See also Section 5.3.3 Visual Impacts.) Union Square is a City park, and is therefore subject to Section 4(f) analysis and approval (See Chapter 10.0).

**Chinatown Station.** In the Chinatown Station area, there are nine significant historic architectural resources, in addition to the station buildings at 814-828 Stockton Street. Due to the depth of the construction at this location there is little potential for vibration impacts from construction of the station, including eight properties that front the proposed station and one in the second row. They include 801-

805 Stockton Street, 800-810 Stockton Street, 809-815 Stockton Street, 827-829 Stockton Street, 830-848 Stockton Street, 833-841 Stockton Street, 843 Stockton Street, 850-898 Stockton Street and 857-865 Clay Street. Each of these properties is eligible for listing on the NRHP as a contributing element of the Chinatown Historic District. Temporary construction-related impacts to this cohesive group of buildings in this historic district would primarily be related to visual disturbance from construction activities.

#### Mitigation Measures

Ground-borne vibration levels are generally not expected to impact historic buildings structural integrity, however, older buildings built with less stringent building codes (such as in the Chinatown area) would be more susceptible to minor architectural damage (trim, window casings, brick chimneys) during construction activities.

Potential effects of vibration during construction would be greatly reduced by pre-drilling for pile installation in areas that would employ secant piles with ground-supporting walls in the cut-and-cover technology. Vibration monitoring in historic districts adjacent to tunnel portals and stations will be specified in construction documents to ensure that historic properties do not sustain damage during construction. A mitigation monitoring plan to ensure that vibration impacts to historic buildings would be mitigated would include the following:

1. The contractor will be responsible for the protection of vibration-sensitive historic building structures that are within 200 feet of any construction activity, including unreinforced masonry buildings.
2. The maximum peak particle vibration (PPV) velocity level, in any direction, at any of these historic structures should not exceed 0.12 inches/second for any length of time.
3. ~~The contractor~~ An independent Environmental Compliance Monitor (ECM) will be retained by SFMTA to monitor construction to make sure that environmental conditions are met. The ECM will be required to perform periodic vibration monitoring at the closest structure to ground disturbing construction activities, such as tunneling and station excavation, using approved seismographs.
4. If at any time the construction activity exceeds this level, that activity will immediately be halted until such time as an alternative construction method can be identified that would result in lower vibration levels.
5. The ECM will conduct a training program at the start of construction to educate the Contractor and consultants about the sensitivity of historic structures to construction related vibration.

In compliance with the Secretary of the Interior's Standards for the Treatment of Historic Properties, an adverse effect is found when an undertaking alters, either directly or indirectly, the character-defining features of a NRHP-eligible property. However, adverse impacts can be reduced through rehabilitation,

context-sensitive designs, and measures to record and preserve for posterity the history of the building and its uses.

Because demolition of the building at 814-828 Stockton Street under the Alternative 2, Enhanced EIR/EIS Alternative would constitute an adverse effect to a contributing property in the Chinatown Historic District, the following mitigation measures to reduce adverse effects are proposed:

1. Partial preservation of 814-828 Stockton Street, through rehabilitation, in compliance with the Secretary of the Interior's Standards, and reuse of the building as the Chinatown Station.
2. Include expertise of an architectural historian in design development of station to develop a design culturally appropriate to the Chinatown community.
3. Salvage of the significant architectural features from 814-828 Stockton Street to be used as an educational exhibit inside the new station or utilized for the repair and rehabilitation of other historic buildings. The architectural elements will be disassembled in a manner that minimizes damage.
4. In consultation with the City, FTA, and SHPO, develop a permanent interpretive display for public use on the entire route, perhaps to be placed within the subway cars or on the walls of the subway stations. This interpretive display would include details about the demolished buildings as well as historic information about the buildings, historic districts, neighborhoods, important individuals, and businesses surrounding the alignments that the Central Subway will pass through. Prior to preparing the display, a qualified historian will perform contextual research regarding the role of the building in the events for which it is significant, and conduct oral history interviews. This approach would impart knowledge of the history of the City to the general public.

Although this would not be considered ~~a~~-mitigation to a less-than-significant effect measure, if the historic building at 814-828 Stockton Street is demolished, then it would be standard practice to perform Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) documentation. Because it is presently uncertain who the architect was for 814-828 Stockton Street, attempts should be made to obtain the original drawings, if available. The level of documentation will be prescribed through consultation with the City Historic Preservation Officer, FTA, and SHPO for conservation.

### **Alternative 3 – Fourth/Stockton Alignment Option A (LPA)**

Construction of Alternative 3A would have the same impacts as described above for Alternative 2 because the building identified for the Chinatown Station is the same building as described for Alternative



2 (814-828 Stockton Street), except for the North Beach Construction Variant. The areas where cut-and-cover methods would be implemented, including the station areas, tunnel portals, and the Tunnel Boring

Machine extraction shaft in North Beach could result in minor architectural damage (not structural damage) to historic buildings near the station.

Significant historic architectural resources were identified in the APE that could be affected by construction of Alternative 3A (see Denardo et al. 2007). Some of the historic architectural resources are contributors to NRHP-eligible districts, while others are individual properties that are NRHP-eligible on their own merit (see Appendix F). The properties and potential impacts are described below.

**Northbound/Southbound Portal.** The NB/SB tunnel portal construction area on Fourth Street includes one significant historic building at 601 Fourth Street. The building is eligible for an individual listing on the NRHP. Temporary visual impacts from the presence of construction equipment would be limited to the duration of construction and would not adversely affect this property.

**Union Square/Market Street Station.** In the Union Square/Market Street Station area, fourteen significant historic architectural resources have the potential for temporary impacts from ground-borne vibration from construction equipment and activities. Each of the properties is within the boundaries of the KMMS Conservation District, and each is eligible for listing on the NRHP as an individual property. They include 233 Geary Street, 101 Stockton Street, 150 Stockton Street, 160-170 Geary Street, 218-222 Stockton Street, 234-240 Stockton Street, 275-299 Post Street, 177-179 Maiden Lane, 259 Post Street, 760 Market Street/35 O'Farrell Street (Phelan Building, Landmark No. 156), 2 Stockton Street, 77-81 O'Farrell Street, and 79 O'Farrell Street (formerly 46-68 Stockton/77-79 O'Farrell). Nine of the buildings front the station and four are in the second row.

As described above for Alternative 2, Union Square, including the underground parking garage, is eligible for listing on the NRHP as an individual property in addition to being included in the KMMS Conservation District. Along the eastern end of the Union Square plaza there would be a pedestrian entry within the stairs leading to the plaza. It would consist of escalators, stairs, with the possibly of an overhead canopy. Two vent shafts, with heights of 11 feet, would be positioned within the plaza terrace below the plaza café. These alterations would not constitute substantial adverse impacts to the historic character of the KMMS conservation district, or to Union Square, which was renovated in 2002.

**Chinatown Station.** Demolition of the building at 814-828 for the proposed Chinatown Station is the same as that described above for Alternative 2. Impacts in the Chinatown Historic District would be the same as those described above for Alternative 2.

**Tunnel Boring Machine Extraction Shaft.** Under the North Beach Construction Variant, an extraction shaft would be located in the middle lanes of Columbus Avenue at the north end of the alignment to allow

for removal of the Tunnel Boring Machine (TBM). The construction would be similar to the cut-and-cover method. Of the properties in the impact area, Washington Square Park and the associated Washington Square Park Triangle are the only resources in close proximity to the extraction shaft. Washington Square Park is listed as locally significant -- both individually as San Francisco's Landmark No. 226, and as a contributor to a proposed historic district. There would be no vibration impacts to the park and visual impacts would be limited to the duration of construction and would not substantially impact park use or historic integrity.

Five additional properties, considered contributors to the proposed Washington Square Historic District, are located within 200 feet of the extraction shaft. The buildings include 1636-1656 Powell Street, 575-579 Columbus Street, 1731-1741 Powell Street, 1717-1719 Powell Street, and 1701-1711 Powell Street. Because of the distances from the extraction shaft and the temporary nature of construction activity, there would not be vibration impacts to any of the historic buildings.

#### Mitigation Measures

The same mitigation measures would apply as those described for Alternative 2.

#### **Alternative 3 – Fourth/Stockton Alignment Option B (Modified LPA)**

One historic architectural resource (out of 14 historic buildings in the block and 371 contributing buildings in the Chinatown Historic District) located in the Chinatown Station area would be demolished and replaced by a new Muni station building during construction of the Alternative 3B. The building at 933-949 Stockton Street (Block 211) was identified as a Class 3D contributor to the NRHP-eligible Chinatown Historic District during the Corbett et al. (1997) study (see Figure 6-18). Demolition of contributing elements to a NRHP-eligible district constitutes an adverse effect under Section 106 and under the California Environmental Quality Act. Demolition and removal of the proposed building would create a visual break in the cohesive grouping of related buildings. Also within Block 211, eight additional buildings on the west side of Stockton Street are also contributing elements to the Chinatown Historic District, and significant properties are on the adjacent block (Block 192) fronting Washington Street. The high rise building (Mandarin Tower) on the east side of Stockton Street, directly across from 933-949 Stockton Street, in Block 210, is not historic and by its dominant presence has altered the visual continuity of this block of Chinatown.

The proposed station location at 933-949 Stockton Street and the buildings surrounding it are contextually linked through their association with the development of the Chinatown community. The building lies within an area known to be a part of Chinatown since at least the 1880s and has continuously remained a vibrant part of the community. Designed by S. H. Woodruff and erected in 1906, 933-949 Stockton

**FIGURE 6-18**  
**933-949 STOCKTON STREET PROPOSED FOR DEMOLITION**  
**UNDER ALTERNATIVE 3B**



Source: Garcia and Associates

Street served the immediate need for lodging and shop space by Chinese merchants in the aftermath of a the 1906 natural disaster. 933-949 Stockton Street conforms to the two-part commercial block composition also found in other areas of San Francisco. Its character-defining features include the Renaissance/Baroque design elements that include swags over the windows, metal cornice, and scored stucco walls.

Within the block (Block 211), the three remaining buildings on the west side of Stockton Street are also contributing elements to the historic district, and other important buildings are nearby, including the Commodore School, the Chinese Methodist Episcopal Church, Presbyterian Church in Chinatown, and the Gum Moon Residence. Removal of the building at 933-949 Stockton Street for construction of a Muni station would break up the continuity of contextually and architecturally linked buildings and would adversely affect the NRHP eligible historic district.

In addition to the station, construction of the Alternative 3B also has the potential for ground settlement near other stations and near the tunnel portals caused by construction-related activities could result in localized ground shifts that would affect historic architecture. The areas most prone to settlement would be where cut-and-cover methods are implemented, including the station areas, tunnel portals, and

extraction shaft. The same construction methods described for Enhanced EIS/EIR Alignment would also apply to Alternative 3B at stations and tunnel portals.

Significant historic architectural resources were identified in each potential impact area that could be affected by the Project (see Denardo et al. 2007). Some of the historic architectural resources are contributors to NRHP-eligible districts, while others are individual properties that are NRHP-eligible on their own merit (see Appendix F). These are described below.

**Bryant/Brannan Station.** The Bryant/Brannan Surface Station on Fourth Street would be adjacent to two historic architectural resources that have the potential for minor architectural damage from vibration during construction at 500-504 Fourth and 508-514 Fourth. Each of these buildings is eligible for an individual listing on the NRHP. This minor temporary effect would not adversely effect the properties or District. The design of the surface platform at Bryant and Brannan Streets would be compatible with existing Muni stations south of Market Street and would not adversely affect the visual character of the Historic District or individual historic properties.

**Union Square/Market Street Station.** Under Alternative 3B, the station entry is proposed for the southeast side of Union Square, along Geary Street, rather than along Stockton Street. In the Union Square/Market Street Station area, approximately eight significant historic architectural properties have the potential for minor architectural damage from construction-related vibration during station excavation operations, including seven properties (six buildings and Union Square) fronting the station and one property in the second row. This temporary impact would not result in a significant adverse effect to the individual properties or to the historic district and would not affect the historic use of the park or garage

All eight properties are within the boundaries of the KMMS Conservation District, and each is eligible for listing on the NRHP as an individual property. They include 233 Geary Street, 101 Stockton Street, 760 Market Street/35 O'Farrell Street (Phelan Building, Landmark No. 156), 2 Stockton Street, 77-81 O'Farrell Street, 79 O'Farrell Street (formerly 46-68 Stockton/77-79 O'Farrell), 150 Stockton Street and 333 Post Street (Union Square). All of these properties are in the first row fronting Stockton Street except for 760 Market/35 O'Farrell Street, which is in the second row. No significant adverse effects to historic properties would result from construction of Alternative 3B, though temporary construction-related visual and vibration effects have been noted.

**Chinatown Station.** In addition to the building identified for demolition for the station, other historic properties in the APE have been analyzed for potential impacts. The proposed station for Alternative 3B differs from that of Alternatives 2 and 3A. Rather than mid-block along the east side of Stockton Street,

the station location for this alternative would be at the corner of Stockton Street and Washington Street, a block north of the other alternatives. In the Chinatown Station area for this alternative, there are fourteen significant historic architectural resources that have the potential for construction-related impacts. They include seven properties that front the proposed station, six in the second row, and one in the third row. In addition, the Washington Street Street Lights are a significant historic architectural resource that could be impacted by temporary ground-borne vibrations and other construction equipment and activities at the Chinatown Station site for this alternative. Each of these properties is eligible for listing on the NRHP as a contributing element of the Chinatown Historic District and one is eligible for listing on the NRHP as an individual property (940 Washington Street).

There are six buildings in the same block as the station (Block 211), and include three that front Stockton Street (901-907 Stockton Street, 913-917 Stockton Street, and 925 Stockton Street), two in the second row (910-914 Clay Street and 950 Clay Street), and one in the third row (916-918 Clay Street), which is two buildings away from the station. Chinatown Historic District contributing buildings across Stockton Street include 930 Stockton Street in the first row, and 868-870 Clay Street, 31-37 Spofford Alley, and 867-869 Washington Street in the second row. Across Washington Street from the building at 933-949 Stockton Street proposed for demolition, there are two buildings in the first row (1003-1011 Stockton Street and 940 Washington Street), and one contributing building (1013-1017 Stockton Street) in the second row. As indicated above, 940 Washington Street appears to be eligible for listing on the NRHP as an individual property.

Other than the property proposed for demolition at 933-949 Stockton Street, temporary construction-related vibration and visual impacts would not have significant adverse effects to historic properties or the historic Chinatown District.

**Tunnel Boring Machine Extraction Shaft.** Impacts for the North Beach Construction Variant for Alternative 3B would be the same as those described above for Alternative 3A and would not have the potential for adverse effects to historic properties.

#### Mitigation Measures

Mitigation measures would be the same for Alternative 3B as those described above for Alternative 3A. The mitigation measures identified for 814-828 Stockton Street under Alternative 2 would also apply to 933-949 Stockton Street for this alternative.

To ensure that the historic Street Lights are not impacted by vibration and construction equipment, the Contractor will implement a mitigation plan to ensure that vibration impacts to the historic lights would include the following:

1. The contractor will be responsible for the protection of vibration-sensitive historic street lights that are within 50 feet of any construction activity.
2. The plan would include temporary removal and storage of glass globes during construction in a specific area and installation of construction barriers adjacent to the light poles.

Although this should not be considered ~~a mitigation to a less-than-significant effect measure~~, if the historic building at 933-949 Stockton Street is demolished, then it would be standard practice to perform Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) documentation. It is known that S. H. Woodruff was the architect for 933-949 Stockton Street; attempts should be made to obtain the original drawings, if available. The level of documentation will be prescribed through consultation with the City Historic Preservation Officer, FTA, and SHPO.

## **6.8 CONSTRUCTION IMPACTS AND MITIGATION MEASURES FOR VISUAL AND AESTHETIC RESOURCES**

### **Alternative 2 - Enhanced EIS/EIR Alignment**

Heavy equipment (augers, cranes, drilling rigs, backhoe, and excavators) would be transported to the site from the staging area, located under the I-80 elevated freeway structure near Fourth and Bryant Streets. Use of the staging area would be consistent with previous uses for construction in the area and would not have visual impacts. In those sections of the Enhanced EIS/EIR Alignment having cut-and-cover construction, 80-foot high augers and cranes, k-rails and construction safety barriers would temporarily change the streetscape along Third and Fourth Streets, in the South of Market area. Similar equipment would also be used at the tunnel portals and at station locations for excavation and to construct retaining walls. The presence of construction equipment in this rapidly developing area of the City (South of Market) has been common over the past several years and would not distract from the dominant building features that line Third and Fourth Streets. The temporary presence of construction equipment at the Moscone, Union Square, and Chinatown station locations would be highly visible from these heavily used areas and would temporarily degrade and obstruct public views of these landscapes. Night lighting at construction sites would be directed at the work site and shaded to prevent glare to adjacent residential units. Trees would not be removed during construction for this alternative.

#### Mitigation Measures

Though no significant adverse visual impacts have been identified, improvement measures to minimize potential visual contrasts of Project features with surrounding landscape features include: use of screening around staging areas and excavation sites during construction and directional shading of night lights to minimize glare to residential buildings. Excavated materials would be hauled off daily, rather than stored on-site.

In visually sensitive landscapes, like historic Union Square and Chinatown, use of temporary screening or physical barriers (noise walls) around the station construction sites is suggested to further reduce temporary visual effects during construction.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

Construction equipment for this alternative would be the same as that described for Alternative 2 above and would have temporary construction-related visual effects. Since this alternative would not use Third Street, construction-related impacts would be concentrated on Fourth Street, south of Market Street, where tunneling equipment would enter the underground work area. Temporary screening of the work area would be used to control dust and minimize views of construction equipment and construction



materials. Excavated materials would be hauled off daily rather than stored on-site. The same as Alternative 2 above, the temporary presence of construction equipment at the Moscone, Union Square, Market Street, and Chinatown station locations would be highly visible and would temporarily effect public views of these visual resources.

The North Beach Tunnel Construction Variant includes a temporary excavation shaft at Columbus Avenue, north of Union Street, and adjacent to Washington Square Park, that would be used for the removal of Tunnel Boring Machines and other construction equipment and supplies. The presence of heavy construction equipment, with associated noise and dust effects would have temporary construction-related visual impacts because it would be visible from the west side of the park and adjacent sidewalks. This would result in temporary visual and aesthetic impacts that could affect the scenic vistas from of the park for the duration of construction.

If the North Beach Tunnel Construction Variant is not approved, the excavation shaft during construction would be at the Chinatown Station described above. Temporary construction-related impacts described for the station above would occur.

#### Mitigation Measures

The mitigation measures would be the same as described for Alternative 2.

#### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

Construction-related visual impacts for this alternative would be the same as those described for Alternative 2 and Alternative 3A above. Temporary screening of the work area would be used to control dust and minimize views of construction equipment and debris. Excavated materials would be hauled off daily, rather than stored on-site.

The North Beach Tunnel Construction Variant described above for Fourth/Stockton Alignment Option A, could also be part of the Fourth/Stockton Alignment Option B and would have the same impacts. The excavation shaft at Columbus Avenue, north of Union Street, and adjacent to Washington Square Park, would have temporary construction-related visual impacts because it would be visible from the west side of the park and adjacent sidewalks.

If the North Beach Tunnel Construction Variant is not approved, the excavation shaft would be at the Chinatown Station site described above and impacts would be the same as those described for the station.

#### Mitigation Measures

The mitigation measures would be the same as described for Alternative 2.

## **6.9 CONSTRUCTION IMPACTS AND MITIGATION FOR UTILITIES AND ENERGY**

### **6.9.1 UTILITIES**

#### **Alternative 2 - Enhanced EIS/EIR Alignment**

The Enhanced EIS/EIR Alignment proposes the use of Special Excavation Method (SXM) for the transit tunnels between stations. The construction of SXM soil-cement walls would require the relocation of sub-surface utilities located parallel to and beneath the walls. Utilities above the guideway tunnels that are sensitive to ground movement or are densely congested would need to be relocated to allow the jet grouting operations to take place. The crossing of Market Street is one area where utilities are particularly congested. The SXM construction approach is described more fully in Section 6.1.4.

The Enhanced EIS/EIR Alignment would utilize decked cut-and-cover construction for Union Square Station, Market Street Station, Moscone Station, and portals on Third and Fourth Streets between Bryant and Brannan Streets. Cut-and-cover construction would require relocation of all utilities within the cut-and-cover footprint. Service laterals between the walls and utilities in street crossings intercepted by these walls would also be affected by both cut-and-cover construction and SXM construction.

In addition to the general impacts described above, construction at the Market Street Station on Third Street would displace a 96-inch North Point trunk sewer line, which would cross the Enhanced EIS/EIR Alignment at Mission Street. The relocation of this sewer trunkline would be critical because of the size and the importance of this sewer facility. In order to maintain the function and capacity of the North Point sewer line, the sewer could be diverted under the subway at Third and Mission Streets. If this approach were implemented by Muni as a condition of Project construction, an underground siphon and pumping station would be installed to force the effluent to flow under the subway. During dry weather, a low-flow pipe would divert effluent from the existing sewer line into the pump station's wet well vault located below the subway under the Mission/Third Streets intersection. The pumps would force the effluent to continue to move from west to east passing through the siphon into the existing trunk sewer line. Pumping action would be controlled to prevent the pooling and standing of water in the siphon. During storm events, effluent would flow through the siphon by hydraulic pressure. Resources required to operate and maintain this facility would be identified during design. Alternatively, the sewer line could be rerouted by Muni south along Fourth Street to Folsom Street, east on Folsom to Second Street, and north on Second to Mission Street. To minimize traffic impacts, the sewer would be rerouted using tunneling construction procedures. Utilities in areas where SXM is used would be relocated to utility corridors located between the soil-cement walls and property line. Joint trenches would be constructed to maximize the use of the limited space between the new work and adjacent properties.

Utilities at cut-and-cover station locations would be relocated to a utility corridor within or adjacent to the station structure. Utilities and service laterals intercepted as a result of installation of soil-cement walls would be connected to temporary or permanent utility mains installed between the new work and adjacent properties or routed around the new work to tie into existing mains.

There would be minimal impacts to utilities at the Chinatown Station, which would be mined 25 to 35 feet below the surface. Utilities located in the street or sidewalk above would not be disturbed. The entrance to this station would be in a private parcel that Muni would acquire. A construction shaft would be excavated at this entry site for access to the underground station. Construction activities would not affect public or private utilities except for private parcel connections to main utility lines. There would be minimal impact to some utilities (see Section 4.6) at a sidewalk bulb-out that would be the site of an emergency stairway.

Utility relocation would require street and sidewalk excavations that would impact traffic and pedestrian flow in the areas adjacent to the relocation activities. These areas would include station and tunnel segments mentioned above. Utility relocation in sidewalks may require access to or use of existing basements located beneath the sidewalks. Property owners with sub-sidewalk basements may be required to vacate these basements to make room for relocated utilities.

Utilities located beneath surface trackway would require relocation, strengthening or protection.

Utility service disruptions would likely occur for short periods of time when new relocated utilities are tied into the existing utility systems. As indicated in Section 6.2, utility relocation would occur over an 24-month period for the Enhanced EIS/EIR Alignment.

#### Mitigation Measures

Utility relocation coordination would take place during detailed design in consultation with the utility agencies and the design team and would be phased to ensure that pedestrian and vehicular traffic flows are maintained. No further mitigation would be required. All utilities would be properly relocated and service would be restored as part of the Project.

#### **Alternative 3 - Central Subway Fourth/Stockton Alignment Option A (LPA)**

TBMs would be used to construct the guideway tunnels between the stations. This construction methodology would not require those utilities above the TBM tunnels to be relocated. If the North Beach Construction Variant is adopted, utilities on Columbus Avenue, between Union and Filbert Streets, would need to be diverted to facilitate construction for the TBM retrieval shaft.

Alternative 3A will utilize cut-and-cover construction for Moscone Station, Union Square/Market Street Station, and the portal on Fourth Street between Townsend and Brannan Streets, as well as at emergency stairways at all the stations. The construction of retaining walls (either secant pile or slurry wall construction) at these cut-and-cover locations would require numerous utility relocations. Service laterals intercepted by the retaining walls, and utilities in street crossings intercepted by these walls, would also be affected.

The same as described for Alternative 2 above, there would be minimal impacts to utilities at the Chinatown Station, which would be mined 25 to 35 feet below the surface.

Temporary and permanent surface penetrations, such as construction shafts, portals, station entrances (stairs, escalators, elevators) and emergency stairways, would require rerouting of utilities that cross those penetrations. Utility relocation would require street and sidewalk excavations that will temporarily impact traffic and pedestrian flow in the areas adjacent to the relocation activities. Utility relocation in sidewalks may require access to existing basements located beneath the sidewalks. Property owners with sub-sidewalk basements may be required to vacate these basements to make room for relocated utilities.

Utilities located beneath surface trackway would require relocation, strengthening or protection.

Cut-and-cover construction would provide temporary decking installed after initial excavation to such a depth that spoils can be removed from a construction shaft. Some utilities could be suspended from this temporary decking. Other utilities would be relocated to utility corridors located between the retaining walls and property line. Joint trenches would be constructed to maximize the use of the limited space between the new work and adjacent properties. Utilities and service laterals intercepted as a result of installation of the retaining walls (secant piles or slurry walls) would be connected to temporary or permanent utility mains installed between the new work and adjacent properties or routed around the new work to tie into existing mains.

Utility service disruptions would likely occur for short periods of time when new relocated utilities are tied into the existing utility systems. Utilities affected by construction of the Central Subway Fourth/Stockton Alignment Option A are described in Section 4.6. As indicated in Section 6.2, utility relocation would commence in advance of heavy civil construction work for the guideway and stations and would occur over a six month period for the Central Subway Fourth/Stockton Alignment Option A.

#### Mitigation Measures

Mitigation measures would be the same as identified above under Alternative 2.

### **Alternative 3 - Central Subway Fourth/Stockton Alignment Option B (Modified LPA)**

The utility impacts for Alternative 3B would be the same as for Alternative 3A, except as noted below.

Cut-and-cover construction methodology would require excavation from the surface, thereby affecting all utilities within the cut-and-cover area. Service laterals to adjacent properties would be cut by retaining wall construction. Temporary and permanent surface penetrations, such as construction shafts, portals, station entrances (stairs, escalators, elevators) and emergency stairways, would require rerouting of utilities that cross those penetrations.

Utility relocation would require street and sidewalk excavations that would impact traffic and pedestrian flow in the areas adjacent to the relocation activities. Utility relocation in sidewalks may require access to existing basements located beneath the sidewalks. Property owners with sub-sidewalk basements may be required to vacate these basements to make room for relocated utilities.

Utilities located beneath surface trackway would require the relocation, strengthening or protection.

Cut-and-cover construction at station locations would provide temporary decking installed after initial excavation to such a depth that spoils can be removed from a construction shaft. Some utilities could be suspended from this temporary decking. Other utilities would be relocated to utility corridors located between the retaining walls and property line. Joint trenches would be constructed to maximize the use of the limited space between the new work and adjacent properties. Utilities and service laterals intercepted as a result of installation of the retaining walls would be tied into temporary or permanent utility mains installed between the new work and adjacent properties or routed around the new work to tie into existing mains.

Utility service disruptions would likely occur for short periods of time when new relocated utilities are tied into the existing utility systems. Utilities affected by construction of the Central Subway Fourth/Stockton Alignment Option B are described in Section 4.6. As indicated in Section 6.2, utility relocation would occur over a six month period for the Central Subway Fourth/Stockton Alignment Option B.

#### Mitigation Measures

The mitigation measures would be the same as described for Alternative 2.

## 6.9.2 ENERGY

### **Alternative 2 – Enhanced EIS/EIR Alignment**

Fuel consumption associated with operation of construction vehicles and machinery would occur during the construction phase. Fuel consumption to power construction equipment could be accommodated with existing energy resources. This temporary consumption of energy would not result in an energy impact.

#### Mitigation Measures

No mitigation measures would be required.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

Construction impacts would be the same as described for Alternative 2 above.

#### Mitigation Measures

No mitigation measures would be required.

### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

Construction impacts would be the same as described for Alternative 2 above.

#### Mitigation Measures

No mitigation measures would be required.

## **6.10 CONSTRUCTION IMPACTS AND MITIGATION FOR GEOLOGY AND SEISMICITY**

### **6.10.1 GEOLOGIC HAZARDS**

#### **Alternative 2 - Enhanced EIS/EIR Alignment**

During construction of the Enhanced EIS/EIR Alignment, an earthquake could occur. The associated groundshaking could affect the areas under construction and the safety and health of the construction workers. Construction of underground tunnels, shafts, and excavations will be conducted in accordance with all applicable federal, state and local codes and practices. The federal regulations are included in Part 1926, Section 800 of Title 29 of the Code of Federal regulations (29 CFR 1926.800) which is administered by the Occupational Safety and Health Administration (OSHA) and covers the safety and health of underground workers. California regulations are documented in Title 8 of the California Code of Regulations and are enforced by Cal/OSHA.

Muni would require contractors to submit a site-specific earthquake preparedness and emergency response plan as part of compliance with bid specifications. The plan would include specification by an emergency coordinator/team, provisions for emergency power and communication, evacuation procedures, and post-earthquake safety inspection. As part of the MTA's procedures and guidelines, Muni has developed a working document that covers earthquake preparedness and post-earthquake inspection/ repair procedures.

#### Mitigation Measures

No mitigation measures would be required.

#### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA) and Option B (Modified LPA)**

Construction impacts would be the same as described above for Alternative 2.

#### Mitigation Measures

No mitigation measures would be required.

### **6.10.2 SETTLEMENT OR INSTABILITY OF SUBSURFACE MATERIALS**

#### **Alternative 2 - Enhanced EIS/EIR Alignment**

This alternative includes installation of subway tunnels and stations with off-street entries and vent shafts on Third, Fourth, and Harrison Streets (north of Brannan Street), connecting under Market Street and along Kearny and Geary Streets to Stockton Street and continuing north to Clay Street. South of Brannan Street, tracks would be constructed on the surface of Third and Fourth Streets. Unless considered during the design, excavation of the tunnel and stations (either through mining or cut-and-cover) through the

developed Downtown area could result in potential settlement of geologic materials surrounding the excavation during construction. Under Alternative 2, construction of the tunnels over the upper pair of Market Street tunnels (Muni) would be expected to reduce ground loads acting on the tunnel lining, resulting in an upward ovaling distortion similar to that experienced on the BART tunnels during the Muni Metro turnarounds. Limited dewatering of the cut-and-cover areas would reduce potential settlement of water bearing subsurface layers. Construction-period settlements could cause damage to existing building foundations, subsurface utilities, and surface improvements (e.g., sidewalks and roadways).

Based on preliminary geotechnical investigations of subsurface materials along the alignment, tunneling would encounter a variety of geologic materials, including artificial fill, dune sand, Bay Mud, undifferentiated Old Bay deposits, colluvium, dense sand (Colma Sand) and bedrock (see Figure 5-14).<sup>2</sup> Preliminary geotechnical reports prepared for the mined and cut-and-cover tunneling portions of the Project include recommendations for management of potential construction-period settlements.<sup>3,4</sup> Site specific designs to limit potential construction-period settlements would be addressed in detail in the design-level geotechnical analyses that would be prepared for the Project. These analyses would include detailed evaluations of the site-specific geotechnical properties of the subsurface materials; building-by-building evaluations of foundations that may be affected by excavation; special excavation shoring designs; and other measures designed to avoid or minimize the potential adverse effects of settlement. The geotechnical design of the excavations (cut-and-cover and mined tunnels) would consider site preparation and excavation and support using concrete diaphragm walls, or similar technology (refer to Section 1 for discussion of construction excavation and support methods) designed to minimize potential construction related settlements resulting from unstable soft sediments. Potential construction impacts to existing and future structures along the Corridor of the Enhanced EIS/EIR Alignment may expose structures to geologic hazards (settlement).

#### Mitigation Measures

Provisions such as concrete diaphragm walls to support the excavation and instrumentation to monitor settlement and deformation would be used to ensure that structures adjacent to tunnel alignments are not affected by adjacent and nearby excavations. These provisions would be incorporated into the Project design, preliminary and final engineering, and construction specifications for the Project. However,

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<sup>2</sup> Geomatrix Consultants, Inc. *Geotechnical Data Report and Geologic Profile*, Geotechnical Investigations Phase 1A, Rev 1, 27 February 2004

<sup>3</sup> Haley and Aldrich, Inc. *Final Report on Central Subway Mined Tunnels/Stations for the Muni Third Street Light Rail Project, San Francisco, California*, February, 1997.

<sup>4</sup> Dames & Moore. *Geotechnical Engineering Recommendations, Central Subway Cut-and-Cover Construction for the Third Street Light Rail Project*, 12 March 1997.



despite the best efforts of a contractor to minimize ground movements associated with underground construction, surface settlement is a constant concern in urban environments. To address this concern, tunnel construction methods that minimize ground movement will be used on this Alternative including, structurally stiff shoring systems, Sequential Excavation Method's (SEM) ground improvement techniques such as compensation grouting and jet grouting and underpinning. Because SEM advances the tunnel in small increments, the excavation can be supported in a sequential fashion. With a rigorous geomechanical instrumentation program accompanying SEM, the underground excavation can be closely monitored for movement before settlements propagates to the surface. If advance settlement trends are observed, grouting or underpinning can be employed to arrest the movement before surface structures are affected.

Proposed measures for further managing and limiting the expected deformations of the existing BART/Muni Metro subway tunnels include: (1) rigorous continuous automated monitoring of the distortions and uplift/settlement movements experienced by the Market Street tunnels as the new tunnel construction approaches and (2) prior placement of compensation grouting pipes between the Market Street tunnels and the new bored tunnels to allow immediate injection of cement grout to replace ground losses caused by the tunneling should the deformations being continuously measured in the BART tunnels exceed pre-established action thresholds.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

This alternative includes installation of subway tunnels and stations and off-street entries and vent shafts on Fourth Street between Townsend and Market Streets and on Stockton Street between Market and Jackson Streets. South of Townsend Street on Fourth Street, the light rail construction would be at the surface. Excavation of the tunnel and stations (by TBM, SEM, or cut-and-cover methods) through the developed Downtown area could result in settlement of geologic materials surrounding the tunnel excavation during construction. Under Alternative 3A, the new bored Central Subway tunnels would pass approximately five to ten feet beneath the BART tunnels resulting in a slight downward deformation of the overlying BART and Muni tunnels. Tunneling would be done using state-of-the-art pressurized face TBMs that, in combination with proper operation, minimize ground loss and consequent settlement effects. Proposed construction methods would involve limited dewatering of the cut-and-cover areas to reduce potential settlement of water bearing soil layers (aquifer materials). Construction-period settlements could cause potential damage to existing building foundations, subsurface utilities, and surface improvements (e.g., sidewalks and roadways). Tunnel construction could also result in the potential displacement of BART structures.

A geologic profile for the Fourth/Stockton Alignment Option A is presented in Figure 5-15. Settlement-related construction impacts would be the same as described above for Alternative 2.

#### Mitigation Measures

Mitigation measures would be the same as described above for Alternative 2, except subway tunnels for Alternative 3A would be constructed using pressurized face TBM tunneling methods.

#### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

This segment includes installation of subway tunnels and stations and off-street entries and vent shafts on Fourth Street between Bryant and Market Streets, and on Stockton Street between Market and Jackson Streets. South of Bryant Street, on Fourth Street, the light rail construction would be at the surface. Excavation of the tunnel and stations (by TBM, SEM, or cut-and-cover methods) through the developed Downtown area could result in settlement of geologic materials surrounding the tunnel excavation during construction. Under Alternative 3B, the new bored Central Subway tunnels would pass approximately five to ten feet beneath the BART tunnels resulting in a slight downward deformation of the overlying BART and Muni tunnels. Tunneling would be done using state-of-the-art pressurized face TBMs that, in combination with proper operation, minimize ground loss and consequent settlement effects. Proposed construction methods would involve limited dewatering of the cut-and-cover areas to reduce potential settlement of water bearing soil layers. Construction-period settlements could cause damage to existing building foundations, subsurface utilities, and surface improvements (e.g., sidewalks and roadways). Tunnel construction could also result in the potential displacement of BART structures.

Based on preliminary and subsequent geotechnical investigations of subsurface materials along the Corridor, tunneling would encounter a variety of geologic materials, including artificial fill, dune sand, Bay Mud, undifferentiated Old Bay deposits, dense sand (Colma Sand) and bedrock (refer to Figure 5-16).<sup>5, 6</sup> Preliminary geotechnical reports prepared for the mined and cut-and-cover tunneling portions of the Project include recommendations for management of potential construction-period settlements.<sup>7,8</sup>

Similar to impacts described for Alternative 2, the construction impacts of the Fourth/Stockton Alignment Option B from settlement along the Corridor may expose structures to geologic hazards.

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<sup>5</sup> Geomatrix Consultants, Inc. *Addendum to Geotechnical Data Report and Geologic Profile for the Fourth/Stockton Alignment*, Geotechnical Investigations, Rev 0, 30 March 2005.

<sup>6</sup> Geomatrix Consultants, Inc. *Geotechnical Data Report and Geologic Profile for the Fourth/Stockton Alignment*, Geotechnical Investigations, Phase 1B, Rev 0, 1 May 2006.

<sup>7</sup> PB/Wong, Working Paper, *Recommended Tunnel Construction Methods Study*, Rev. 0, March 2004.

<sup>8</sup> PB/Wong, *Fourth Street Addendum to Effects of NCS Underground Construction on Existing Structures*, Rev. 0, March 2005.

### Mitigation Measures

The mitigation measures would be the same as described for Alternatives 2 and 3A.

## **6.11 CONSTRUCTION IMPACTS AND MITIGATION FOR HYDROLOGY**

### **6.11.1 FLOODING**

#### **Alternative 2 - Enhanced EIS/EIR Alignment**

Based on an evaluation of existing surface elevations (all elevations equal to or greater than 0 feet SFCD), the Enhanced EIS/EIR Alignment would not be expected to be affected by 100-year high tides or tsunami events. Where construction of the underground guideway and station structures occurs below the water table in permeable soil and/or rock, the subsurface groundwater flow regime in the immediate vicinity of the structures would be altered. All permanent structural elements would be detailed to achieve an essentially watertight structure that does not require long-term, continued dewatering. Local groundwater flow patterns would be altered where jet grouting, secant piles, diaphragm walls and other soil improvement and permanent, impermeable shoring elements are left in place.

#### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA) and Option B (Modified LPA)**

Construction, Operation and Cumulative impacts would be the same as described for Alternative 2 above.

#### Mitigation Measures

No mitigation measures are required.

### **6.11.2 WATER QUALITY**

#### **Alternative 2 - Enhanced EIS/EIR Alignment**

The Enhanced EIS/EIR Alignment would include approximately 1.5 miles of tunneling. Construction of portals, access shafts to the tunnels, stations, and station entrances would require excavation and transportation of an estimated 524,000 cubic yards of soil and dewatering activities. (See also Section 5.10, Hazardous Materials) These activities would result in exposure of soil to erosion by runoff. During the construction phase, it is possible for storm water runoff to mobilize sediments toward the Bay or the City's combined storm and sanitary sewer system. The accumulation of sediment could result in blockage of flows, potentially resulting in localized ponding or flooding.

Some local dewatering would be conducted during construction of the deep stations and station accesses. The construction method for the deep excavations would incorporate watertight concrete diaphragm walls with a base slab. Dewatering would be used locally to control minor leakage through the walls prior to constructing the base slab once the excavation reaches full depth. For further discussion of the construction excavation and support method, see Chapter 6.2.

The high water table and permeable soil conditions, along with the existing inflow of groundwater at the Powell Street Station, require special design considerations to address the potential for groundwater at the Union Square Station and the potential for impacting groundwater flows to the Powell Street Station. Shoring at the Union Square Station will be designed to be watertight so as not to rely on extensive dewatering. The station structures will be fully waterproofed with membrane systems. A design requirement stipulating that the Union Square Station construction not alter the existing groundwater in the vicinity of the Powell Street Station will also be adopted.

The potential for chemical releases is present at most construction sites. Once released, substances such as fuels, oils, paints, and solvents could be transported to nearby surface waterways and/or groundwater in storm water runoff, wash water, and dust control water, potentially reducing the quality of the receiving waters or causing operational difficulty at the wastewater treatment plant.

The Central Subway Corridor is subject to the SF Public Utilities Commission (SFPUC) regulations (Ordinance 19-92, Sections 118 and 123). These regulations require a Storm Water Pollution Prevention Plan (SWPPP) to be submitted to the SFPUC, Water Pollution Control Division for review.<sup>9</sup> No additional mitigation for control of construction period runoff would be necessary, because the implementation of the SWPPP meet City requirements for control of storm water.

In accordance with San Francisco Ordinance 19-92, Sections 118 and 123, a contractor would prepare and implement a SWPPP. The SWPPP would include Best Management Practices (BMPs) designed to reduce potential adverse effects on surface water quality and off-site sedimentation throughout the construction phase of the Project. Specific measures shall be included in the SWPPP to ensure that runoff from the construction sites does not drain directly to the Bay. The SWPPP would include:

- Construction Storm Water Management Controls. These controls would include practices to minimize the contact of construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) with storm water. The SWPPP would specify properly designed centralized storage areas that would keep these materials out of the rain. Spill cleanup materials (e.g. rags, absorbent materials, and secondary containment) would be kept at the work site when handling chemicals.

An important component of the storm water quality protection effort is knowledge of the SWPPP by the site supervisors and workers. To educate on-site personnel and maintain awareness of the importance of storm water quality protection, site supervisors would conduct regular tailgate meetings

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<sup>9</sup> Franza, Tom. Water Pollution Control Division, Public Utilities Commission. Personal communication with BASELINE, July 15, 1997.

to discuss pollution prevention. The frequency of the meetings and required personnel attendance list would be specified in the SWPPP.

The SWPPP would specify a monitoring program to be implemented by the construction site supervisor, and would include both dry and wet weather inspections. City personnel shall conduct regular inspections to ensure compliance with the SWPPP; an accepted standard procedure.

- Erosion and Sediment Control. BMPs designed to reduce erosion of exposed soil may include, but are not limited to: soil stabilization controls, watering for dust control, perimeter silt fences, placement of straw wattles, and sediment basins. The potential for erosion is generally increased if grading is performed during the rainy season as disturbed soil can be exposed to rainfall and storm runoff. If grading must be conducted during the rainy season, the primary BMPs selected shall focus on erosion control that is keeping sediment in-place. End-of-pipe sediment control measures (e.g., basins and traps) shall be used only as secondary measures. Entry and egress from the construction site shall be carefully controlled to minimize off-site tracking of sediment. Vehicle and equipment washdown facilities shall be designed to be accessible and functional during both dry and wet conditions. Additional sources of information regarding BMPs are the California Storm Water Municipal and Construction Activity BMP Handbooks.<sup>10</sup>

#### Mitigation Measures

No mitigation measures are required.

#### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

The Fourth/Stockton Alignment Option A would include approximately 1.5 miles of tunneling and excavation for stations and access to stations. Construction of portals, access shafts to the tunnels, stations, and station entrances would require excavation and transportation of an estimated 489,000 cubic yards of soil, and dewatering activities. These activities would result in exposure of soil to erosion by runoff. During the construction phase, it is possible for storm water runoff to mobilize sediments toward the Bay or the City's combined storm and sanitary sewer system. The accumulation of sediment could result in blockage of flows, potentially resulting in localized ponding or flooding.

Construction impacts would be the same as described above for Alternative 2. The strategies outlined for controlling groundwater at the Union Square Station would apply to the Union Square/Market Street Station.

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<sup>10</sup> California Stormwater Quality Association (CASQA). *Stormwater Best Management Practice Handbooks*, 2003.

Mitigation Measures

No mitigation measures are required.

**Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

The Fourth/Stockton Alignment Option B would include approximately 1.2 miles of tunneling. Construction of portals, access shafts to the tunnels, stations, and station entrances would require excavation and transportation an estimated 637,000 cubic yards of soil, and dewatering activities. These activities would result in exposure of soil to erosion by runoff. During the construction phase, it is possible for storm water runoff to mobilize sediments toward the Bay or the City's combined storm and sanitary sewer system. The accumulation of sediment could result in blockage of flows, potentially resulting in localized ponding or flooding.

Construction impacts would be the same as described above for Alternative 2. The strategies outlined for controlling groundwater at the Union Square Station would apply to the Union Square/Market Street Station.

**All Build Alternatives**

No substantial amount of water would be recharged into the groundwater during construction.

Mitigation Measures

No mitigation measures are required.

## **6.12 CONSTRUCTION IMPACTS AND MITIGATION FOR BIOLOGICAL AND WETLAND RESOURCES**

### **Alternative 2 - Central Subway Enhanced EIS/EIR Alignment**

Construction of the Enhanced EIS/EIR Alignment may result in the removal of small existing street trees along Fourth, Third, Stockton Streets along surface segments and at station entrances.

#### Mitigation Measures

Any street trees removed or damaged as part of construction would be replaced along the street at a 1:1 ratio.

### **Alternative 3 - Central Subway Fourth/Stockton Alignment Option A (LPA) and Option B (Modified LPA)**

Construction of Fourth/Stockton Alignment Option A could result in the removal of small existing street trees along the surface segment of Fourth Street and at station entries on Fourth and Stockton Streets. No wetlands would be affected. During construction of the North Beach Tunnel Variant for removal of the tunnel boring machine at Columbus Avenue and Union Street, adjacent to Washington Square Park, exposure of roots of mature trees could occur.

#### Mitigation Measures

Any street trees removed or damaged as part of construction would be replaced along the street at a 1:1 ratio. A certified arborist would be present during construction of the Columbus Avenue TBM retrieval shaft to monitor protection of tree roots during excavation (2-3 weeks).



### **6.13 CONSTRUCTION IMPACTS AND MITIGATION FOR HAZARDOUS MATERIALS**

#### **Alternative 2 – Enhanced EIS/EIR Alignment**

Construction activities for this alternative would disturb soils along the alignment in some areas at a depth of up to 80 feet. See Section 6.1 for details of the construction techniques.

Construction activities for the surface segment of the Central Subway Enhanced EIS/EIR Alignment include excavation of an estimated 524,000 cubic yards of soil for the construction of the surface light rail tracks and associated utility trenches.

Previous subsurface soil investigations, historic and current land uses, and known fill areas were described in Section 4.10 to assess the quality of subsurface soils that would be disturbed during construction. The evaluation indicated the potential for hazardous materials to be present in soils that would be excavated during the construction of the surface light rail tracks, utility trenches, maintenance facility, and portions of the subway. Potential contaminants include metals, volatile organic compounds (VOCs), semi-VOCs including polynuclear aromatic hydrocarbons (PNAs), total petroleum hydrocarbons, and friable asbestos from serpentine fragments.

Construction of the Enhanced EIS/EIR Alignment may expose site workers and the public to soils potentially containing hazardous materials. Hazardous materials may be present at concentrations that could adversely affect the health of site workers and the public and could possibly render the soils a hazardous waste, once excavated. Possible routes of exposure to site workers include absorption through exposed skin, inhalation of dust or vapors, and ingestion. The public could be exposed to contaminants through inhalation of dust or vapors generated from excavation activities carried beyond the construction zone. Ingestion and dermal contact of contaminants could also affect exposure to the public, if access to the construction zone were not restricted.

Excavated soils generated during construction activities would be transported for off-site disposal at landfills. For Alternative 2, an estimated 35,000 cubic yards of spoils would need disposal at a Class I facility. Improper handling of contaminated soils could result in an adverse effect to the public and the environment during transportation. In addition, disposal at a landfill would be an indirect effect of the Central Subway Enhanced EIS/EIR Alignment since the capacity and life of the landfill(s) would be reduced, potentially requiring the need for additional development of disposal facilities within the State in the future.

During excavation activities, site workers may encounter unanticipated subsurface structures containing hazardous materials such as underground pipelines, underground storage tanks (USTs), and buried drums.

The hazardous materials could pose a health and safety hazard to site workers and the public during excavation and/or activities related to the removal of underground structures. In addition, the environment may also be adversely affected if the hazardous materials were accidentally released.

Diesel-powered equipment would likely be used for soil excavation, tunneling, and other construction activities. This equipment may be serviced and fueled on-site with substances such as lubricants, diesel fuel, antifreeze, motor oils, degreasing agents, and other hazardous materials. Improper management, including an accidental chemical release, of these materials could pose a health and safety hazard to workers, the public, and the environment.

Measures to avoid adverse effects caused by the presence of hazardous materials during construction are required by Article 20 of the San Francisco Municipal Code. Areas on the Bay side of the 1851 high tide line are subject to compliance with Article 20 requirements if more than 50 cubic yards of soil are evacuated (refer to Chapter 4.0, Figure 4-11).

As indicated in Section 4.10, Hazardous Materials, the requirements of Article 20, administered by the San Francisco Department of Public Health, include:

- Preparation of a Site History Report;
- Collection and analysis of soil samples in accordance with an approved work plan;<sup>11</sup>
- Preparation of a Soils Analysis Report; and
- Preparation of a Site Mitigation Report.

The Site Mitigation Report would include measures to be undertaken during Project construction to protect site workers, the public, and the environment. The Site Mitigation Report would include: 1) determination of whether hazardous materials in soil are causing, or likely to cause, significant environmental or health and safety risks, and if so, 2) recommended measures to mitigate the significant risks; and 3) certification statement confirming that either no mitigation is required or the mitigation measures identified in the report, when completed, will mitigate the risks to the environment or health and safety. As a result, compliance with Article 20 would mitigate the potential effect of exposing soils containing hazardous materials to site workers, the public, and the environment to a less-than-significant level for that portion of the study area located within the boundaries of Article 20 and portions of segments within its jurisdiction.

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<sup>11</sup> Section 1002 of Article 20 identifies the analytical requirements for the soil samples.

For the segments located outside of Article 20 jurisdiction, implementation of mitigation measures similar to those required by Article 20 would be needed to reduce the potential exposure effects of soils containing hazardous materials to site workers and the public (see Mitigation Measures below).

Groundwater levels in the study area have been reported to range between 1 and 50 feet below ground surface (bgs). Construction of the Enhanced EIS/EIR Alignment would require excavation below the groundwater level along portions of the alignment. Shoring and structural lining methods that limit water ingress are proposed throughout the alignment. As a result, localized dewatering would be needed to lower the groundwater within the excavation areas during construction. Dewatered groundwater may be disposed either to the San Francisco Bay or the San Francisco Department of Public Works combined sewer system.

Water generated from dewatering activities cannot be discharged directly to the San Francisco Bay without a permit or approval from the Regional Water Quality Control Board (RWQCB). The RWQCB reviews requests on a case-by-case basis to determine if the discharge is acceptable. Groundwater quality data would need to be collected and evaluated to determine the potential pollutant loading and impact to the Bay. Thresholds identified in the San Francisco Bay Basin Water Quality Control Plan may be used to evaluate the water quality data. It is unlikely that the RWQCB would permit this type of discharge.

Alternatively, if generated water were to be discharged to the City's combined storm and sanitary sewer system, a Batch Industrial Wastewater Discharge permit would need to be obtained from the San Francisco Public Utilities Commission, Bureau of Environmental Regulation and Management (BERM) prior to discharge. The permit application must identify the total estimated volume and duration of proposed discharge and contain water quality data representative of the groundwater effluent. The groundwater quality data would be reviewed to confirm that it would meet the Batch Wastewater Discharge (BWWD) threshold limits. Threshold limits for direct discharge into the Bay are typically more stringent than the BWWD threshold limits. For the purposes of this analysis, previously collected groundwater quality data were compared to the BWWD threshold limits. Section 4.10, Hazardous Materials, provides a discussion of the groundwater quality data collected throughout the Study Area.

Previously collected groundwater quality data indicate the potential for dewatered effluent throughout portions of the alignment to contain elevated metals, VOCs, petroleum hydrocarbons, and oil and grease concentrations. These contaminants were found at levels greater than the BWWD threshold limits in several areas. If dewatered discharge were to contain contaminant concentrations exceeding threshold limits, then direct discharge to the combined sewer system would not be allowed. However, the discharge could be pretreated to reduce contaminant concentrations to acceptable levels; treatment may include

gravity separation or filtration to remove sediment in the water, and/or aeration or carbon treatment for removal of volatile compounds. These specific measures will be included in the dewatering groundwater management protocol. If the treated water met the threshold limits, then discharge would be allowed into the combined sewer system provided other requirements were satisfied, including adequate sediment control; Section 4.8, Hydrology and Water Quality, discusses sediment control measures. Compliance with the dewatered groundwater disposal requirements would meet City requirements.

Dewatering during construction could result in preferential groundwater flow toward the alignment; this would be an indirect effect of the Enhanced EIS/EIR Alignment. As a result, the direction and rate of groundwater flow and corresponding contaminants from areas outside the alignment could migrate toward the alignment, causing an increase in contaminant concentrations in dewatered groundwater.

The health of construction workers and the public who may be exposed to contaminated groundwater during dewatering activities could potentially be affected. Possible exposure routes to both site workers and the public could include skin absorption and incidental ingestion.

#### Mitigation Measures

Subsurface conditions throughout the alignment may vary significantly. Based on existing soil quality data, historic and current land use, and areas of known fill, hazardous substances could be encountered in soil excavated during construction of the Enhanced EIS/EIR Alignment.

As indicated above, most of the measures needed to mitigate against these effects are required by Article 20 for those portions of the Enhanced EIS/EIR Alignment bayward of the 1851 high tide line. However, for those portions not subject to Article 20, similar measures would be necessary to mitigate against the identified adverse effects. The Article 20 requirements are described below, and the items already completed are noted as appropriate:

- Site History Report. A series of technical reports have been prepared consistent with the requirement of an Article 20 Site History Report. Reports were prepared during the period of 1997 through 2006 as modifications were made to the Alignment.<sup>12, 13, 14, 15, 16</sup> Past land uses in the Study Area along Columbus Avenue, Stockton Street, and Fourth Street have been densely packed residential,

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<sup>12</sup> No. 96.218E, Hazardous Materials Technical Report, Baseline Environmental Consulting, June, 1997.

<sup>13</sup> Phase I Environmental Site Assessment and Site History Report, Central Subway Alignment, San Francisco, California, Revision 1, Geomatrix Consultants, Inc., December 18, 2003.

<sup>14</sup> Addendum to Phase I Environmental Site Assessment and Site History Report, Task 1.02-03, Hazardous Material Investigations, Revision 0, Geomatrix Consultants, Inc., April 1, 2005.

<sup>15</sup> Phase II Hazardous Materials Investigation Report, for the Fourth/Stockton Alignment, Task 1.02-03, Hazardous Material Investigations, Revision 0, Geomatrix Consultants, Inc., May 18, 2006.

<sup>16</sup> Addendum No. 2 to Phase I Environmental Site Assessment and Site History Report, Task 1.02-03, Hazardous Material Investigations, Revision 0b, Geomatrix Consultants, Inc., February 9, 2007.

commercial and industrial structures including a large number of shops and factories. Commercial uses identified include retail shops and hotels. Industrial uses included machine shops, paint shops, metal shop, auto body and paint shop, blacksmith shop, printing shop, plating works, tin shop, dyeing and cleaning shop, millinery, sheet metal shop, oil and gas facility, lithography, electroplating works, metal and iron works, oil and gas operation, gas and electric company steam plant, furniture varnishing and finishing, drug factory, iron and bronze works, electroplating works, welding shop, printing shop, iron works, insecticide manufacture, plastic products manufacture, and lighting equipment manufacture.

- Soil Quality Investigation. The purpose of the soil quality investigation is to: 1) identify potential contaminants which site workers, the public, and the environment could be exposed to during construction; and 2) classify waste stream(s) of excavated soils to ensure proper soil management (i.e., handling and disposal). As Article 20 also requires the performance of a soil quality investigation, one soil quality investigation shall be conducted for the entire Light Rail Alternative to satisfy the corresponding requirements of Article 20 and this mitigation measure. Investigations would be conducted by qualified environmental professionals and in conformance with State and local guidelines and regulations.

Before soil quality investigation activities begin, the lead oversight agency for the Project shall be determined. The agency may be the San Francisco Department of Public Health (DPH), Department of Toxic Substances Control (DTSC), and/or the RWQCB. Oversight for areas within Article 20 jurisdiction is provided by DPH. DPH may also provide remedial action oversight for the cleanup of waste releases outside the Article 20 jurisdiction, provided that the requisite technical expertise and capabilities are available to supervise the action. DPH would be required to notify the DTSC and the RWQCB prior to the commencement of the oversight.

For the Alignment segment between King and Jackson Streets, an approved soil and grab groundwater sampling work plan identified the proposed sampling locations and depths, methodology, and laboratory analyses.<sup>17</sup>

- Soil Analysis Report. All field activities, findings, and recommendations would be documented in a soil analysis report. The soil and groundwater investigation conducted as described in the 2005

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<sup>17</sup> Phase II Work Plan, Task 1.02-03, Hazardous Materials Investigation, Revision 0, Geomatrix Consultants, Inc., July 20, 2005.

approved work plan was summarized in an investigation report prepared consistent with the requirements of Article 20.<sup>18,19</sup>

- **Site Mitigation Report (SMR).** Following the completion of the soil investigation activities and preparation of the Soil Analysis Report, an SMR would be prepared and submitted to the oversight agency for approval. As Article 20 also requires the preparation of a Site Mitigation Report, one report would be prepared for the Central Subway Project. The contents of the SMR would include the following, which incorporates Article 20 requirements:

Description of Environmental Conditions - Identification of the contaminants and potential concentrations that may be encountered during construction; determination of whether hazardous materials in soil would cause, or likely cause, environmental or public health and safety adverse effect.

Health and Safety Plan (HSP) - The City would specify the mechanism that would be needed to ensure the preparation and implementation of a HSP. The construction HSP would be prepared by a certified industrial hygienist in accordance with Title 8 California Code of Regulations (CCR), Section 5192; the contents would identify potential chemical hazards and exposure assessment; health and safety procedures to be followed to protect site workers/visitors and the general public from exposure to contaminated soils during construction activities; site worker/visitor training requirements (e.g., initial training, pre-entry briefings, respiratory training, tailgate safety meetings); worker medical surveillance; air monitoring; emergency response procedures; site and engineering controls (e.g., wetting down dusty operations); informational program; and decontamination methods.

The HSP would also discuss safe work practices to protect site workers, the public, and the environment from exposure to hazardous materials associated with fueling, operation, and maintenance of the construction equipment. In addition, regulatory requirements and Best Management Practices as outlined in Section 5.8, Hydrology and Water Quality, would be implemented to protect the environment from the release of hazardous materials to the environment.

Guidelines for the Management and Disposal of Excavated Soils - Soil management guidelines would include: 1) procedures for proper soil stockpiling and containment; 2) dust control measures to minimize offsite migration of contaminants; 3) additional soil stockpile sample collection and analytical requirements to meet landfill acceptance criteria, if necessary; 4) transportation and

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<sup>18</sup> Phase II Hazardous Materials Investigation Report, for the Fourth/Stockton Alignment, Task 1.02-03, Hazardous Material Investigations, Revision 0, Geomatrix Consultants, Inc., May 18, 2006.

<sup>19</sup> Ibid.

disposal options and procedures; 5) federal and/or California hazardous waste generator requirements if the excavated soils were to constitute a federal and/or California hazardous waste; and 6) record keeping.<sup>20, 21</sup>

Certification Statement - Article 20 requires that the Certification Statement confirm that either no mitigation is required or the mitigation measures identified in the report, when completed, would mitigate the risks to the environment or human health and safety.

The SMR required in Mitigations would also include the following components to reduce the effects from exposure to unanticipated subsurface structures containing hazardous materials:

- Pre-excavation procedures to identify subsurface utility lines and hazardous materials-containing pipelines; this can be accomplished by notifying Underground Service Alert (USA) 72 hours in advance and performing subsurface surveys (i.e., geophysical) when warranted.
- Protocol in the HSP to protect site workers, the public, and the environment if unanticipated structures containing hazardous materials (e.g., underground tanks, pipelines, drums, or wells) were encountered. Protocol may include criteria for ceasing work immediately, and procedures for performing air monitoring to determine site conditions, and approaches for assessing the hazardous materials involved (e.g., sampling).
- Protocol for handling unanticipated structures containing hazardous materials including contractor notification to the City of San Francisco. Due to the likelihood of USTs present along the light rail alignment, the SMR shall describe UST removal procedures, in accordance with State and local requirements including the following topics:
  - Minimizing fire hazards
  - Tank emptying
  - Vapor displacement
  - Tank rinsing
  - Tank removal
  - Leak reporting and regulatory notification

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<sup>20</sup> Disposal options for the excavated soils would be dependent on the results of waste stream classification. Nonhazardous wastes must be disposed at a Class II or III landfill facilities; federal (i.e., RCRA) hazardous wastes must be disposed at a Class I landfill facility; non-RCRA California hazardous waste may be disposed of at either a Class I landfill or an out-of-state landfill permitted to accept California hazardous waste.

<sup>21</sup> If excavated soils were classified as a federal hazardous waste, then compliance with Title 40 Code of Federal Regulations (CFR) Part 261 would be required. If excavated soils were to constitute a California hazardous waste, then compliance with Title 22 CCR, Section 66262 would be required. These requirements were established to regulate the management of generated hazardous wastes and protect site workers during management of these wastes.

- Coordination with the DPH to ensure compliance with State and local requirements.

To mitigate the potential for exposing site workers and the public to dewatered groundwater containing hazardous materials, the measures described below would be implemented.

The City would conduct a groundwater quality investigation at areas where groundwater would be dewatered during construction activities. The purpose of the investigation would be to: 1) identify potential contaminants in groundwater to which site workers and the public could be exposed; 2) provide for an initial assessment of the quality of dewatered groundwater; and 3) to assess treatment options for the groundwater. Groundwater sampling for the alignment between King Street and Jackson Street was conducted simultaneously with the soil investigation described above.<sup>22</sup> All field activities, findings, and recommendations would be documented in a groundwater quality investigation report. The results of the groundwater sampling conducted for the Alignment between King Street and Jackson Street was included in the soil investigation report.<sup>23</sup>

Following the completion of the investigation activities, the Site Mitigation Report (described above) would also include the following:

- Measures in the HSP to protect site workers and the public from contaminated dewatered groundwater; and
- Dewatered groundwater management protocol.

The City would specify the mechanism that would be needed to ensure the preparation and implementation of the dewatered groundwater management protocol. The dewatered groundwater management protocol would specify: 1) permit criteria to discharge effluent water into the San Francisco Bay and/or the City combined sewer system, whichever is applicable (e.g., when and how the permit would be obtained); 2) pumping and storage handling specifications established by the permit; 3) treatment methods to reduce contaminant concentrations if warranted; 4) verification sampling of the discharge to ensure compliance with regulatory limits; and 5) dewatering operation procedures (e.g., flow rates, discharge point, timing). Disposal to the Bay or combined sewer system would be contingent on the effluent water quality and approval of the applicable regulatory agencies (RWQCB or BERM). If discharge to either system were not allowed, then provisions for other off-site disposal would be specified in the groundwater management protocol.

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<sup>22</sup> Phase II Hazardous Materials Investigation Report, for the Fourth/Stockton Alignment, Task 1.02-03, Hazardous Material Investigations, Revision 0, Geomatrix Consultants, Inc., May 18, 2006.

<sup>23</sup> Ibid.



Implementation of the mitigation measures identified herein would mitigate the potential adverse effect of exposure associated with encountering unforeseen subsurface structures containing hazardous materials.

Contaminated soils excavated from construction of planned or ongoing projects, in addition to the Enhanced EIS/EIR Alignment, may be disposed of at off-site landfill(s). As a result, the rate of reaching landfill capacities would increase. Projected quantities of excavated soil requiring disposal should be provided to the landfill(s). It would then be the landfill's responsibility to determine whether the acceptance rates are within the landfill's projected capacity goals.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

Construction activities for the surface segment of the Fourth/Stockton Alignment Option A include soil excavation for the construction of the surface light rail tracks and associated utility trenches. Utility trenches would be excavated to approximately 8 feet below ground surface (bgs). The surface light rail tracks would be transitioned into a subway tunnel at the portal location. A cut-and-cover method would be used for constructing the Moscone and Union Square/Market Street stations and to connect the surface tracks to the subway from the portal to Harrison Street. The remaining portions of the subway would be constructed using a TBM feet. Construction of the portals, stations, and tunnels would require excavation, transportation, and off-site disposal of approximately 489,000 cubic yards of soil. For Alternative 3A, an estimated 25,000 cubic yards of spoils would be disposed of at a Class I facility.

#### Mitigation Measures

Mitigation measures would be the same as described above for Alternative 2, except an additional sampling work plan for the segment along Stockton Street from Jackson Street to Green Street and the portion of Columbus Avenue from Green Street to just north of Union Street would also be prepared for regulatory agency approval as part of the Soil Quality Investigation for North Beach Construction Variant..

The additional investigation for the Soils Analysis Report, to be conducted north of Jackson Street and onto Columbus Avenue for the North Beach Construction Variant, would meet the corresponding requirements of Article 20 which include: 1) names/addresses of persons and certified laboratory that conducted the soil sampling, laboratory analysis, and report preparation; 2) explanation of sampling and testing methodology; 3) analytical results; 4) indication of the presence of hazardous materials based on the analyses performed; 5) state and federal agencies to which the presence of hazardous materials has been reported and the date of the report; 6) statement indicating whether the site is listed on the National Priorities List of hazardous waste sites, published by US EPA, or listed as a hazardous substance release

site. In addition to the Article 20 requirements, the report would include the evaluation and results of the waste stream(s) classification of excavated soils.

For the additional investigation to be conducted north of Jackson Street and onto Columbus Avenue, the groundwater investigation will be conducted simultaneously with the soil investigation. Groundwater quality investigation activities would be performed in accordance with a groundwater sampling work plan approved by the oversight regulatory agency. The work plan would identify the proposed sampling locations, methodology, and laboratory analyses. Activities would be conducted by qualified environmental professionals and in conformance with State and local guidelines and regulations. Sampling locations would focus on areas subject to dewatering. Contaminants selected for analysis would be based on existing groundwater quality data collected in the vicinity, land use history, and discharge requirements.

### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

Construction activities for the surface segment of the Fourth/Stockton Alignment Option B include soil excavation for the construction of the surface light rail tracks and associated utility trenches. Utility trenches would be excavated to approximately 8 feet below ground surface. The surface light rail tracks would be transitioned into a subway tunnel at the portal locations. A cut-and-cover method would be used for constructing the Moscone and Union Square/Market Street stations and to connect the surface tracks to the subway. The remaining portions of the subway would be constructed using two TBMs. Construction of access portal and subway stations to the tunnels would require excavation, transportation, and off-site disposal of about 637,000 cubic yards of soil. For Alternative 3B, an estimated 13,000 cubic yards of spoils would be disposed of at a Class I facility.

### **Mitigation Measures**

The mitigation measures would be the same as described above for Alternative 3A.

#### **6.14 CONSTRUCTION IMPACTS AND MITIGATION FOR AIR QUALITY**

Since publication of the 1998 EIS/EIR, approaches and analysis tools for evaluating the construction impacts of air quality have changed. Construction emissions vary substantially from day-to-day, depending on the level of activity, the specific type of construction operations and the prevailing weather in the case of dust emissions. The BAAQMD does not recommend quantification of construction emissions. As a result, attempts were not made in this document to estimate construction emissions. Rather the discussion is based on feasible control measures that are being incorporated into the Project.

Sensitive receptors susceptible to air quality impacts during construction include: playgrounds, parks, schools, hospitals, clinics, and health centers, community centers, convalescence homes, and residential areas (refer to Section 4.11.7 for more detailed discussion of sensitive receptors). School playgrounds and parks along the Project Corridor are shown on Figure 4-4. Sensitive receptors of particular interest for air quality include: Yerba Buena Center of the Arts at Third and Mission Streets; Union Square along Stockton Street; Gordon Lau Elementary School playground at Washington Street; Willie “Woo Woo” Wong Playground at Sacramento Street; and Washington Square at Columbus Avenue and Union Street.

##### **Alternative 2 - Enhanced EIS/EIR Alignment**

Construction of the guideway would occur by several construction methods, including mining, a sequential excavation method (SEM), a special excavation method (SXM), and cut-and-cover methods. The Union Square, Market Street, and Moscone stations would be constructed by cut-and-cover. The Chinatown Station would be mined using the SEM method. For more construction details, see Section 6.1.

**Dust Emissions.** Construction activities involving soil movement, such as cut-and-cover and to a lesser extent SXM, utility relocation/installation, hauling of spoils could generate dust. These activities would occur over an estimated period of almost six years and would occur over a surface area of about eight acres. This area includes construction of the stations, portals, guideway, and utility relocation/installation. Spoil material from tunnel excavation would be moist and would likely not generate fugitive dust.

The impacts from construction activities on nearby residences and other areas where the public has access would depend on the proximity of construction work to these areas. The highest pollutant levels are typically within 200 feet of the construction activity. Since the location of construction would change, some members of the public may experience occasional annoyances when construction activities are closest to them. The application of construction-specific control measures would eliminate many potential annoyances.

The following dust control measures as required by the BAAQMD have been incorporated into the Project:<sup>24</sup>

- Where appropriate, active construction areas shall be watered at least twice daily.
- All trucks hauling soil, sand, and other loose materials shall be covered with tarpaulins or other effective covers.
- All unpaved access roads, parking areas, and staging areas at the construction site shall be paved; otherwise, water or non-toxic soil stabilizers shall be applied. In addition, paved access roads, parking areas, and staging areas shall be swept daily with a water sweeper. Streets shall be swept daily with a water sweeper in areas where visible soil material is carried onto adjacent public streets.
- Inactive construction areas, including previously graded areas inactive for at least ten days, shall be hydroseeded or applied with a non-toxic soil stabilizers.
- Exposed stockpiles shall be enclosed, covered, and watered twice daily (or applied with a non-toxic soil binder) if material is dry.
- The speed of all vehicles driving on unpaved roads shall be limited to 15 mph.
- To prevent silt runoff to public roadways, sandbags or other erosion control measures shall be implemented.
- Disturbed areas shall be replanted with vegetation as quickly as possible.
- Excavation and grading activities shall be terminated when winds exceed 25 mph.

Controlling dust and PM<sub>10</sub> would also reduce PM<sub>2.5</sub> at construction sites. Air monitoring at playgrounds and school yards would be included as part of the Project.

**Exhaust Emissions.** Short-term exhaust emissions would be generated from surface construction-related equipment. In addition, exhaust emissions would be generated from off-site transport of soils excavated from surface construction, cut and cover, and tunneling activities. Soils generated from tunneling activities would be transported underground via rail or conveyor belt to the portal locations. At this point, the excavated soils would be transported off-site. In addition, construction-related lane closures and detours could cause traffic congestion and as a result additional air pollutant emissions. See Chapter 3.0 for measures proposed to reduce traffic congestion in the construction area. Increased emissions would

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<sup>24</sup> Bay Area Air Quality Management District, CEQA Guidelines Assessing the Air Quality Impacts of Projects and Plans, December 1999.

affect short-term air quality and could affect nearby sensitive receptors. However, the emissions are not expected to cause or contribute to violations of ambient air quality standards.

Implementation of the following control measures will be included in the Project construction specifications and contract documents to further reduce exhaust emissions (including PM<sub>2.5</sub>) from construction-related equipment:

- The idling time of all construction equipment used at the site shall not exceed five minutes per hour.
- The hours of operation of heavy duty equipment and/or the amount of equipment in use shall be limited.
- The idling time of all construction equipment used at the site shall not exceed five minutes per hour. All equipment shall be properly tuned and maintained in accordance with the manufacturer's specifications to perform at EPA certification levels at the manufacturer's recommended frequency. Employ periodic, unscheduled inspections to limit unnecessary idling.
- Prohibit any tampering with engines and require continuing adherence to manufacturer's recommendations for operations.
- Particulate matter filters shall be installed on all on-site diesel powered equipment for the duration of the Project.
- When feasible, alternative fueled or electrical construction equipment shall be used at the Project site.
- Use ultra-low sulfur fuel if available and maintain receipts from all purchases for verification.
- The minimum practical engine size for construction equipment shall be used.
- Gasoline-powered equipment shall be equipped with catalytic converters, where feasible.
- Use no more than two pieces of equipment simultaneously near or upwind of sensitive receptors.
- Establish emission limits within 1,000 feet of K-12 schools along the Corridor and notify schools of construction activity.
- Develop a plan for limiting truck traffic movements during critical hours to minimize community risk.
- A Contract Project Manager will conduct spot checks for compliance with committed measures.

- “Reduce use, trips, unnecessary idling from heavy equipment.
- Use EPA-registered particulate traps and other appropriate controls where suitable to reduce emissions of diesel particulate matter at construction sites.
- When hauling material and operating non-earthmoving equipment onsite, prevent spillage and limit speeds to 15 mph. Limit speed of earthmoving equipment to 10 mph.”

An increase in Project-related short-term construction emissions in addition to emissions from other Projects in the Bay Area may result in cumulative effects to air quality for the Enhanced EIS/EIR

Alignment. However, construction activities are subject to control measures established by BAAQMD to reduce impacts from the Project.

#### Mitigation Measures

No mitigation measures would be required.

#### **Alternative 3 – Central Subway Fourth/Stockton Alignment A (LPA)**

Construction of the guideway would occur by TBM and decked cut-and-cover methods. The Union Square/Market Street Station would be constructed by both cut-and-cover and Sequential Excavation Method (SEM). The Moscone Station would be constructed by cut-and-cover. The Chinatown Station would be mined using the SEM method. For more construction details, see Section 6.1.

**Dust Emissions.** Dust impacts would be the same as those described for Alternative 2 with a few exceptions. It is expected that use of the TBM would help reduce dust emissions during construction of the tunnel. Construction activities would occur over an estimated period of approximately six years and would occur over a surface area of about five acres, which results in less surface area exposed.

Impacts should be similar if the North Beach Construction Variant is chosen. This option would have a TBM retrieval shaft on Columbus Avenue next to Washington Square Park. However, the exposed area is relatively small and control measures are being included in the Project to reduce dust emissions.

The same dust control measures listed under Alternative 2 would be incorporated into the Fourth/Stockton Alignment Option A. The application of these dust control measures would eliminate annoyances.

**Exhaust Emissions.** The impacts and control measures related to exhaust emission for the Fourth/Stockton Alignment Option A would be the same as those identified under Alternative 2.

#### Mitigation Measures

No mitigation measures would be required.

#### **Alternative 3 - Central Subway Fourth/Stockton Alignment B (Modified LPA)**

Construction impacts of the Fourth/Stockton Alignment B would be the same as those described for Alternative 3A. The Union Square/Market Street and Moscone Stations would be constructed using a decked cut-and-cover approach. The Chinatown Station would be mined using the SEM method. For more details, see Section 6.2.

**Dust Emissions.** Dust impacts and control measures would be the same as those described for Alternative 3A except as noted here. Construction would occur over an estimated period of approximately 5.5 years, which is a shorter construction period than other alternatives, and would occur over a surface area of about five acres.

**Exhaust Emissions.** The impacts and control measures related to exhaust emission for the Fourth/Stockton Alignment Option B would be the same as those identified under Alternative 2.

Mitigation Measures

No mitigation measures would be required.



**6.15 CONSTRUCTION IMPACTS AND MITIGATION FOR NOISE AND VIBRATION****Alternative 2 – Enhanced EIS/EIR Alignment**

**Noise.** Noise impacts from construction would differ for the at-grade and the underground section of the Project. At-grade construction noise would be generated by heavy equipment used during major construction periods as close as 25 feet to existing structures along the alignment. Table 6-3 shows the estimated maximum noise levels for the different stages of at-grade construction at 100 feet from a receiver.

Most of the underground tunnel activities would not be audible at street level. Support equipment for the excavation and tunneling would be located at street level and could include ventilation fans, compressors, electric generator sets and a concrete batch plant. Construction of the stations would include equipment

**TABLE 6-3**  
**ESTIMATED PEAK HOUR CONSTRUCTION NOISE LEVELS**

Construction Phase	Loudest Equipment	Noise Level at 100 feet L <sub>max</sub> (dBA)
Clearing and grubbing	Bulldozer, Backhoe, Haul Trucks	86
Earthwork	Scraper, Bulldozer	88
Foundation	Backhoe, Loader	85
Structures	Crane, Loader, Haul Truck	86
Base preparation	Trucks, Bulldozer	88
Paving	Paver, Pumps, Haul Trucks	89
Source: Transit Noise and Vibration Impact Assessment, FTA, May 2006.		

at street level such as a crane, excavator, loader, and haul trucks. Construction activities at each of the stations could potentially affect nearby noise sensitive receivers. Tunnel excavation material would be removed and stock-piled at the tunnel construction shaft on Fourth Street. Haul trucks, used to remove the excavated material, would be a potential source of noise along city streets. Haul routes would have to be selected to avoid impacting residential areas, schools and playgrounds.

**Vibration.** As with noise, the vibration from construction is temporary, and, as long as the vibration does not cause any damage to buildings, there would be no permanent impacts. The vibration processes that are likely to be either intrusive or have the potential for damaging buildings include: pile driving, demolition with jack hammers and hoe rams, and the use of tracked vehicles close to buildings. Potential for impact from construction vibration is controlled by adhering to vibration limits for settlement of structures and requiring monitoring to assure that vibration is within specified limits during construction activities. These types of measures will be included in the construction specifications for this Project and

there should not be any vibration-induced damage to buildings during construction and intrusive vibration should not last for more than a few days.

Common vibration producing equipment used during at-grade construction activities include pile drivers, jackhammers, pavement breakers, hoe rams, auger drills, bulldozers and backhoes. No pile driving is expected during construction of this Project. Pavement breaking and soil compaction would probably be the activities that produce the highest level of vibration. Table 6-4 presents various types of construction equipment measured under a wide variety of construction activities with an average of source levels reported in terms of velocity levels. Although the table gives one level for each piece of equipment, it should be noted that there is a considerable variation in reported ground vibration levels from construction activities based on soil conditions. The data provides a reasonable estimate for a wide range of soil conditions.

TABLE 6-4 VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT			
Equipment		PPV at 25 ft. (in/sec)	Approximate Lv at 25 ft.
Pile Driver (impact)	upper range	1.518	112
	Typical	0.644	104
Pile Driver (sonic)	upper range	0.734	105
	Typical	0.170	93
Clam shovel drop (slurry wall)		0.202	94
Hydromill (slurry wall)	in soil	0.008	66
	in rock	0.017	75
Large bulldozer		0.089	87
Caisson drilling		0.089	87
Loaded trucks		0.076	86
Jackhammer		0.035	79
Small bulldozer		0.003	58
Lv = RMS velocity in decibels (VdB) re 1 micro-inch/sec Source: <i>Transit Noise and Vibration Impact Assessment</i> , FTA, May 2006.			

Equipment used for underground construction, such as TBM and mine trains would generate vibration levels that could result in audible ground-borne noise levels in residential buildings at the surface. The operation of the mine trains would be the major source of underground construction vibration since it would operate continuously during the excavation, mining and finishing of the tunnel. Since underground construction is expected to occur continuously over a 24-hour day, there is the potential for these operations, particularly the mine trains, to be perceptible during the nighttime sleep hours when background noise levels inside the residential buildings are very low.

Recent transit tunneling projects, such as the Metro Red Line Project in Los Angeles, used a driven-shield TBM for the mining work. A ground vibration study of the mining operations was conducted to estimate construction vibration both from actual excavation of the tunnel and from the trains used to haul mine spoils out of the tunnel. The primary conclusions of that study are:

- Vibration from the tunnel excavation would rarely be a significant problem in adjacent communities, although the vibration can be sufficient to cause several hours of intrusive low level ground-borne vibration at residential buildings above the tunnel.
- Although well below any damage thresholds, vibration from mine trains has the potential of causing intrusive ground-borne noise inside buildings above the tunnel.

Similar effects from the mining operations for this Project would be expected.

#### Mitigation Measures

Noise and vibration mitigation during construction will require improvement measures to meet the San Francisco Noise Ordinance Limits. In addition, all construction activities within 200 feet of a historic building or cultural resource structure will have to meet the vibration limits and monitoring requirements presented in Section 4.12 Noise and Vibration Affected Environment. The final determination of construction noise and vibration impacts will depend on the equipment and activities used by the Contractor to construct the proposed Central Subway Project. During final engineering design for the LPA, a more detailed construction noise and vibration analysis will be prepared to assess potential impacts to receivers at construction staging areas, tunnel portals, cut-and-cover station construction, and those within close proximity to the underground mining and excavation operations. Since this information on means and methods of construction is not available now, noise control measures are presented as typical control measures which have been used on other similar construction Projects. The Contractor for this Project would be responsible for hiring an acoustical consultant to prepare a Noise and Vibration Control Plan that would identify all potential impacts that may occur during construction and would provide adequate control measures to clearly demonstrate that the noise and vibration criteria and limits presented in this SEIR/SEIS would be achieved.

Noise control measures for construction noise would include the following:

- Use noise control devices, such as equipment mufflers, enclosures, and barriers. Natural and artificial barriers such as ground elevation changes and existing buildings can shield construction noise. Stage construction operations as far from noise sensitive uses as possible;

- Avoid residential areas when planning haul truck routes;
- Maintain all sound-reducing devices and restrictions throughout the construction period;
- Replace noisy equipment with quieter equipment (for example, a vibratory pile driver instead of a conventional pile driver and rubber-tired equipment rather than track equipment); and
- Change the timing and/or sequence of the noisiest construction operations to avoid sensitive times of the day.
- Hire or retain the services of an Acoustical Engineer to be responsible for preparing and overseeing the implementation of the Noise Control and Monitoring Plans.
- Prepare a Noise Control Plan that includes an inventory of construction equipment used during daytime and nighttime hours, estimate of Projected construction noise levels, and locations and types of noise abatement measures that may be required to meet the specified noise limits.
- In the case of nighttime construction, the Contractor will comply with the provisions of the nighttime noise variance issued by the San Francisco Police Department.
- Conduct periodic noise measurement in accordance with an approved Noise Monitoring Plan, specifying monitoring locations, equipment, procedures, and schedule of measurements and reporting methods to be used.
- During nighttime hours, use equipment at the surface of the construction site that, operating under full load, is certified to meet the specified lower noise level limits than standard equipment.

The Contractor would be responsible for the protection of vibration sensitive historic buildings structures that are within 200 feet of any construction activity. These historic structures have been identified in the Historic Architectural Survey Report (Garcia, 2007). The maximum peak particle vibration (PPV) velocity level, in any direction, at any of these structures should not exceed 0.12 inches/second for any length of time. The Contractor would be required to perform periodic vibration monitoring at the closest structure to any construction activities using approved seismographs. If at any time the construction activity exceeds this level, that activity will immediately be halted until such time as an alternative construction method can be used that would result in lower vibration levels.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

Noise and vibration during construction would be similar to the Alternative 2. The exception would be there is one double-track portal located on Fourth Street between Townsend and Brannan Streets. The

portal construction on Third Street as part of the Enhanced EIS/EIR Alignment would be eliminated. Potential impacts under this alternative would be limited to those buildings along Fourth Street.

Mitigation Measures

The mitigation measures would be the same as those identified for Alternative 2.

**Alternative 3 – Fourth/Stockton Alignment Option B (Modified LPA)**

Noise and vibration during construction would be similar to Alternative 2 except at the double-track portal located on Fourth Street between Bryant and Harrison Streets. The portal construction on Third Street as part of Alternative 2 would be eliminated. Potential impacts under this alternative would be limited to those buildings along Fourth Street from Bryant Street south.

Mitigation Measures

The mitigation measures would be the same as those identified for Alternative 2.

## **7.0 CEQA CONSIDERATIONS**

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This chapter describes those potential environmental effects identified in Chapter 3.0, Transportation, Chapter 5.0, Environmental Consequences and Mitigation Measures, and Chapter 6.0, Construction Methods, Impacts, and Mitigation Measures, that would be considered significant under the California Environmental Quality Act (CEQA). Potential cumulative impacts and the potential for the Project to stimulate unplanned growth are also described.

While CEQA requires that a determination of significant impacts be stated in an EIR, the National Environmental Policy Act (NEPA) does not have a similar requirement for an EIS. Under NEPA, significance is used to determine whether an EIS or some other level of documentation is required, and once a decision to prepare an EIS is made, the magnitude of the impact is evaluated and no further judgment of its significance is required. The CEQA significance criteria and determinations of significance of adverse effects have been summarized in this chapter. Significant environmental impacts which can not be avoided are also described in this chapter.

Under CEQA, a finding of significant impacts requires that mitigation measures be identified to alleviate or reduce the impact to less-than-significant, NEPA anticipates that an EIS will identify means to mitigate or reduce the adverse impacts of a project if such measures are not already included in the proposed action or alternatives. While Chapters 5.0 and 6.0 identify general mitigation measures, this chapter identifies mitigation measures as defined under CEQA to address significant impacts and improvement measures are identified to address impacts, which may be less-than-significant.

### **7.1 SIGNIFICANCE CRITERIA**

CEQA requires that an EIR identify the significant environmental effects of the Project (CEQA Guidelines Section 15126), but does not provide thresholds for significance. Instead, CEQA Guidelines Section 15064(b) states that “the determination...calls for careful judgment on the part of the public agency involved...” and that “an ironclad definition of significant effect is not possible because the significance of an activity may vary with the setting.” In May 2006, the San Francisco Board of Supervisors adopted Ordinance 1160-06 requiring the use of the CEQA Initial Study Checklist based on the form included in Appendix G in the state CEQA Guidelines for determining level of significance. Accordingly the Planning Department has recently adopted a new Initial Study checklist, consistent with Appendix G, but also incorporating additional questions specific to the urban environment of San Francisco. This new checklist includes some new topic areas that are generally not relevant within San Francisco and, upon consideration, have been determined not to involve any potential impacts resulting

from the proposed Project. These topics include agriculture, airports and airport plans, septic systems, and mineral resources. All other of the Appendix G requirements are discussed in their appropriate environmental categories. These criteria are summarized in Table 7-1.

Some impact categories lend themselves to scientific or mathematical analysis, and therefore to quantification. For other impact categories that are more qualitative or are dependent on changes to the existing setting, a hard-and-fast threshold is not generally feasible. In these cases, the definition of significant effects from the CEQA Guidelines (Section 15382), “a substantial adverse change in physical conditions” has been applied as the significance criterion. Also CEQA, unlike NEPA, does not require a discussion of socioeconomic effects except where they would result in physical changes, and states that social or economic effects shall not be treated as significant effects (see CEQA Guidelines Sections 15064 (f) and 15131). For this reason, socioeconomic criteria are not included in Table 7-1.

**TABLE 7-1**  
**CEQA SIGNIFICANCE CRITERIA**

<b>Impact Category</b>	<b>CEQA Significance Threshold</b>	<b>Source(s)</b>
Traffic (Congestion)	<p>The operational impact on signalized intersections is considered significant when project-related traffic causes the intersection level of service to deteriorate from LOS D or better to LOS E or F, or from LOS E to LOS F. The project may result in significant adverse impacts at intersections that operate at LOS E or F under existing conditions depending upon the magnitude of the project's contribution to the worsening of the average delay per vehicle.</p> <p>In addition, the project would have a significant adverse impact if it would cause major traffic hazards or contribute considerably to cumulative traffic increases that would cause deterioration in levels of service to unacceptable levels.</p>	State CEQA Guidelines, Appendix G and San Francisco Planning Department
Traffic (Circulation)	A significant impact would occur if the project would substantially change traffic circulation patterns, creating an unusual safety hazard, or eliminating access to surrounding areas.	State CEQA Guidelines, Appendix G.
Parking	<p>San Francisco does not consider parking supply as part of the permanent physical environment. Parking conditions are not static, as parking supply and demand varies from day to day, from day to night, from month to month, etc. Hence, the availability of parking spaces (or lack thereof) is not a permanent physical condition, but changes over time as people change their modes and patterns of travel.</p> <p>Parking deficits are considered to be social effects, rather than impacts on the physical environment as defined by CEQA. Under CEQA, a project's social impacts need not be treated as significant impacts on the environment. Environmental documents should, however, address the secondary physical impacts that could be triggered by a social impact. (CEQA Guidelines § 15131(a).) The social inconvenience of parking deficits, such as having to hunt for scarce parking spaces, is not an environmental impact, but there may be secondary physical environmental impacts, such as increased traffic congestion at intersections, air quality impacts, safety impacts, or noise impacts caused by congestion. In the experience of San Francisco transportation planners, however, the absence of a ready supply of parking spaces, combined with available alternatives to auto travel (e.g., transit service, taxis, bicycles or travel by foot) and a relatively dense pattern of urban development, induces many drivers to seek and find alternative parking facilities, shift to other modes of travel, or change their overall travel habits. Any such resulting shifts to transit service in particular, would be in keeping with the City's "Transit First" policy. The City's Transit First Policy, established in the City's Charter Section 16.102 provides that "parking policies for areas well served by public transit.</p> <p>The transportation analysis accounts for potential secondary effects, such as cars circling and looking for a parking space in areas of limited parking supply, by assuming that all drivers would attempt to find parking at or near the project site and then seek parking farther away if convenient parking is</p>	San Francisco Planning Department



**TABLE 7-1**  
**CEQA SIGNIFICANCE CRITERIA**

<b>Impact Category</b>	<b>CEQA Significance Threshold</b>	<b>Source(s)</b>
	unavailable. Moreover, the secondary effects of drivers searching for parking is typically offset by a reduction in vehicle trips due to others who are aware of constrained parking conditions in a given area. Hence, any secondary environmental impacts which may result from a shortfall in parking in the vicinity of the proposed project would be minor, and the traffic assignments used in the transportation analysis, as well as in the associated air quality, noise and pedestrian safety analyses, reasonably addresses potential secondary effects.	
Transit Services and Accessibility	The project would have a significant effect on the environment if it would cause a substantial increase in transit demand that could not be accommodated by adjacent transit capacity, resulting in unacceptable levels of transit service; or cause a substantial increase in delays or operating costs such that significant adverse impacts in transit service levels could result.	San Francisco Planning Department
Pedestrians	The project would have a significant effect on the environment if it would result in substantial overcrowding on public sidewalks, create potentially hazardous conditions for pedestrians, or otherwise interfere with pedestrian accessibility to the site and adjoining areas.	San Francisco Planning Department
Bicycles	The project would have a significant effect on the environment if it would create potentially hazardous conditions for bicyclists or otherwise substantially interfere with bicycle accessibility to the site and adjoining areas.	San Francisco Planning Department
Loading Activities	A project would have a significant effect on the environment if it would result in a loading demand during the peak hour of loading activities that could not be accommodated within proposed on-site loading facilities or within convenient on-street loading zones, and created potentially hazardous conditions or significant delays affecting traffic, transit, bicycles or pedestrians.	San Francisco Planning Department
Land Use	A significant impact would occur if the project would physically divide an established community; have a substantial adverse impact upon the existing character of the project's vicinity or conflict with any applicable land use plan, policy or regulation adopted for the purpose of avoiding or mitigating an environmental affect.	State CEQA Guidelines, Appendix G.
Population/Housing	A significant impact would occur if the project would directly or indirectly induce substantial population growth in an area or displace substantial numbers of existing housing units or residents requiring the construction of replacement housing elsewhere.  Unlike NEPA, CEQA does not require a discussion of socioeconomic effects, except where they would result in physical changes, and states that social or economic effects shall not be treated as significant effects unless there is a physical effect.	State CEQA Guidelines, Appendix G.  CEQA Guidelines Sections 15064(e) and 15131
Community Facilities and Services	A significant impact would occur if the project would: conflict with established recreational, educational or religious uses; conflict with adopted plans and goals of the community; or create additional demand for public service facilities, the expansion of which would result in significant environmental impact. A significant impact would also occur if acceptable service ratios, response	State CEQA Guidelines, Appendix G.

**TABLE 7-1**  
**CEQA SIGNIFICANCE CRITERIA**

<b>Impact Category</b>	<b>CEQA Significance Threshold</b>	<b>Source(s)</b>
	times or other performance objectives for Fire, Police, schools, parks or other public facilities would not be maintained or if the project would increase the use of public facilities such that substantial physical deterioration would occur or be accelerated.	
Cultural Resources	<p>A project is normally found to have a significant impact on the environment if the project would have a substantial adverse change to an historic resource – an archaeological site, an historic architectural structure, or an historic district.</p> <p>A “historic resource” is defined as a resource that is listed in or determined eligible for listing in the California Register of Historic Resources; listed in or determined eligible for listing in the National Register of Historic Places; one that is included as significant in a locally adopted register such as Article 10 and 11 of the San Francisco Planning Code; or one determined by the lead agency to be historically significant.</p> <p>A resource that is deemed significant due to its identification in a historic resource survey that meets the criteria of Public Resources Code Section 5024.1(g) would be presumed an historic resource unless a preponderance of evidence demonstrates otherwise. A “substantial adverse change” is defined as demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource would be materially impaired (a major change to the defining elements of historic character).</p> <p>A project may be found to have a significant impact on an archeological resource if it would impair or have a substantial adverse change to a resource that has been deemed an “historical resource” or a “unique archeological resource” or where it can be demonstrated that there is a potential for the resource to significantly contribute to questions of scientific or historical importance. Destruction of a unique paleontological site or geological feature or disturbance of human remains would also be considered a significant adverse effect of a project.</p>	State CEQA Guidelines, Appendix G, Section 21084.1 and San Francisco Planning Department
Visual and Aesthetics	<p>Would the project have a substantial effect on a scenic vista ,substantially degrade the existing visual character or the quality of the site and its surroundings, or generate obtrusive light or glare that would adversely affect day and nighttime views or substantially affect other properties?</p> <p>The project would have a significant effect on the environment if it would substantially damage degrade or obstruct publicly accessible views and resources or result in a substantial, demonstrable negative aesthetic effect;</p>	<p>State CEQA Guidelines, Appendix G.</p> <p>San Francisco Planning Department</p>
Shadow	A project would have a significant effect if it would result in substantial new shadow on public open	San Francisco Planning Code,

**TABLE 7-1**  
**CEQA SIGNIFICANCE CRITERIA**

<b>Impact Category</b>	<b>CEQA Significance Threshold</b>	<b>Source(s)</b>
	<p>space under the jurisdiction of the Recreation and Park Commission during the period from one hour after sunrise to one hour before sunset, at any time of the year.</p> <p>A project could also have a significant effect if it were to cast shadow so that direct sunlight was not maintained on named sidewalks in the downtown C-3 districts as defined in San Francisco Planning Code Section 146.</p>	Sections 295 and 146
Utilities	A significant impact would occur if the project would conflict with wastewater treatment requirements of the Bay Area Regional water Quality Control Board or require or result in the construction of: new water or wastewater treatment facilities or new storm water drainage facilities the construction of which would cause significant environmental effects. A significant impact would also occur if there were not sufficient water, wastewater treatment or landfill facilities available to serve the projects needs.	Derived from State CEQA Guidelines, Appendix G
Energy	A significant impact would occur if the project would encourage activities which result in the use of large amounts of fuel, water or energy; or use fuel, water, or energy in a wasteful manner.	Derived from State CEQA Guidelines, Appendix G
Geology and Seismicity	A significant impact would occur if the project would expose people or structures to major geologic hazards such as rupture of a known earthquake fault, strong seismic ground-shaking, liquefaction or landslides. A significant impact would also occur if the project resulted in substantial soil erosion, loss of topsoil or a substantial change in the topography of any unique geologic or physical features or if it were located on unstable or expansive soils so that there were substantial risks to life or property.	State CEQA Guidelines, Appendix G.
Hydrology and Water Quality	A significant impact would occur if the project would violate any water quality standards or waste discharge requirements, substantially change the existing drainage patterns, create or contribute substantially to runoff water that exceeds the existing or planned stormwater system or cause substantial flooding, erosion, or siltation, or would substantially degrade water quality, or would substantially degrade or deplete ground water resources.	Derived from State CEQA Guidelines, Appendix G
Biological Resources	<p>A project would have significant impact if there were a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or if there would be a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.</p> <p>A significant impact would also occur if the project were to substantially conflict with any local policies or ordinances protecting biological resources, such as natural areas or policies of the Open Space/Recreation Element or with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.</p>	State CEQA Guidelines, Appendix G
Hazards /Hazardous Materials	A significant impact would occur if the project would create a potential public health hazard involving the transport, use, production, or disposal of materials which pose a hazard to people or animal or plant	State CEQA Guidelines, Appendix G; City and County

**TABLE 7-1**  
**CEQA SIGNIFICANCE CRITERIA**

<b>Impact Category</b>	<b>CEQA Significance Threshold</b>	<b>Source(s)</b>
	<p>populations in the area affected, or if the project would emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school, or be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code 65962.5 or within the area in San Francisco identified pursuant to Article 20 of the S.F. Health Code (Maher Area) and, as a result, would create a significant hazard to the public or the environment.</p> <p>A significant impact would also occur if the project would impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation.</p>	of San Francisco Health Code
Air Quality	A significant impact would occur if the project would violate any ambient air quality standard (NAAQS or CAAQS) or obstruct implementation of the current BAAQMD Clean Air Plan, increase the number or frequency of violations of air quality standards, contribute substantially to an existing or projected air quality violations, expose sensitive receptors to substantial pollutant concentrations or cause objectionable odors affecting a substantial number of people.	State CEQA Guidelines, Appendix G; US EPA; BAAQMD
Noise and Vibration	<p>A significant impact would occur if the project would create a substantial permanent increase in the ambient noise levels above levels common and accepted in urban areas resulting in the exposure of people to noise levels in excess of local noise ordinance established standards and affect the use or enjoyment of nearby areas. A noise increase of 10 db is perceived as a doubling of noise, and is generally considered substantial.</p> <p>A significant impact would occur if the project would expose people to excessive and intrusive groundborne vibration or a groundborne noise level substantially affecting adjacent land uses. A vibration level of 75 VdB is generally considered intrusive for residential land uses.</p> <p>A significant impact would also occur if the project were to expose people to existing excessive ambient noise levels in the project vicinity.</p>	State CEQA Guidelines, Appendix G
Construction Period Effects	Construction impacts on traffic, transit, noise, air quality, and the visual environment would generally not be considered significant since construction-related changes are by their nature temporary. A significant impact would occur only if temporary effects substantially affected accessibility to an area for a long period of time, or posed a severe health or safety threat.	San Francisco Planning Department; State CEQA Guidelines, Section 15382
Source: San Francisco Planning Department		

## 7.2 FINDINGS OF SIGNIFICANCE

A summary of the environmental impacts associated with the implementation of the Project are summarized in Table 7-2. A determination as to the significance of the impacts and the mitigation measures and improvement measures recommended to reduce Project impacts are also identified. The detailed discussion of impacts and mitigation measures is included in Chapter 3.0, Transportation and Chapter 5.0, Environmental Consequences and Mitigation Measures.

All of the significant environmental impacts identified can be mitigated to a less-than-significant level except those related to traffic, residential and small business displacement, archaeological resources, and historical resources. These are summarized in Section 7.3.

## 7.3 SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CAN NOT BE AVOIDED

### 7.3.1 TRAFFIC (CONGESTION)

Under the No Project/TSM Alternative, traffic congestion and delays would increase at all of the five intersections analyzed. The Third/King and ~~Fourth/Harrison Streets~~ intersections would degrade from LOS D to LOS E, the Fourth/King Streets intersection would continue to operate at LOS E, and Sixth/Brannan Streets intersection would experience increased delays at LOS F in the a.m. peak hour. In the p.m. peak hour, the Third/King, Fourth/King, and Sixth/Brannan Streets intersections would continue to operate at LOS F. Under all Build Alternatives, the Third/King, Fourth/King, and Sixth/Brannan Streets intersections would operate at LOS F in the a.m. or p.m. peak hours. The Project would have a cumulatively considerable contribution to the 2030 adverse cumulative impact at the following locations: Sixth/Brannan Streets intersection for Alternative 2; and Third/King, ~~and Fourth/King for Alternatives 3A and 3B~~, and Fourth/Harrison Streets intersections for Alternative 3A and 3B (see Tables E-12 and E-13 in Appendix E). This determination was based on the examination of traffic volumes for the traffic movements which determine overall LOS intersection performance.

For Alternative 2, ~~two-three~~ of the five intersections analyzed would operate at LOS E or F conditions for Cumulative 2030 conditions during the a.m. peak hour and three of the five intersections analyzed would operate at LOS ~~E or~~ F conditions for Cumulative 2030 conditions during the p.m. peak hour. There would be a project-specific significant traffic impact at the Third/King intersection compared to No Project/TSM conditions due to a deterioration of LOS from ~~D-E~~ to F for the a.m. peak hour. The Project's share of future traffic growth at the Sixth/Brannan Streets intersection would constitute a cumulatively considerable contribution to adverse 2030 cumulative traffic conditions for the p.m. peak hour. Alternative 2 contributions to adverse cumulative conditions were found to be significant, in particular, as under Alternative 2 project-related traffic would constitute substantial percentages for

critical volume movements that would operate with adverse conditions. As project-related traffic would represent a

**TABLE 7-2**  
**SUMMARY OF ENVIRONMENTAL IMPACTS**

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
<b>TRANSPORTATION</b> <b>Transit</b> Construction	No construction impacts.	<p><u>Less-than-Significant Impact:</u></p> <ol style="list-style-type: none"> <li>1. Temporary reduction in traffic lanes on King, Third, Fourth, Harrison, Kearny, Geary, and Stockton Streets during construction would disrupt transit operations.</li> <li>2. F-line service would be temporarily disrupted for the subway crossing of Market Street.</li> <li>3. Rerouting of the 30-Stockton and 45-Union/Stockton trolley bus lines would likely be required.</li> </ol> <p><u>Improvement Measures:</u></p> <ol style="list-style-type: none"> <li>1. DPT will develop detour routes for all non-transit related traffic to minimize the construction disruption to transit.</li> <li>2. Overhead wires for the 30-Stockton and the 45-Union/Stockton lines will be temporarily relocated or reconstructed to alternative routes where feasible or motor coaches would be temporarily substituted on alternative routes.</li> </ol>	<p><u>Less-than-Significant Impact:</u></p> <p>Same as Alternative 2, except:</p> <ol style="list-style-type: none"> <li>1. Reduction in traffic lanes would not occur on Third, Harrison, Kearny, or Geary Streets</li> <li>2. Buses would be temporarily rerouted to the west side of Fourth Street.</li> <li>3. The bus stop at the southwest corner of Fourth and Howard Streets would be temporarily relocated.</li> <li>4. Construction of a TBM retrieval shaft near Washington Square would require temporary relocation of bus stops for the 30-Stockton and 45-Union/Stockton and possible temporary shifting of overhead wires to accommodate continued transit service.</li> <li>5. <u>Excavation of the construction shaft under the I-80 freeway between Bryant and Harrison Streets would also impact Golden Gate Transit bus operations.</u></li> <li>6. <u>Temporary disruption to BART service could occur</u></li> </ol>	<p><u>Less-than-Significant Impact:</u></p> <p>Same as Alternative 3A, except:</p> <ol style="list-style-type: none"> <li>1. The overall project duration of construction would be .5 years shorter.</li> <li>2. The bus stop at the southwest corner of Fourth and Howard Streets would not need to be relocated.</li> <li>3. <u>The BART entry at One Stockton Street would need to be closed temporarily during construction.</u></li> </ol> <p><u>Improvement Measures:</u></p> <p>Same as Alternative <del>2</del> <u>3A</u>.</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p><u>3. SFMTA will provide signing related to transit changes in Chinese as well as English.</u></p>	<p><u>during construction.</u></p> <p><i>Improvement Measures:</i>  <u>Same is Alternative 2, except SFMTA would coordinate with TJPA and GGBHTD to minimize construction impacts on Golden Gate Transit. SFMTA would stage excavation shaft construction and utility relocation to maintain access to the bus storage facility by Golden Gate buses and work with GGBHTD to develop bus detour routing plans for continued access. Access to the construction shaft would be scheduled to avoid conflict with the active bus periods.</u></p> <p><u>MTA and BART will prepare and enter into a Station Improvement Coordination Plan to include construction management procedures and processes to address any and all construction and operational impacts resulting from the tunnel boring. MTA will also coordinate with BART to develop bus bridges, if needed, public outreach, and other programs to minimize impacts to transit riders during construction.</u></p>	
Operation/Cumulative	<u>Less-than-Significant Impact:</u>	<u>Less-than-Significant Impact:</u>	<u>Less-than-Significant Impact:</u>	<u>Less-than-Significant Impact:</u>



Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
	<p>1. Muni Metro rail service on the Embarcadero and the 9AX San Bruno express buses are projected to experience capacity issues by 2030. The capacity constraints on the Embarcadero rail line between Market Street and Folsom Street would preclude capacity improvements for the rail service.</p> <p>2. Surface transit travel times would increase as a result of increased congestion on streets.</p> <p><i>Improvement Measure:</i> Muni will monitor ridership levels and modify service plans to increase transit capacity as ridership demand warrants.</p>	<p>The Central Subway rail service and the 9AX/<del>BX</del> San Bruno express buses are projected to experience capacity issues by 2030.</p> <p><i>Improvement Measure:</i> Same as Alternative 1.</p>	<p>Same as Alternative 2, <u>except the Powell Street Station may also experience capacity issues at the concourse level due to increased passenger activity at the northeast end of the station.</u></p> <p><i>Improvement Measure:</i> Same as Alternative 2, <u>except the MTA and BART will prepare and enter into a Station Improvement Coordination Plan for the Powell Street Station that will provide for, at a minimum, implementation of allocation of cost for any station infrastructure improvements necessary to maintain pedestrian safety and a pedestrian level of service of D or better at the Powell Street Station as a result of the Central Subway Project.</u></p>	<p>1. The Central Subway rail service <u>and the 9AX San Bruno Express</u> are <del>is</del> projected to experience capacity issues by 2030.</p> <p>2. The Powell Street Station <u>may also experience capacity issues at the concourse level due to increased passenger activity at the northeast end of the station.</u></p> <p><i>Improvement Measure:</i> Same as Alternative-2, 3A.</p>
Traffic Construction	No construction impacts.	<p><u>Less-than-Significant Impact:</u></p> <p>1. Temporary reduction in traffic lanes on King, Third, Fourth, Harrison, Kearny, Geary, and Stockton Streets during construction would disrupt traffic flows.</p> <p>2. The subway crossing of Market Street would disrupt traffic.</p> <p><i>Improvement Measures:</i> DPT will develop detour routes for all non-transit related traffic</p>	<p><u>Less-than-Significant Impact:</u></p> <p>Temporary reduction in traffic lanes on Fourth and Stockton Streets during construction would disrupt traffic flows.</p> <p><i>Improvement Measures:</i> Same as Alternative 2.</p>	<p><u>Less-than-Significant Impact:</u></p> <p>Same as Alternative 3A, except the overall duration would be 0.5 years shorter.</p> <p><i>Improvement Measures:</i> Same as Alternative 2.</p>

<b>Environmental Area/Impacts</b>	<b>Alternative 1 -No Project/TSM</b>	<b>Alternative 2 - EIS/EIR Enhanced Alignment</b>	<b>Alternative 3A - Fourth/Stockton Alignment Option A</b>	<b>Alternative 3B - Fourth/Stockton Alignment Option B</b>
		to minimize the construction		

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		disruption to traffic.		
Operation/Cumulative	<p><i>Significant Impacts:</i>  <del>Increases in traffic congestion and delays would occur in 2030 at all of the five intersections evaluated as a result of cumulative traffic growth. Third/King (a.m. peak only), Streets intersection would degrade from LOS E to LOS F in the a.m. peak hour and would continue to operate at LOS F in the p.m. peak hour. Fourth/King, and Sixth/Brannan Streets intersections would continue to operate at LOS E or F conditions in the a.m. and p.m. peak hours. The intersection of Fourth and Harrison Streets would degrade from LOS B to LOS E when compared to the existing conditions.</del></p> <p><i>Mitigation Measure:</i>  <del>Restriping the southbound curb lane of Fourth Street to accommodate a shared through/right turn lane to Harrison Street would mitigate the impacts to LOS B resulting in a less than significant impact. Harrison Street would mitigate the impacts to LOS B resulting in a less than</del></p>	<p><i>Significant Impacts:</i>  <del>Increases in traffic congestion and delays would occur in 2030 at three out of the five intersections evaluated. The Project would have a significant traffic impact at the Third/King Streets intersection in the a.m. peak hour due to degradation in LOS from <del>D-E</del> to F when compared to the No Project/TSM Alternative and a cumulatively considerable contribution to the cumulative traffic impacts at the Sixth/Brannan Streets intersection during the p.m. peak hour in 2030.</del></p> <p><i>Significant environmental effects which can not be avoided:</i>  The traffic impacts at Third/King and Sixth/Brannan Streets intersections could not be reasonably mitigated to a less-than-significant level.</p>	<p><i>Significant Impacts:</i>  <del>Increases in traffic congestion and delays would occur in 2030 at three out of the five intersections evaluated. The Project would have a significant traffic impact at the Third/King Streets intersection in the a.m. peak hour due to a degradation in LOS from <del>D-E</del> to F and at the Fourth/Harrison Streets intersection in the p.m. peak hour due to a degradation in LOS from C to E when compared to the No Project/TSM Alternative. This alternative would have a cumulatively considerable contribution to the adverse cumulative traffic impacts at the King Street intersections with Third and Fourth Streets and the Fourth/Harrison Streets intersection during the p.m. peak hour in 2030.</del></p> <p><i>Mitigation Measure:</i>  Restriping the southbound curb lane of Fourth Street to accommodate a shared through/right-turn lane to Harrison Street would mitigate the impacts to LOS B resulting in a less-than-significant</p>	<p><i>Significant Impacts:</i>  1. Same as Alternative 3A, except the Project would also have a significant impact at the <del>Fourth/Harrison Streets intersection during the a.m. peak hour when compared to the No Project/TSM Alternative and a cumulatively considerable impact on the cumulative traffic impacts at the King Street and Third Streets intersection during a.m. peak hour and the Fourth/Harrison Streets intersection during the p.m. peak hour in 2030.</del></p> <p>2. In addition, the portal at Fourth Street under I-80 may restrict access to the proposed bus storage facility at Perry Street and large truck movements onto Stillman Street.</p> <p><i>Mitigation Measures:</i>  Same as Alternative 3A, in addition SFMTA will explore <u>options design modifications to the portal location with Caltrans, the TJPA and Golden Gate Transit that will permit bus access to Perry Street and truck access to Stillman Street that will to reduce the impacts to</u></p>

<b>Environmental Area/Impacts</b>	<b>Alternative 1 -No Project/TSM</b>	<b>Alternative 2 - EIS/EIR Enhanced Alignment</b>	<b>Alternative 3A - Fourth/Stockton Alignment Option A</b>	<b>Alternative 3B - Fourth/Stockton Alignment Option B</b>
	<del>significant impact.</del>		impact.	a less-than-significant level.

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
	<p><i>Significant environmental effects which can not be avoided:</i></p> <p><del>None of the remaining traffic impacts could be reasonably mitigated. The traffic impacts at Third/King, Fourth/King, and Sixth/Brannan Streets intersections could not be reasonably mitigated to a less-than-significant level.</del></p>		<p><i>Significant environmental effects which can not be avoided:</i></p> <p>The traffic impacts at the Third/King and Fourth/King Streets intersections could not be reasonably mitigated to a less- than-significant level.</p>	<p><i>Significant environmental effects which can not be avoided:</i></p> <p>Same as Alternative 3A.</p>
<p><b>Freight and Loading Construction</b></p>	<p>No construction impacts.</p>	<p><u><i>Less-than-Significant Impact:</i></u></p> <p>1. During construction, temporary disruption to truck traffic flow and removal of on-street loading zones adjacent to construction work areas would occur along the Corridor on King, Third, Fourth, Harrison, Kearny, Geary, and Stockton Streets.</p> <p><u><i>Improvement Measures;</i></u></p> <p>1. DPT will develop detour routes for all non-transit related traffic to minimize the construction disruption to traffic.</p> <p>2. Immediately adjacent to the construction zones, a portion of the curb parking should be converted to short-term truck</p>	<p><u><i>Less-than-Significant Impact:</i></u></p> <p>Same as Alternative 2, except there would be no loss of on-street loading zones on King, Third, Harrison, Kearny, or Geary Streets.</p> <p><u><i>Improvement Measures:</i></u></p> <p>Same as Alternative 2.</p>	<p><u><i>Significant Impacts:</i></u></p> <p>Cumulative construction impacts could occur on the block bounded by Perry, Third, Stillman, and Fourth Streets due to sequential construction of the I-80 retrofit, Golden Gate Transit bus storage facility, and the Central Subway projects.</p> <p><u><i>Mitigation Measures:</i></u></p> <p>DPT will work with the property and business owners on Perry and Stillman Streets to develop temporary detour routes for traffic to maintain property access during construction.</p> <p>With the implementation of this mitigation measure, the</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		loading zones to facilitate delivery of goods to nearby businesses.		construction freight and loading impacts on this block would be mitigated to a less-than-significant level.  <u>Less-than-Significant Impact:</u> Same as Alternative 3A.  <u>Improvement Measures:</u> Same as Alternative 2.
Operation/Cumulative	<u>Less-than-Significant Impact:</u> The increase in traffic volumes is expected to impact all traffic flows, but would not disproportionately affect truck traffic.  <u>Improvement Measures:</u> No improvement measures are proposed.	<u>Less-than-Significant Impact:</u> Permanent removal of approximately 10 or 11 on-street loading spaces (3 on Third, Street, 2 on Fourth Street, and 5 or 6 near Union Square Station) would occur.  <u>Improvement Measures:</u> During final design, new locations for off-street loading should be identified along Third and Fourth Streets, which may displace on-street parking.	<u>Less-than-Significant Impact:</u> Permanent removal of some on-street loading spaces on Fourth Street, 5 or 6 near Union Square Station, and two spaces on Stockton Street between Clay and Washington Streets would occur.  <u>Improvement Measures:</u> During final design, new locations for off-street loading should be identified along Fourth Street or on Brannan Street for the 601 Lofts Building, which may displace on-street parking.	<u>Less-than-Significant Impact:</u> <u>1. Permanent removal of some on-street loading spaces on Fourth Street and four spaces on Stockton Street between Washington and Jackson Streets would occur.</u> <u>2. The access to Stillman Street for larger trucks would be restricted under this alternative due to the portal location.</u> <u>Improvement Measures:</u> Same as Alternative 2, <u>except SFMTA will explore with the TJPA and Golden Gate Transit options that will permit truck access to Stillman Street.</u>
<b>Parking</b> Construction	No construction impacts.	<u>Less-than-Significant Impact:</u> 1. All on-street parking would be temporarily prohibited in construction zones.	<u>Less-than-Significant Impact:</u> Less than Alternative 2 because less surface disruption with TBM.	<u>Less-than-Significant Impact:</u> Same as Alternative 3A.  <u>Improvement Measures:</u>

<b>Environmental Area/Impacts</b>	<b>Alternative 1 -No Project/TSM</b>	<b>Alternative 2 - EIS/EIR Enhanced Alignment</b>	<b>Alternative 3A - Fourth/Stockton Alignment Option A</b>	<b>Alternative 3B - Fourth/Stockton Alignment Option B</b>
		2. Use of the SXM would mean sequential loss of parking on a block by block basis along the	<i>Improvement Measures;</i>	Same as Alternative 2.

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		Corridor. <i>Improvement Measures;</i> 1. During construction, signs denoting alternative parking areas would be placed upstream of the construction zone. 2. Retained parking spaces should be designated for short-term and freight loading purposes.	Same as Alternative 2.	
Operation/Cumulative	No operation or cumulative impacts.	<u><i>Less-than-Significant Impact:</i></u> This alternative would eliminate 111 on-street parking spaces and 59 off-street parking spaces.  <i>Improvement Measures;</i> No improvement measures are proposed.	<u><i>Less-than-Significant Impact:</i></u> This alternative would eliminate 29 on-street parking spaces and 29 off-street parking spaces.  <i>Improvement Measures;</i> No improvement measures are proposed.	<u><i>Less-than-Significant Impact:</i></u> This alternative would eliminate 82 on-street parking spaces for the semi-exclusive option and <del>84</del> 79 spaces for the mixed-flow option and 59 off-street parking spaces. <u>An additional 3 spaces may be removed on the north side of Ellis Street to accommodate emergency exiting.</u> <i>Improvement Measures;</i> No improvement measures are proposed.
<b>Pedestrians</b> Construction	No construction impacts.	<u><i>Less-than-Significant Impact:</i></u> 1. Sidewalks on one side of the street would be temporarily closed during excavation of each of the subway stations. 2. The west sidewalk of Stockton Street would be closed during the entire construction period adjacent to the Union Square and Chinatown stations.	<u><i>Less-than-Significant Impact:</i></u> Same as Alternative 2.  <i>Improvement Measures:</i> Same as Alternative 2.	<u><i>Less-than-Significant Impact:</i></u> Same as Alternative 2, except that the west sidewalk on Stockton Street would be closed only during construction of the Chinatown Station <i>Improvement Measures;</i> Same as Alternative 2.



Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<i>Improvement Measures;</i> During excavation of subway stations, access to adjacent businesses should be maintained on the existing sidewalk or via temporary ADA compliant access ways.		
Operation/Cumulative	No operation or cumulative impacts	<p><u><i>Less-than-Significant Impact:</i></u> Sidewalk widths would be reduced adjacent to the Market Street and Union Square Stations.</p> <p><i>Improvement Measures;</i> 1. During final design, consideration should be given to widening the Stockton Street sidewalks near Union Square or reducing the width of the stairways and escalators. 2. Elevator shafts should be located so as not to block the line of sight of motorists exiting the garage to maximize pedestrian safety. 3. During final design, elevators, escalators, and stairways should be located as close as possible to the primary circulation path to facilitate disabled access.</p>	<p><u><i>Less-than-Significant Impact:</i></u> Sidewalk widths would be reduced adjacent to the Moscone and Union Square/Market Street Stations.</p> <p><i>Improvement Measures;</i> Same as Alternative 2, except that consideration should also be given to securing an easement within the Moscone Center right-of-way to maintain a minimum sidewalk width adjacent to the Moscone Center on Fourth and Howard Streets at the station entrance.</p>	<p><u><i>Less-than-Significant Impact:</i></u> Sidewalk widths on Geary Street would be reduced adjacent to the Union Square Station.</p> <p><i>Improvement Measures;</i> 1. During final design consideration should be given to ensure that stairways and escalators would not compete with sidewalk space for pedestrians. 2. Elevator shafts should be located so as not to block the line of sight of motorists exiting the garage to maximize pedestrian safety. 3. During final design, elevators, escalators, and stairways should be located as close as possible to the primary circulation path to facilitate disabled access.</p>
<b>Bicycles</b> Construction	No construction impacts.	<p><u><i>Less-than-Significant Impact:</i></u> 1. During construction, congestion on Third and Fourth Streets resulting from the temporary lane reduction could</p>	<p><u><i>Less-than-Significant Impact:</i></u> Same as Alternative 2 except: 1. There would be no Third Street traffic diversion related to</p>	<p><u><i>Less-than-Significant Impact:</i></u> Same as Alternative 3A.</p> <p><i>Improvement Measures;</i></p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>divert traffic to Second and Fifth Streets, thereby impacting bicycle travel on Bicycle Routes # 11 and #19, respectively.</p> <p>2. Temporary diversion of traffic from Geary and Stockton Streets could impact bicycle travel, especially on Route #17.</p> <p>3. Construction of the subway crossing of Market Street could impact travel on Bicycle Route #50 along Market Street.</p> <p><i>Improvement Measures;</i></p> <p>1. During construction, it is recommended that every effort be made to maintain wide curb lanes to facilitate bicycle travel or to reroute bicycle travel to Second and Fifth Streets.</p> <p>2. Implementation of the bicycle improvements proposed on Second and Fifth Streets would facilitate bicycle travel on these routes.</p>	<p>the Project.</p> <p>2. There would be no disruption to Market Street at Third due to the shallow subway crossing.</p> <p><i>Improvement Measures;</i></p> <p>Same as Alternative 2.</p>	<p>Same as Alternative 2.</p>
Operation/Cumulative	No operation or cumulative impacts	<p><u><i>Less-than-Significant Impact:</i></u></p> <p>Diversion of traffic from Third and Fourth Street resulting from increased congestion associated with the project implementation could permanently impact the proposed bicycle lanes along Second and Fifth Streets.</p> <p><i>Improvement Measures:</i></p>	<p><u><i>Less-than-Significant Impact:</i></u></p> <p>Diversion of traffic from Fourth Street, resulting from increased congestion associated with the project implementation could permanently impact the proposed bicycle lanes along Second and Fifth Streets.</p> <p><i>Improvement Measures:</i></p>	<p><u><i>Less-than-Significant Impact:</i></u></p> <p>Same as Alternative 3A.</p> <p><i>Improvement Measures:</i></p> <p>Same as Alternative 2.</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		Implementation of the Second and Fifth Street bicycle projects are recommended to facilitate bicycle travel in South of Market.	Same as Alternative 2.	
<b>Emergency Vehicle Access</b> Construction	No construction impacts.	<p><u>Less-than-Significant Impact:</u></p> <ol style="list-style-type: none"> <li>1. Response times from Fire Station #8 along Third and Fourth Streets would be impacted by construction along Third and Fourth Streets for approximately 18 to 24 months.</li> <li>2. Construction on the Union Square Station would affect response from Fire Station #1 times along Stockton Street for 12 to 18 months.</li> <li>3. Temporary lanes closures on Stockton Street for the construction of the Chinatown Station may affect response times from Fire Station #2.</li> </ol> <p><u>Improvement Measures;</u></p> <ol style="list-style-type: none"> <li>1. DPT will develop alternative detour routes for all general traffic to minimize the construction disruption to traffic flows and emergency vehicles.</li> <li>2. Contractor will be required to develop a site specific emergency access response plan as part of compliance with bid specifications.</li> </ol>	<p><u>Less-than-Significant Impact:</u></p> <p>Same as Alternative 2, except:</p> <ol style="list-style-type: none"> <li>1. Construction would occur only on Fourth Street, not on Third Street and if the TBM were extracted in North Beach rather than in Chinatown, there would be one less week of potential disruption to Fire Station #2.</li> <li>2. The following locations would have temporary disruption to emergency access: west side of Fourth Street between Clementina and Howard Streets; Moscone Center West at the northwest corner of Fourth and Howard Streets; east side of Stockton Street between Post and Ellis; west side of Stockton Street between O'Farrell and Ellis; and the southwest corner of Stockton and Clay Streets.</li> </ol> <p><u>Improvement Measures;</u></p> <p>Same as Alternative 2.</p>	<p><u>Less-than-Significant Impact:</u></p> <p>Same as Alternative 3A, except:</p> <ol style="list-style-type: none"> <li>1. There would be no impacts at Moscone Center West.</li> <li>2. No impacts on Stockton Street between Post and Maiden Lane.</li> <li>3. Access to the west side of Stockton Street between Washington and Jackson Streets would be restricted.</li> </ol> <p><u>Improvement Measures;</u></p> <p>Same as Alternative 2.</p>
Operation/Cumulative	No operation or cumulative impacts	<p><u>Less-than-Significant Impact:</u></p> <p>The introduction of a single-track</p>	<p><u>Less-than-Significant Impact:</u></p> <p>Same as Alternative 2, except</p>	<p><u>Less-than-Significant Impact:</u></p> <p>Same as Alternative 3A, except</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>median in the middle of Fourth Street would require fire trucks exiting Fire Station #8 on Bluxome Street to cross the entire trackway to travel contra-flow on Fourth Street.</p> <p><i>Improvement Measures:</i> DPT will be upgrading traffic signals with emergency vehicle preemption equipment in order to minimize the emergency response time and improve signal operations.</p>	<p>there would be a double-track median to cross in Fourth Street.</p> <p><i>Improvement Measures:</i> Same as Alternative 2.</p>	<p>the trackway would be about 3 feet wider than under Alternative 2 <u>and with two-way operation on Fourth Street, there would be no contra-flow travel.</u></p> <p><i>Improvement Measures:</i> Same as Alternative 2.</p>
<b>LAND USE</b> Construction	No construction impacts.	<p><u><i>Less-than-Significant Impact:</i></u> Construction would not cause a change in land use patterns or neighborhood character, but would temporarily disrupt access to the adjacent uses as described under Transportation.</p> <p><i>Improvement Measures:</i> Public information programs and signage will be used to minimize impacts to adjacent land uses during construction.</p>	<p><u><i>Less-than-Significant Impact:</i></u> Same as Alternative 2, but would have a lesser area of surface disruption.</p> <p><i>Improvement Measures:</i> Same as Alternative 2.</p>	<p><u><i>Less-than-Significant Impact:</i></u> Same as Alternative 3A, except that the surface area of disruption would be greater than under Alternative 3A <u>and an amendment of Planning Code would be required to allow the demolition of residential apartment units.</u></p> <p><i>Improvement Measures:</i> Same as Alternative 2.</p>
Operation/Cumulative	No operation or cumulative impacts.	<p><u><i>Less-than-Significant Impact:</i></u> Minor changes to land use or neighborhood character would be associated with the new station that would be built in the street (Third Street) or off-street for the subway sections as demolition of</p>	<p><u><i>Less-than-Significant Impact:</i></u> Same as Alternative 2, except the Moscone Station would also replace a gas station.</p>	<p><u><i>Less-than-Significant Impact:</i></u> Same as Alternative 3A.</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		one building in Chinatown would be required.		
<b>SOCIOECONOMIC (POPULATION AND HOUSING)</b> Construction	No construction impacts.	<u>Less-than-Significant Impact:</u> The Project would create temporary construction-related jobs that would not be expected to have a substantial effect on the regional population.	<u>Less-than-Significant Impact:</u> Same as Alternative 2.	<u>Less-than-Significant Impact:</u> Same as Alternative 2, <u>except an amendment of Planning Code would be required to allow the demolition of residential apartment units.</u>
Operation/Cumulative	<u>Less-than-Significant Impacts:</u> 1. Lack of transit investment could result in long-term degradation of mobility in the Corridor, but would not be expected to have a major affect on planned employment and population growth.	<u>Significant Impacts:</u> Acquisition of one parcel for the Chinatown Station would cause the displacement of 10 small businesses <del>and one or two residential units</del> in a predominantly minority and low income neighborhood. <del>All displaced residents would be relocated.</del>  <u>Mitigation Measures:</u> Redevelop the Chinatown Station site with affordable housing units above the station and ground floor retail where possible.  <u>Significant environmental effects which can not be avoided:</u> The construction of new <u>affordable housing units/ground floor retail</u> would not mitigate to a less-than-significant level the disruption to existing <del>residents</del> and small businesses associated with the temporary dislocation as	<u>Significant Impacts:</u> Same as Alternative 2.  <u>Mitigation Measures:</u> Same as Alternative 2.  <u>Significant environmental effects which can not be avoided:</u> Same as Alternative 2.  <u>Less-than-Significant Impacts:</u> Same as Alternative 2, except: 1. Alternative 3A would displace only 29 public off-street parking spaces. 2. Would require acquisition of an additional parcel for the Moscone Station causing the displacement of one business. 3. Would not result in the displacement of subsurface basement uses along Market Street.	<u>Significant Impacts:</u> Acquisition of one parcel for the Chinatown Station would cause the displacement of 8 small businesses and 17 residential units in a predominantly minority and low income neighborhood.  <u>Mitigation Measures:</u> Same as Alternative 2, <u>except the loss of affordable housing would not mitigate to a less-than significant level the disruption to existing residents as well as businesses.</u>  <u>Significant environmental effects which can not be avoided:</u> Same as Alternative 2.  <u>Less-than-Significant Impacts:</u> Same as Alternative 2, except: 1. The Project would require the

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>new units are constructed..</p> <p><u>Less-than-Significant Impacts:</u></p> <ol style="list-style-type: none"> <li>1. The Project would create 40 new jobs that would not be expected to have a long-term major impact on the employment or population characteristics of the city or the region.</li> <li>2. The Project would require the acquisition of 4 easements and the displacement of 30 private and 29 public off-street parking spaces.</li> <li>3. The greatest amount of business <del>and residential</del> displacement would occur in the Chinatown neighborhood, but the neighborhood would receive increased accessibility as called for in the Project Purpose &amp; Need.</li> <li>4. There would be displacement of subsurface basement uses along Stockton Street at the Union Square Station and along Market Street between the Powell and Montgomery Street BART Stations.</li> </ol> <p><u>Improvement measures:</u></p> <p>No improvement measures would be required as acquisition and relocation activities would follow the Uniform Relocation Act and eminent domain law.</p>	<p><u>Improvement measures:</u></p> <p>Same as Alternative 2.</p>	<p>acquisition of 2 easements and the displacement of 59 public off-street parking spaces.</p> <p>3. Would not result in the displacement of subsurface basement uses along Market Street.</p> <p><u>Improvement measures:</u></p> <p>Same as Alternative 2.</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
<b>COMMUNITY FACILITIES</b> Construction	No construction impacts.	<p><u>Less-than-Significant Impacts:</u></p> <ol style="list-style-type: none"> <li>1. Construction of this alternative could temporarily disrupt access to community facilities and parks along the Corridor (Union Square and Willie “Woo Woo” Wong Playground).</li> <li>2. Lane closures during construction could affect emergency vehicle access time, particularly for Fire Station #8 which is located on Bluxome Street off of Fourth Street.</li> <li>3. Station construction at Union Square and Chinatown Stations and adjacent to Yerba Buena Gardens would result in temporary noise and dust impacts for park users, which would be minimized by adherence to noise regulations.</li> <li>4. Emergency access and circulation could be temporarily disrupted on streets leading to construction sites.</li> </ol> <p><u>Improvement Measures:</u></p> <ol style="list-style-type: none"> <li>1. Pedestrian access would be maintained to all community facilities, parks, and recreation areas during construction.</li> <li>2. Traffic detours will be put in place to minimize disruption to traffic and public transit along the</li> </ol>	<p><u>Less-than-Significant Impacts:</u></p> <p>Impacts would be less than those identified for Alternative 2 as Third, Harrison, Kearny, and Geary Streets would not be disrupted. The use of the TBM would result in less surface disruption than would occur under the surface excavation method used in Alternative 2.</p> <p><u>Improvement Measures:</u></p> <p>Same as Alternative 2.</p>	<p><u>Less-than-Significant Impacts:</u></p> <p>Impacts same as Alternative 2, except the impacts would not occur for Willie “Woo Woo” Wong Playground. Construction impacts would occur at the Gordon Lau Elementary School.</p> <p><u>Improvement Measures:</u></p> <p>Same as Alternative 2, except no noise wall would be required at Willie “Woo Woo” Wong Playground.</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>Corridor.</p> <p>3. Noise limits will be included in the specifications to ensure that construction is in compliance with City regulations.</p> <p>4. A temporary noise wall will be constructed east of the Chinatown Station site to minimize noise and dust impacts to the Willie “Woo Woo” Wong Playground during construction.</p> <p>5. Use of a uniform police officer or traffic control officer, paid for by MTA, at construction sites could facilitate traffic flows.</p>		
Operation	<p><u>Less-than-Significant Impacts:</u></p> <p>1. Lack of transit investment could result in long-term degradation of mobility in the Corridor, but would not be expected to have a major affect on access to community facilities, parklands, or recreational facilities or cause major impedance for emergency response times.</p>	<p><u>Less-than-Significant Impacts:</u></p> <p>1. The placement of vent shafts and station entries and elevators in Union Square Plaza would permanently remove 1,517 square feet of open space for transportation purposes.</p> <p>2. Pedestrian traffic to and from the Union Square plaza would be increased as would pedestrian traffic on Hang Ah Alley.</p> <p><u>Improvement Measures:</u></p> <p>1. During the final design, minimize the footprint of station entrances in Union Square plaza and locate them in such a manner as to minimize disruption to park users.</p> <p>2. Design subway entrances so</p>	<p><u>Less-than-Significant Impacts:</u></p> <p>Same as described for Alternative 2, <u>except improvements to the existing Powell Street Station, as needed for the connection to the UMS Station, will be addressed in cooperation with BART during final design of the station connections. This will include assessment and, if necessary, implementation of improvements to the existing vertical circulation, platform capacity, lighting, ventilation system, fire suppression system and way-finding. The emergency ventilation system for the UMS shall be designed and operating procedures written/revised and tested to ensure that the UMS and Powell</u></p>	<p><u>Less-than-Significant Impacts:</u></p> <p>Same as Alternative-2 <u>3A</u>, except that only 1,690 square feet of open space would be permanently removed for transportation purposes in Union Square. The vent shafts would be located in the Ellis/O’Farrell garage rather than in Union Square. Access to the Union Square/Market Street Station would be from Geary Street and would not result in increased pedestrian traffic through the plaza and access to and from Willie “Woo Woo” Wong Playground would not be impacted.</p> <p><u>Improvement Measures:</u></p> <p>Same as Alternative 2, except</p>



Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>they are visually integrated with the existing park design.</p> <p>3. Ensure subway entrances are maintained by MTA on a regular basis to keep them free of litter and graffiti in perpetuity.</p> <p>4. The secondary access to the Chinatown Station could be closed to minimize impacts to Hang Ah Alley.</p>	<p><u>Street Station emergency ventilation systems do not adversely affect each other during an emergency event or system test.</u></p> <p><i>Improvement Measures:</i> Same as described for Alternative 2.</p>	closure of Hang Ah Alley would not be relevant.
Cumulative	Same as operation impacts described above for Alternative 1.	<p><i>Less-than-Significant Impacts.</i></p> <p>Growth in the Study Area in conjunction with increased access could place increased demands on community facilities, parks, and recreation facilities.</p>	<p><i>Less-than-Significant Impacts.</i></p> <p>Same as Alternative 2.</p>	<p><i>Less-than-Significant Impacts.</i></p> <p>Same as Alternative 2.</p>
<b>CULTURAL RESOURCES</b> <b>Archaeological</b> Construction	No construction impacts.	<p><i>Significant Impacts:</i></p> <p>1. One known prehistoric archaeological resource (CA-SFR-2) may be impacted as a result of construction trenching on Third Street, between Folsom and Bryant Streets.</p> <p>2. At least 14 locations were identified in this alignment as sensitive for the presence of prehistoric archaeological resources.</p> <p>3. Six locations where historical archaeological resources might be uncovered were identified in the alignment.</p> <p><i>Mitigation Measures:</i></p> <p>1. Consistent with the SHPO</p>	<p><i>Significant Impacts:</i></p> <p>1. At least 6 locations were identified in this alignment as sensitive for the presence of prehistoric archaeological resources.</p> <p>2. One known historical archaeological resource (CA-SFR-137H) may be impacted as a result of the placement of a construction yard in this alignment.</p> <p>3. Fifteen locations where historical archaeological resources might be uncovered were identified in the alignment.</p> <p><i>Mitigation Measures:</i></p>	<p><i>Significant Impacts:</i></p> <p>Same as Alternative 3A, except 13 locations have been identified along the alignment, where historical archaeological resources may be uncovered during construction.</p> <p><i>Mitigation Measures:</i></p> <p>Same as Alternative 2.</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>Programmatic Agreement and the MOU with the City, MTA would work with a qualified archaeologist to ensure that all state and federal regulations regarding Native American concerns are enforced.</p> <p>2, Limited subsurface testing in identified archaeologically sensitive areas shall be conducted once an alignment has been selected.</p> <p>3. During construction, archaeological monitoring shall be conducted in those sections of the alignment identified in the HCASR and through pre-construction testing as moderately to highly sensitive for prehistoric and historic-era archaeological deposits.</p> <p>4. Upon completion of archaeological field investigations, a comprehensive technical report shall be prepared for approval by the San Francisco Environmental Review Officer and SHPO that describes the archaeological findings and interpretations in accordance with state and federal guidelines.</p> <p>5. If unanticipated cultural deposits are found during subsurface construction, soil disturbing activities in the vicinity of the find shall be halted until a qualified archaeologist can</p>	Same as Alternative 2.	

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>assess the discovery and make recommendations for evaluation and appropriate treatment in keeping with adopted regulations and policies.</p> <p><i>Significant environmental effects which can not be avoided:</i></p> <p>There is no absolute assurance that the impacts to archaeological resources can be mitigated to a less-than-significant level.</p>		
Operation	No operational impacts.	No operational impacts.	No operational impacts.	No operational impacts.
Cumulative	No cumulative impacts.	No cumulative impacts.	No cumulative impacts.	No cumulative impacts.
<b>Historic Architectural Resources</b> Construction	No construction impacts.	<p><i>Significant Impacts:</i></p> <p>1. One historical architectural resource located at 814-828 Stockton Street that is contributory to the Chinatown Historic District would be demolished to construct the Chinatown Station. Removal of this building would have an adverse effect on the Historic District.</p> <p>2. 34 historical architectural resources along the alignment could potentially be affected by temporary construction-related ground-borne vibration or visual impacts.</p> <p><i>Mitigation Measures:</i></p> <p>1. Partial preservation of 814-</p>	<p><i>Significant Impacts:</i></p> <p>Same as Alternative 2, except 25 (34 if the North Beach Construction Variant is implemented) historical architectural resources have the potential for temporary construction effects from ground-borne vibration or visual disturbance.</p> <p><i>Mitigation Measures:</i></p> <p>Same as Alternative 2.</p>	<p><i>Significant Impacts:</i></p> <p>1. One historical architectural resource located at 933-949 Stockton Street that is contributory to the Chinatown Historic District would be demolished to construct the Chinatown Station. This would have an adverse effect on the Historic District.</p> <p>2. 25 historical architectural resources along the alignment could potentially be impacted by construction-related ground-borne vibration and visual disturbance.</p> <p><i>Mitigation Measures:</i></p> <p>Same as Alternative 2, except the historic resource is 933-949</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>828 Stockton Street or incorporation of elements of 814-828 Stockton Street into the design of the new station building; salvage significant architectural features from the building for conservation into a historical display or exhibit in the new Chinatown station or in museums; and/or develop a permanent interpretive display for public use on the T-Third line cars or station walls.</p> <p><i>Significant environmental effects which can not be avoided:</i></p> <p>Implementation of these mitigation measures would not reduce the impacts to historical resources to a less-than-significant level; significant adverse impacts to historic resources and to the Historic District would occur.</p> <p><i>Improvement Measures:</i></p> <ol style="list-style-type: none"> <li>1. If the 814-828 Stockton Street building is demolished, perform a Historic American Buildings Survey/Historic American engineering Record documentation.</li> <li>2. Pre-drilling for pile installation in areas that would employ seacant piles with ground-supporting walls in the</li> </ol>		Stockton Street.

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>cut-and-cover areas would reduce the potential effects of vibration.</p> <p>3. Vibration monitoring of historic structures adjacent to tunnels and portals will be specified in the construction documents to ensure that historic properties do not sustain damage during construction. Vibration impacts would be mitigated to a less-than-significant level. If a mitigation monitoring plan provides the following:</p> <ul style="list-style-type: none"> <li>a. The contractor will be responsible for the protection of vibration-sensitive historic building structures that are within 200 feet of any construction activity.</li> <li>b. The maximum peak particle vibration (PPV) velocity level, in any direction, at any of these historic structures should not exceed 0.12 inches/second for any length of time.</li> <li>c. The Contractor will be required to perform periodic vibration monitoring at the closest structure to ground disturbing construction activities, such as tunneling and station excavation, using approved seismographs.</li> <li>d. If at any time the construction activity exceeds this level, that activity will immediately be halted until such time as an</li> </ul>		

<b>Environmental Area/Impacts</b>	<b>Alternative 1 -No Project/TSM</b>	<b>Alternative 2 - EIS/EIR Enhanced Alignment</b>	<b>Alternative 3A - Fourth/Stockton Alignment Option A</b>	<b>Alternative 3B - Fourth/Stockton Alignment Option B</b>
		alternative construction method can be identified that would result in lower vibration levels.		
Operation	No operational impacts.	<p><i>Significant Impacts:</i></p> <p>1. Construction of a new station in Chinatown on a site occupied by an historic structure would create a visual break in the cohesive grouping of contextually-related buildings resulting in potential adverse impacts to the Chinatown Historic District.</p> <p><i>Mitigation Measures:</i></p> <p>Same as outlined for Construction impacts above.</p> <p><i>Significant environmental effects which can not be avoided:</i></p> <p>Implementation of these mitigation measures would not reduce the impacts to historical resources to a less-than-significant level; significant adverse impacts to historic resources would occur.</p> <p><i>Less-than-Significant Impacts:</i></p> <p>Station entrances located in Union Square would permanently alter the plaza and parking garage, but would not be considered significant due to the recently redesigned landscape of</p>	<p><i>Significant Impacts:</i></p> <p>Same as Alternative 2.</p> <p><i>Mitigation Measures:</i></p> <p>Same as Alternative 2.</p> <p><i>Significant environmental effects which can not be avoided:</i></p> <p>Same as Alternative 2.</p> <p><i>Less-Than-Significant Impacts:</i></p> <p>Same as Alternative 2.</p> <p><i>Improvement Measures:</i></p> <p>Same as Alternative 2.</p>	<p><i>Significant Impacts:</i></p> <p>Same as Alternative 2.</p> <p><i>Mitigation Measures:</i></p> <p>Same as Alternative 2.</p> <p><i>Significant environmental effects which can not be avoided:</i></p> <p>Same as Alternative 2.</p> <p><i>Less-Than-Significant Impacts:</i></p> <p>Same as Alternative 2.</p> <p><i>Improvement Measures:</i></p> <p>Same as Alternative 2.</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>the plaza.</p> <p><i>Improvement Measures:</i></p> <ol style="list-style-type: none"> <li>1. Potential visual impacts at Union Square and Chinatown Stations will be minimized through the use of design and architectural materials that would be compatible with the surrounding structures and landscape. All final designs for stations will be subject to Design Review by the City.</li> <li>2. The design for each of the new stations will be reviewed by the Environmental Review Officer, the City Preservation Officer, and a historic architect hired by MTA for compliance with the Secretary of Interior's standards based on their compatibility with the character-defining features of each of the districts.</li> </ol>		
Cumulative	No cumulative impacts.	No cumulative impacts.	No cumulative impacts.	No cumulative impacts.
<b>VISUAL AND AESTHETIC RESOURCES</b> Construction	No construction impacts.	<p><i>Less-than-Significant Impacts:</i></p> <p>The presence of construction equipment at the Moscone, Union Square, and Chinatown Station locations would temporarily obstruct public views of these scenic landscapes and would temporarily change the streetscape along the Corridor.</p>	<p><i>Less-than-Significant Impacts:</i></p> <p>Same as Alternative 2, except the North Beach Construction Variant would introduce temporary visual impacts near Washington Square.</p> <p><i>Improvement Measures:</i></p> <p>Same as Alternative 2.</p>	<p><i>Less-than-Significant Impacts:</i></p> <p>Same as Alternative 3A.</p> <p><i>Improvement Measures:</i></p> <p>Same as Alternative 2.</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p><i>Improvement Measures:</i></p> <ol style="list-style-type: none"> <li>1. Construction staging areas and excavation sites will be screened from view during construction.</li> <li>2. In visually sensitive landscapes, like Union Square and Chinatown, temporary screening or physical barriers (noise walls) around the station construction sites and shaded night lights are recommended to reduce the visual effects of construction equipment and to reduce glare.</li> </ol>		
Operation/Cumulative	No operational or cumulative impacts.	<p><i>Less-than-Significant Impacts:</i></p> <ol style="list-style-type: none"> <li>1. The portals on Third and Fourth Street would introduce new visual elements on the streetscape that would be visible to motorists, pedestrians, and adjacent residents and businesses.</li> <li>2. The station entrances at Moscone Station would be located in the Tehama Pedestrian Way and vent shafts along the southeast exterior of the Moscone Center; they would not detract from existing architecture or landscape features.</li> <li>3. Utility cabinets would be installed along the east and west sides of the Mission and Third Street intersections and would be visible to pedestrians.</li> <li>4. Station entrances and vent shafts for the Union Square</li> </ol>	<p><i>Less-than-Significant Impacts:</i></p> <ol style="list-style-type: none"> <li>1. The portals on Fourth Street would introduce new visual elements on the streetscape that would be visible to motorists, pedestrians, and adjacent residents and businesses.</li> <li>2. The station entrances and vent shafts at Moscone Station would be located at an off-street location. This would require the demolition of an existing gas station and construction of a station entrance and transit-oriented development in the future which would change the visual character at the southwest corner of Fourth and Clementina Streets.</li> <li>3. Visual impacts for the Union Square/Market Street and the Chinatown Stations would be</li> </ol>	<p><i>Less-than-Significant Impacts:</i></p> <ol style="list-style-type: none"> <li>1. By moving the portals on Fourth Street to under the freeway, the visual impacts to pedestrians and adjacent residents and businesses would be less than under Alternative 3A.</li> <li>2. The station entrances and vent shafts at Moscone Station would be located at an off-street location. This would require the demolition of an existing gas station and construction of a station entrance and transit-oriented development in the future which would change the visual character at the southwest corner of Fourth and Clementina Streets.</li> <li>3. Station entrances for the Union Square Station would be</li> </ol>



Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>Station would be visible in the plaza from Maiden Lane and the east side of Stockton Street.</p> <p>5. The demolition of an existing building to accommodate the Chinatown Station and the construction of a new station entrance and transit-oriented development in the future would visually change the street façade along Stockton Street and also the view from Willie “Woo Woo” Wong Playground.</p> <p>6. There would be minor shading of the tennis courts at Willie “Woo Woo” Wong Playground, but would not be considered substantial in the context of the adjacent 4- and 6-story buildings.</p> <p><i>Improvement Measures:</i> Station architectural treatment for the exterior façade in the visually sensitive Union Square and Chinatown station areas would be developed during preliminary and final design in consultation with the Planning, Recreation and Parks Departments, the Union Square Merchants Association, and the Chinatown Association.</p>	<p>the same as described for Alternative 2.</p> <p><i>Improvement Measures:</i> Same as Alternative 2.</p>	<p>visible in the plaza from Stockton and Geary Streets. Vent shafts would be extended above the roof of the Ellis/O’Farrell garage rather than be placed in Union Square and therefore would not be visible to pedestrians.</p> <p>4. The demolition of an existing building to accommodate the Chinatown Station and the construction of a new station entrance and transit-oriented development in the future would visually change the street façade along Stockton Street.</p> <p><i>Improvement Measures:</i> Same as Alternative 2.</p>
<b>UTILITIES AND ENERGY</b> Construction	No construction impacts.	<p><i>Less-than-Significant Impacts:</i></p> <p>1. Construction of the subway and stations would require major utility relocation work, which could affect private parcel</p>	<p><i>Less-than-Significant Impacts:</i> Same as Alternative 2, except:</p> <p>1. The use of TBMs would result in less disruption of</p>	<p><i>Less-than-Significant Impacts:</i> Same as Alternative 3A.</p> <p><i>Improvement Measures:</i></p>

<b>Environmental Area/Impacts</b>	<b>Alternative 1 -No Project/TSM</b>	<b>Alternative 2 - EIS/EIR Enhanced Alignment</b>	<b>Alternative 3A - Fourth/Stockton Alignment Option A</b>	<b>Alternative 3B - Fourth/Stockton Alignment Option B</b>
		<p>connections to main utility lines and result in short-term utility service disruption as relocated utility lines are reconnected to the utility system.</p> <p>2. Utility relocation would require street and sidewalk excavations that would impact traffic and pedestrian flows adjacent to the relocation areas. Permanent vacation of sub-surface sidewalk basements may be required.</p> <p><i>Improvement Measures:</i> Utility relocation coordination would take place during detailed design in consultation with the utility agencies to ensure that pedestrian and vehicular flows are maintained.</p>	<p>utilities along the tunnel.</p> <p>2. The North Beach Construction Variant would result in disruption to utilities on Columbus Avenue between Union and Filbert Streets for construction of the TBM retrieval shaft.</p> <p><i>Improvement Measures:</i> Same as Alternative 2.</p>	Same as Alternative 2.
Operation/Cumulative	No operational or cumulative impacts.	No operational or cumulative impacts.	<p><i>Less-than-Significant Impacts:</i> This alternative would increase energy consumption above that projected for Alternative 1 by 16 million BTU's, as the reduction in fossil use would not completely offset the increased electrical energy consumption associated with the operation of light rail service.</p>	No operational or cumulative impacts.
<b>GEOLOGY AND SEISMICITY</b> Construction	No construction impacts.	<p><i>Significant Impacts:</i> 1. Construction period settlement could cause damage to existing building foundations, subsurface</p>	<p><i>Significant Impacts:</i> Same as Alternative 2, except the use of TBMs for deep tunnel construction would minimize</p>	<p><i>Significant Impacts:</i> Same as Alternative 3.</p> <p><i>Mitigation Measures:</i></p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>utilities, and surface improvements.</p> <p>2. Construction of the shallow subway crossing over the BART tunnel would be expected to result in reduction of ground loads and upward displacement of the BART/Muni Metro tunnels.</p> <p><i>Mitigation Measures:</i></p> <ol style="list-style-type: none"> <li>Provisions such as concrete diaphragm walls to support the excavation and instrumentation to monitor settlement and deformation would be used to ensure that structures adjacent to tunnel alignments are not affected by excavations.</li> <li>Tunnel construction methods that minimize ground movement, such as pressure-faced TBMs, Sequential Excavation Method, and ground improvement techniques such as compensation grouting, jet grouting or underpinning will be used.</li> <li>Rigorous geomechanical instrumentation would be used to monitor underground excavation and grouting or underpinning will be employed to avoid displacement of structures.</li> <li>Automated ground movement monitoring will be used to detect distortion on the BART/Muni</li> </ol>	<p>the impact to BART/Muni Metro tunnels. <u>Similar to Alternative 2, the construction of a deep tunnel could result in the potential downward displacement of the BART structures.</u></p> <p><i>Mitigation Measures:</i> Same as Alternative 2.</p> <p><i>Less-than-Significant Impacts:</i> Same as Alternative 2.</p>	<p>Same as Alternative-2 <u>3A</u>.</p> <p><i>Less-than-Significant Impacts:</i> Same as Alternative 2.</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>Metro tunnels and grout pipes will be placed prior to tunnel excavation to allow immediate injection of compensation grouting to replace ground losses if deformation exceeds established thresholds.</p> <p>With the implementation of these mitigation measures the impacts would be less-than-significant.</p> <p><i>Less-than-Significant Impacts:</i> Adherence to all applicable federal, state and local safety and health codes and practices for construction of the underground tunnels, shafts, and excavations would be required to minimize harm to workers should an earthquake occur during construction. MTA would also require contractors to submit a site-specific earthquake preparedness and emergency response plan as part of compliance with bid specifications.</p>		
Operation/Cumulative	No operational or cumulative impacts.	<p><i>Less-than-Significant Impacts:</i> The subway tunnels would be designed and built to current seismic standards to withstand a design earthquake on the San Andreas Fault (Magnitude ~7).</p>	<p><i>Less-than-Significant Impacts:</i> Same as described for Alternative 2.</p>	<p><i>Less-than-Significant Impacts:</i> Same as described for Alternative 2.</p>
<b>HYDROLOGY AND</b>	No construction impacts.	<i>Significant Impacts:</i>	<i>Significant Impacts:</i>	<i>Significant Impacts:</i>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
<b>WATER QUALITY</b> Construction		<p>Construction activities at the Union Square Station could increase or otherwise disrupt flow of ground water to the Powell Street Station.</p> <p><i>Less-than-Significant Impacts:</i> Excavation for tunnel and station construction would result in exposure of soil to erosion and run-off, mobilizing sediments toward the bay or the City's combined storm and sanitary sewer system. As required by SFPUC Ordinance 19-92, Sections 118 and 123, MTA would develop and submit to the PUC a Storm Water Pollution Prevention Plan (SWPPP).</p> <p><i>Mitigation Measures:</i> Watertight shoring and fully waterproof station structures will be designed and constructed to avoid compounding ground water inflows to the Powell Street Station.</p> <p>With the implementation of these mitigation measures, the impacts would be less-than-significant.</p>	<p>Same as Alternative 2.</p> <p><i>Less-than-Significant Impacts:</i> Impacts would be the same as Alternative 2 except that the amount of excavation would be less under this Alternative.</p> <p><i>Mitigation Measures:</i> Same as Alternative 2.</p>	<p>Same as Alternative 3A.</p> <p><i>Less-than-Significant Impacts:</i> Impacts would be the same as Alternative 2 except that the amount of excavation would be less under this Alternative.</p> <p><i>Mitigation Measures:</i> Same as Alternative 2.</p>
Operation/Cumulative	No operational or cumulative impacts.	No operational or cumulative impacts related to flooding or groundwater recharge.	No operational or cumulative impacts related to flooding or groundwater recharge.	No operational or cumulative impacts related to flooding or groundwater recharge.

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p><i>Less-than-Significant Impacts:</i></p> <ol style="list-style-type: none"> <li>1. Operation of the light rail system would result in discharge of contaminants, including heavy metals, solvents, and petroleum hydrocarbons, to the environment that would be transported to the city combined storm and sanitary sewer system which is operated in accordance with the existing NPDES permits.</li> <li>2. Hydrologic modeling would be used to determine whether measures to encourage lateral flows of ground water around the Union Square Station would be required to avoid impacts to the ground water inflows at the Powell Street Station.</li> </ol>	<p><i>Less-than-Significant Impacts:</i></p> <p>Impacts would be the same as Alternative 2.</p>	<p><i>Less-than-Significant Impacts:</i></p> <p>Impacts would be the same as Alternative 2.</p>
<p><b>BIOLOGICAL AND WETLAND RESOURCES</b></p> <p>Construction</p>	<p>No construction impacts.</p>	<p><i>Less-than-Significant Impacts:</i></p> <p>Construction may result in the removal of some existing street trees along Third, Fourth, and Stockton Streets at surface segments and at station entrances.</p> <p><i>Improvement Measures:</i></p> <p>Street trees removed or damaged during construction would be replaced at a 1:1 ratio.</p>	<p><i>Less-than-Significant Impacts:</i></p> <ol style="list-style-type: none"> <li>1. Same as Alternative 2, except there would be no construction on Third Street.</li> <li>2. If the North Beach Construction Variant is implemented, mature trees roots could be exposed along Columbus Avenue adjacent to Washington Square Park.</li> </ol> <p><i>Improvement Measures:</i></p> <ol style="list-style-type: none"> <li>1. Street trees removed or damaged during construction would be replaced at a 1:1 ratio.</li> <li>2. A certified arborist would be</li> </ol>	<p><i>Less-than-Significant Impacts:</i></p> <p>Same as Alternative 3A.</p> <p><i>Improvement Measures:</i></p> <p>Same as Alternative 3A.</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
			present during construction of the Columbus Avenue tunnel portal to monitor and ensure protection of the tree roots during the 2 to 3 week excavation period.	
Operation/Cumulative	No operational or cumulative impacts.	No operational or cumulative impacts.	No operational or cumulative impacts.	No operational or cumulative impacts.
<b>HAZARDOUS MATERIALS</b> Construction	No construction impacts.	<p><i>Significant Impacts:</i></p> <p>1. Previous subsurface soils investigations indicate the potential for exposure of site workers and the public to potentially hazardous materials, including metals, volatile organic compounds (VOCs), and semi-VOCs, during site excavation or transport of excavated soil materials (35,000 cubic yards) which would be disposed of at a Class I facility. Servicing and fueling of diesel-powered construction equipment on-site could result in exposure to lubricants, diesel fuel, antifreeze, motor oils, degreasing agents, and other hazardous materials. Properties landside of the 1851 highwater mark that are not subject to Article 20 would have potential for exposure to hazardous materials.</p> <p><i>Mitigation Measures:</i></p> <p>Implementation of mitigation measures similar to those</p>	<p><i>Significant Impacts:</i></p> <p>Same as Alternative 2.</p> <p><i>Less-than-Significant Impacts:</i></p> <p>Same as Alternative 2, except:</p> <p>1. The amount of excavated materials would be less (25,000 cubic yards) which would be disposed of at a Class I facility.</p> <p>2. There would be additional investigation in Soils Analysis Report north of Jackson Street if the North Beach Construction Variant is implemented.</p> <p><i>Potentially Significant Impacts:</i></p> <p>Same as Alternative 2.</p> <p><i>Mitigation Measures:</i></p> <p>Same as described for Alternative 2.</p>	<p><i>Significant Impacts:</i></p> <p>Same as Alternative 2.</p> <p><i>Less-than-Significant Impacts:</i></p> <p>Impacts would be the same as described for Alternative 3A, except the amount of excavated materials would be less (13,000 cubic yards) which would be disposed of at a Class I facility.</p> <p><i>Mitigation Measures:</i></p> <p>Same as described for Alternative 2.</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>required for properties under the jurisdiction of Article 20: preparation of a Site History Report; Soil Quality Investigation, including a Soils Analysis Report and a Site Mitigation Report (SMR); description of Environmental Conditions; Health and Safety Plan (HSP); Guidelines for the Management and Disposal of Excavated Soils; and a Certification Statement that confirms that no mitigation is required or the SMR would mitigate the risks to the environment of human health and safety. This measure would ensure that the project impacts are mitigated to a less-than-significant level.</p> <p><i>Less-than-Significant Impacts:</i></p> <p>1. Previous subsurface soils investigations indicate the potential for exposure of site workers and the public to potentially hazardous materials, including metals, volatile organic compounds (VOCs), and semi-VOCs, during site excavation or transport of excavated soil materials (35,000 cubic yards) which would be disposed of at a Class I facility. Servicing and fueling of diesel-powered construction equipment on-site</p>		



Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>could result in exposure to lubricants, diesel fuel, antifreeze, motor oils, degreasing agents, and other hazardous materials. Measures to avoid adverse effects of hazardous materials as required by Article 20 of the San Francisco Municipal Code for all properties on the Bay side of the 1851 high water mark would be implemented as part of this alternative.</p> <p>2. Dewatering activity occurring as part of the construction work would require a permit or approval from the Regional Water Quality Control Board (RWQCB) to ensure that thresholds identified in the San Francisco Bay Basin Water Quality Control Plan are not exceeded.</p> <p>3. Dewatering activity that generates water to the combined City storm and sanitary sewer system would need to obtain from the San Francisco Public Utilities Commission, Bureau of Environmental Regulation and Management a Batch Wastewater Discharge permit prior to discharge to ensure that it meets threshold limits. Previously collected groundwater quality data indicate the potential for dewatered effluent throughout portions of the alignment to contain elevated metals, VOCs,</p>		

<b>Environmental Area/Impacts</b>	<b>Alternative 1 -No Project/TSM</b>	<b>Alternative 2 - EIS/EIR Enhanced Alignment</b>	<b>Alternative 3A - Fourth/Stockton Alignment Option A</b>	<b>Alternative 3B - Fourth/Stockton Alignment Option B</b>
		<p>petroleum hydrocarbons, and oil and grease concentrations which may require pretreatment to reduce contaminant concentrations to acceptable levels.</p> <p>4. Off-site disposal of contaminated soils excavated from construction of this and other projects would be controlled by landfill operators to ensure their capacity is not exceeded.</p>		
Operation/Cumulative	No operational or cumulative impacts.	<p><i>Less-than-Significant Impacts:</i> Operation of the light rail would involve the use, handling, and storage of hazardous materials including degreaser, lubricants, cleaning solutions, solvents, paints, and miscellaneous petroleum products, which may be used for maintenance activities. In addition, further excavation for track maintenance could expose workers to soil contaminants. The California General Industry Safety Order requires all employers in the state to prepare and implement an Emergency Action Plan, Fire Prevention Plan, and Injury and Illness Prevention Program to ensure safe workplace and employee work practices.</p>	<p><i>Less-than-Significant Impacts:</i> Same as Alternative 2.</p>	<p><i>Less-than-Significant Impacts:</i> Same as Alternative 2.</p>
<b>AIR QUALITY</b> Construction	No construction impacts.	<p><i>Less-than-Significant Impacts:</i> 1. Dust emissions occurring over</p>	<p><i>Less-than-Significant Impacts:</i> Impacts would be similar to</p>	<p><i>Less-than-Significant Impacts:</i> Impacts would be similar to</p>

<b>Environmental Area/Impacts</b>	<b>Alternative 1 -No Project/TSM</b>	<b>Alternative 2 - EIS/EIR Enhanced Alignment</b>	<b>Alternative 3A - Fourth/Stockton Alignment Option A</b>	<b>Alternative 3B - Fourth/Stockton Alignment Option B</b>
		<p>the approximately six-year construction period will be controlled by the implementation of BAAQMD dust controls measures.</p> <p>2. Air monitoring at playgrounds and schoolyards during construction would be required as part of the project.</p> <p>3. Short-term exhaust emissions from construction-related equipment and from off-site transport of soils will be reduced by implementation of exhaust emission control measures.</p>	Alternative 2, except that the surface area disrupted during construction would be smaller.	Alternative 3A, except that the construction duration is expected to last approximately 5 years or one year less than other alternatives.
Operation/Cumulative	<i>Less-than-Significant Impacts:</i> PM <sub>10</sub> emissions from vehicles are expected to increase with population growth.	No operational or cumulative impacts.	No operational or cumulative impacts.	No operational or cumulative impacts.
<b>NOISE AND VIBRATION</b> Construction	No construction impacts.	<p><i>Significant Impacts:</i></p> <p>Historic buildings within 200 feet of a construction area may be subject to adverse vibration impacts if the maximum peak particle vibration (PPV) velocity level in any direction exceeds 0.12 inches/second for any length of time.</p> <p><i>Mitigation Measures:</i></p> <p>The Contractor shall be required to perform periodic vibration monitoring using approved seismographs at the historic structure closest to the</p>	<p><i>Less-than-Significant Impacts:</i></p> <p>Same as Alternative 2, except construction of a portal on Third Street would be eliminated.</p> <p><i>Improvement Measures:</i></p> <p>Same as Alternative 2.</p> <p><i>Potentially Significant Impacts:</i></p> <p>Same as Alternative 2.</p> <p><i>Mitigation Measures:</i></p> <p>Same as Alternative 2.</p>	<p><i>Less-than-Significant Impacts:</i></p> <p>Same as Alternative 3A.</p> <p><i>Improvement Measures:</i></p> <p>Same as Alternative 2.</p> <p><i>Potentially Significant Impacts:</i></p> <p>Same as Alternative 2.</p> <p><i>Mitigation Measures:</i></p> <p>Same as Alternative 2.</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>construction activity. If the construction activity exceeds a 0.12 inches/second level, the construction activity shall be immediately halted until an alternative construction method that would result in lower vibration levels can be identified.</p> <p>2. During final design engineering, a more detailed construction noise and vibration analysis will be prepared to address construction staging areas, tunnel portals, cut-and-cover construction, and underground mining and excavation operations.</p> <p>Implementation of these mitigation measures would reduce the impacts to a less-than-significant level.</p> <p><i>Less-than-Significant Impacts:</i></p> <p>1. Noise in the range of 85 to 89 dBA at 100 feet would be generated from construction activities along surface portions of the alignment and staging areas and station or portal construction areas.</p> <p>2. Vibration levels of 58 to 112 Lv at 25 feet would be experienced as a result of equipment used during at-grade construction activities.</p>		

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>3. Vibration impacts on buildings could result from equipment used for underground construction, particularly from tunneling.</p> <p><i>Improvement Measures:</i></p> <p>1. The incorporation of noise control measures would minimize noise impacts during construction: noise control devices such as equipment mufflers, enclosures, and barriers; stage construction as far away from sensitive receptors as possible; maintain sound reducing devices and restrictions throughout construction period; replace noisy with quieter equipment; schedule the noisiest construction activities to avoid sensitive times of the day; hire an Acoustical Engineer to oversee the implementation of the Noise Control and Monitoring Plans; prepare a Noise Control Plan; comply with the nighttime noise variance provisions; conduct periodic noise measurements to ensure compliance with the Noise Monitoring Plan; and use equipment certified to meet specified lower noise level limits during nighttime hours.</p>		
Operation/Cumulative	No operational or cumulative impacts.	<p><i>Significant Impacts:</i></p> <p>The FTA vibration criteria of 72 VdB would be exceeded at one</p>	<p><i>Significant Impacts:</i></p> <p>The FTA vibration criteria of 72 VdB would be exceeded at one</p>	<p><i>Significant Impacts:</i></p> <p>Impacts same as Alternative 3A.</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>residential building at 570 Fourth Street at Freelon Alley and the FTA ground-borne noise criteria of 35 dBA would be exceeded at two residential buildings at 527 and 529 Third Street. All locations have residential development over ground-floor commercial.</p> <p><i>Mitigation Measures:</i> Vibration propagation testing will be conducted at these locations during final engineering to determine the predicted impacts and finalize the mitigation measures. MTA will select one of the following mitigation measures during final design of the project: high resilience (soft) direct fixation fasteners for embedded track and in underground subway tunnels or ballast mat for ballast and tie track. Implementation of these measures would reduce the impacts to a less-than-significant level.</p> <p><i>Less-than-Significant Impacts:</i> 1. No light rail noise impacts would occur provided standard operational maintenance practices are implemented for light rail operations. 2. Vent shafts and traction power</p>	<p>residential building at 570 Fourth Street at Freelon Alley.</p> <p><i>Mitigation Measures:</i> Mitigation measure same as Alternative 2.</p> <p><i>Less-than-Significant Impacts:</i> 1. No light rail noise impacts would occur provided standard operational maintenance practices as outlined are implemented for light rail operations. 2. The traffic noise would be 0.4 dB higher at the Hotel Utah site under this alternative. 3. Vent shafts and traction power substations would be designed to standards of the San Francisco Noise Ordinance to ensure no adverse noise impacts.</p> <p><i>Improvement Measures:</i> Improvement measures same as Alternative 2.</p>	<p><i>Mitigation Measures:</i> Mitigation measure same as Alternative 2.</p> <p><i>Less-than-Significant Impacts:</i> 1. No light rail noise impacts identified provided standard operational maintenance practices are implemented for light rail operations. 2. Vent shafts and traction power substations would be designed to standards of the San Francisco Noise Ordinance to ensure no adverse noise impacts.</p> <p><i>Improvement Measures:</i> Improvement measures same as Alternative 2.</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>substations would be designed to standards of the San Francisco Noise Ordinance to ensure no adverse noise impacts.</p> <p><i>Improvement Measures:</i> Improvement measures for the vent shafts and traction power substations will be determined during preliminary and final design of the project.</p>		

considerable contribution to adverse cumulative conditions for Alternative 2 during the p.m. peak hour at the Sixth/Brannan Streets intersection and because there would also be a project-specific significant impact during the a.m. peak hour at the Third/King Streets intersection, Alternative 2 would have a significant traffic impact.

For Alternative 2, the project's share of future traffic growth would not constitute a cumulatively considerable contribution to adverse 2030 cumulative traffic conditions at the Sixth/Brannan Streets intersection for the a.m. peak hour nor at the Third/King Streets and Fourth/King Streets intersections for the p.m. peak hour. At the Sixth/Brannan Streets intersection for the a.m. peak hour and the Third/King Streets and Fourth/King Streets intersections for the p.m. peak hour Alternative 2 contributions to adverse cumulative conditions were found to be not significant, because project-related traffic would generally be added to movements that would continue to operate satisfactorily. In some instances, Alternative 2 would add vehicles to movements which would operate poorly under cumulative conditions. However, in these instances the project's contributions to these movements would be small. Therefore, for a.m. peak hour conditions at the Sixth/Brannan Streets intersection as well as p.m. peak hour conditions at the Third/King Streets and Fourth/King Streets intersections, project traffic would not represent a considerable contribution to the adverse cumulative conditions, and the project would not have a significant traffic impact at these intersections for these conditions.

For Alternative 3A, there would be a project-specific significant traffic impact at the Third/King Streets intersection compared to No Project/TSM conditions due to a deterioration of LOS from ~~D-E~~ to F for the a.m. peak hour and Fourth/Harrison Streets due to a deterioration of LOS C to LOS ~~F-E~~ in the p.m. peak hour compared to No Project/TSM conditions. Four of the five intersections analyzed would operate at LOS E or F conditions for Cumulative 2030 conditions for the p.m. peak hour. For Alternative 3A, the project's share of future traffic growth at the Third/King Streets, Fourth/King Streets, and Fourth/Harrison Streets intersections would constitute a cumulatively considerable contribution to adverse 2030 cumulative traffic conditions for the p.m. peak hour. Under Alternative 3A project-related traffic would constitute substantial percentages of critical volumes for movements at each of these three intersections that would operate with adverse conditions. As project-related traffic would represent a considerable contribution to the cumulative conditions for Alternative 3A during the p.m. peak hour for the Third/King Streets, Fourth/King Streets, and Fourth/Harrison Streets intersections as well as a project-specific significant impact at the Third/King Streets intersection during the a.m. peak hour, the project would have a significant traffic impact.



For Alternative 3A, the project's share of future traffic growth would not constitute a cumulatively considerable contribution to adverse 2030 cumulative traffic conditions at the Sixth/Brannan Streets intersection for the p.m. peak hour nor for a.m. peak hour conditions at the Fourth/King Streets and Sixth/Brannan Streets intersections. At the intersections where project contributions to adverse cumulative conditions were found to be not significant, the project would generally add traffic to movements that would continue to operate satisfactorily. In some instances, Alternative 3A would add vehicles to movements which would operate poorly under cumulative conditions. However, in these instances the project's contributions to these movements would be small. Therefore, for the Sixth/Brannan Streets intersection for p.m. peak hour conditions and at the Fourth/King Streets and Sixth/Brannan Streets intersections for a.m. peak hour conditions, project traffic would not represent a considerable contribution to the cumulative conditions, and the project would not have a significant traffic impact for Alternative 3A at these intersections for these conditions.

For Alternative 3B, the impacts would be the same as described for Alternative 3A, except ~~that at the Fourth/Harrison Streets intersection there would also be a Project specific impact in the a.m. peak hour where level of service would degrade from LOS E to LOS F and the LOS would degrade from LOS C to LOS F in the p.m. peak hour~~ the Project's share of future traffic growth would also constitute a cumulatively considerable contribution to adverse 2030 cumulative traffic conditions at the Third/King Streets intersection in the a.m. peak hour.

No mitigation measures have been identified that would mitigate the impacts to a less-than-significant level at the Third/King, Fourth/King, and Sixth/Brannan Streets intersections, therefore the impacts at these intersections would be considered significant effects which can not be avoided. The impacts at the Fourth and Harrison Street intersection can be mitigated with striping and signal timing changes as outlined in Table 7-2.

### 7.3.2 POPULATION, HOUSING, AND EMPLOYMENT (SOCIOECONOMIC CHARACTERISTICS)

Alternatives 2 and 3A would result in the displacement of 10 small businesses (10 or fewer employees per business) ~~and 1 or 2 residential units~~ in the Chinatown neighborhood at 814-828 Stockton Street for construction of the proposed Chinatown Station. Alternative 3B would result in the displacement of 8 small businesses (10 or fewer employees each) and 17 residential units at 933-949 Stockton Street for the Chinatown Station. As the Chinatown District has a high proportion of minority and low income residents, this displacement is likely to result in the displacement of affordable housing units. While the replacement of affordable units in the redeveloped station site under each of the Build Alternatives would partially mitigate the displacement of existing affordable units, the impacts would not be reduced to a

less-than-significant level because of the temporary disruption and dislocation of the residents while the new housing units are being constructed.

### 7.3.3 CULTURAL RESOURCES

#### **Alternative 2 – Enhanced EIS/EIR Alignment**

##### Prehistoric Archaeological Resources

The following known prehistoric archaeological resource may be affected by the Project:

- Cultural deposits associated with site CA-SFR-2 (official designation by the State Office of Historic Preservation) may be impacted as a result of construction trenching in two of the Alternative 2 sections; on Third Street, between Folsom and Harrison Streets; and on Third Street, between Harrison and Bryant Streets. Based on the range and quantity of cultural materials that are documented from CA-SFR-2, and the presence of human remains, the site appears potentially eligible for inclusion on the NRHP/CRHR under Criterion D/4. There is, however, no certainty that eligible site materials extend into the Project's vertical APE.

As a result of geoarchaeological analysis summarized in Section 4.1 of this SEIS/SEIR and described in detail in the HCASR (ASC 2007), at least 14 locations were identified that are considered sensitive for the presence of prehistoric archaeological resources along the Alternative 2 alignment. No specific evidence confirms that subsurface prehistoric cultural deposits are present at these locations; the sensitivity assessments are based on preliminary geoarchaeological research.

##### Historical Archaeological Resources

No construction impacts will affect known historic-era resources within Alternative 2. The block-by-block historic overview, developed in the HCASR to predict areas of potential historic-era archaeological sensitivity, identified six locations at which previously unrecorded archaeological resources might be encountered.

- Union Square Station is moderately sensitive for early historic refuse deposits in fill;
- Chinatown Station Head House is highly sensitive for buried architectural remains, archaeological features, and/or sheet refuse;
- Two locations of Chinatown Station Emergency Stairs are highly sensitive for buried architectural remains, archaeological features, and/or sheet refuse.

Among the specific resources indicated by the block-by-block overview are potential caches of artifacts, as well as isolated objects within the Gold Rush-era fill layer at the northbound portal on Third Street; historic tent pads and artifacts at the Market Street Station that may have been buried during filling of the Third Street roadway prior to 1854; and artifact caches dating prior to 1854 where the roadway was filled

to grade at Union Square. At the Chinatown Station site, potential finds are artifact-filled features dating to the Gold Rush era or earlier, prior to street paving; and architectural remains and archaeological features dating up to and including 1906 beneath the modern sidewalks (based on an 1850s photograph), including basement room or niche extensions and tunnels of the type reported in San Francisco's Chinatown and found elsewhere in California. Also possible are garden features, as well as artifact caches and architectural deposits from the Gold Rush or earlier up to 1906, at the Chinatown Station Head House location.

#### Historical Architectural Resources

The demolition of one historical architectural resource, a contributing building in the Chinatown Historic District (out of 371 contributing buildings) located at 814-828 Stockton Street, for construction of the Chinatown Station would be significant. While mitigation measures have been identified, the implementation of these measures would not necessarily reduce the impacts to a less-than-significant level, therefore there would be significant environmental effects that can not be avoided. Measures to reduce the impact are described in Chapter 5.0, such as retaining or replicating historic architectural features in the station design and recording the history of the building site for posterity.

### **Alternative 3 – Fourth/Stockton Alignment Option A (LPA) and Option B**

#### Prehistoric Archaeological Resources

No construction impacts will affect known prehistoric resources within Alternative 3A. As a result of geoarchaeological analysis, described in detail in the HCASR (ASC 2007) and in Section 4.4.2 of this SEIS/SEIR, at least 6 locations of prehistoric archaeological sensitivity were identified in the Alternative 3A and 3B alignment.

#### Historical Archaeological Resources

One known historical archaeological resource may be affected by Project activities within these two alternatives:

- **CA-SFR-137H** consists of the buried remains of a historic city block (bounded by Fourth, Fifth, Harrison, and Bryant Streets, and intermediate streets). The location will be used for a construction yard. Resources include the archaeological remains of residential and commercial buildings, 1906 earthquake/fire debris, intact ground surfaces, and hollow-filled features from the 1870s. The site is eligible to the NRHP/CRHR under Criterion D/4.

The block-by-block historic overview, developed in the HCASR to predict areas of potential historic-era archaeological sensitivity, identified 15 locations at which archaeological resources may be encountered in the Alternative 3A alignment and 13 locations for Alternative 3B.

#### Historical Architectural Resources

The impacts on historical architectural resources would be the same for Alternatives 3A and 3B as defined under Alternative 2, except Alternative 3B would result in demolition of one contributory building, located at 933-949 Stockton Street (rather than at 814-828 Stockton Street), out of a total 371 contributory buildings in the Chinatown Historic District.

### **7.4 SUMMARY OF CUMULATIVE IMPACTS**

CEQA defines cumulative impacts as “two or more individual effect which, when considered together are considerable” and notes that cumulative impacts may “result from individually minor, but collectively significant projects taking place over a period of time” (State CEQA Guidelines Section 15355). CEQA documents are required to include a discussion of potential significant cumulative effects using one of the following two methods. The list-based approach considers a list of past, present, and reasonably foreseeable future projects to assess the potential for creating related or cumulative impacts. The projections-based approach uses a summary of growth projections contained in an adopted general plan or related planning document to evaluate regional or area wide conditions.

While CEQA allows a choice in approaching cumulative impacts, NEPA and FTA guidelines require that regional growth projections from the Metropolitan Planning Organization (MPO) be used as input for evaluating the cumulative impacts of transportation projects for future year conditions. In the San Francisco Bay Area, the Metropolitan Transportation Commission (MTC) maintains a regional travel demand forecast model that uses the regional population and employment growth forecasts by the Association of Bay Area Governments (ABAG).

To be consistent with both the CEQA and NEPA guidelines, the projections-based approach was used for this analysis. The San Francisco Transportation Authority (SFCTA) countywide travel demand forecasting model (San Francisco Model) was used to develop the travel forecasts for development and growth through the year 2030 in the region, as well as to determine travel demand to and from the Study Area. The SFCTA Model is consistent with MTC’s regional model in terms of population and employment forecasts for the region. The San Francisco model estimates demand for San Francisco residents only and integrates the citywide travel demand with the regional travel demand estimated by the MTC model. The most up-to-date version of the San Francisco Model, estimates travel demand based on

regional growth estimates developed and adopted by ABAG in 1998 (Projections '98). Travel demand was estimated for the year 2030.

#### 7.4.1 REGIONAL CONTEXT

The analysis in this document is based on accepted, regional and San Francisco land use forecasts for 2030 and includes the implementation of proposed and funded transportation improvements listed in the Regional Transportation Plan. The analysis of land use, socioeconomic conditions, transportation, air quality, and noise cumulative impacts have all been assessed in a regional context using the San Francisco Model forecasts.

After mitigation, the Central Subway Project would have a cumulatively considerable contribution to the identified region wide cumulative significant traffic impacts as shown in Table 7-2 and discussed in Section 7.3.1, Traffic (Congestion). These impacts are expected to occur in the future whether or not the Project is adopted and constructed, but the Project would have a substantial contribution to the significant impacts.

#### 7.4.2 LOCAL CONTEXT

Cumulative effects that are local in context were also analyzed in this SEIS/SEIR. The impacts of the proposed Project were considered to determine whether less-than-significant local impacts could become significant when taken into account with other reasonably foreseeable development citywide as described in Section 4.1.

Construction of planned projects in the general vicinity of the Central Subway Project could involve temporary (over five to six years) cumulative traffic disruptions, including lane closures and detours, construction-related noise and dust and visual effects. As construction of the Central Subway Project is underway, construction of the Transbay Terminal improvements and ongoing Mission Bay and South of Market development could also be underway. While construction effects are normally temporary and not considered significant, when combined with other major projects in the Study Area these impacts could be considered cumulatively significant. Though the Central Subway Project would have an incremental contribution to a cumulative effect, the Project would be consistent with approved plans (*Four Corridors Transit Plan, MTC Long Range Plan, Bay Area Air Quality Plan*) and would comply with all conditions for permits and approvals and with mitigation measures described in Sections 3.0 and 5.0 of this SEIS/SEIR. MTA would continue to coordinate with other Project sponsors and City agencies through the on-going outreach program, particularly as actual construction schedules are confirmed.

## 7.5 GROWTH INDUCING IMPACTS

This section examines whether the proposed Central Subway Project would encourage growth at a level in excess of what is projected for the Bay Area region and for San Francisco, resulting in growth inducement. Increased development and growth in an area are dependent on a variety of factors, including employment opportunities, land use controls and availability of developable land, and availability of infrastructure, water, and power resources.

Transportation projects are potentially growth inducing when they extend service to the edge of an urban area, reducing travel times and improving access between employment opportunities and vacant or underdeveloped land to the extent that the travel time savings and enhanced accessibility outweigh other factors affecting locational decisions. The Central Subway Project would replace existing bus service with improved transit service in a relatively built-out urban environment. It is expected to increase public transportation reliability and to provide some travel time savings for Muni patrons. The Project would support the additional or higher density development on specific parcels in the immediate vicinity of stations and would in general accommodate the transit needs envisioned for growth planned in the Study Area and the immediate vicinity.

Plans to redevelop parts of the Corridor, such as Mission Bay North, the Transbay Area, Rincon Hill, and South of Market are expected to proceed whether or not the Central Subway Project is built. The development projected for these areas is outlined in Section 4.1. Section 4.2 summarizes the population and employment growth projected in the Study Area by the year 2030. The overall growth within the City of San Francisco and within the Study Area is not expected to change as a result of the implementation of the Project. Growth may be redirected within the Study Area in a manner to take the greatest advantage of improved transit accessibility around stations that would be afforded by the proposed Project. In San Francisco, growth of population and employment is controlled by the San Francisco *General Plan* and the San Francisco Planning Code which specifies the level of development appropriate to each neighborhood within the City. As part of the *General Plan*, area plans are intended to guide the type and intensity of development allowed throughout the City. The neighborhoods through which the Corridor passes in the South of Market area are slated for redevelopment and increasing density and the area north of Market Street is already one of the most densely developed areas of the City. The implementation of the Central Subway Project (consistent with the *General Plan* and with adopted area plans) would be consistent with the growth already planned for the South of Market area and with the high density development that already exists north of Market Street. The implementation of the Project is not expected to generate substantial new development in and of itself.

## **7.6 IRREVERSIBLE AND IRRETREIVABLE COMMITMENT OF RESOURCES**

CEQA calls for a discussion of the uses of non-renewable resources during the initial and continued phases of the Project that could be irreversible because of a commitment of resources that make removal or nonuse of the resource unlikely thereafter. Implementation of the Central Subway Project would involve the use of some non-renewable resources. Materials (such as fossil fuels and lubricants) and energy would be consumed during Project construction and operation. By accommodating a greater number of trips on transit in the future, however, the Project would provide for a more efficient use of fossil fuels than if these trips were to use private automobiles.

## **7.7 ENVIRONMENTALLY SUPERIOR ALTERNATIVE**

Section 15126 (A)(d)(4) of the CEQA Guidelines states that “if the environmentally superior alternative is the “no project” alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. For the Central Subway Project, the No Project/TSM Alternative would not have the temporary construction impacts, the business, residential, and parking displacements, potential archaeological and historical architectural impacts, impacts on parks, and noise and vibration impacts as would the Build Alternatives. The No Project/TSM Alternative would, however, result in reduced transit reliability, increased travel times for transit patrons, diminished mobility for residents in the southeast quadrant of the City, and increased air pollutants when compared to the Build Alternatives. It would also have a higher level of energy consumption than the Enhanced EIS/EIR or Fourth/Stockton Alignment Option B alternatives. The No Project/TSM Alternative would not be consistent with the goals and objectives set forth in the City’s adopted land use and transportation plans and policies calling for rail transit investment in the Project Corridor. As a result, the No Project/TSM Alternative would not meet the stated Purpose and Need for the Project.

All Build Alternatives would result in the potential loss of affordable housing units and small businesses in the Chinatown neighborhood as a result of station construction. Alternatives 2 and 3A would result in the loss of 10 small businesses and 1 or 2 residential units while Alternative 3B would result in the loss of 8 small businesses and 17 residential units. If affordable housing is provided on the station sites as part of the redevelopment of these properties, then the impacts would be reduced.

Of the Build Alternatives, the Fourth/Stockton Alignment Option B would be the environmentally superior alternative. This alternative was structured to reduce construction duration so as to minimize temporary construction impacts. Through the use of a TBM construction method and a refined alignment and station and mechanical structure locations, the impacts on park and recreation facilities (particularly impacts to Willie “Woo Woo” Wong playground and Hang Ah Alley), archaeological and historical



architectural resources, utility relocation, noise and vibration, and soil disturbing activities would be minimized when compared to the other two alternatives.

## 8.0 FINANCIAL FEASIBILITY

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This section of the SEIS/SEIR summarizes the cost and revenue projections for the various Central Subway Project alternatives and for the San Francisco Municipal Transportation Agency (MTA) as a whole. The primary basis for this section is the MTA's Central Subway FY ~~2008-2009~~ New Starts Report, Financial Plan, which was prepared in ~~2006-2007~~, ~~although this section also includes in addition to updated costs estimates and revenue projections for Project alternatives, which that~~ have been provided by the MTA and its consultants. The analysis is not required for CEQA environmental review, but is presented for informational purposes as a financial plan is an important element of the federal and local project approval process. ~~Total forecast o~~ Operating and capital costs are compared to ~~operating and non-operating revenues from federal, state and local sources~~ to determine the financial feasibility of the Project alternatives. The feasibility of the capital investment, as well as the ability of the MTA to support ongoing system-wide capital and operating needs, is factored into the determination.

Typical of projects at this stage of financial feasibility analysis, capital and operating costs, as well as ridership, operating and non-operating revenues are preliminary and will be further refined throughout the Project's development process. Project cost estimates become more certain as Preliminary Engineering is completed and Project details and funding strategies become more certain. This will lead to continuing refinements of the financial plan for the Project. The MTA expects to update the Project financial plan in September ~~2007-2008~~.

### 8.1 COSTS AND AVAILABLE REVENUES

#### 8.1.1 CAPITAL COSTS

This section describes the techniques, assumptions and methodology used for estimating the capital cost for the Project alternatives.

#### **Cost Estimation Methods**

##### General Approach

Capital costs have been estimated according to the Federal Transit Administration (FTA) Guidelines for Preparation of a Capital Cost Estimate for New Starts Projects. Detailed estimates of quantities for different cost categories are based on preliminary engineering drawings for tunnels and stations and typical section sketches, with contingencies consistent with the level of the design. Cost estimates for various components of the Project or line items in the cost estimate have been developed based on a breakdown of labor, permanent materials, construction materials, plant and equipment required to

construct or install a component of the project, indirect costs and margin plus any additional subcontractor costs. All construction and systems costs include design contingencies to cover design development and uncertain market conditions at the time of bids. Contingencies as applied to the direct construction cost do not cover changes to the currently identified scope of work. A Project reserve or “unallocated contingency” is also applied to the entire Project cost. Excluded from the capital cost estimates are subsequent reconstruction or replacement of facilities and components, as well as replacement of vehicles. Annualized costs, which are discussed later, account for reconstruction and replacement and assume no finance charges.

#### Approach for Major Cost Categories

Cost estimates have been prepared for all Project Alternatives. The cost estimate for the Alternative 2 was originally prepared in 2004 and escalated to 2007 dollars in accordance with construction industry published indices for escalation and reflects further refinement of the Project and construction methods since the 2004 estimate. The Alternative 3A estimate is based on the estimate prepared in 2005 and escalated to 2007 with adjustments for refinements and construction methods. The cost estimate for the Alternative 3B has been developed as a new “bottom-up” estimate in 2007.

The estimating approach for construction of guideway and station components of the LPA and Modified LPA has been developed using heavy civil engineering estimating software where bid items were prepared for each component of the guideway and stations construction. A “bottom-up” estimate was prepared by developing labor crew costs for construction; adding the costs of permanent and construction materials, plant and equipment used in the construction process; and contractor indirect costs plus contingencies consistent with the level of design. Where appropriate, unit rates for major components of a structure or construction process (e.g. precast tunnel linings, muck haulage and disposal, escalators, elevators, ventilation fans etc) are based on manufacturer and supplier quotations. The detailed methodology for each cost category is as follows:

**Guideway & Track** - Horizontal alignment plans on a scale of 1 inch to 400 feet and profiles on a scale of 1 inch to 80 feet have been prepared for all Project Alternatives. Detailed quantity take-offs have been developed from cross section drawings for both surface guideway and underground elements of the guideway. The estimate assumed new TBMs would be procured for excavation of the underground tunnels. An extensive geotechnical site investigation program carried out during preliminary engineering defined the ground types allowing adjustments to be made for excavation rates and costs. The surface guideway and track costs were compared with known costs from the recently completed T-Third Line (Initial Operating Segment).

**Stations, Stops, Terminals, & Intermodal Buildings** - The unit costs for the underground stations and surface platforms have been developed in accordance with the general approach described above and compared against as-built construction costs for a number of recently completed transit systems. Station architecture and finishes costs are developed from conceptual level architectural finishing drawings. An allowance of two percent of the station construction costs is included for the provision of public art at each of the stations, as required by the San Francisco public arts policy.

**Support Facilities: Yards, Shops, & Administrative Buildings** - The Central Subway would use existing support facilities. No allowance has been provided in the cost estimate for expansion of the facilities.

**Sitework & Special Conditions** - The special conditions consist of roadway modifications, utility relocations at the stations, portals and surface guideway footprints, traffic control, environmental remediation, demolition and reinstatement. Lane modifications or the relocation of curbs and medians would be required. Given that the majority of the guideway is deep underground, excavated using TBMs, there would be a relatively modest amount of utility relocation required for Alternatives 3A and 3B to support excavation and construction of the stations and portal. The construction methods required for excavation and construction of Alternative 2 would require significantly more utility relocations.

**Systems** - The systems costs include signals (train control), communications and traction power. The LPA would be similar in guideway length and fleet size to several transit projects currently in operation or under design. The basis of the system cost estimate is experience with the existing T-Third Line. Actual supplier bid prices in 2007 dollars have been used to develop unit costs. The resulting unit costs are multiplied by the Project quantities to obtain the cost estimate.

**Right-of-Way Acquisition, Land, Easements, and Existing Improvements** - Market research determined the price of real estate parcels required at Chinatown Station, Moscone Station and for public parking spaces required at the Ellis/O'Farrell and Union Square parking garages (Alternative 2 would also include use of space in the Moscone Garage and Hearst Garage). The costs reflected the value of the land in 2005 dollars, which is increased by 20 percent to reflect year 2007 costs. The costs of easements required where the tunnels pass under private property are also included. No adjustments have been made in the capital cost estimate for potential real estate cost savings related to joint development.

**Vehicles** - The patronage forecasting model and transit operations plan show that four additional rail cars (three plus one spare) would be required for the LPA (Alternative 3A). The capital costs have been developed on a per car basis, based on recent light rail transit car purchases.

**Professional Services** – The estimate is based on a percentage of construction cost, including preliminary engineering, final design, project management for design and construction, construction administration, legal costs, permits, reviews by other agencies, survey testing, inspection and start up costs. An allowance of 25 percent of construction costs has been allocated for all professional services.

**Unallocated Contingency** - Unallocated contingency covers unexpected changes or additions in the work scope and unanticipated costs above and beyond the assumed normal rates that occur during construction, particularly construction change orders and claims. Eight percent on all items is included in the cost estimate.

### **Cost Estimation Results**

Table 8-1 presents the capital cost estimates for the Enhanced EIS/EIR Alignment (Alternative 2), Fourth/Stockton Alignment Option A (Alternative 3A - LPA) and Fourth/Stockton Alignment Option B (Alternative 3B - Modified LPA) in both 2007 (constant) dollars and year of expenditure (YOE) dollars. The 2007 dollars cost estimates represent the cost of the alternatives if they were built this year and the YOE cost estimates escalate the costs to reflect the MTA's estimated implementation schedule and the associated cost inflation. When evaluating financial feasibility and comparing Project costs to available funding, which is usually expressed in year-of-occurrence dollars, the year of expenditure cost estimates are the most relevant.

### Implementation Schedule

Preliminary estimates predict that utility relocations for the Central Subway will commence in ~~2010~~2009 with heavy construction scheduled to begin in ~~2011~~2010. ~~The start of revenue service~~ Completion of construction is scheduled for 2016 for Alternative 3B and 2017 for Alternative 2 and Alternative 3A.

The project delivery approach assumes design/bid/build for all contracts including stations, tunnels and underground guideway, systems, surface guideway and platforms.

**TABLE 8-1**  
**CENTRAL SUBWAY CAPITAL COSTS (IN \$MILLIONS)**

Project Elements	Alternative 2		Alternative 3A <sup>1</sup>		Alternative 3B <sup>1</sup>	
	\$2007	YOES	\$2007	YOES	\$2007	YOES
Guideway & Track Elements	\$364	\$446	\$248	\$304	\$244	\$296
Stations, Stops, Terminals, Intermodal <sup>2</sup>	\$376	\$473	\$376	\$473	\$325	\$403
Sitework & Special Conditions	\$94	\$115	\$70	\$85	\$47	\$56
Systems	\$118	\$161	\$110	\$151	\$94	\$122
Row, Land, Existing Improvements	\$15	\$24	\$20	\$24	\$20	\$23
Vehicles	\$21	\$28	\$21	\$28	\$21	\$26
Professional Services	\$229	\$271	\$202	\$237	\$188	\$214
Unallocated Contingency	\$97	\$122	\$84	\$105	\$75	\$94
Finance Charges		\$45		\$0.8		\$0
<b>Total Project Cost</b>	<b>\$1,345</b>	<b>\$1,685</b>	<b>\$1,131</b>	<b>\$1,407</b>	<b>\$1,014</b>	<b>\$1,235</b>
Source: PB/Wong 2007						
<sup>1</sup> Costs for Alternatives 3A and 3B do not include the North Beach Variant. The North Beach Variant would add approximately \$54 million (YOES).						
<sup>2</sup> Alternative 2 and 3B would have four stations and Alternative 3A would have three stations.						
Note: Escalation is assumed to average approximately four percent per year over the duration of the project.						

### Comparative Discussion

Alternative 3A would extend light rail service along Fourth Street as a semi-exclusive double-track surface line for a short distance from the T-Third terminus at Fourth and King Streets. The rail would transition to a subway (tunnel) between Townsend and Brannan Streets for the remainder of the Project's 1.7-mile length. Three underground subway stations are included in this alternative and four additional light rail vehicles (LRVs) would be required beyond the No Project/TSM Alternative.

Alternative 3B is similar to Alternative 3A, but its cost estimates differ in part because of a shorter tunnel (with a longer surface line), four stations (the fourth is a surface platform), and a shorter (one year less) construction period than the other build alternatives. Tunnel sections and subway stations are typically more expensive to construct than surface lines and surface platforms. Alternative 3B is similar to Alternative 3A, but its cost estimates differ in part because of a shorter tunnel (with a longer surface line), four stations (the fourth is a surface platform), and a shorter (~~one year~~ six months less) construction period than the other build alternatives.

Other differences in Alternative 2 that affect the alternatives cost estimates include: operation as a surface line on both Third and Fourth Streets, south of Harrison Street; two portals (one on Third Street and one on Fourth Street) rather than one portal; a tunnel under Third Street ~~instead of~~ in addition to

Fourth Street, and five stations (four underground and one surface). A detailed description of the alternatives and their differences can be found in Chapter 2.0.

## 8.1.2 OPERATING AND MAINTENANCE COSTS

### Cost Estimation Methods

#### General Approach

Once the Central Subway is complete, the T-Third line would operate as a new line from the southern terminal at the Caltrain Bayshore Station through the Central Subway to the northern terminus in Chinatown (T-Third Long Line). ~~A second independent line (The T-Third Short Line) is anticipated to operate between Chinatown and a turnaround loop near 18th Street and the T-Third Very Short Line is planned to operate between Chinatown and Fourth and Berry Streets.~~ Service levels are planned for single car trains on the T-Third Long and Short lines and two-car trains on the T-Third Very Short Line operating at ~~five~~ six-minute peak period and 10-minute midday frequencies on each line. ~~For Alternative 3B (the LPA as selected in February 2008), this would require three additional LRVs, plus one spare, for a total of four additional LRVs in 2030. For Alternative 2, it would require six additional LRVs (five peak plus one spare) and for Alternative 3A, it would require three additional LRVs (two peak plus one spare).~~ It would also require the MTA to bring the spare ratio on the LRV fleet to the 20 percent recommended by FTA. Service changes to Muni bus routes would also be implemented in conjunction with Central Subway service start-up. When the operation of the T-Third line into the Central Subway begins, the Castro Shuttle would be restored.

#### Basis for ~~Rail~~ Estimating Operation and Maintenance Costs

~~Light rail operating expenses were estimated in four major cost categories: vehicle operations, vehicle maintenance, non vehicle maintenance, and general and administrative. Total MTA costs including the Central Subway Project were estimated by using FY2005 MTA data to calculate cost ratios (e.g., \$37.13 per train revenue hour for vehicle operator salaries and wages) for subcategories of the four major categories and multiplying the ratios by an appropriate cost driver (e.g., revenue car miles, number of service and inspection yards, etc.). The MTA has assumed that rail operating and maintenance (O&M) costs increase at a rate of 3.5 percent per year on average.~~

#### Basis for Other Costs

~~MTA system operating expenses for motor bus, trolley bus, and cable car were estimated using the same major cost categories and methodology as rail costs. Similar to the rail costs, the MTA has assumed that bus and cable car O&M costs increase 3.5 percent per year on average.~~

The system wide Operations and Maintenance (O&M) expenses were estimated by applying the results of an O&M cost model developed for the Transit Effectiveness Project (TEP) and the FY 2009 Central



### Subway New Starts Report submission to the FTA.

The O&M cost model is disaggregate and resource build-up in structure, consistent with the approach suggested by the Federal Transit Administration (FTA). Line item costs are determined according to the quantity of service supplied and other system characteristics. Expenses are classified as fixed and/or variable (a driving variable drives the variable costs). Costs are broken out by class so appropriate inflation rates can be applied to project future costs for labor, fringes, and energy costs, which historically have varied significantly from each other.

The O&M cost model was calibrated and unit costs computed based on the SFMTA FY 2006 actual operating expenses, staffing costs, and levels of service provided. The following inflation factors were applied to FY 2006 dollars to forecast unit costs in year-of-expenditure dollars.

- Salaries and Wages: San Francisco Consumer Price Index - All Urban Consumers (CPI-U) + 0.5%, based on historical growth in salaries and wages
- Health Benefits: Historical growth in healthcare expenses of 10%
- Other Benefits: San Francisco CPI-U - All Items
- Fuel and Lubes: Crude Oil Price: West Texas Intermediate - Sweet Wellhead
- Materials & Supplies: San Francisco CPI-U - All Items
- Propulsion Electricity: San Francisco CPI-U - Electricity
- Other: San Francisco CPI-U - All Items

### Factors That May Alter Operating Cost Estimates

Altering the following variables in the operating plan for the Central Subway Project would change the operating cost forecasts: number of peak cars; car revenue miles; train revenue hours; subway stations; one-way route miles; and number of service and inspection yards. The O&M cost model estimates unit costs using a variety of variables, including peak vehicles, revenue bus/train hours, weekday peak revenue bus/train hours, revenue vehicle miles, ridership, manned stations, wayside or surface platforms, maintenance garages, power sub-stations, miles of trolley wire lines, and track miles. Some of these variables were broken out to associate mode-specific costs to the mode-specific variable. Any change in the value of these variables would affect the forecast of O&M costs for the baseline and the build alternatives.

## Cost Estimation Results

The projected incremental operating costs for both the T-Third line (IOS) and Central Subway Alternatives are summarized in Table 8-2 in year of expenditure dollars (YOE). ~~All Project a~~ Alternatives 3A and 3B are expected to result in a net operating cost savings relative to the No Project/TSM Alternative, however, Alternative 2 would result in a net-operating increase. The 2016 figures represent the cost at the startup of the Central Subway operations, while the 2030 figures are for a selected forecast year.

## Comparative Discussion

Due to a faster and more direct alignment, Alternative 3A creates an annual reduction of ~~2,400~~ 40,300 LRV car hours on the Central Subway Corridor and a system-wide annual ~~reduction-increase~~ of 27,800 ~~11,900~~ car hours when compared to the No Project Alternative. Alternative 3A would also reduce the number of system-wide annual bus hours by 76,400. Alternative 3B would save the same number of annual bus hours, however, it would ~~increase-reduce~~ the annual LRV car hours by ~~6,000~~ 39,000 on the Central Subway Corridor while ~~reducing-increasing~~ by ~~19,400~~ 13,200 system-wide LRV hours compared to the No Project/TSM Alternative. Alternative 2 ~~would result in yields~~ an annual ~~increase-decrease~~ of ~~7,100~~ 33,100 LRV car hours, a system-wide annual ~~reduction-increase~~ of ~~18,300~~ 19,100 car hours, and would reduce the number of system-wide annual bus hours by 76,400 when compared to the No Project/TSM Alternative.

TABLE 8-2				
CENTRAL SUBWAY INCREMENTAL OPERATING COSTS (IN YOE\$ MILLIONS)				
	No Project/TSM Alternative	Alternative 2	Alternative 3A	Alternative 3B
2016	\$707.9 \$852.61	\$693.4 \$852.73	\$693.0 \$849.65	\$693.2 \$849.41
2030	\$1,145.9 \$1,261.49	\$1,122.3 \$1,262.13	\$1,121.7 \$1,257.77	\$1,122.4 \$1,258.31
Difference from No Project/TSM Alternative				
2016	N/A	(\$14.5) \$0.11	(\$14.9 \$2.96)	(\$14.7 \$3.20)
2030	N/A	(\$23.6) \$0.64	(\$24.2 \$3.72)	(\$23.8 \$3.18)
Note: YOE is Year of Expenditure.				
Source: MTA, May 2007-AECOM Consult, Inc. April 2008.				

### 8.1.3 PROJECT FUNDING

#### Capital Sources

#### Project Specific

A total of ~~\$432.2~~ \$473 million in state and local capital funding has been committed to the Central Subway Project. In addition, the MTA is currently seeking \$762.2 million in federal “New Starts” funding, for a total of ~~\$1,194.4~~ \$1,235 million in capital funding identified for the Project. These sources are discussed in this

section. Only Alternative 3B is fully funded; and the steps that the MTA is taking to overcome the capital funding shortfalls for the other alternatives are discussed in Section 8.1.4. MTA's funding plan for the Central Subway Project ~~alternatives are~~ is displayed in Table 8-3.

**TABLE 8-3**  
**CENTRAL SUBWAY CAPITAL FUNDING PLAN (IN SMILLIONS)**

Source	Amount
Federal – 5309 New Starts	\$762
State	\$306
Local	\$126\$167
Total	\$1,194\$1,235
Source: MTA Central Subway <del>FY2008</del> 9 New Starts Financial Plan	

**FTA Section 5309 “New Starts.”** The Section 5309 New Starts program administered by the Federal Transit Administration (FTA) provides discretionary capital grants for construction of new fixed guideway systems or extensions to existing fixed guideway systems. To receive a New Starts grant, projects must complete a planning and project development process that consists of Alternatives Analysis, Preliminary Engineering, and Final Design phases. The funding program is discretionary and highly competitive, with funding decisions made on the basis of New Starts Criteria specified in law and regulation. Near the completion of Final Design, highly-rated projects are eligible to receive a Full Funding Grant Agreement (FFGA), which defines the scope of the Project, specifies requirements with which the Project sponsor must comply to receive New Starts funds, identifies the multi-year federal financial commitment to the Project, and signals federal intent to seek the specified amounts of funding through future appropriations.

The MTA is seeking a minimum of \$762.2 million in Section 5309 New Starts funding. The MTA started receiving New Starts funds for the Central Subway Project in FY 2003. To date, the MTA has received \$45.3 million in New Starts funds as follows: \$1.5 million in 2003; \$8.9 million in 2004; \$9.9 million in 2005; ~~and~~ \$25 million in 2006, and \$11.74 million approved for 2008. These funds were allocated for preliminary engineering and environmental review. The Central Subway Project ~~still~~ needs to complete Preliminary Engineering and enter Final Design before it is eligible to receive an FFGA, and the federal government's allocation of New Starts funding to-date does not guarantee that the Central Subway Project will receive an FFGA. A project must also have a “Medium” or higher Overall Rating, have a “Medium” or higher Cost Effectiveness Rating, and be able to be implemented within the available Section 5309 program resources to receive an FFGA. In FTA's FY 2008~~9~~ New Starts Report to

Congress, the Central Subway Project (Alternative 3AB) received a “Medium” Overall Rating, a “Medium” Local Financial Commitment Rating, a “Medium” Project Justification Rating, a “Medium-Low” Cost Effectiveness Rating, and a “High” Transit Supportive Land Use Rating.

The MTA is currently performing value engineering reviews to lower the capital cost and to improve the Central Subway's Cost Effectiveness Rating.

**State Traffic Congestion Relief Program (TCRP).** The San Francisco County Transportation Authority (SFCTA) has committed \$14.0 million in State of California Traffic Congestion Relief Program (TCRP) funds to the Central Subway Project through a Program Supplement for the TCRP funds. A \$140 million TCRP allocation was made to the Third Street Light Rail Project, of which \$126 million was used for the T-Third line (IOS).

**State Regional Improvement Program.** The SFCTA has committed \$92.2 million in State Regional Improvement Program funds to the Central Subway Project. This commitment was made in the Regional Transportation Plan and Resolution #04-62.

**State Infrastructure Bonds (Prop. 1B).** Working in cooperation with MTC, the MTA has secured \$200 million in state infrastructure bond funds for the Project; \$100 million of revenue-based funds, which have been approved by the MTA, and \$100 million in population-based funds, which have been approved by MTC.

**Local (San Francisco County Transportation Authority) Sales Tax.** The SFCTA committed \$126.0 million in Local Proposition K Sales Tax funds to the Central Subway Project in the Proposition K Expenditure Plan. Proposition K, which began collecting revenues in April 2004, is a one-half cent sales tax program approved by San Francisco County voters in November 2003.

#### Systemwide

The MTA's 20-year Capital Improvement Program (CIP), covering FY2006-FY2025, is divided into two parts, a State of Good Repair CIP and an Enhancement/Expansion CIP. ~~Muni-~~The MTA has either planned, programmed, or been awarded funding for all capital projects in the State of Good Repair CIP, which includes the capital projects needed to maintain the current level of service as well as the Central Subway Project Alternative 3AB. The MTA's estimated State of Good Repair CIP expenditures and capital funding forecast are shown in Tables 8-4 and 8-5, respectively.

As shown in Table 8-5, the MTA projects \$4.0 billion in capital funding will be available for the State of Good Repair CIP.<sup>1</sup> This funding projection includes approximately \$416 million in other local funding sources, which are to be determined. Tables 8-4 and 8-5 reflect the 2006 cost estimate for Alternative 3A

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<sup>1</sup> MTA Central Subway FY2008 New Starts Financial Plan, Figure 9.

**TABLE 8-4**  
**TWENTY-YEAR CAPITAL PLAN - STATE OF GOOD REPAIR EXPENDITURES**  
**(IN YOY \$MILLIONS)**

Fiscal Year	Fleet	Infrastructure	Facilities	Equipment	Other Projects	Total Expenditures
FY06	\$23	\$98	\$7	\$0	\$20	\$148
FY07	\$16	\$80	\$31	--	\$3	\$129
FY08	\$14	\$148	\$10	\$0	\$1	\$172
FY09	\$10	\$169	\$1	--	\$0	\$181
FY10	\$40	\$265	--	--	\$0	\$306
FY11	\$42	\$222	\$0	--	\$0	\$264
FY12	\$85	\$184	--	--	\$0	\$269
FY13	\$38	\$159	--	--	\$0	\$198
FY14	\$64	\$159	--	--	\$0	\$223
FY15	\$154	\$159	--	--	\$0	\$313
FY16	\$155	\$159	--	--	\$0	\$314
FY17	\$72	\$126	--	--	\$0	\$198
FY18	\$128	\$56	--	--	\$0	\$184
FY19	\$108	\$29	--	--	\$0	\$137
FY20	\$110	\$38	--	--	\$0	\$148
FY21	\$83	\$38	--	--	\$0	\$121
FY22	\$99	\$38	--	--	\$0	\$137
FY23	\$114	\$38	--	--	\$0	\$152
FY24	\$156	\$38	--	--	\$0	\$194
FY25	\$174	\$38	--	--	\$0	\$212
<b>20-Year Total</b>	<b>\$1,684</b>	<b>\$2,239</b>	<b>\$49</b>	<b>\$0</b>	<b>\$24</b>	<b>\$3,996</b>
<b>Percent of Total</b>	<b>42.1%</b>	<b>56.0%</b>	<b>1.2%</b>	<b>0.0%</b>	<b>0.6%</b>	<b>100.0%</b>

Source: MTA Central Subway FY2008 New Starts Financial Plan, Figure 11.

of \$1.410.8 million, compared to the current Alternative 3A cost estimate of \$1.418.1 million. Representing 0.2 percent of the State of Good Repair CIP, the change in cost is negligible within the scope of the larger program, and is well within the margin of forecasting error. No additional capital funding beyond the State of Good Repair CIP was projected as of 2006; however, the MTA is updating its funding forecast and the MTA's funding agencies estimate that an additional \$2.2 billion, for a total of \$6.2 billion, might be available for capital improvement projects during the life of the 20-year CIP based on a review of recent regional funding history.<sup>2</sup> These estimates are shown in Table 8-6. If the MTA receives more than \$4.0 billion during the life of the current CIP, the MTA could pursue projects in the Enhancement/Expansion CIP or make other capital investments, although these projects could be deferred if sufficient funding does not become available. A list of the CIP projects and short descriptions can be found in the MTA FY2006-2025 Short Range Transit Plan.<sup>3</sup>

<sup>2</sup> MTA Central Subway FY2008 New Starts Financial Plan, p.10-13, Figure 9 and Figure 10.

<sup>3</sup> <http://www.sfmta.com/cms/rsrtp/documents/ShortRangeTransitPlanFY20062025-Web.pdf>

**TABLE 8-5**  
**TWENTY-YEAR CAPITAL PLAN - STATE OF GOOD REPAIR FUNDING PROJECTIONS**  
**(IN \$MILLIONS YEAR OF OCCURRENCE)**

<b>Fiscal Year</b>	<b>Federal</b>	<b>State</b>	<b>Local</b>	<b>Total Funds</b>
FY06	\$106	\$0	\$42	\$148
FY07	\$79	--	\$50	\$129
FY08	\$111	--	\$61	\$172
FY09	\$90	\$1	\$89	\$181
FY10	\$173	--	\$133	\$306
FY11	\$170	--	\$95	\$264
FY12	\$160	--	\$108	\$269
FY13	\$140	--	\$58	\$198
FY14	\$165	--	\$58	\$223
FY15	\$218	--	\$95	\$313
FY16	\$206	--	\$108	\$314
FY17	\$172	--	\$25	\$198
FY18	\$167	--	\$17	\$184
FY19	\$87	--	\$50	\$137
FY20	\$84	--	\$63	\$148
FY21	\$110	--	\$11	\$121
FY22	\$126	--	\$11	\$137
FY23	\$107	--	\$45	\$152
FY24	\$132	--	\$61	\$194
FY25	\$160	--	\$51	\$212
<b>20-Year Total</b>	<b>\$2,763</b>	<b>\$1</b>	<b>\$1,232</b>	<b>\$3,996</b>
<b>Percent of Total</b>	<b>69.1%</b>	<b>0.0%</b>	<b>30.8%</b>	<b>100.0%</b>

Source: MTA Central Subway FY2008 New Starts Financial Plan, Figure 11.

**TABLE 8-6**  
**CAPTIAL FUNDING ESTIMATES BASED ON CURRENT FUNDING LEVELS**  
**(IN \$MILLIONS YEAR OF OCCURRENCE)**

<b>Fiscal Year</b>	<b>Federal</b>	<b>State</b>	<b>Local</b>	<b>Total Funds</b>
FY06	\$106.5	\$0.0	\$48.2	\$154.7
FY07	\$137.7	--	\$54.0	\$191.6
FY08	\$182.0	--	\$72.8	\$254.8
FY09	\$177.4	--	\$119.6	\$296.9
FY10	\$238.0	--	\$113.0	\$351.0
FY11	\$244.3	--	\$170.9	\$415.2
FY12	\$250.6	--	\$102.5	\$353.1
FY13	\$257.0	--	\$121.5	\$378.5
FY14	\$263.8	--	\$95.0	\$358.8
FY15	\$270.8	--	\$97.9	\$368.7
FY16	\$278.1	--	\$91.5	\$369.6
FY17	\$285.7	--	\$58.5	\$344.2
FY18	\$240.5	--	\$42.6	\$283.1
FY19	\$221.8	--	\$43.0	\$264.7
FY20	\$230.2	--	\$66.7	\$296.9
FY21	\$239.0	--	\$44.0	\$283.0
FY22	\$248.1	--	\$44.6	\$292.7
FY23	\$257.5	--	\$45.2	\$302.7
FY24	\$267.3	--	\$45.8	\$313.2
FY25	\$277.6	--	\$46.5	\$324.0
<b>20-Year Total</b>	<b>\$4,673.8</b>	<b>\$0.0</b>	<b>\$1,523.7</b>	<b>\$6,197.5</b>

Source: MTA Central Subway FY2008 New Starts Financial Plan, Figure 9.



## Operating Sources

### Project Specific Transit Farebox and Non-farebox Operating Revenue Sources

~~In 2030, the MTA's estimates that the of additional annual fare revenues by from the Central Subway Project would be is \$9.0-7.0 million per year for Alternative 3A, based on the estimated change in ridership and an increase in the average fare that is consistent with the MTA's estimate for inflation (3.2-2.3 percent per year). Alternative 3B is predicted-projected to generate slightly less incremental annual revenues of \$8.8-6.6 million and Alternative 2 is expected to generate \$11.6-5.6 million more than the No Project/TSM Alternative. The operating revenue estimates are shown in Table 8-7. MTA has assumed that the Central Subway Project will generate the same non-farebox operating revenue as the No Project/TSM Alternative.~~

**TABLE 8-7**

### **2030 CENTRAL SUBWAY OPERATING REVENUES (NOMINAL\$)**

	<b>Alternative 2</b>	<b>Alternative 3A</b>	<b>Alternative 3B</b>
Boardings with Central Subway	283,284,830	281,333,060	281,151,420
Boardings for No Project/TSM Alternative	274,528,660	274,528,660	274,528,660
Change in Boardings	8,756,170	6,804,405	6,622,764
Average Fare	\$1.33	\$1.33	\$1.33
Fare Revenue Generated by Central Subway	\$11,645,710	\$9,049,860	\$8,808,280
Note: <del>Estimates developed using MTA methodology from MTA Central Subway FY2008 New Starts Financial Plan, Figure 15 and updated MTA boarding estimates.</del>			

**TABLE 8-7**

### **2030 CENTRAL SUBWAY OPERATING REVENUES (YOE\$)**

	<b>Alternative 2</b>	<b>Alternative 3A</b>	<b>Alternative 3B</b>
<b><u>Light Rail, Bus Trolley Bus, and Historic Streetcar</u></b>			
Boardings with Central Subway	<u>262,855,770</u>	<u>265,115,520</u>	<u>264,783,700</u>
Boardings for No Project/TSM Alternative	<u>259,447,570</u>	<u>259,447,570</u>	<u>259,447,570</u>
Change in Boardings	<u>3,408,200</u>	<u>5,66,950</u>	<u>5,336,130</u>
Average Fare	<u>\$0.98</u>	<u>\$0.98</u>	<u>\$0.98</u>
Fare Revenue Generated by Central Subway	<u>\$3,325,750</u>	<u>\$5,530,840</u>	<u>\$5,207,040</u>
<b><u>Cable Car</u></b>			
Boardings with Central Subway	<u>11,717,740</u>	<u>11,591,460</u>	<u>11,573,020</u>
Boardings for No Project/TSM Alternative	<u>11,329,200</u>	<u>11,329,200</u>	<u>11,329,200</u>
Change in Boardings	<u>388,540</u>	<u>262,260</u>	<u>243,820</u>
Average Fare	<u>\$5.79</u>	<u>\$5.79</u>	<u>\$5.79</u>

Fare Revenue Generated by Central Subway	\$2,250,580	\$1,519,120	\$5,579,950
<b>Total Change in Boardings</b>	<b>3,796,740</b>	<b>5,930,210</b>	<b>5,579,950</b>
<b>Total Fare Revenue Generated by Central Subway</b>	<b>\$5,576,330</b>	<b>\$7,049,950</b>	<b>\$6,619,330</b>
Note: YOE is Year of Expenditure. <u>Estimates developed using MTA methodology from MTA Central Subway FY2009 New Starts Financial Plan and updated MTA boarding estimates.</u>			

### Systemwide

The MTA has estimated the amount of revenue available for operating and maintaining the New Starts Project while maintaining the existing and proposed level of service.<sup>4</sup> This estimate is shown in Table 8-8. It also assumes two new revenue measures ~~requiring third party approval~~. The first of these is an increase to the parking tax of 10 percent, from the current rate of 25 percent to a proposed rate of 35 percent. ~~The MTA's analysis assumes it would be approved by voters in FY2008 that was approved by voters in November 2007 and will begin to generate additional revenues in FY2009.~~ The second new revenue source MTA staff is currently pursuing is ~~the development of a Transit Operations fee, proactive management of parking collections in on-street meters and off-street parking facilities generating an expected increase of \$30 million annually.~~

~~The MTA's operating financial plan is based on its estimates of long term growth trends rather than the budget estimate or requirements for any given year.<sup>5</sup> The MTA has indicated that deficits or surpluses shown in Table 8-8 are for planning purposes only, and are intended to flag years in which revenue~~

<sup>4</sup> Maintaining existing service levels is required to receive a Federal New Starts Full Funding Grant Agreement.

<sup>5</sup> ~~MTA Central Subway FY2008 New Starts Financial Plan, p.10-27.~~

**DELETED TABLE 8-8**  
**MTA 20-YEAR FINANCIAL PLAN INCLUDING CENTRAL SUBWAY ALTERNATIVE 3A-**  
**(YOE \$MILLIONS)**

	Total	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
<b>SOURCES</b>																					
<b>Operating</b>																					
Fare Revenues	\$4,152	\$131	\$159	\$159	\$159	\$179	\$179	\$179	\$197	\$197	\$197	\$216	\$216	\$216	\$236	\$236	\$236	\$259	\$259	\$259	\$284
Parking Revenues	4,847	173	177	182	190	196	202	211	218	225	234	242	249	260	268	277	288	298	307	320	330
Parking Tax Increase	198	0	0	0	9	9	10	10	10	10	11	11	12	12	13	13	13	14	14	15	15
New Cong. Mgmt/Trans. Imp. Fee	221	0	0	0	10	10	11	11	11	12	12	13	13	14	14	15	15	16	16	17	17
Charges for Service	137	5	5	5	5	6	6	6	6	6	6	7	7	7	8	8	8	8	8	9	9
Intergovernmental Revenue	3,032	91	114	151	122	125	129	133	137	141	146	151	155	160	166	171	176	182	188	194	200
Miscellaneous Revenue	755	14	29	30	31	32	33	34	35	36	37	38	40	41	42	44	45	46	48	49	51
Gen. Fund Cont. - Prop E Form.	4,150	140	154	160	167	172	178	184	189	195	202	208	215	222	229	236	244	252	260	268	276
Use of Carryforward Fund Bal.	9	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interdepartmental Recoveries	419	15	16	16	17	17	18	18	19	20	20	21	22	22	23	24	25	25	26	27	28
Departmental Transfer Adj.	(256)	(9)	(10)	(10)	(10)	(11)	(11)	(11)	(12)	(12)	(12)	(13)	(13)	(14)	(14)	(15)	(15)	(15)	(16)	(16)	(17)
Dedicated Paratransit Funding	351	16	16	16	16	16	16	17	17	17	17	18	18	18	19	19	19	19	20	20	20
Special Revenue - TIDF	247	10	10	10	10	10	10	11	11	11	12	12	13	13	13	14	14	15	15	16	16
<b>Total Operating Sources</b>	<b>18,262</b>	<b>586</b>	<b>679</b>	<b>720</b>	<b>726</b>	<b>764</b>	<b>781</b>	<b>802</b>	<b>839</b>	<b>859</b>	<b>882</b>	<b>923</b>	<b>945</b>	<b>970</b>	<b>1,015</b>	<b>1,040</b>	<b>1,068</b>	<b>1,117</b>	<b>1,144</b>	<b>1,175</b>	<b>1,229</b>
<b>Capital - State of Good Repair</b>																					
Federal	2,763	106	79	111	90	173	170	160	140	165	218	206	172	167	87	84	110	126	107	132	160
State	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local	1,232	42	50	61	89	133	95	108	58	58	95	108	25	17	50	63	11	11	45	61	51
<b>Total Capital Sources</b>	<b>3,996</b>	<b>148</b>	<b>129</b>	<b>172</b>	<b>181</b>	<b>306</b>	<b>264</b>	<b>269</b>	<b>198</b>	<b>223</b>	<b>313</b>	<b>314</b>	<b>198</b>	<b>184</b>	<b>137</b>	<b>148</b>	<b>121</b>	<b>137</b>	<b>152</b>	<b>194</b>	<b>212</b>
<b>Total Sources</b>	<b>22,259</b>	<b>734</b>	<b>808</b>	<b>893</b>	<b>906</b>	<b>1,069</b>	<b>1,046</b>	<b>1,071</b>	<b>1,037</b>	<b>1,082</b>	<b>1,195</b>	<b>1,237</b>	<b>1,143</b>	<b>1,154</b>	<b>1,152</b>	<b>1,187</b>	<b>1,188</b>	<b>1,254</b>	<b>1,296</b>	<b>1,368</b>	<b>1,441</b>
<b>USES</b>																					
<b>Operating</b>																					
Platform Salaries	4,124	128	144	150	156	162	169	176	183	190	198	206	214	222	231	240	250	260	270	281	293
Other Salaries	4,357	157	168	172	174	180	186	192	198	204	211	217	224	232	239	247	254	263	271	280	289
Fringe Benefits	6,795	114	131	144	158	174	191	210	231	254	280	308	339	373	410	451	496	545	600	660	726
Overhead	191	7	7	7	8	8	8	8	9	9	9	10	10	10	10	11	11	12	12	12	13
Non-Personal Services	3,201	109	121	125	129	133	137	141	146	151	155	160	165	171	176	182	188	194	200	206	213
Materials and supplies, incl. fuel	1,041	35	39	41	42	43	45	46	47	49	51	52	54	56	57	59	61	63	65	67	69
Capital/Facilities Expenditures	162	3	25	28	5	5	5	5	5	6	6	6	6	6	7	7	7	8	8	8	8
Services of Other Departments	1,039	36	39	40	42	43	44	46	47	49	50	52	54	55	57	59	61	63	65	67	69
Debt Service	171	8	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Allocated Charges	(381)	(14)	(14)	(15)	(15)	(16)	(16)	(17)	(17)	(18)	(18)	(19)	(20)	(20)	(21)	(22)	(22)	(23)	(24)	(24)	(25)
Appropriated Rev. - Res. & Des.	202	1	10	10	10	10	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Repay Breda Money	7	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
Service Plan Changes	(57)	0	0	0	0	5	5	5	5	5	5	(8)	(8)	(8)	(8)	(9)	(9)	(9)	(9)	(10)	(10)
Transfer to Unapprop. Fund Bal.	23	0	0	9	8	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Operating Uses</b>	<b>20,875</b>	<b>586</b>	<b>679</b>	<b>720</b>	<b>726</b>	<b>764</b>	<b>794</b>	<b>833</b>	<b>875</b>	<b>919</b>	<b>966</b>	<b>1,003</b>	<b>1,058</b>	<b>1,116</b>	<b>1,178</b>	<b>1,245</b>	<b>1,316</b>	<b>1,394</b>	<b>1,477</b>	<b>1,566</b>	<b>1,663</b>
<b>Capital - State of Good Repair</b>																					
Fleet	1,684	23	16	14	10	40	42	85	38	64	154	155	72	128	108	110	83	99	114	156	174
Infrastructure	2,239	98	80	148	169	265	222	184	159	159	159	159	126	56	29	38	38	38	38	38	38
Facilities	49	7	31	10	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Projects	24	20	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Capital Uses</b>	<b>3,996</b>	<b>148</b>	<b>129</b>	<b>172</b>	<b>181</b>	<b>306</b>	<b>264</b>	<b>269</b>	<b>198</b>	<b>223</b>	<b>313</b>	<b>314</b>	<b>198</b>	<b>184</b>	<b>137</b>	<b>148</b>	<b>121</b>	<b>137</b>	<b>152</b>	<b>194</b>	<b>212</b>
<b>Total Uses</b>	<b>\$24,872</b>	<b>\$734</b>	<b>\$808</b>	<b>\$893</b>	<b>\$906</b>	<b>\$1,069</b>	<b>\$1,058</b>	<b>\$1,102</b>	<b>\$1,072</b>	<b>\$1,142</b>	<b>\$1,279</b>	<b>\$1,318</b>	<b>\$1,255</b>	<b>\$1,299</b>	<b>\$1,315</b>	<b>\$1,392</b>	<b>\$1,437</b>	<b>\$1,530</b>	<b>\$1,629</b>	<b>\$1,760</b>	<b>\$1,875</b>
<b>Projected Surplus (Deficit)</b>	<b>(\$2,613)</b>	<b>\$0</b>	<b>\$0</b>	<b>(\$0)</b>	<b>\$0</b>	<b>\$0</b>	<b>(\$12)</b>	<b>(\$31)</b>	<b>(\$36)</b>	<b>(\$60)</b>	<b>(\$84)</b>	<b>(\$81)</b>	<b>(\$113)</b>	<b>(\$145)</b>	<b>(\$162)</b>	<b>(\$205)</b>	<b>(\$249)</b>	<b>(\$277)</b>	<b>(\$333)</b>	<b>(\$392)</b>	<b>(\$434)</b>

Note: Data reflects the combined total for the Municipal Transportation Agency, which includes Muni and DPT.

Source: MTA, 2007

## NEW TABLE 8-8

### MTA 30-YEAR FINANCIAL PLAN INCLUDING CENTRAL SUBWAY ALTERNATIVE 3B (YOY \$MILLIONS)

CAPITAL SOURCES OF FUNDS		Fiscal Year																																			Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
(Year of Expenditure Dollars in Millions)		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512	2513	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542	2543	2544	2545	2546	2547	2548	2549	2550	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565	2566	2567	2568	2569	2570	2571	2572	2573	2574	2575	2576	2577	2578	2579	2580	2581	2582	2583	2584	2585	2586	2587	2588	2589	2590	2591	2592	2593	2594	2595	2596	2597	2598	2599	2600	2601	2602	2603	2604	2605	2606	2607	2608	2609	2610	2611	2612	2613	2614	2615	2616	2617	2618	2619	2620	2621	2622	2623	2624	2625	2626	2627	2628	2629	2630	2631	2632	2633	2634	2635	2636	2637	2638	2639	2640	2641	2642	2643	2644	2645	2646	2647	2648	2649	2650	2651	2652	2653	2654	2655	2656	2657	2658	2659	2660	2661	2662	2663	2664	2665	2666	2667	2668	2669	2670	2671	2672	2673	2674	2675	2676	2677	2678	2679	2680	2681	2682	2683	2684	2685	2686	2687	2688	2689	2690	2691	2692	2693	2694	2695	2696	2697	2698	2699	2700	2701	2702	2703	2704	2705	2706	2707	2708	2709	2710	2711	2712	2713	2714	2715	2716	2717	2718	2719	2720	2721	2722	2723	2724	2725	2726	2727	2728	2729	2730	2731	2732	2733	2734	2735	2736	2737	2738	2739	2740	2741	2742	2743	2744	2745	2746	2747	2748	2749	2750	2751	2752	2753	2754	2755	2756	2757	2758	2759	2760	2761	2762	2763	2764	2765	2766	2767	2768	2769	2770	2771	2772	2773	2774	2775	2776	2777	2778	2779	2780	2781	2782	2783	2784	2785	2786	2787	2788	2789	2790	2791	2792	2793	2794	2795	2796	2797	2798	2799	2800	2801	2802	2803	2804	2805	2806	2807	2808	2809	2810	2811	2812	2813	2814	2815	2816	2817	2818	2819	2820	2821	2822	2823	2824	2825	2826	2827	2828	2829	2830	2831	2832	2833	2834	2835	2836	2837	2838	2839	2840	2841	2842	2843	2844	2845	2846	2847	2848	2849	2850	2851	2852	2853	2854	2855	2856	2857	2858	2859	2860	2861	2862	2863	2864	2865	2866	2867	2868	2869	2870	2871	2872	2873	2874	2875	2876	2877	2878	2879	2880	2881	2882	2883	2884	2885	2886	2887	2888	2889	2890	2891	2892	2893	2894	2895	2896	2897	2898	2899	2900	2901	2902	2903	2904	2905	2906	2907	2908	2909	2910	2911	2912	2913	2914	2915	2916	2917	2918	2919	2920	2921	2922	2923	2924	2925	2926	2927	2928	2929	2930	2931	2932	2933	2934	2935	2936	2937	2938	2939	2940	2941	2942	2943	2944	2945	2946	2947	2948	2949	2950	2951	2952	2953	2954	2955	2956	2957	2958	2959	2960	2961	2962	2963	2964	2965	2966	2967	2968	2969	2970	2971	2972	2973	2974	2975	2976	2977	2978	2979	2980	2981	2982	2983	2984	2985	2986	2987	2988	2989	2990	2991	2992	2993	2994	2995	2996	2997	2998	2999	3000	3001	3002	3003	3004	3005	3006	3007	3008	3009	3010	3011	3012	3013	3014	3015	3016	3017	3018	3019	3020	3021	3022	3023	3024	3025	3026	3027	3028	3029	3030	3031	3032	3033	3034	3035	3036	3037	3038	3039	3040	3041	3042	3043	3044	3045	3046	3047	3048	3049	3050	3051	3052	3053	3054	3055	3056	3057	3058	3059	3060	3061	3062	3063	3064	3065	3066	3067	3068	3069	3070	3071	3072	3073	3074	3075	3076	3077	3078	3079	3080	3081	3082	3083	3084	3085	3086	3087	3088	3089	3090	3091	3092	3093	3094	3095	3096	3097	3098	3099	3100	3101	3102	3103	3104	3105	3106	3107	3108	3109	3110	3111	3112	3113	3114	3115	3116	3117	3118	3119	3120	3121	3122	3123	3124	3125	3126	3127	3128	3129	3130	3131	3132	3133	3134	3135	3136	3137	3138	3139	3140	3141	3142	3143	3144	3145	3146	3147	3148	3149	3150	3151	3152	3153	3154	3155	3156	3157	3158	3159	3160	3161	3162	3163	3164	3165	3166	3167	3168	3169	3170	3171	3172	3173	3174	3175	3176	3177	3178	3179	3180	3181	3182	3183	3184	3185	3186	3187	3188	3189	3190	3191	3192	3193	3194	3195	3196	3197	3198	3199	3200	3201	3202	3203	3204	3205	3206	3207	3208	3209	3210	3211	3212	3213	3214	3215	3216	3217	3218	3219	3220	3221	3222	3223	3224	3225	3226	3227	3228

EATING SOURCES OF FUNDS		Fiscal Year																																				Total
(Per \$ Expenditure Dollars in Millions)		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040			
Passenger Revenue	\$133.76	\$133.46	\$141.30	\$158.95	\$176.93	\$193.58	\$200.44	\$211.89	\$231.02	\$231.56	\$233.38	\$254.26	\$256.90	\$259.63	\$262.13	\$284.84	\$287.54	\$303.83	\$313.57	\$328.66	\$341.06	\$348.69	\$367.82	\$374.37	\$377.77	\$381.52	\$404.66	\$403.66	\$430.64	\$436.86	\$446.56	\$456.20						
Parking Revenue	\$51.25	\$65.57	\$70.91	\$73.24	\$76.47	\$80.56	\$87.79	\$95.72	\$98.42	\$103.75	\$116.44	\$119.70	\$127.66	\$131.21	\$140.40	\$143.27	\$154.40	\$156.93	\$168.38	\$172.46	\$184.95	\$189.10	\$200.20	\$205.56	\$220.48	\$224.48	\$236.96	\$240.64	\$255.94	\$260.46	\$275.94	\$280.46						
Tolling Revenue	\$22.29	\$24.18	\$26.15	\$27.01	\$28.94	\$29.71	\$32.19	\$32.71	\$35.30	\$36.29	\$37.70	\$39.70	\$42.94	\$43.80	\$47.07	\$48.42	\$51.81	\$52.83	\$56.94	\$57.87	\$62.09	\$63.60	\$69.20	\$69.40	\$74.56	\$75.80	\$81.10	\$82.78	\$87.38	\$88.73	\$128.54							
Fees	\$88.74	\$89.22	\$96.49	\$99.67	\$103.68	\$109.62	\$118.79	\$120.72	\$130.26	\$133.93	\$143.08	\$149.44	\$158.45	\$161.65	\$173.72	\$178.68	\$181.81	\$201.15	\$229.14	\$236.69	\$251.69	\$256.69	\$275.16	\$279.63	\$299.28	\$309.47	\$322.46	\$327.46	\$356.27	\$360.46	\$374.51	\$379.44						
Permits	\$5.98	\$6.49	\$5.94	\$6.13	\$6.57	\$6.74	\$7.31	\$7.43	\$8.01	\$8.24	\$8.80	\$9.01	\$9.75	\$9.94	\$10.69	\$10.99	\$11.76	\$11.99	\$12.93	\$13.14	\$14.10	\$14.44	\$15.46	\$15.75	\$16.93	\$17.21	\$18.41	\$19.78	\$19.84	\$21.13	\$24.94							
Parking Fees	\$15.12	\$6.69	\$7.23	\$7.47	\$7.00	\$6.21	\$8.90	\$6.44	\$6.76	\$10.33	\$10.72	\$10.90	\$9.17	\$11.73	\$12.11	\$13.01	\$13.39	\$14.32	\$14.61	\$15.74	\$16.00	\$17.17	\$17.44	\$18.58	\$19.12	\$20.63	\$22.96	\$24.42	\$22.99	\$24.16	\$24.53	\$41.57						
Other Operating Revenue																																						
Rental Income	\$5.44	\$2.10	\$2.16	\$2.23	\$2.28	\$2.34	\$2.42	\$2.46	\$2.53	\$2.60	\$2.65	\$2.71	\$2.80	\$2.85	\$2.92	\$3.01	\$3.07	\$3.13	\$3.22	\$3.27	\$3.34	\$3.42	\$3.50	\$3.56	\$3.65	\$3.71	\$3.78	\$3.86	\$3.88	\$3.94	\$3.95	\$3.95						
Advertising	\$2.21	\$8.22	\$8.12	\$8.29	\$8.29	\$9.79	\$10.37	\$10.99	\$11.42	\$12.56	\$12.86	\$13.26	\$13.53	\$13.86	\$14.26	\$14.57	\$14.83	\$15.13	\$15.48	\$15.85	\$16.23	\$16.60	\$16.89	\$17.30	\$17.59	\$17.94	\$18.31	\$18.41	\$19.10	\$19.10	\$19.75	\$19.75						
Interest on Debt	\$2.32	\$2.40	\$2.48	\$2.56	\$2.61	\$2.68	\$2.77	\$2.82	\$2.90	\$2.96	\$3.03	\$3.11	\$3.20	\$3.27	\$3.35	\$3.45	\$3.51	\$3.58	\$3.68	\$3.74	\$3.83	\$3.92	\$4.01	\$4.09	\$4.18	\$4.25	\$4.33	\$4.42	\$4.45	\$4.52	\$4.60	\$4.62						
Passenger Revenue	\$1.36	\$1.41	\$1.46	\$1.51	\$1.54	\$1.58	\$1.63	\$1.66	\$1.71	\$1.76	\$1.79	\$1.83	\$1.89	\$1.93	\$1.97	\$2.03	\$2.07	\$2.11	\$2.17	\$2.21	\$2.26	\$2.31	\$2.36	\$2.41	\$2.46	\$2.50	\$2.55	\$2.61	\$2.62	\$2.66	\$2.68	\$2.74						
Proof of Payment Revenue	\$0.18	\$0.16	\$0.16	\$0.17	\$0.17	\$0.18	\$0.18	\$0.18	\$0.19	\$0.20	\$0.20	\$0.20	\$0.21	\$0.21	\$0.22	\$0.23	\$0.23	\$0.23	\$0.24	\$0.25	\$0.26	\$0.26	\$0.27	\$0.28	\$0.28	\$0.29	\$0.29	\$0.30	\$0.30	\$0.30	\$0.30	\$0.30						
Transit	\$0.27	\$0.03	\$0.03	\$0.03	\$0.03	\$0.03	\$0.03	\$0.03	\$0.03	\$0.04	\$0.04	\$0.04	\$0.04	\$0.04	\$0.04	\$0.04	\$0.04	\$0.04	\$0.04	\$0.04	\$0.05	\$0.05	\$0.05	\$0.05	\$0.05	\$0.05	\$0.05	\$0.05	\$0.05	\$0.05	\$0.05	\$0.05						
Operating Assistance	\$0.00	\$3.81	\$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	\$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	\$0.00	\$0.00	\$0.00	\$0.00						
FTA Grants	\$0.00	\$4.57	\$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	\$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	\$0.00	\$0.00	\$0.00	\$0.00						
One-Time Grants	\$1.13	\$2.47	\$3.36	\$4.70	\$4.76	\$4.80	\$4.84	\$4.88	\$4.92	\$4.96	\$4.99	\$5.02	\$5.05	\$5.08	\$5.11	\$5.14	\$5.17	\$5.20	\$5.23	\$5.26	\$5.29	\$5.32	\$5.35	\$5.38	\$5.41	\$5.44	\$5.47	\$5.50	\$5.53	\$5.56	\$5.59	\$5.62						
State Sales Tax	\$29.95	\$34.44	\$35.52	\$36.69	\$37.48	\$38.72	\$39.76	\$40.41	\$41.58	\$42.75	\$43.54	\$44.57	\$45.98	\$46.91	\$48.07	\$49.44	\$50.45	\$51.43	\$52.85	\$53.72	\$54.95	\$56.28	\$57.54	\$58.55	\$59.98	\$60.98	\$62.19	\$63.48	\$64.83	\$66.34	\$67.96	\$69.67						
Prop. & Gas Tax Revenue	\$6.01	\$6.11	\$6.30	\$6.51	\$6.65	\$6.82	\$7.05	\$7.17	\$7.38	\$7.58	\$7.72	\$7.91	\$8.16	\$8.32	\$8.55	\$8.77	\$8.95	\$9.12	\$9.38	\$9.59	\$9.89	\$10.21	\$10.39	\$10.64	\$10.82	\$11.03	\$11.26	\$11.51	\$11.76	\$12.01	\$12.26							
IDA Sales Tax	\$37.74	\$35.83	\$36.96	\$38.18	\$38.99	\$40.02	\$41.37	\$42.04	\$43.27	\$44.48	\$46.30	\$46.38	\$47.85	\$48.81	\$50.02	\$51.45	\$52.47	\$53.51	\$54.99	\$55.93	\$57.18	\$58.56	\$59.88	\$60.92	\$62.41	\$63.45	\$64.71	\$66.05	\$67.42	\$68.77	\$70.22	\$71.72						
Transportation Authority	\$7.00	\$6.97	\$6.97	\$7.00	\$7.02	\$7.00	\$7.11	\$7.15	\$7.16	\$7.19	\$7.22	\$7.25	\$7.29	\$7.33	\$7.37	\$7.42	\$7.46	\$7.51	\$7.56	\$7.61	\$7.66	\$7.71	\$7.76	\$7.81	\$7.86	\$7.91	\$7.96	\$8.01	\$8.06	\$8.11	\$8.16	\$8.21						
BARF ADA	\$10.08	\$1.25	\$1.29	\$1.33	\$1.36	\$1.40	\$1.44	\$1.47	\$1.51	\$1.55	\$1.58	\$1.62	\$1.67	\$1.70	\$1.74	\$1.79	\$1.83	\$1.87	\$1.92	\$1.95	\$1.99	\$2.04	\$2.09	\$2.13	\$2.18	\$2.21	\$2.26	\$2.30	\$2.32	\$2.35	\$2.38	\$2.42						
Transit	\$0.09	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30	\$2.30						
FTA	\$9.34	\$13.81	\$14.00	\$14.04	\$20.47	\$21.01	\$21.72	\$22.37	\$23.16	\$23.78	\$24.35	\$25.12	\$25.63	\$26.26	\$27.01	\$27.69	\$28.09	\$28.87	\$29.34	\$30.02	\$30.75	\$31.44	\$31.99	\$32.77	\$33.31	\$33.98	\$34.68	\$35.47	\$35.44	\$36.43	\$37.44	\$38.45						
Compensated From FYTD	\$19.61	\$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	\$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	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00						
Departmental Transfer Assistance	\$19.29	\$35.36	\$36.37	\$37.57	\$38.37	\$39.10	\$40.72	\$41.28	\$42.58	\$43.74	\$45.50	\$46.55	\$48.09	\$48.04	\$52.20	\$50.63	\$51.64	\$52.66	\$54.12	\$55.01	\$56.27	\$57.64	\$58.93	\$59.96	\$61.43	\$62.45	\$63.99	\$65.01	\$66.37	\$66.38	\$68.00	\$69.00						
State and Local Support	\$18.28	\$17.892	\$18.455	\$19.063	\$19.470	\$19.888	\$20.605	\$20.955	\$21.605	\$22.214	\$22.811	\$23.160	\$23.892	\$24.575	\$24.765	\$25.600	\$26.003	\$26.720	\$27.441	\$27.911	\$28.512	\$29.244	\$29.899	\$30.423	\$31.167	\$31.844	\$32.515	\$32.983	\$33.618	\$34.208	\$34.833	\$35.496						
Grant and Local Assistance	\$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	\$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	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00						
State and Local Assistance	\$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	\$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	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00						
Interest on Capital Revenue	\$2.88	\$3.00	\$3.22	\$3.40	\$3.44	\$3.48	\$3.88	\$5.21	\$5.27	\$5.34	\$5.53	\$5.74	\$6.16	\$6.45	\$12.99	\$15.83	\$7.26	\$4.51	\$5.12	\$5.21	\$5.41	\$5.95	\$6.78	\$14.14	\$7.23	\$6.48	\$18.39	\$22.68	\$17.99	\$22.42	\$21.61	\$28.51						
Non Operating Revenue																																						
Unemployment Parking Tax Revenue	\$0.00	\$0.00	\$36.00	\$36.00	\$36.77	\$39.54	\$32.01	\$32.73	\$35.10	\$36.99	\$35.55	\$39.47	\$46.49	\$46.56	\$46.51	\$48.15	\$51.52	\$53.25	\$56.62	\$57.54	\$61.74	\$63.34	\$67.82	\$69.90	\$74.14	\$75.37	\$80.64	\$82.31	\$86.89	\$88.29	\$91.57	\$92.72						
Enhanced Parking Related Revenue	\$0.00	\$0.00	\$10.00	\$10.33	\$20.55	\$21.10	\$31.31	\$32.32	\$33.26	\$34.20	\$34.83	\$35.65	\$36.78	\$37.53	\$38.45	\$39.55	\$40.34	\$41.14	\$42.28	\$42.97	\$43.96	\$45.02	\$46.03	\$46.84	\$47.90	\$48.78	\$49.75	\$50.78	\$51.06	\$51.85	\$106.13							
Other Non Operating Revenue (Operating Shortfall)	\$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	\$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	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00						
TOTAL OPERATING SOURCES OF FUNDS	\$613.31	\$676.55	\$718.77	\$777.84	\$821.53	\$847.28	\$918.13	\$930.72	\$976.82	\$1,015.13	\$1,040.29	\$1,073.51	\$1,145.86	\$1,162.67	\$1,208.87	\$1,250.22	\$1,292.79	\$1,313.93	\$1,389.66	\$1,414.93	\$1,464.12	\$1,518.66	\$1,582.18	\$1,599.76	\$1,687.84	\$1,723.78	\$1,791.93	\$1,835.43	\$1,887.32	\$1,912.24	\$2,111.24							
OPERATING USES OF FUNDS																																						Total
(Per \$ Expenditure Dollars in Millions)		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040			
Motor Coach	\$223.78	\$214.55	\$221.90	\$230.03	\$236.91	\$244.53	\$254.97	\$260.44	\$270.04	\$279.96	\$285.13	\$293.37	\$304.31	\$312.05	\$320.87	\$331.93	\$349.26	\$364.72	\$368.35	\$379.34	\$391.53	\$402.42	\$411.65	\$424.11	\$433.58	\$444.97	\$456.73	\$469.83	\$483.54	\$499.83	\$507.39	\$525.39						
Trolley Coach	\$130.55	\$144.27	\$150.47	\$156.71	\$162.90	\$172.04	\$186.76	\$195.05	\$198.20	\$199.44	\$200.77	\$202.19	\$207.17	\$217.39	\$224.24	\$232.05	\$239.89	\$244.24	\$252.55	\$258.14	\$265.67	\$273.89	\$281.85	\$288.48	\$297.30	\$304.03	\$312.11	\$320.46	\$328.53	\$339.64	\$347.94	\$367.94						
Demolition Revenue	\$20.25	\$20.76	\$21.42	\$22.14	\$22.63	\$23.40	\$24.44	\$24.64	\$25.17	\$25.89	\$26.38	\$27.02	\$27.89	\$28.47	\$29.18	\$29.65	\$31.27	\$32.16	\$32.80	\$33.47	\$34.30	\$35.05	\$35.72	\$36.62	\$37.25	\$38.01	\$38.82	\$39.65	\$40.48	\$41.31	\$42.14	\$43.08						
Tram	\$118.06	\$121.84	\$125.24	\$128.63	\$134.18	\$141.16	\$148.61	\$156																														

~~enhancements or cost cutting measures are needed, or to alert the MTA to years in which contributions to a Contingency Fund or service enhancements may be possible.~~ By law, the MTA must have a balanced operating budget every year.

The ~~surplus/deficit line~~ annual cash balance is not an indication that the MTA has the ability to build up a capital reserve or channel surplus operating revenues into capital projects. However, the agency does have a policy of Capital Reserve Fund and a MTA Board of Directors resolution establishing a policy of designating operating surplus or one-time revenues, as deemed prudent by the MTA Executive Director, into this reserve. As of August 2006, \$15 million in remaining proceeds from the Breda lease/leaseback financing were available in the Reserve Fund. Additionally, the MTA had an undesignated cash reserve account of \$11 million at the close of FY06, which is available for appropriation. The Agency is able to carry surpluses forward into subsequent years. The FY07 budget also includes \$10 million in an operating reserve. In total, approximately \$36 million is potentially available for a Contingency Fund.

#### 8.1.4 CAPITAL AND OPERATING SHORTFALL

Based on the MTA's estimates of the capital cost for Alternative 3B, this is the only alternative that is fully funded. Both Alternative 2 and 3A would have funding shortfalls based on the current funding plan. ~~3A, \$424 million in local capital funding is still unidentified. The Central Subway is expected to result in a net operating surplus on a project level basis.~~

~~If the MTA identifies \$424 million in local capital funding, it estimates that it will have sufficient funds for its 20-year State of Good Repair Capital Improvement Program, which includes the capital cost of the Central Subway Project (Alternative 3A). Alternative 3B is estimated to have a lower capital cost and would therefore result in a smaller shortfall whereas Alternative 2 would result in a larger shortfall due to its higher capital cost.~~

Systemwide, the MTA estimates that Muni will ~~have an~~ not experience operating shortfalls ~~beginning in 2011 that continues through the end of the evaluation period. Although a cumulative 20-year budget deficit of \$2.6 billion is shown in Table 8-8,~~ The MTA is required to have a balanced operating budget every year pursuant to the City Charter. To the extent that the MTA experiences operating shortfalls during a fiscal year, operating expenses have typically been constrained through the use of hiring freezes, salary savings (whereby budgeted positions remain unfilled) and other personnel cuts. If there is still a shortfall, the MTA limits Muni's operating and maintenance costs to the total amount of available revenues.

### 8.1.5 ADDITIONAL REVENUE SOURCES

The MTA has identified the following sources as having potential to fill shortfalls identified in the previous section.

#### **Federal Funding**

The MTA has indicated that it may seek additional Section 5309 New Starts funds for the Central Subway Project. FTA considers the amount of Section 5309 New Starts funding available when it signs a Full Funding Grant Agreement, ~~and outside of New York City, the largest FFGA awarded has been \$750 million.~~ The Central Subway Project's ability to secure the \$762.2 million it is currently seeking or any additional funding will depend in part upon the availability of Section 5309 New Starts resources at the time the FFGA would be signed.

#### **New Non-Federal Funding**

MTC adopted Resolution 3434 on the Regional Transit Expansion Program (RTEP) of Projects, which includes the Central Subway. The RTEP is a coordinated regional approach to prioritizing investments in new rail and express/rapid bus projects. It sets forth the expansion priorities for the Bay Area. Placing the Central Subway Project in the recommended program of projects indicates a level of commitment in the region to funding the Project.

MTA staff is currently in discussion with City policy makers regarding the possibility of including the Central Subway in a large, citywide capital bond proposal planned for the ballot in FY 2009. San Francisco voters have historically supported the city's Transit First policy. Two general sales tax measures failed a public vote in 2004; however, the reauthorized Proposition K sales tax dedicated to transit was approved by 75 percent of voters in 2003 and Proposition A, which secured parking revenues for use by the MTA was passed in November 2007.

The MTA has also indicated that it may seek additional commitment of STIP funds through the SFCTA's programming function. This happened with the Transportation Congestion Relief Program and Regional Measure 2 (RM-2), which was passed in March 2004 and raised bridge tolls in the region to \$3. A portion of the new revenues is dedicated to the MTA capital and operating needs. The MTA also has real property assets that it is considering for joint development. The MTA owns two parcels of land, currently serving as bus yards, that could be developed, as well as numerous parking garages and lots located throughout the City. The MTA believes there is also potential for transit-oriented development along the Central Subway corridor itself, especially near the stations.

Although the MTA estimates that the Central Subway Project would generate a net operating savings, the Project would be eligible to receive operating funds from Proposition K sales tax revenues if its operating costs increased. Projects constructed with Proposition K funds are eligible to receive funding for the incremental additional operating costs incurred because of the Project. In addition, as a result of Proposition E, the MTA would receive a base amount of revenue from the General Fund annually, which stabilizes the annual budgeting process.

#### 8.1.6 RISK AND UNCERTAINTY

Several cost and revenue risks could influence the final financial results and will play an important role in the further refinement of the underlying assumptions. Risks can be broken down into several main categories:

##### **Cost Risks**

Both capital and operating costs are subject to inflation uncertainty related to the global markets for raw materials such as concrete and steel, energy, and labor. For example, the recent volatility of fuel prices could affect the magnitude of operating expenditures for providing existing and programmed transit services. This could greatly impact rubber-tired or diesel-fueled operations as well as electrical surcharges for operations.

There is a design and schedule risk that is inherent to any major construction work. At this stage, subsoil conditions are not known with a high level of certainty. There might also be some changes in Project scope, bid quantities or unexpected utility relocation.

The Project cost estimate includes cost contingencies. If the Project budget exceeds this built-in contingency, the MTA would have to rely on a special Contingency Fund. The MTA staff is seeking to develop a Contingency Fund in order to cover unpredicted revenue shortfalls in the Project or the operating budget.

##### **Revenue Risks**

As discussed in Section 8.1.3, the Central Subway Project must ~~improve its~~ receive a federal New Starts Cost Effectiveness Rating ~~from “Medium Low” to of “Medium”~~ from the FTA to receive a Full Funding Grant Agreement (FFGA), ~~which is needed to~~ and receive a significant portion of the Project’s capital funding. ~~The MTA is working to reduce the Project’s capital cost as well as preparing an Action Plan to resolve~~



~~issues that the Federal Transit Administration has indicated need to be addressed. Even with a Medium rating for Costs Effectiveness, there is no assurance of New Starts funding. The New Starts program is scheduled to expire in 2009 unless it is reauthorized by Congress, and many other projects nationwide are competing~~

~~for available funds. The level of New Starts funding the MTA is seeking for the Project is unprecedented outside of New York City. Finally a New Starts FFGA does not guarantee that the annual grant for Even if the MTA receives a New Starts funding commitment form FTA, there is also a risk that New Starts funds will be appropriated by Congress in accordance with the funding schedule in the FFGA.~~

If operating costs for the Central Subway Project result in a net increase, the Central Subway Project would be eligible to receive operating funds from Proposition K sales tax revenues. Projects constructed with Proposition K funds are eligible to receive funding for the incremental additional operating costs incurred because of the Project.

Proposition E, approved by the San Francisco voters in 2000, created a Municipal Transportation fund that is dedicated to transit operations. All MTA revenues flow into this fund, which is separate from the City's General Fund. Proposition E provides the MTA with more control over its budget and fare policy than it previously had, and it also established a more predictable funding base; however, it also created a number of financial challenges. If the General Fund contribution increases or decreases by the same percentage as overall city revenues, there is no guarantee that the General Fund will make up future shortfalls in fare, parking, sales tax, or other revenues. The MTA must fund the future cost of existing liabilities such as workers' compensation and judgments and claims, and there are no provisions to have the General Fund cover inflation, fringe benefit increases, or cost of living allowances that represent a significant portion of the MTA's annual cost increases. Finally, there are only limited provisions for funding new activities that are required under Proposition E such as human resources functions, procurement, and service standards data collection and analysis.

### **Finance Risks**

~~The MTA has indicated~~ If federal capital funds are not received according to the amounts or schedule as planned, or if the federal funding stream is lengthened beyond the projected cash flow, the MTA ~~would~~ will pursue additional bond financing through the City and County of San Francisco and/or financing through the SFCTA. If state or local capital funds were reduced or delayed, the MTA has indicated that it would rely on a Contingency Fund and/or other local sources to be determined.

Additional finance risk lies ~~mostly~~ in variations in interest rates, construction costs, and ridership on the existing system that could affect the total capital cost estimate. Both long term and short term borrowing are dependent on this variable. These risks can be mitigated through staging the construction of the project, controlling the growth of service, raising fares, redefining the scope of the project, and introducing short and long term financing strategies.

### **Effect of Sensitivity Analysis**

~~A downside sensitivity analysis on the MTA 20-year Financial Plan, with operating and capital revenue reduced by 5 percent and operating and capital expenditures increased by 5 percent was developed. These projections increase the 20-year budget shortfall from \$2.6 billion to \$5.0 billion. An upside sensitivity analysis on the 20-year Financial Plan with revenues increased by 5 percent and expenditures decreased by 5 percent shows the MTA with a 20-year deficit of \$0.3 billion. An uncertainty analysis using a “Monte Carlo” simulation was undertaken to assess the financial risks of the project on MTA over a 30-year period. This simulation tool provides a probability distribution of potential project financing out-comes that reflects all possible outcomes of risk variable values. The Monte Carlo simulation determined that the mean of the average annual revenue required over the 30-year period of analysis is \$134 million for a mean 30-year a total future capital revenue of \$4 billion required to sustain MTA programs. The MTA would not experience a deficit over this period.~~

Any year with a projected deficit would require balancing with a combination of new revenue sources, use of the reserve funds, and/or expenditure reductions, the latter in accordance with FFGA requirements.

## **9.0 EVALUATION OF ALTERNATIVES**

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### **9.1 EVALUATION METHODOLOGY**

The evaluation of alternatives provides local decision makers with guidance in selecting a Preferred Investment Strategy. The evaluation, as presented in this Chapter, is consistent with the Federal Transit Administration (FTA) New Starts Funding criteria. The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), which was passed in August 2005, direct FTA to evaluate and rate candidate New Starts projects as an input to federal funding decisions and at specific milestones throughout each project's planning and development process. In May 2006, the FTA updated their guidance on policies and procedures for discretionary New Starts funding under Section 5309. These revised Section 5309 criteria reflect a comprehensive set of quantitative and qualitative measures:

- Mobility Improvements;
- Environmental Benefits;
- Operating Efficiencies;
- Cost Effectiveness;
- Transit Supportive Existing Land Use and Future Patterns;
- Other Factors (optional); and
- Local Financial Commitment.

FTA does not suggest that the local project evaluation (to determine the Preferred Investment Strategy) must be based entirely on the recommended performance measures, or that the federal government must limit its consideration of candidate projects to those same performance measures. Therefore, the evaluation includes measures based on the locally-defined goals and objectives discussed above, as well as FTA's recommended measures.

The local goals and objectives have been integrated into the FTA evaluation criteria categories. Project goals and objectives are presented in Section 1.4 of the SEIS/SEIR. For each FTA criteria, performance measures related to the FTA guidelines and local goals and objectives are evaluated. The resulting performance measures categorized by FTA New Starts criteria are presented in each section below.

### 9.1.1 TRANSIT OPTIONS EVALUATED

The evaluation compares the Central Subway Build Alternatives against the No Project/TSM Alternative. The No Project/TSM assumes that the T-Third line and associated bus changes described in Section 2.1 of this SEIS/SEIR are in place along with major transportation network improvements identified in the Regional Transportation Plan. The two Central Subway Build Alternatives include the Enhanced EIS/EIR Alignment and the Fourth/Stockton Alignment. The Enhanced EIS/EIR alignment has a surface/subway light rail line operating on segments of Third, Harrison, Kearny, and Geary Streets as well as Fourth and Stockton Streets. The alignment crosses Market Street in a shallow subway and includes a surface platform on Third Street at King Street and four Subway stations (Moscone, Market, Union Square and Chinatown). Enhancements to the 1998 FEIS/FEIR alternative include above-ground emergency ventilation shafts, off-sidewalk station entries where feasible, and the provision of a closed barrier fare system. The Fourth/Stockton Alignment would operate exclusively on Fourth and Stockton Streets with a deep tunnel crossing under Market Street. Two design options for this alternative are being evaluated. Option A (Locally Preferred Alternative or LPA) has a double-track portal on Fourth Street between Townsend and Brannan Streets and three subway stations (Moscone, Union Square/Market Street, and Chinatown). Option B (Modified LPA) has a double-track portal on Fourth Street between Bryant and Harrison Streets, a surface platform on Fourth Street at Brannan Street, and three subway stations (Moscone, Union Square/Market Street, and Chinatown). Option B includes semi-exclusive and mixed-flow suboptions for the surface portion of the light rail operation on Fourth Street. The Fourth/Stockton Alignment Options A and B also include a North Beach tunnel construction variant that would extend the tunnel to the north approximately 2,000 feet under Stockton Street and Columbus Avenue, just past Union Street, to allow for the removal of the TBM.

Detailed descriptions of the alternatives can be found in Section 2.1 of this SEIS/SEIR.

### 9.1.2 EVALUATION FRAMEWORK

The Section 5309 New Starts criteria provide FTA with a consistent framework for evaluating major transit investments seeking federal discretionary funding under the Section 5309 New Starts program. FTA uses an analytical method in which New Start projects are analyzed against several evaluation criteria and results are displayed and reported annually.<sup>1</sup>

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<sup>1</sup> Updated analysis was prepared for Alternative 3B (Modified Locally Preferred Alternative) only and was included in the August 2007 New Starts Report.

This method is also used to evaluate the alternatives/transit options relative to local goals and objectives. No attempt has been made to provide an overall ranking or single index combining all measures. The community and its decision-makers can apply their own values in weighing the importance of the various measures and selecting a Preferred Investment Strategy. The evaluation completed for the SEIS/SEIR will not necessarily conform to the evaluation by FTA that compares New Start projects nationwide for purposes of recommending projects to Congress for funding.

The local evaluation is summarized by means of performance ratings assigned to the alternatives. Performance ratings were assigned to each alternative based on how well the alternative meets the objective. In some cases there is a clear distinction between alternatives, while in others no clear distinction may exist. The ratings may be adjusted in order to account for significant environmental impacts, or other criteria, which make a particular alternative significantly more or less desirable than the other.

## **9.2 MOBILITY IMPROVEMENTS**

In general, mobility is improved by a transit project if individuals can complete the trips they currently make at reduced travel times or if they can and do make more trips in response to a lowered net cost of trip making. Costs, in this context, include the value of service quality differences, such as travel time and reliability.

The Travel and Mobility Goal is to improve transit service to, from, and within the Central Subway Corridor, thereby enhancing the mobility of Corridor residents, business people, and visitors. The specific supporting objectives and performance measures applied to each of the transit options for the Travel and Mobility Goal are presented in Table 9-1.

### **9.2.1 SUMMARY OF MOBILITY IMPROVEMENTS EVALUATION**

Table 9-2 summarizes the evaluation of the alternatives with respect to achieving the Mobility Improvements criteria/objectives.

#### **Alternative 1 - No Project/TSM**

The No Project/TSM Alternative would not provide the same high-quality transit service to low income households and employment centers in the Central Subway corridor as would occur if the Project were implemented. It would have slower transit travel times than the Build Alternatives, as a direct exclusive transit right-of-way connection to Chinatown would not be provided. The No Project/TSM Alternative would not be compatible with the Transportation Authority's 1995 *Four Corridor Plan* because it would

**TABLE 9-1**  
**CRITERIA FOR EVALUATING MOBILITY IMPROVEMENTS**

Criteria/Objective	Performance Measure
<b>FTA Criteria</b>	
Mobility Improvements	Hours of User Benefits Low Income Households Served Employment Near Stations
<b>Local Criteria:</b>	
Increase Transit Ridership	Comparison of Daily Linked Transit Trips
Improve Service Reliability	Exclusive Right-of-Way for Transit
Reduce 2030 Transit Travel Time	Travel Time Between Selected Origin-Destination Pairs
Enhance the Opportunity to Expand Muni's Light Rail System	Compatibility with San Francisco Transportation Authority's <i>Four Corridor Plan</i>

**TABLE 9-2**  
**SUMMARY OF MOBILITY IMPROVEMENTS EVALUATION**

Performance Measures	No Project/TSM Alternative	Central Subway Alternatives		
		Enhanced EIS/EIR Alignment	Fourth/Stockton Alignment Option A	Fourth/Stockton Alignment Option B
FTA Performance Measures				
Hours of Transportation User Benefits	○	⦿	⦿●	⦿●
Low Income Households Served	⦿	●	●	●
Employment Near Stations	⦿	●	●	●
Local Performance Measures				
Daily Linked Transit Trips	⦿	●	⦿●	⦿●
Exclusive ROW for Transit	○	●	●	●
Travel Time Between Selected Origins & Destinations	⦿	⦿	●	●
Average Operating Speed for Transit	⦿	⦿	●	⦿
Compatibility with SFTA's <i>Four-Corridor Plan</i>	⦿	●	●	●
● -High, ● -Medium High, ⦿ -Medium, ⦿ -Medium Low, ○ -Low				

not establish a rail connection to Chinatown as called for in the plan. The No Project/TSM Alternative would result in the greatest travel times for Muni passengers between Fourth and King Streets and Chinatown and transit ridership in the Corridor would be ~~about nine percent~~ at least 10 minutes slower than if the Central Subway was implemented. As buses would be operating on surface streets in non-exclusive right-of-way throughout the Corridor, average operating speeds of transit vehicles would be slower as they would be encountering vehicular congestion that occurs on surface streets. As a result of

these factors, the weekday transit ridership of ~~147,450~~ 124,200 passengers under the No Project/TSM Alternative would be the lowest of any alternative.

### **Alternative 2 - Enhanced EIS/EIR Alignment**

The Enhanced EIS/EIR Alignment would have in-vehicle travel time savings of ~~6.4~~ 5.8 minutes from Fourth/King Streets to Third and Market Streets and 10.0 minutes from Fourth/King Streets to the Chinatown Station compared to the No Project/TSM Alternative due to the more direct route and the addition of 1.75 miles of exclusive right-of-way. The Enhanced EIS/EIR Alignment would improve service to the substantial number of low income households and employment centers along the Corridor resulting in an increase of ~~15,160~~ 21,000 transit riders over the No Project/TSM Alternative to a total of ~~162,610~~ 145,200 average daily transit riders, including ~~89,790~~ 76,300 rail passengers. The split of service between the Third and Fourth Street corridors in the South of Market would slightly extend the market reach to low income households. The Enhanced EIS/EIR Alignment would be fully compatible with citywide and area-specific plans.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

The Fourth/Stockton Alignment Option A would have the greatest travel time savings (12.4 minutes over the No Project/TSM Alternative from Fourth/King to Chinatown Station and ~~7.3~~ 7.0 minutes to Market Street) and would add approximately 1.7 miles of exclusive right-of-way for transit. The Fourth/Stockton Alignment Option A would attract about ~~14,660~~ 19,000 new weekday riders over the No Project/TSM Alternative, for a total average weekday ridership of ~~162,110~~ 143,200, which would be slightly lower than the ridership increases achieved with the Enhanced EIS/EIR Alignment. This would include ~~88,840~~ 77,600 rail passengers. This alternative would see the greatest increase in rail ridership among the alternatives. While, the Fourth/Stockton Alignment Option A would not serve quite as many low income households and employment centers as the Enhanced EIS/EIR Alignment, the benefits in travel time savings would partially offset the potential negative of a smaller service area. This alternative would be fully compatible with the *Four Corridor Plan* and other citywide and area-specific plans.

### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

The Fourth/Stockton Alignment Option B would have a travel time savings of 10.7 minutes from Fourth/King Streets to Chinatown Station and ~~6.0~~ 5.6 minutes to Market Street when compared to the No Project/TSM Alternative. Similar to Option A, approximately 1.7 miles of new exclusive transit right-of-



way would be added to the Muni System and approximately ~~14,840~~ 18,400 new daily transit riders would be added to the Corridor, for an average daily ridership of ~~162,290~~ 142,600 passengers in the Corridor, including ~~99,230~~ 76,600 rail passengers. ~~This alternative would see the greatest increase in rail ridership among the~~

alternatives.—As with the other Build Alternatives, Fourth/Stockton Alignment Option B would improve transit service to the low income population along the Corridor and also enhance service to the employment centers as envisioned in citywide and area-specific plans and the *Four Corridor Plan*.

### 9.3 ENVIRONMENTAL BENEFITS

Environmental benefits of a transit project can cover a wide variety of topics, including reduced mobile emissions, energy savings, and opportunities for transit-oriented development that can positively affect the environment. The Environmental Goal is to provide transit improvements that enhance and preserve the social and physical environment and minimize direct or indirect construction or operation impacts. The specific supporting objectives and performance measures for the Environmental Goal are presented in Table 9-3.

**TABLE 9-3**  
**CRITERIA FOR EVALUATING ENVIRONMENTAL BENEFITS**

Criteria/Objective	Performance Measure
<b>FTA Criteria</b>	
Environmental Benefits	Change in Regional Pollutant Emissions Change in Regional Energy Consumption EPA Air Quality Designation for Region
<b>Local Criteria</b>	
Minimize Permanent Displacement of Homes and Businesses	Number of Partial and Full Acquisitions & Relocations
Minimize Impacts on Parkland/Cultural Resources	Number of Affected Sites
Minimize Visual, Noise, and Vibration Impacts	Number of Negative Impacts
Minimize Adverse Construction Impacts	Displaced Parking and business disruption
Reduction in Greenhouse Gases	Lower emissions of greenhouse gases

#### 9.3.1 SUMMARY OF ENVIRONMENTAL BENEFITS EVALUATION

Table 9-4 summarizes the evaluation of each alternative with respect to achieving the Environmental Benefits criteria/objectives. The EPA air quality designation for the region applies to present day measures and cannot be evaluated for the Project alternatives in the future.

#### **Alternative 1 - No Project/TSM**

The No Project/TSM Alternative would not require property acquisitions, affect parklands and cultural sites, have visual impacts, or displace parking during construction. However, it would also not reduce air pollution or contributions to greenhouse gases and would not reduce energy consumption. It would also likely result in more localized long-term traffic congestion along the Corridor.

**TABLE 9-4**  
**SUMMARY OF ENVIRONMENTAL BENEFITS EVALUATION**

Performance Measures	No Project/TSM Alternative	Central Subway Alternatives		
		Enhanced EIS/EIR Alignment	Fourth/Stockton Alignment Option A	Fourth/Stockton Alignment Option B
<b>FTA Performance Measures</b>				
Change in Regional Air Pollutant Emissions	○	●	●	●
Change in Greenhouse Gases	○	●	●	●
Change in Regional Energy Consumption	○	●	●	●
EPA Air Quality Designation	○	○	○	○
<b>Local Performance Measures</b>				
Partial and Full Property Acquisitions	●	○	○	○
Affected Parkland/Cultural Sites	●	○	○	●
Visual, Noise, and Vibration	●	○	○	○
Displaced Parking During Construction	●	○	○	○
● -High, ● -Medium High, ○ -Medium, ○ -Medium Low, ○ -Low				

#### Alternative 2 - Enhanced EIS/EIR Alignment

The Enhanced EIS/EIR would reduce emissions related to vehicular traffic and greenhouse gases, and would increase use of electric energy from renewable hydroelectric power. This would result in a small net decrease in energy consumption (-16 million BTU's annually) when compared to the No Project/TSM Alternative. Construction of the vent shafts and station entrances would result in visual changes to Union Square, but would not impact the character-defining features of the park. The subway construction would potentially impact 14 highly sensitive prehistoric archaeological sites, three highly sensitive historical archaeological sites, and three historical architectural properties. This alternative would cast minor shadows from the vent shaft on Willy "Woo Woo" Wong Playground, east of the Chinatown Station. The Enhanced EIS/EIR Alignment would require the displacement of 10 small businesses and one to two residential units in Chinatown for the station construction. The Enhanced EIS/EIR Alternative would also result in a physical take of parkland at Union Square plaza for the station entry, vent shafts, and emergency elevators, which requires Section 4(f) review and approval of a de minimis finding. This alternative would permanently displace a total of 59 off-street parking spaces in private and public garages. During the construction of the Enhanced EIS/EIR Alignment, most of the on-street parking spaces in the immediate work areas would be temporarily displaced. One building at 814-

828 Stockton Street in Chinatown would be demolished to build the proposed station. This building has been determined eligible for the National Register of Historic Places and is considered a contributor to

the Chinatown Historic District (the District has a total of 371 contributing buildings). An adverse effect is described for this impact to cultural resources.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

The Fourth/Stockton Alignment Option A would reduce emissions related to vehicular traffic and greenhouse gases, and would increase use of electric energy from renewable hydroelectric power. The decrease in fossil fuel consumption would not be sufficient to completely offset the increased energy consumption associated with the increase in electricity used by the light rail system resulting in a slight increase in energy consumption (+243 million BTU's annually) when compared to the No Project/TSM Alternative. The double-portal entrance that would be visible along Fourth Street would affect the visual conditions of the block located between Townsend and Brannan Streets. The construction of vent shafts and station entrances would have a modest visual effect at Union Square and when viewed from Willy “Woo Woo” Wong Playground in Chinatown. Like Alternative 2, above, this alternative would cast minor shadows from the vent shaft on Willie “Woo Woo” Wong Playground.

Construction of the Fourth/Stockton Alignment Option A would potentially impact seven highly sensitive prehistoric archaeological resources, 11 highly sensitive historical archaeological sites, and three historical properties. This Alternative would displace one business to accommodate the Moscone Station construction and 10 small businesses ~~and one to two residential units~~ to accommodate the Chinatown station. The Fourth/Stockton Alignment Option A would result in the same physical take of parkland at Union Square plaza for the station entry, vent shafts, and emergency elevators as described for Alternative 2, which would require Section 4(f) review and approval of a de minimis finding. Removal of the building at 814-828 Stockton Street in Chinatown would have the same impacts as Alternative 2 to cultural resources. This alternative would permanently displace a total of 29 off-street parking spaces at the Union Square garage. During the construction of this Alternative, most of the on-street parking spaces in the immediate work areas would be displaced.

### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

The Fourth/Stock Alignment Option B would reduce emissions related to vehicular traffic and greenhouse gases, and would increase use of electric energy from renewable hydroelectric power. This would result in the greatest decrease in energy consumption of 1.05 billion BTUs annually when compared to the No Project/TSM Alternative. The double-portal entrance on Fourth Street would be visible along the block located between Bryant and Harrison Streets under the I-80 overpass. The construction of the station entrance would have a modest visual impact at Union Square along Geary

Street because it would be built into the terraced concrete edge of the plaza. The vent shafts for this alternative would be in the Ellis/O’Farrell garage, not in Union Square, further minimizing visual impacts to the plaza.

Construction of the Fourth/Stockton Alignment Option B would potentially impact seven highly sensitive prehistoric archaeological resources, 12 historic archaeological sites, and three historical properties. Removal of the building at 933-949 Stockton Street would have the same impact to the Chinatown Historic District as described for Alternatives 2 and 3A. This Alternative would displace one business to accommodate the Moscone Station construction and 8 small businesses and 17 residential units to accommodate the Chinatown station at Stockton and Washington Streets. The Fourth/Stockton Alignment Option B would also result in a physical take of parkland at Union Square plaza for the station entry and emergency elevators (but not the vent shafts), which would reduce the physical take of park property. Section 4(f) review and approval of a de minimis finding would be required. This alternative would permanently displace a total of 59 off-street parking spaces in the Union Square and Ellis/O’Farrell garages. During the construction of this Alternative, most of the on-street parking spaces in the immediate work areas would be temporarily displaced.

#### 9.4 OPERATING EFFICIENCIES

Operating efficiencies represent the extent to which the proposed transit investment would produce future resource savings for transit operators relative to existing service or existing service forecasted into the future. The specific supporting objectives and performance measures applied to each of the transit options for the Operating Efficiencies evaluation criteria are presented in Table 9-5.

**TABLE 9-5**  
**CRITERIA FOR EVALUATING OPERATING EFFICIENCIES**

Criteria/Objective	Performance Measure
<b>FTA Criteria</b>	
Operating Efficiencies	Operating Cost per Passenger Mile
<b>Local Criteria</b>	
Maximize Transit Operating Efficiency While Accommodating 2030 Demand	Operating Cost per Passenger Operating Cost per <u>Revenue</u> Bus Hour Operating Cost per <u>Revenue</u> Train Hour

##### 9.4.1 SUMMARY OF OPERATING EFFICIENCIES EVALUATION

Table 9-6 presents a comparison of the systemwide Operations Efficiencies calculations for each alternative. Table 9-7 summarizes the evaluation with respect to achieving the Operating Efficiencies criteria/objectives.

**TABLE 9-6**  
**OPERATING EFFICIENCIES - 2030**

Performance Measures	No Project/TSM Alternative	Central Subway Alternatives		
		Enhanced EIS/EIR Alignment	Fourth/Stockton Alignment Option A	Fourth/Stockton Alignment Option B
FTA Performance Measures				
Systemwide Operating Cost per Passenger Mile <sup>(1)</sup>	<del>\$0.57</del> <u>\$1.24</u>	<del>\$0.58</del> <u>\$1.25</u>	<del>\$0.57</del> <u>\$1.24</u>	<del>\$0.57</del> <u>\$1.24</u>
Local Performance Measures				
Systemwide Operating Cost per Passenger <sup>(1)</sup>	<del>\$1.82</del> <u>\$2.34</u>	<del>\$1.63</del> <u>\$2.31</u>	<del>\$1.56</del> <u>\$2.29</u>	<del>\$1.52</del> <u>\$2.29</u>
Bus Operating Cost per Revenue Bus Hour <sup>(2)</sup>	<del>\$254.00</del> <u>\$140.02</u>	<del>\$209.00</del> <u>\$140.34</u>	<del>\$209.00</del> <u>\$140.32</u>	<del>\$209.00</del> <u>\$140.32</u>
Light Rail Operating Cost per Revenue Train Hour <sup>(2,3)</sup>	<del>\$303.00</del> <u>\$248.20</u>	<del>\$298.00</del> <u>\$260.32</u>	<del>\$305.00</del> <u>\$259.98</u>	<del>\$299.00</del> <u>\$259.84</u>
Sources: 2030 base system ridership – San Francisco Model, January 2007-2008, and MTA, May 2007-AECOM Consult Inc., March 2008.				
Notes: <sup>(1)</sup> Includes Cable Car mode. <sup>(2)</sup> Excludes Cable Car mode <sup>(3)</sup> Includes Historic Street Cars				

**TABLE 9-7**  
**SUMMARY OF OPERATING EFFICIENCIES**

Performance Measures	No Project/TSM Alternative	Central Subway Alternatives		
		Enhanced EIS/EIR Alignment	Fourth/Stockton Alignment Option A	Fourth/Stockton Alignment Option B
FTA Performance Measures				
Systemwide Operating Cost per Passenger Mile	●	●	●	●
Local Performance Measures				
Systemwide Operating Cost per Passenger	○	●	●	●●
Bus Operating Cost per Revenue Bus Hour	●●	●●	●	●
Light Rail Operating Cost per Revenue Train Hour	●●	●○	●●	●
● -High, ● -Medium High, ● -Medium, ○ -Medium Low, ○ -Low				

### Alternative 1 - No Project/TSM

The No Project/TSM Alternative operating costs per passenger mile would be comparable to the Build Alternatives. The No Project/TSM Alternative would have the highest operating cost per passenger (\$1.82-\$2.34), and but would have the highest-lowest operating cost per revenue bus hour (\$254.00-\$140.02) and per revenue train hour (\$248.20) when compared to all the Build Alternatives and would have a higher operating cost per train hour (\$303.00) than the Enhanced EIS/EIR or Fourth/Stockton Option B alignments.

### **Alternative 2 - Enhanced EIS/EIR Alignment**

The Enhanced EIS/EIR Alternative would provide faster and more reliable transit service than the No Project/TSM Alternative, ~~generally without a~~ some loss in operating efficiency. The operating costs per passenger (~~\$1.63~~ \$2.31) would go down, while the operating costs per revenue bus hour (~~\$209.00~~ \$140.34); and per revenue train hour (~~\$298.00~~ \$260.32) would all go down ~~increase~~ when



compared to the No Project/TSM. The service would be of higher quality and capacity compared to the No Project/TSM Alternative; however, the operating cost per passenger (~~\$0.58~~ \$1.25) would marginally increase.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

The Fourth/Stockton Alignment Option A would provide some systemwide improvements in operational efficiency compared to both the No Project/TSM Alternative and the Enhanced EIS/EIR Alternative. The operating cost per passenger (~~\$1.56~~ \$2.29) would be lower, ~~and the operating cost per passenger mile (\$0.57 \$1.24) about the same, and the operating cost per bus hour (\$209.00 \$140.32) would be about the same~~ slightly lower than Alternative 2, though higher than the No Project/TSM Alternative, with no perceptible decrease in operating efficiency. ~~This alternative would have the highest operating cost per revenue train hour~~ would be \$259.98, which falls between the other two Build Alternatives.

### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

The Fourth/Stockton Alignment Option B ~~has the greatest overall operating efficiencies~~ are comparable to Alternative 3A for passenger and passenger mile costs and for bus operating costs per revenue bus hour. ~~With the highest ridership, this alternative generates the lowest operating cost per passenger (\$1.52). The operating costs per passenger mile (\$0.57) and per bus hour (\$209.00) are comparable to other Build Alternatives. The~~ This alternative has the lowest operating cost per revenue train hour (\$299.00 \$259.84) falls just below the Enhanced EIS/EIR Alignment and is lower by \$6.00 than for Option A of all the Build Alternatives.

## **9.5 COST EFFECTIVENESS**

Cost effectiveness, as applied to transportation capital projects, is defined as the extent to which an alternative returns benefits in relation to its costs in terms of incremental cost per hour of transportation system user benefits. Since the early 1980's FTA has used a cost-effectiveness index to evaluate and compare New Start transit projects. The cost-effectiveness index is an attempt to calculate the cost of attracting one new rider to transit. FTA has recently revised its cost effectiveness measure to exclude travel time savings from the calculation and to consider the user benefits. The Cost Effectiveness evaluation criteria are presented in Table 9-8.

**TABLE 9-8**  
**CRITERIA FOR EVALUATING COST EFFECTIVENESS**

Criteria/Objective	Performance Measure
<b>FTA Criteria</b>	
Cost Effectiveness (FTA criteria)	Incremental Cost per Hour of Transportation System User Benefit

### 9.5.1 SUMMARY OF COST EFFECTIVENESS EVALUATION

Table 9-9 summarizes the evaluation of each alternative with respect to achieving the Cost Effectiveness criteria/objectives. The Table 9-9 incremental costs were calculated from Operations and Maintenance (O&M) forecasts developed in ~~2006–2008~~ consistent with all of the evaluations performed for the SEIS/SEIR.<sup>2</sup>

**TABLE 9-9**  
**SUMMARY OF COST EFFECTIVENESS**

Performance Measures	No Project/TSM Alternative	Central Subway Alternatives			
		Enhanced EIS/EIR Alignment	Fourth/Stockton Alignment Option A	Fourth/Stockton Alignment Option B	
		FY 2007 <del>9</del> New Starts	FY 2007 <del>9</del> New Starts	FY 2007 <del>9</del> New Starts	FY 2009 New Starts
Incremental Cost per Hour of Transportation System User Benefit	--	<del>\$33.58</del> <u>\$30.37</u>	<del>\$22.73</del> <u>\$21.12</u>	<del>\$18.36</del>	<del>\$20.60</del> <u>\$21.24</u>
<del>● High, ● Medium High, ● Medium, ● Medium Low, ○ Low</del>					
<del>Note: An updated cost effectiveness index was calculated for Alternative 3B as part of the Fiscal Year 2009 New Starts Report submitted to FTA in September 2007. The cost-effectiveness index for all other alternatives is based on the Fiscal Year 2007</del> 2009 New Starts Report. <del>For the Final SEIS/SEIR, the cost effectiveness index will be updated for all alternatives.</del>					

#### Alternative 1 - No Project/TSM

The cost per hour of transportation system user benefit is not applicable to the No Project/TSM Alternative.

#### Alternative 2 - Enhanced EIS/EIR Alignment

Alternative 2 has the highest incremental cost per hour of transportation system-user benefit (~~\$33.58~~ \$30.37) of all of the build alternatives and would be assigned a low cost effectiveness rating based on the FTA criteria. The MTA 2030 projected systemwide ridership would be ~~higher~~ lower in Alternative 2 than in other alternatives, ~~but the Central Subway Corridor ridership would be higher.~~ and the MTA revenues generated from this alternative would ~~also be highest~~ lowest among alternatives; however, relative operating costs per revenue bus and train hour for this alternative are also ~~high~~ low, though without comparable user benefits. This alternative would generate a higher level of Central Subway

<sup>2</sup> ~~Updated Operations & Maintenance costs have been performed for Alternative 3B (Modified Locally Preferred Alternative) only and are included in the Fiscal Year 2009 New Starts Report. The Fiscal Year 2007 numbers used in Table 9-9 are to be only used for comparing one alternative against another. These are different from the numbers submitted in the Fiscal Year 2009 New Starts Report. The New Starts Report reflects the most current ridership numbers and cost effectiveness for the modified LPA (Alternative 3B) and should be used for all other circumstances. See Appendix H for updated further discussion of cost-effectiveness numbers.~~

ridership than either Alternative 3A or 3B, but would ~~generate lower ridership on the Central Subway line~~  
~~than under Alternative 3B and would~~ result in the highest travel times of all Build Alternatives.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

Alternative 3A has an incremental cost per hour of transportation system-user benefit (~~\$22.73~~ \$21.12), which is an improvement over Alternative 2. This cost would receive a medium cost-effectiveness rating based on FTA criteria. This alternative would have the lowest projected ridership on the Central Subway line of all Build Alternatives, ~~and would rank behind Alternative 2~~ but would rank the highest in systemwide MTA ridership and projected revenues. While travel times are the fastest for this alternative, by providing only three stations, the accessibility to the system is less with Alternative 3A.

### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

Alternative 3B has ~~the lowest~~ a slightly higher incremental cost per hour of transportation system-user benefit (~~\$18.36~~ \$21.24) ~~than Alternative 3A, but would~~ also achieveing a medium rating, ~~but would rank above the other two Build Alternatives~~ with respect to the FTA cost-effectiveness criteria. This alternative achieves the second highest projected ridership of all Build Alternatives, falling just below Alternative 3A. It improves by improving travel times over the No Project/TSM Alternative and Alternative 2 and also provides ing a high level of system accessibility. ~~The resulting user benefits offset the higher systemwide costs and lower systemwide revenues projected for Alternative 3B. These factors give Alternative 3B the best overall performance in operating efficiencies (refer to Table 9-6).~~

## **9.6 TRANSIT SUPPORTIVE EXISTING LAND USE AND FUTURE PATTERNS**

It is difficult to evaluate land use in quantitative terms due to the subjective nature of the topic. The issue is how well (or how poorly) a transportation alternative reinforces local land use policies. For instance, if a given alternative provides improved accessibility to areas where the City wants to stimulate growth, it would support the City's land use policy. On the other hand, if it would intrude upon established neighborhoods or planned developments or worsen traffic congestion, it would not support the City's land use policy.

The Transit Supportive Land Use Goal is to ensure compatibility with City land use plans and policies and transportation improvements so that transit ridership can be maximized, the number of auto trips reduced, and opportunities for transit-oriented development pursued. The specific supporting objectives and performance measures used to evaluate the Transit Supportive Land Use Goal are presented in Table 9-10.

#### 9.6.1 TRANSIT SUPPORTIVE LAND USE EVALUATION

Table 9-11 summarizes the evaluation of achieving the Transit Supportive Land Use and Future Patterns criteria/objectives.

### Alternative 1 - No Project/TSM

While the land use conditions in the Study Area are very favorable to a high level of transit use, the No Project/TSM Alternative would not be as supportive of citywide and area-specific plans nor would it provide the same opportunities for economic revitalization centered on transit stations that would be

**TABLE 9-10**  
**CRITERIA FOR EVALUATING TRANSIT SUPPORTIVE LAND USE AND FUTURE PATTERNS**

Criteria/Objective	Performance Measure
<b>FTA Criteria</b>	
Transit Supportive Land Use and Future Patterns	Existing Land Use Transit Supportive Plans and Policies Performance and Impacts of Policies Other Land Use Considerations
<b>Local Criteria</b>	
Support the Coordination of Land Use and Transportation Planning	Review Citywide and Area-specific Land Use Plans Related to the Corridor
Support Revitalization Opportunities along the Central Subway Corridor Adjacent to Transit Stops	Acres of Vacant or Underutilized Land Adjacent to Transit Stops/Stations
Project Serves Major Activity Centers in the Corridor	Number of Centers Having Access to Transit

**TABLE 9-11**  
**SUMMARY OF TRANSIT SUPPORTIVE LAND USE AND FUTURE PATTERNS**

Performance Measures	No Project/TSM Alternative	Central Subway Alternatives		
		Enhanced EIS/EIR Alignment	Fourth/Stockton Alignment Option A	Fourth/Stockton Alignment Option B
FTA Performance Measures				
Existing Land Use	●	●	●	●
Transit Supportive Plans and Policies	●	●	●	●
Performance and Impacts of Policies	●	●	●	●
Other Land Use Considerations	●	●	●	●
Local Performance Measures				
Compatible with City and Area Plans	◐	●	●	●
Support Revitalization Opportunities along the Central Subway Corridor Adjacent to Transit Stops/Stations	◑	●	●	●
Project Serves Major Activity Centers	◐	●	◐	●
● -High, ● -Medium High, ◐ -Medium, ◑ -Medium Low, ○ -Low				

afforded by the Build Alternatives. The No Project/TSM Alternative would serve major activity centers in the Corridor, but light rail service on its own reserved right-of-way would provide higher quality and more reliable service.

### **Alternative 2 - Enhanced EIS/EIR Alignment**

The Enhanced EIS/EIR Alignment would be fully supportive of citywide and area plans and would accommodate the growth anticipated in the Corridor with enhanced transit service. This Alternative would encourage revitalization in the Central Subway Corridor by providing more reliable and direct transit service to most of the major activity centers in the Corridor from the four stations proposed along the alignment. Transit-oriented development opportunities would be made available by MTA at the Chinatown Station.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

The affects of the Fourth/Stockton Alignment Option B on transit supportive land use would be the same as those for Fourth/Stockton Alignment Option A, except that this alternative includes an additional surface station at Fourth and Brannan Streets, which enhances access to the transit system along the Fourth Street Corridor and has been supported in concept by the Citywide Section (long-range planning division) San Francisco Planning Department.

## **9.7 OTHER FACTORS**

Other Factors is an optional criterion defined by FTA that focuses on local evaluation factors, rather than the FTA-defined evaluation criteria that are applied to all transit operators in the United States. The measures that are applied to each of the transit options for the “other factors” evaluation criteria are presented in Table 9-12. For the evaluation of alternatives, this criterion group includes local goals and objectives that cannot be easily categorized into FTA Section 5309 New Starts criteria.

### **9.7.1 OTHER LOCAL EVALUATION FACTORS**

Table 9-13 summarizes the evaluation of each alternative with respect to achieving the Other Factors criteria/objectives.

### **Alternative 1 - No Project/TSM**

The No Project/TSM Alternative would provide the slowest travel times from Fourth and King Streets to Market Street and Chinatown. The No Project/TSM Alternative would maintain the current on-street parking supply and would do nothing to relieve the impact of the heavily congested traffic that slows bus transit operations on the surface streets. While the No Project/TSM Alternative would not be as supportive of citywide and area-wide land use plans, it does have some community support as a low-cost alternative to a light rail investment in the Corridor.



**TABLE 9-12**  
**CRITERIA FOR EVALUATING OTHER FACTORS**

Criteria/Objective	Performance Measure
<b>Local Criteria</b>	
Improve Access to Downtown Employment Centers and Chinatown (Equity Goal)	Comparison of Travel Time from Fourth/King to Market/Third/Fourth and Stockton/Washington
Maintain Adequate Auto & Truck Access along the Central Subway Corridor (Economic Revitalization Goal)	Curb Parking Supply and on-street loading zones on or near Third/Fourth Streets and Stockton Street
Enhance Urban Design/Streetscape Improvements along Third and Fourth Streets in South of Market (Economic Revitalization Goal)	New Areas for Landscape Treatments in the Third and Fourth Street commercial areas
Gain Community Support for Preferred Investment Strategy (Community Acceptance Goal)	Not quantifiable
Gain City Commissions, Mayor and Board of Supervisors Support for Preferred Investment Strategy (Community Acceptance Goal)	Not quantifiable
Gain Support from Appropriate Regional (MTC), State, and Federal Agencies (Community Acceptance Goal)	Not quantifiable

**TABLE 9-13**  
**SUMMARY OF OTHER LOCAL EVALUATION FACTORS**

Performance Measures	No Project/TSM Alternative	Central Subway Alternatives		
		Enhanced EIS/EIR Alignment	Fourth/Stockton Alignment Option A	Fourth/Stockton Alignment Option B
Travel Time from Fourth/King to Market/Third/Fourth	○	⊕●	●	⊕●
Travel Time from Fourth/King to Stockton/Washington	○	●	●	●
Parking supply and on-street loading zones on or near Third/Fourth Streets and Stockton Street	●	○	●	●
Community Acceptance and Political Support	○	●	●	●
●-High, ●-Medium High, ●-Medium, ⊕-Medium Low, ○-Low				

### Alternative 2 - Enhanced EIS/EIR Alignment

The Enhanced EIS/EIR Alignment would reduce travel times from Fourth and King Streets to Market Street and Chinatown, but not to the same degree as would the Fourth/Stockton Alignment because surface alignments for the Enhanced EIS/EIR would use both Third and Fourth Streets and therefore would not be as direct. The Enhanced EIS/EIR would displace 111 on-street parking spaces along the Corridor and 59 off-street spaces at the Hearst and Union Square garages.

The Enhanced EIS/EIR Alignment would be compatible with citywide and area-specific plans and has generated some community acceptance and political support, however, comments received at the public

meetings suggest that the Fourth/Stockton Alignment Options A or B would have a greater degree of community support because of elimination of surface disruption along Third Street.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

The Fourth/Stockton Alignment Option A would have the greatest travel time savings of any of the alternatives because travel is more direct on Fourth Street when compared to the Enhanced EIS/EIR Alignment and it has one fewer station than the Fourth/Stockton Alignment Option B. The Fourth/Stockton Alignment Option A would result in a net loss of 29 on-street parking spaces along the Central Subway Corridor and 29 off-street spaces at the Union Square garage. In terms of the community acceptance and political support objective, the Fourth/Stockton Alignment Option A would be superior to the No Project/TSM Alternative and the Enhanced EIS/EIR because it would provide shorter, more direct service into the Union Square retail area and Chinatown.

### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

The Fourth/Stockton Alignment Option B would have a greater travel time savings than the Enhanced EIS/EIR Alignment but slightly higher than the Fourth/Stockton Option A because it has one more station. The Fourth/Stockton Alignment Option B would result in a net loss of 82 on-street parking spaces along the Central Subway Corridor (79 with mixed-flow operations) and 59 off-street spaces at the Ellis/O'Farrell and Union Square garages. In terms of the community acceptance and political support objective, the Fourth/Stockton Alignment Option B likely have the greatest public support of the Build Alternatives as it provides the highest level of ridership, ~~and~~ the greatest level of accessibility by improving the direct connections between Visitacion Valley and Chinatown, and minimizes the impact on park lands. This alternative also offers cost savings not afforded by the Fourth/Stockton Alignment Option A.

## **9.8 LOCAL FINANCIAL COMMITMENT**

This section discusses the financial feasibility of the alternatives and design options. Local financial commitment measures the local agency's contribution to the cost of constructing, operating and maintaining the Project, the stability and reliability of its capital financing plan, and the stability and reliability of its operating financing plan. The Financial Goal is to implement transit improvements that provide for the efficient use of limited financial resources. The specific supporting objectives and performance measures are presented in Table 9-14.

**TABLE 9-14**  
**CRITERIA FOR EVALUATING LOCAL FINANCIAL COMMITMENT**

Criteria/Objective	Performance Measure
<b>FTA Criteria</b>	
Local Financial Commitment	Stability and Reliability of Capital Financing Plan Stability and Reliability of Operating Financing Plan Local Share of Project Costs
<b>Local Criteria</b>	
Develop Financial Plan to Cover Total Capital Costs	Capital Costs Compared with Available and Projected Capital Funds
Develop Financial Plan to Cover Total Annual Operating & Maintenance Costs (Systemwide)	Annual Operating & Maintenance Costs Compared with Available and Projected Local Funding

### 9.8.1 LOCAL FINANCIAL COMMITMENT EVALUATION

Table 9-15 summarizes the evaluation of each alternative with respect to achieving the Local Financial Commitment criteria/objectives.

#### Alternative 1 - No Project/TSM

Under the No Project/TSM Alternative, there would be no further capital investment in rail. Bus service would be added as required in the future to respond to increased demand. Operating costs under this alternative would be higher than for all Build Alternatives.

**TABLE 9-15**  
**SUMMARY OF LOCAL FINANCIAL COMMITMENT**

Performance Measures	No Project/TSM Alternative	Central Subway Alternatives		
		Enhanced EIS/EIR Alignment	Fourth/Stockton Alignment Option A	Fourth/Stockton Alignment Option B
FTA Performance Measures				
Stability and Reliability of Capital Financing Plan	--	●	●	●
Stability and Reliability of Operating Financing Plan	○	○	○	○
Local Share to Project Costs	--	●	●	●
Capital Costs Compared to Funding	--	○	○	●●
Operating Costs Compared to Funding	○	●	●	●
● -High, ● -Medium High, ○ -Medium, ○ -Medium Low, ○ -Low				

#### Alternative 2 - Enhanced EIS/EIR Alignment

A total of \$1.19 billion in combined federal, state, and local funds have been identified for implementation of the Project. The Enhanced EIS/EIR is projected to cost \$1.31 billion (see Table 8-1) in 2007 dollars (\$1.64 billion year of expenditure), so funding would fall short of the costs to implement.

Other funding sources would need to be identified to address funding shortfalls (including the 2030 Year of Expenditure escalation) and to implement this alternative. The local contribution to the full funding plan would be 36 percent, as for all Build Alternatives. The Central Subway is expected to result in a net operating surplus on a project-level with the operating cost per passenger mile comparable among all alternatives.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

The capital cost of the Fourth/Stockton Alignment Option A is \$1.13 billion in 2007 dollars (\$1.41 billion year of expenditure), which falls below the total funds needed for the Project. Additional funds would be needed to cover the escalation costs in order to implement the Project (see Chapter 8.0, Financial Feasibility, for a more detailed discussion of the Project cost escalation factors). See operating cost discussion under Enhanced EIS/EIR Alignment.

### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

The capital cost of the Fourth/Stockton Alignment Option B is the lowest of all Build Alternatives at \$1.01 billion in 2007 dollars (\$1.24 billion year of expenditure). ~~Funding for this alternative would fall just short of the funds required to implement the Project. Additional funds would need to be secured to address escalation costs for implementation of the Project (see Chapter 8.0, Financial Feasibility, for a more detailed discussion of the Project cost escalation factors).~~ This alternative is the only alternative that is fully funded. See operating cost discussion under Enhanced EIS/EIR Alignment.

## **New Starts Evaluation Process Update**

The Section 5309 “New Starts” program is the Federal government’s primary program for providing financial support to locally-planned, implemented, and operated fixed guideway transit major capital investments. The New Starts evaluation process is used in conjunction with the evaluation process under the National Environmental Policy Act, for which this Environmental Impact Statement is being prepared. This section describes how FTA evaluates projects for its New Starts funding recommendations. The Central Subway project is seeking New Starts funding and, therefore, will be subject to this evaluation and rating process.

Each year FTA submits its Annual Report on New Starts to Congress as a companion document to the annual budget submitted by the President. The report provides recommendations for the allocation of New Starts funds under Section 5309 of Title 49 of the United States Code. As required by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), FTA uses the following project justification criteria to evaluate New Starts projects: mobility improvements; environmental benefits; cost effectiveness; operating efficiencies; transit-supportive existing land use; policies and future patterns; and other factors. FTA must also consider the local financial commitment for the proposed project. In total, the criteria are intended to measure the overall merits of the project and the sponsor’s ability to build and operate it.

FTA reviews the project justification and local financial commitment criteria for each candidate project and assigns a rating for each criterion. For some of the project justification criteria, the proposed project is compared against a New Starts “baseline alternative.” The New Starts baseline alternative consists of improvements to the transit system that are relatively low in cost and represent the “best that can be done” to improve transit without major capital investment in new guideway infrastructure. As such, it is usually different than the baseline (represented by the no-build condition) against which environmental impacts are measured in the NEPA document.

A candidate project is given an overall rating of “High,” “Medium-High,” “Medium,” “Medium-Low” or “Low”, based on ratings assigned by FTA to each of the project justification and local financial commitment criteria described above. These ratings are important, as FTA considers them in its decision to recommend projects for New Starts funding. Specifically, FTA will not recommend funding for projects which are rated “Medium-Low” or “Low.” It is important to note, moreover, that a “High,” “Medium-High” or “Medium” rating does not automatically translate into a funding recommendation, although the potential for receiving New Starts funding is much greater.

Project evaluation is an on-going process. FTA evaluation and rating occurs annually in support of budget recommendations presented in the Annual Report on New Starts and when projects request FTA approval to enter into preliminary engineering or final design. Consequently, as proposed New Starts projects proceed through the project development process, information concerning costs, benefits, and impacts is refined and the ratings are updated to reflect new information.

### **CURRENT RATINGS FOR THE CENTRAL SUBWAY PROJECT**

Overall Rating: Medium-High

### **PROJECT JUSTIFICATION**

Rating: Medium-High

### **MOBILITY IMPROVEMENTS**

Rating: Medium-High

In its evaluation of the mobility improvements that would be realized by implementation of a proposed project, FTA reviews the following measures:

#### **User benefits per project passenger mile**

Number of current Low Income Households that would be served by the proposed New Starts investment.

#### **Number of low income households and jobs served by the proposed New Starts project**

User benefits essentially represent all the travel time savings to transit riders in the forecast year that result from the New Starts project as compared to not building the project (the baseline alternative). They include reductions in walk times, wait times, transfers, and, most importantly, in-vehicle times. In order to rate projects in comparison to other proposed New Starts, this measure is normalized by the annual passenger miles traveled on the New Starts project in the forecast year. The number of low income households and jobs served measure reflects the absolute number of low income households (defined as below the poverty level) and jobs located within ½ mile of the "boarding points," or stations, associated with the proposed project. The total number of low income households and jobs located within these ½ mile zones is then divided by the total number of stations to determine both the average number of low-income households and average number of jobs per station.

Table 9-2 presents the mobility improvement measures for the Central Subway project.

### **ENVIRONMENTAL BENEFITS**

Rating: Medium-Low

In its evaluation of environmental benefits that would be realized through the implementation of a proposed project, FTA considers the current air quality designation by EPA. This measure is defined for each of the transportation-related pollutants (ozone, CO, and PM-10) as the current air quality designation by EPA for the metropolitan region in which the proposed project is located, indicating the severity of the metropolitan area's noncompliance with the health-based EPA standard (NAAQS) for the pollutant, or its compliance with that standard. New Starts project sponsors also submit information to FTA on the forecast reductions in emissions resulting from the New Starts project for each transportation-related pollutant. FTA has found that information submitted in support of the environmental benefits criterion does not distinguish with any meaning the merits of competing New Starts projects. While FTA reports the information submitted by project sponsors on environmental benefits to Congress and other stakeholders, it does not formally incorporate this measure in its evaluation of New Starts projects.

Table 9-4 presents the information used to determine the environmental benefits rating for the Central Subway project.

### **OPERATING EFFICIENCIES**

Rating: Medium-High

FTA measures this criterion by evaluating the change in systemwide operating costs per passenger mile in the forecast year, comparing the Section 5309 New Start investment to the baseline alternative. FTA assigns a rating of “medium” to all projects that have information submitted for this measure. Like the environmental benefits measure, FTA has found that information submitted in support of the operating efficiencies criterion does not distinguish with any meaning the merits of competing New Starts projects. While FTA reports the information submitted by project sponsors on operating efficiencies to Congress and other stakeholders, it does not formally incorporate this measure into its evaluation.

### **COST EFFECTIVENESS**

Rating: Medium

Significant among the project justification criteria is cost effectiveness, which is the annualized capital and operating cost per hour of user benefits for the forecast year. It captures the additional costs of the

New Starts project compared to the transportation benefits to transit riders. User benefits are defined identical to the measure used in the mobility improvements criterion.

New Starts projects must be rated "Medium" for cost effectiveness, in addition to receiving an overall "Medium" rating, in order to be considered by the Federal Transit Administration for New Starts funding.

### **TRANSIT SUPPORTIVE LAND USE**

Rating: High

This criterion addresses the extent that transit-oriented development is likely to occur in the New Start project's corridor.

### **LOCAL FINANCIAL COMMITMENT**

Rating: Medium

Proposed New Starts projects must be supported by evidence of stable and dependable financing sources to construct, operate and maintain the transit system. The measures FTA uses to evaluate local financial commitment are:

#### **Local Share**

Rating: High

FTA examines the proposed share of total project costs from sources other than Section 5309 New Starts, including Federal formula and flexible funds, the local match required by federal law, and any additional capital funding.

#### **Strength of Capital Financing Plan**

Rating: Medium

FTA looks at the stability and reliability of the proposed capital financing plan, including the current capital condition of the project sponsor, the level of commitment of capital funds to the project, the financial capacity of the project sponsor to withstand cost overruns or funding shortfalls, and the reliability of the capital cost estimates and planning assumptions.

#### **Strength of Operating Financing Plan**

Rating: Medium



FTA looks at the ability of the sponsoring agency to fund operation and maintenance of the entire system (including existing service) as planned, once the guideway project is built. This includes: an examination of the current operating condition of the project sponsor; the level of commitment of operating funds for the transit system; the financial capacity of the project sponsor to operate and maintain all proposed, existing and planned transit services; and the reliability of the operating cost estimates and planning assumptions.

The quantitative measures listed below represent some of what FTA relies on in rating a project's local financial commitment. The data listed below are for the Central Subway Project.

<u><b>Measure (in Year of Expenditure Dollars)</b></u>	<u><b>Cost</b></u>
<u>Total Capital Cost</u>	<u>\$1,289,750,000</u>
<u>Proposed Federal Section 5309 New Starts Share of Capital Costs</u>	<u>\$762,200,000</u>
<u>Proposed Local Sources of Capital Funding</u>	<u>\$527,550,000</u>
<u>Estimated Annual Incremental Operating Costs in the Forecast Year (2030)</u>	<u>\$11,221,000</u>

Additional information on the financial plan for this project can be found in Chapter 8.0 of this document.

## **10.0 SECTION 4(f)**

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### **SECTION 4(f)**

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# **CENTRAL SUBWAY THIRD STREET LIGHT RAIL PHASE 2**

## **SECTION 4(F) REPORT**

**~~OCTOBER 2007~~ SEPTEMBER 2008**

Prepared for:

FEDERAL TRANSIT ADMINISTRATION  
Region IX  
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## ACRONYMS

APE	Area of Potential Effect
BRT	Bus Rapid Transit
CEQA	California Environmental Quality Act
CRHR	California Register of Historic Places
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
FTA	Federal Transit Administration
MTA	Municipal Transportation Agency
Muni	San Francisco Municipal Railway
NEPA	National Environmental Preservation Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
RTP	Regional Transportation Plan
SEIR	Supplemental Environmental Impact Report
SEIS	Supplemental Environmental Impact Statement
SEM	Sequential Excavation Method
SHPO	State Historic Preservation Office
SXM	Special Excavation Method
TBM	Tunnel Boring Machine
TSM	Transportation Systems Management

## **1.0 BACKGROUND INFORMATION**

### **1.1 SECTION 4(f)**

Section 4(f) is a portion of a Federal Law enacted as part of the Department of Transportation (DOT) Act of 1966 and set forth in Title 49 United States Code (U.S.C.), Section 1653(f). The provisions of Section 4(f) apply only to agencies within the U.S. DOT. Any proposed transportation project that affects a Section 4(f) resource must include a Section 4(f) assessment.

The intent of Section 4(f) is to determine that there is no feasible and prudent alternative to the use of Section 4(f) land or resources and to take all measures to avoid or minimize harm to public parks or recreation areas, wildlife and waterfowl refuges and significant historic sites. Per Section 4(f), a transportation project that involves the use of Section 4(f) resources will only be approved if there is no prudent or feasible alternative to using those resources and if the Project includes all possible planning to minimize harm. To determine that there is no feasible and prudent alternative to the use of Section 4(f) land, an evaluation must be undertaken that addresses location and design of alternatives that would avoid these properties. Supporting information must demonstrate that such alternatives would result in unique problems or unusual factors such as costs, social, economic, or environmental impacts, or community disruption of an extraordinary magnitude.

A Section 4(f) resource “use” occurs when land is permanently incorporated into a transportation facility or when the Project causes an adverse impact to the enjoyment or use of a Section 4(f) resource. There are different types of use defined under the Section 4(f) statute, which vary according to permanence and significance of impact. Use occurs when there is a physical take of a 4(f) property as part of a transportation Project, or when a transportation agency acquires a permanent or temporary easement of the property. A “constructive use” of a property can also occur when a Project does not physically incorporate the resource, but is close enough to substantially impair and significantly impact activities, features, or attributes that qualify a resource for protection under Section 4(f). Substantial impairment occurs only when the protected activities, features or attributes of the resource are substantially diminished.

Section 4(f) applies to historic sites that are listed or considered eligible for listing on the National Register of Historic Places, and to publicly owned parks and recreation sites. Section 4(f) is related to Section 106 of the National Historic Preservation Act (NHPA) of 1966 in that Section 106 must also be considered during Section 4(f) evaluation. Section 4(f) takes into account only those cultural resources that are determined significant through the Section 106 process. Whereas Section 106 requires consideration be given to the effects of a Project on cultural resources, Section 4(f) requires that a special



effort be made to avoid the use of these significant historic resources. Section 4(f) does not apply to archeological sites where the transportation agency (Federal Transit Administration in this case), after consultation with the State Historic Preservation Office (SHPO) and the American Council on Historic Preservation determines that the archeological resource is important chiefly because of what can be learned by data recovery and has minimal value for preservation in place. Under Section 4(f) all possible planning must be made to minimize harm to public parks, wildlife refuges and historic sites caused by the Project.

Section 4(f) compliance involves three distinct steps: 1) identifying Section 4(f) resources that could be impacted by the Project; 2) developing alternatives to avoid impacts to resources; and 3) the Section 4(f) evaluation. Significance is determined through consultation with the federal, state or local official who has jurisdiction over the property. After significance is determined, the way in which the alternatives affect 4(f) resources are analyzed, including whether the alternatives use Section 4(f) properties, whether they are prudent and feasible, and to what extent the alternatives harm the resource. If more than one alternative uses a Section 4(f) resource, the alternative which is prudent and feasible and that has the least overall impact on the resource—including all practicable mitigation measures—must be considered. The analysis must consider the effects of the impact after mitigation, the severity and location of the use, and the probability that the remainder of the property will continue to serve the same functions as before the Project. If and when a Section 4(f) property is used for a Project, documentation must be prepared that shows there would be unique problems or unusual factors involved by alternatives not using Section 4(f) resources or that the monetary costs and social, economic, and environmental impacts resulting from such alternatives would be substantial.

In 2005, the first substantive revision to Section 4(f) occurred under Section 6009(a) of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). The act was created to simplify the process and approval of Projects that have only de minimis, or minor, impacts on Section 4(f) properties. Under the new provisions, once the U.S. Department of Transportation determines that a transportation use of Section 4(f) property results in a de minimis impact, analysis of avoidance alternatives are not required and the Section 4(f) evaluation process is considered complete for that particular resource. “De minimis” impacts are those that would not adversely affect the activities, features and attributes of the Section 4(f) resource. Concurrence must be obtained from officials with jurisdiction over the park, recreation area, or wildlife or waterfowl refuge or from the applicable State Historic Preservation Office (SHPO) or tribal historic preservation officer.

The proposed Central Subway Project involves the following parkland/recreational and historic resources:

- Union Square (Park and parking garage)
- Willie “Woo Woo” Wong Playground (formerly Chinese Playground)
- Washington Square (Park)
- Historic resources (including individual properties and historic districts) adjacent to stations and tunnel portals along the Project alternative corridors

These park/recreation resources in relationship to the Project alternatives are shown in Figure 10-1 and are described in Chapter 4.3.3 of the SEIS/SEIR. Historic Properties within the Area of Potential Effect are described in Section 4.4.3 of the SEIS/SEIR.

This Section 4(f) evaluation includes a description of each Section 4(f) resource that may be impacted by the Central Subway alternatives. The description of each resource includes: information on the location and history, physical features and uses of the park/recreation property; impacts on the property from alternatives; alternatives evaluated to avoid using the resource; identification of measures to minimize harm to the resources; and coordination with the agency having jurisdiction over the resource.

The Section 4(f) report is a separate chapter of the SEIS/SEIR available for public review and comment. This report ~~will also be~~ has been reviewed by the San Francisco Planning Department-Major Environmental Analysis, the San Francisco Historic Preservation Officer, San Francisco Recreation and Parks Department, the State Historic Preservation Officer (SHPO), the Federal Transit Administration (FTA) ~~and the Department of Interior~~ before the Final SEIS/SEIR and the Record of Decision (ROD) ~~are~~ were issued on the Project.

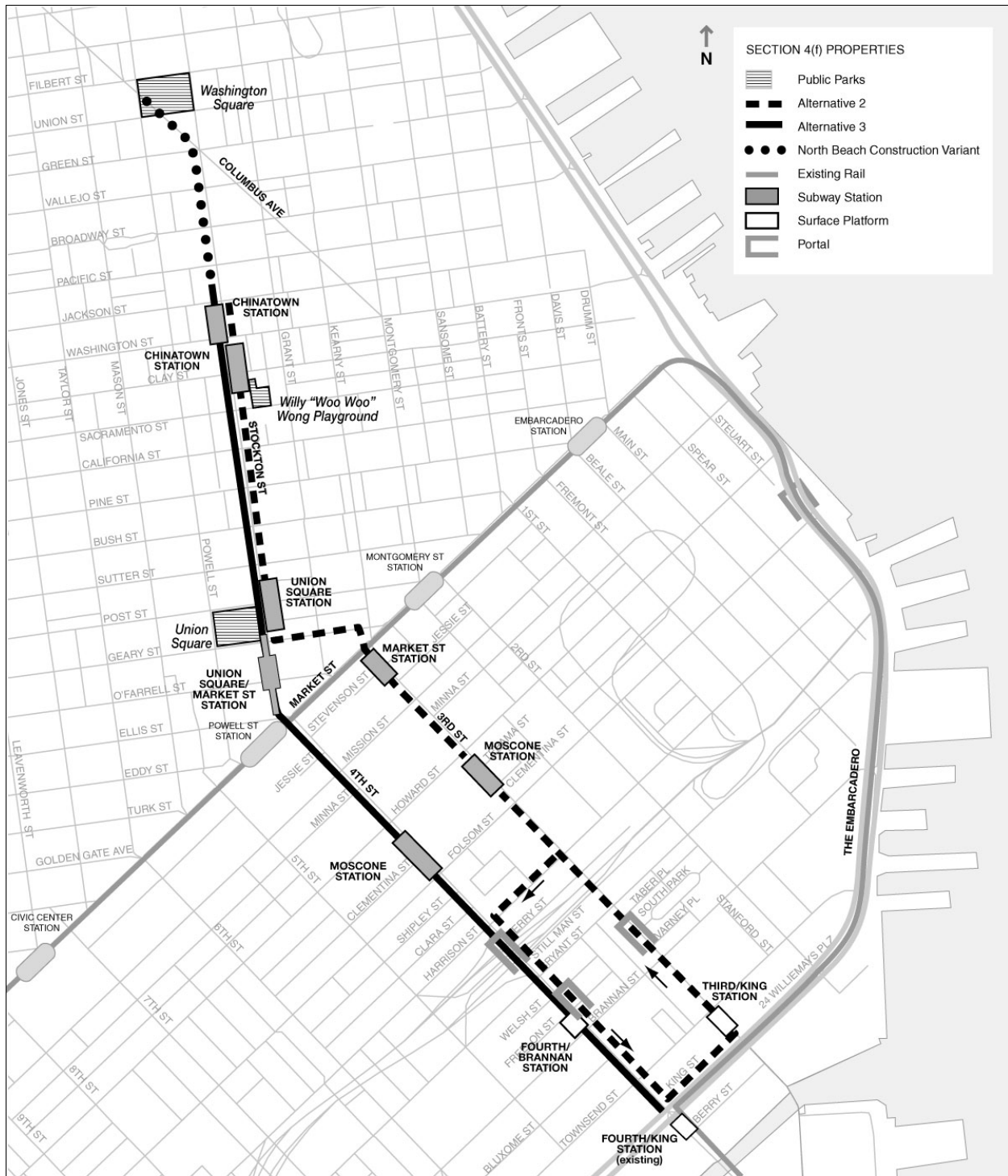
## **1.2 PURPOSE AND NEED**

The Purpose and Need for the Central Subway Project is described in Section 1.0 of the SEIS/SEIR and is briefly summarized here:

The Federal Transit Administration makes major transit funding decisions through a process designed to aid in the selection of transit solutions for the region. Through this process, FTA identifies transit investments that:

- Achieve transit service and mobility goals while minimizing social, economic, and environmental impacts;
- Increase transit use and reduce travel time at a reasonable cost;

**FIGURE 10-1**  
**SECTION 4(f) PROPERTIES**



- Link public transportation investments with land use planning and community revitalization;
- Have strong public and political support and compatibility with local, regional, and state planning initiatives; and
- Enhance and preserve the environment, particularly in terms of reduced air and noise pollution and congestion relief.

As the Project sponsor, the Municipal Transportation Agency's (MTA) objective for the proposed Central Subway Project is to address current and anticipated future (2030) mobility deficiencies in the transit system serving communities in the northeastern part of San Francisco and connecting to communities in the southeastern part of the City. The Project is intended to serve as a key infrastructure improvement to help ease congestion in the Project Corridor; improve transit service to the large transit dependent population that resides along the Corridor; serve mobility needs for the new jobs that are expected to be created in the Study Area; support economic and physical revitalization and improve Muni service reliability in the Project Corridor. Inadequate connectivity between corridor transit lines and other transit services, projected increases in 2030 transit and auto travel demand and transit travel times in the corridor, integration of transportation improvements with community revitalization, and air quality issues are other needs that the Project addresses.

Muni identified seven principal goals to guide the evaluation of the alternatives: 1) Improve Travel and Mobility; 2) Equity by Improved Access to Downtown and Chinatown; 3) Economic Revitalization; 4) Transit Supportive Land Use; 5) Environmental Protection; 6) Financial Feasibility and 7) Community Acceptance.

### **1.3 PROJECT DESCRIPTION**

The proposed Central Subway Project is the second phase of the San Francisco Municipal Transportation Agency's (MTA) Third Street Light Rail Project. The San Francisco Planning Commission certified a joint Final FEIS/FEIR on December 3, 1998 and the FTA issued a Record of Decision (ROD) for the Project in 1999. The Supplemental EIS/EIR is evaluating potential changes to the Central Subway Project alignments since the FEIS/FEIR was certified including: the number and location of stations, the use of off-street station entries rather than station entries located within congested sidewalks, the provision for ventilation shafts, the use of a barrier type fare collection system, and the use of deep tunneling construction methods. The Phase 2 Central Subway Project would extend the existing T-Third line (Phase 1- Initial Operating Segment, IOS) from its current terminus at Fourth and King Streets to

Stockton and Clay or Washington Streets in Chinatown, with a possible tunnel extension for removing construction equipment under Stockton Street to Union Street and Columbus Avenue in North Beach.

The Draft Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report (SEIS/SEIR) updates the FEIS/FEIR that was approved in 1998. The 1998 FEIS/FEIR analyzed the entire Third Street Light Rail Project, including the Phase 1 T-Third Initial Operating Segment (IOS) and the Phase 2 Central Subway Project. This Draft SEIS/SEIR updates the evaluation for the Phase 2 Central Subway Project Alternative 2 - Enhanced EIS/EIR Alignment, modified since its inclusion in the 1998 FEIS/FEIR and includes analysis of two additional build options – the Alternative 3 – Fourth/Stockton Alignment Option A Locally Preferred Alternative (LPA), and the Option B Modified LPA. Analysis of Alternative 1 - No Project/TSM (Transportation Systems Management) is also included in the SEIS/SEIR. Further discussion on the differences between the original and enhanced alternatives is described in Section 1.5.1.

The 1998 FEIS/FEIR did not include a separate Section 4(f) evaluation because it was determined that the original proposed alignment did not propose use of any Section 4(f) property as station entrance locations; but instead the original project proposed stations would have been accessed from public sidewalks and tunnel ventilation shafts would have been located in the street right-of-way. While the Project did include information on existing parkland and historic resources, these resources did not need to be evaluated as Section 4(f) properties.

Because City fire code requires that ventilation shafts be located adjacent to the tunnels and not at the pavement surface of streets and because locating stations and station access in the heavily used sidewalk space would be disruptive to pedestrian flows, changes were made to the station designs. Because these changes would potentially affect Section 4(f) resources, the Phase 2 Central Subway Project Draft SEIS/SEIR includes a Section 4(f) evaluation.

## **1.4 BUILD ALTERNATIVES**

Build alternatives being evaluated as part of the Project include the following:

### **1.4.1 ALTERNATIVE 2 - ENHANCED EIS/EIR ALIGNMENT**

The Alternative 2 - Enhanced EIS/EIR Alignment is the same alignment along Third, Fourth, Harrison, Kearny, Geary, and Stockton Streets, as presented in the 1998 FEIS/FEIR, with a shallow subway crossing at Market Street. The Enhanced FEIS/FEIR alignment would extend the T-Third line north of King Street on Third and Fourth Streets traveling north along King Street to Third Street where it would proceed in subway northbound under Market Street. The line would continue east under Geary Street and

then northbound under Stockton Street. The line would terminate in Chinatown at Stockton and Jackson Streets. The line would follow the same alignment southbound from Chinatown until the intersection of Third and Harrison Streets, where it would turn right on Harrison Street and left on Fourth Street before continuing to the King Street Station along Fourth Street.

The Enhanced EIS/EIR Alignment incorporates design changes to the 1998 FEIS/FEIR alternative to meet current fire codes and new Muni fare collection policy. To meet current fire codes, above-ground emergency ventilation shafts would be located in off-street right-of-way locations rather than the in-street ventilation system as originally planned. Station entries have been moved off crowded sidewalks to private or public property and combined wherever possible with vent shafts to address public concerns about pedestrian access and space constraints. The Enhanced EIS/EIR Alternative includes one surface platform station at King Street across from the Giants Ballpark and four subway stations at Moscone Center, Market Street, Union Square and Chinatown.

The Moscone Station would be located under Third Street with the station entrance located in the Tehama Pedestrian Way and vent shafts located in the northeast corner of the Moscone Garage. At the Union Square Station, two ventilation shafts would be integrated into the far eastern terraced edge of the Union Square plaza, and the main subway station entry would be located on the east side of the plaza in the middle of a stairway near an existing café. Two elevators would be located north of the station entrance and would be accessible from the sidewalk on Stockton Street. In Chinatown, the station would be located beneath Stockton Street between Sacramento and Washington Streets. Emergency ventilation shafts and the station entrance and elevators would be located between Clay and Sacramento Streets on the east side of Stockton Street on private property that Muni would acquire. The main station entry would be from Stockton Street; however, a second optional entry could be located on the east side of the station located adjacent to Hang Ah Alley, west of Willie “Woo Woo” Wong Playground; both properties are under the jurisdiction of the San Francisco Recreation and Parks Department (see Figure 10-2 for the Alternatives 2, 3A and 3B alignments).

#### 1.4.2 ALTERNATIVE 3 – FOURTH/STOCKTON ALIGNMENT OPTION A (LOCALLY PREFERRED ALTERNATIVE-LPA)

Alternative 3 Option A would follow the same alignment beginning at Fourth Street and King Streets, continuing on and under Fourth Street (but not Third Street) and under Market Street in a deep tunnel, and continuing under Stockton Street before terminating in Chinatown. In Alternative 3A, the subway portal would be located on Fourth Street between Townsend and Brannan Streets. The trains would operate in semi-exclusive right-of-way for a block and a half south of the portal. This option would include three

**FIGURE 10-2**  
**CENTRAL SUBWAY BUILD ALTERNATIVES**



**ALTERNATIVE 2: Enhanced EIS/EIR Alignment**



**ALTERNATIVE 3 (Option A LPA): Fourth/Stockton Alignment**



**ALTERNATIVE 3 (Option B Modified LPA): Fourth/Stockton Alignment**

Source: PB/Wong  
Not to scale



subway stations: a Moscone Station on Fourth Street between Folsom and Howard Streets, a combined Union Square/Market Street Station on Stockton Street between Market and Geary Streets, and a Chinatown Station on Stockton Street between Sacramento and Clay Streets (same location as Alternative 2 above). The Moscone Station would be located under Fourth Street (not Third Street) with stairs and elevators in a property purchased by Muni on the west side of the street near Clementina Street. Union Square/Market Street Station, would be the same as described above for Alternative 2.

The ventilation shafts for Alternative 3A would be integrated into the Stockton Street side of the Union Square plaza terrace, which would also accommodate the main station entrance. As with Alternative 2, the Chinatown station ventilation shafts would be combined with the station entrance and located on private property, along the east side of Stockton Street, that Muni would acquire. This station location would be west of the Willie “Woo Woo” Wong Playground and Hang Ah/ Pagoda Alleys (refer to Figure 10-2 for the Fourth/Stockton Alternative 3A). The Alternative 3A also includes the provision for the North Beach Tunnel Construction Variant described below in Section 1.4.4 that would have a temporary construction portal for extracting the TBM from the tunnel adjacent to Washington Square park, in the center lanes of Columbus Avenue.

#### 1.4.3 ALTERNATIVE 3 – FOURTH/STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)

Generally this alignment would be the same as Alternative 3A described above; however, for park properties there are some substantial differences. In the Fourth/Stockton Alignment Option B, the subway portal would be located under the I-80 Freeway on Fourth Street between Bryant and Harrison Streets (refer to Figure 10-2). Three subway stations would be included in the alternative: a Moscone Station under Fourth Street between Folsom and Howard Streets; a combined Union Square/Market Station under Stockton Street and centered at O’Farrell Street, with Union Square and Market Street subsurface pedestrian walkways and street access; and a Chinatown Station beneath Stockton between Clay and Jackson Streets. A surface station would be located on Fourth Street, north of Brannan, and would be reconfigured to accommodate rail with two-way traffic between Bryant and Townsend Streets. South of the portal, the northbound and southbound trains could operate on the surface in either semi-exclusive or mixed-flow traffic for three and a half blocks. The Moscone Station would be the same as that described above for Alternative 3A, but the Union Square/Market Street Station would be different than the Fourth/Stockton Alignment Option A above. The Union Square station entrance would be integrated into the southeast corner of the terraced plaza of Union Square park, accessible from Geary Street rather than from Stockton Street, and the elevators to the concourse level of the station would be on the eastern edge of the plaza, accessible via Stockton Street. Ventilation shafts for Alternative 3B would be integrated into the Ellis/O’Farrell Garage rather than along the eastern edge of Union Square for



Alternatives 2 and 3A (refer to Figure 10-2 for the Fourth/Stockton Alignment Option B alignment). For the Chinatown Station, the ventilation shafts would be combined with the station entrance on private property that would be acquired by Muni, on the west side of Stockton Street at Washington Street. This station would be on a different parcel than that used for the Chinatown subway station entrance for Alternatives 2 and 3A, and would not be near Willie “Woo Woo” Wong Playground or Hang Ah Alley. The Fourth/Stockton Alignment Option B also includes the provision for the North Beach Tunnel Construction Variant with a temporary construction portal at Washington Square park in the middle of Columbus Avenue, the same as described for Alternative 3A.

#### 1.4.4 NORTH BEACH TUNNEL CONSTRUCTION VARIANT

The North Beach Tunnel Construction Variant would extend the Central Subway tunnel approximately 2,000 feet north of the Chinatown Station. This construction variant would be part of both Alternatives 3A and 3B. The tunnel would extend north under Stockton Street and would terminate under Columbus Avenue between Union and Filbert Streets across from Washington Square park, where a temporary construction shaft would be built in the center two lanes of Columbus Avenue. The tunnel extension and shaft would allow the extraction of the Tunnel Boring Machines (TBMs) and could be used to deliver finish materials to the Chinatown Station site. The shaft would be about 35 to 60 feet wide by 30 feet long and would temporarily occupy two traffic lanes. Following excavation, one half of the footprint would be decked over permanently. The remainder would be temporarily decked so the cover could be removed for construction activities. After TBM extraction and material delivery, the shaft would be permanently decked over, leaving no surface impacts.

Shaft construction would be expected to last about six months. If the shaft was used for materials deliveries, those would be done on an irregular basis over a two to three year period. Between deliveries the shaft would be decked over for use as a roadway. Delivery of construction materials could include track and systems equipment. At the conclusion of the construction period, the TBM would be extracted during the course of a week and the shaft would be decked over permanently.

### 1.5 OTHER PROJECT ALTERNATIVES

#### 1.5.1 ALTERNATIVE 1 - NO PROJECT/TSM

The No Project/TSM Alternative would not involve the construction of a Central Subway light rail line through the proposed Project Corridor but would include the following elements:

- Programmed Projects in the approved and financially constrained Regional Transportation Plan (RTP);

- Operation of the T-Third line (Third Street Light Rail IOS) which opened in April 2007, as an extension of the Castro Shuttle to Visitacion Valley;
- Extension of the N-Judah from the Caltrain Terminal at King and Fourth Streets to a turnaround loop at 18th, Illinois, and 19th Streets, to provide additional service to the University of California San Francisco and Mission Bay development;
- Extension of the 45-Union/Stockton trolley bus service from the Caltrain Terminal through Mission Bay and Potrero Hill to a new terminus at Third and 20th Streets and;
- In conjunction with the 45-Union/Stockton extension through Mission Bay, the rerouting of the 22-Fillmore trolley bus line along 16th, Third, and Mission Rock Streets to a terminus in Mission Bay.

The No Project/TSM Alternative is used for comparison to determine the impacts of the build alternatives in the Supplemental EIS/EIR, but it is not analyzed as part of the Section 4(f) evaluation because it would not affect Section 4(f) properties.

## **2.0 SECTION 4(f) RESOURCES**

This section describes the Section 4(f) resources that would potentially be affected by the Project Alternatives. All Section 4(f) resources are grouped as either park and recreation resources or significant historic resources and are described from the southern end of the Project Corridor to the northern end. The Central Subway Area of Potential Effect (APE) boundaries were determined through evaluation of the Project Corridor during the Section 106 process. The Project APE boundaries generally follow the proposed Alternatives alignments and extend approximately one parcel away from the alignment in each direction except for in areas where there are no buildings; in those cases, the boundaries generally extend one block-length away from the alignment. The APE around station entries and tunnel portals included adjacent properties and a second row of buildings. The APE maps and detailed descriptions of significant historic architectural properties are incorporated by reference from Sections 4.4 and 5.4 of the Draft SEIR/SEIS and from the separate technical report “Historic Architectural Evaluation Report for the Central Subway” by Garcia and Associates, April 2007. The APE maps are included as Appendix C of the SEIS/SEIR.

## 2.1 PARK/RECREATIONAL RESOURCES

### 2.1.1 UNION SQUARE

Union Square is a 2.6-acre park located between Stockton, Powell, Post, and Geary Streets (see Figure 10-3). The park is an important open space and public plaza for residents and San Francisco visitors. The Union Square neighborhood is one of the main cultural and retail centers of the City and Union Square plaza serves as the focal point for the district. The park is under the San Francisco Recreation and Park Department's jurisdiction.

Union Square park serves as the heart of the Kearny-Market-Mason-Sutter Conservation District, and the park is a designated California State Landmark No. 623 (CHL 1996: 220). Union Square has been determined eligible for the National Register of Historic Places and has been proposed for designation as a San Francisco Landmark, but it has not been listed in either the California Register of Historical Resources or the local register. However, the San Francisco *Planning Code* describes the park as “an integral part of the District that ranks with the finest open spaces in the country” and explains how the Kearny-Market-Mason-Sutter Conservation District “is further defined by the location of Union Square in its heart. This square is, in many ways, the premiere open space in the City, as well as a primary public forum” (Article 11, Appendix E, Section 5).

The park dates from 1847. In 1850, Colonel John Geary transferred the title of the land to the City “with the stipulation it be held in perpetuity for the park purposes” (Hupman 40). The park was named during the Civil War for pro-Union rallies held there. In the middle-to-late 1870s, it became a formally landscaped City park. Prior to that, the park was used for a variety of purposes ranging from industrial fairs and musical events to public meetings. Buildings across from the park on the east side of Stockton Street were burned down in 1906 after the earthquake, and by 1913 the street was lined with commercial structures (Hupman 40).

According to the San Francisco Beautiful, Landmarks Preservation Advisory Board Nomination Form quoted in the Planning Department's Negative Declaration prepared for the Union Square Park Project in 1998, “the Square is significant because of its relationship to surrounding buildings and the urban setting, its history as one of San Francisco's first public squares, and the successful integration of an underground garage, which was the first of its kind in the world.”<sup>1</sup>

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<sup>1</sup> Copies of the primary-source materials are available for review in the Project case file (File No. 98.257E) Union Square Improvement Project, 1998, at the San Francisco Planning Department.

**FIGURE 10-3**  
**UNION SQUARE LOOKING WEST FROM MAIDEN LANE**



Source: PB/Wong, 2007

The underground garage was built in 1938 by the Union Square Garage Commission which was formed to build an underground garage at the site. Today, Union Square is elevated above street level to cover a 985-vehicle underground parking garage administered by the MTA.

In 2002, Union Square was renovated with private and public funds. Royston Hanamoto Alley and Abey was one of several firms that developed the Union Square Master Plan. Patri Merker and Michael Fotheringham were the two firms that won the international design competition and completed the park's redesign and renovation (Nelson 2006). The redesign transformed the area from an open grassy landscape to a completely redesigned hard-surface plaza with landscaped terraces above the historic underground parking garage (see Figure 10-4). The plaza is elevated above surface level at certain locations because of the parking garage and natural topography. Union Square contains terraced plazas and sitting areas as well as an area for staging outdoor exhibits and performances. The park has a fountain, memorial statue, a café with outdoor seating and a theater ticket office (see Figure 10-5).

The park is accessible from all corners and there are mid-block entries as well. The plaza is fully ADA accessible. Events on the plaza include occasional musical and dance performances. During the holiday season, a Christmas tree is displayed in the plaza. The Union Square Association estimates that

**FIGURE 10-4**  
**UNION SQUARE PARK SCHEMATIC PLAN**



Source: San Francisco Recreation and Parks

**FIGURE 10-5**

**UNION SQUARE SEATING AREA FOR OUTDOOR CAFÉ, LOOKING NORTH**



Source: PB/Wong, 2007

approximately five events, including art shows and filming, occur at the park per week.<sup>2</sup> According to the Recreation and Parks Permits and Reservations Department records, approximately 79 permitted events were held at Union Square in 2006 (see Table 10-1).<sup>3</sup>

**TABLE 10-1**  
**PERMITTED EVENTS AT PROJECT AREA PARKS IN 2006**

<b>Location</b>	<b>Commercial Events</b>	<b>Non-Commercial Events</b>	<b>Art Shows</b>	<b>Filming</b>
Union Square	25	54	103	10
Washington Square	1	10	27	4
Willie “Woo Woo” Wong Playground	0	4	-	-
(Source: San Francisco Recreation and Parks Department, 2007)				

Park usage figures for Union Square (or any of the City parks) are not maintained by any official agency or organization. However, the MJM Management Group has developed park usage estimates for Union Square.<sup>4</sup> According to MJM, the park receives 10,000 to 15,000 visitors per day in the summer months. In the winter months, the estimate is 8,000 to 10,000 visitors per day. MJM claims these visitor estimates do not include special events at the park, which, if added, would make the attendance figures higher. For example, the Christmas tree-lighting event at the park usually includes nearly 6,000 people.

### 2.1.2 WILLIE “WOO WOO” WONG PLAYGROUND

Willie “Woo Woo” Wong Playground (formerly “Chinese Playground”) is a publicly owned park under the jurisdiction of the San Francisco Recreation and Parks Department. The park is one of the few open spaces in the highly developed, dense urban fabric of the Chinatown neighborhood and is the only open space in the Project Corridor on Stockton Street north of Union Square. The park has cultural significance, which is reflected in its namesake, Willie “Woo Woo” Wong, who was a local Chinese-American sports legend.

The park is located at 850 Sacramento Street in Chinatown at the intersection of Waverly and Sacramento Streets, east of a row of buildings along Stockton Street. The 35,724 square foot multi-level park was built in 1927 and includes a clubhouse with a recreation/meeting area with ping pong tables, a kitchen, and an office, as well as basketball, tennis and volleyball courts, a multi-use paved playfield and

<sup>2</sup> Retrieved December 7, 2006 from <http://www.unionsquaresf.net>. The Union Square Association is a private association of local businesses and merchants who plan and promote events in Union Square.

<sup>3</sup> Examples of recent permitted events at the three parks include a DVD Tour Mobile, a Star Wars promotion, a private conference reception, a Leukemia Society Walk-a-Thon, rallies for the AIDS Foundation, Falun Gong, and A.N.S.W.E.R. anti-war protesters, a San Francisco Women’s Nike Marathon Expo, the City of Hope 5K Walk and a Cable Car Bell Ringing Contest.

<sup>4</sup> The MJM Management group is a private company that oversees operation and events for Union Square Park.

children's and tots' play areas (see Figure 10-6). According to a plaque on the wall of Hang Ah Alley (see Figure 10-7), the park's club house was demolished in 1977 and new facilities and the club house were constructed in 1980 under the direction of the Chinatown Better Parks and Recreation Committee (see Figure 10-8). Pagoda Alley is under the jurisdiction of the San Francisco Department of Public Works and serves pedestrian access to the businesses on the alley. Hang Ah Alley is under the jurisdiction of the San Francisco Recreation and Parks Department and provides pedestrian access to Willie "Woo Woo" Wong playground.

### 2.1.3 WASHINGTON SQUARE

Washington Square park is a 2.26 acre publicly-owned park that was built in 1900. The park is under the Recreation and Park Department's jurisdiction.

Washington Square is located off Columbus Avenue and is bordered by Stockton, Filbert and Union Streets in the North Beach neighborhood of the City. Strolling paths, small gathering areas, grassy open space, public seating, historic sculptures, restrooms and a children's playground are features of the park. Washington Square park is one of San Francisco's three original parks and is located in a place that has served as a village green and civic space since 1850. The park has a number of mature trees that lend to the historic character of the park landscape. The park was designated as a local landmark in 1999, requiring it to undergo specific reviews for any future potential changes to the park. The square was designed by William Eddy (see Figure 10-9).

Across from Washington Square park is the small, triangular Marini Plaza. Marini Plaza was originally part of Washington Square park, but was severed from it in the 1870s after the construction of Columbus Avenue which cut through the southwest corner of Washington Square. The 2,730 square foot Marini Plaza is bounded by Columbus Avenue and Union and Powell Streets. Since 1905 it has served as a visual garden and break from the urban fabric, featuring trees, sculpture and a pond (San Francisco 2005).

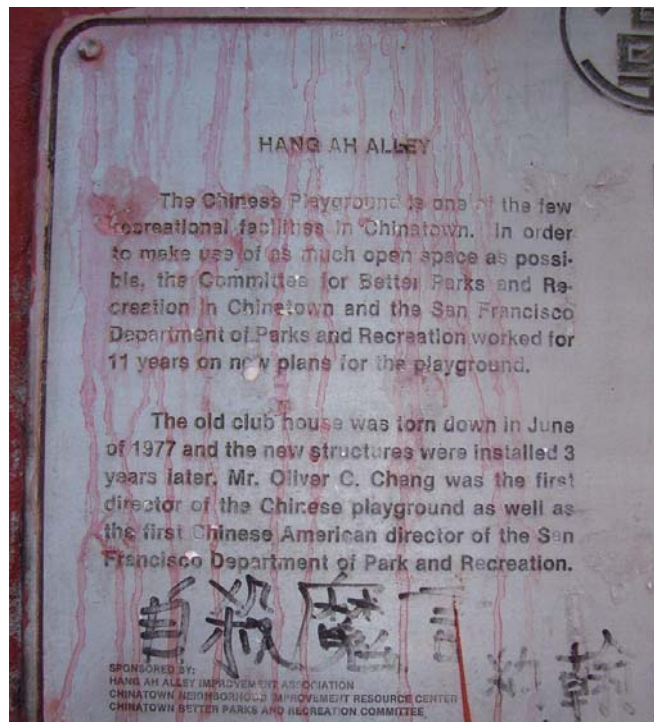
Between 2003 and 2004, renovations were made to Washington Square park where root expansion had made certain paths uneven and unstable. The pathways were repaved using pervious concrete, and the southeast corner entrance was reconfigured to protect established Stone Pine trees (San Francisco 2005).

The park is used by local Tai Chi practitioners on mornings, and all-day and evening by local residents for activities including sitting in the sun, playing catch and walking their dogs. The park has a children's play area that includes swings and climbing bars, and a restroom on the east side along Columbus Avenue. There are several mature trees in the park, as well as paved pathways and benches.



**FIGURE 10-6****WILLIE “WOO WOO” WONG PLAYGROUND LOOKING NORTH**

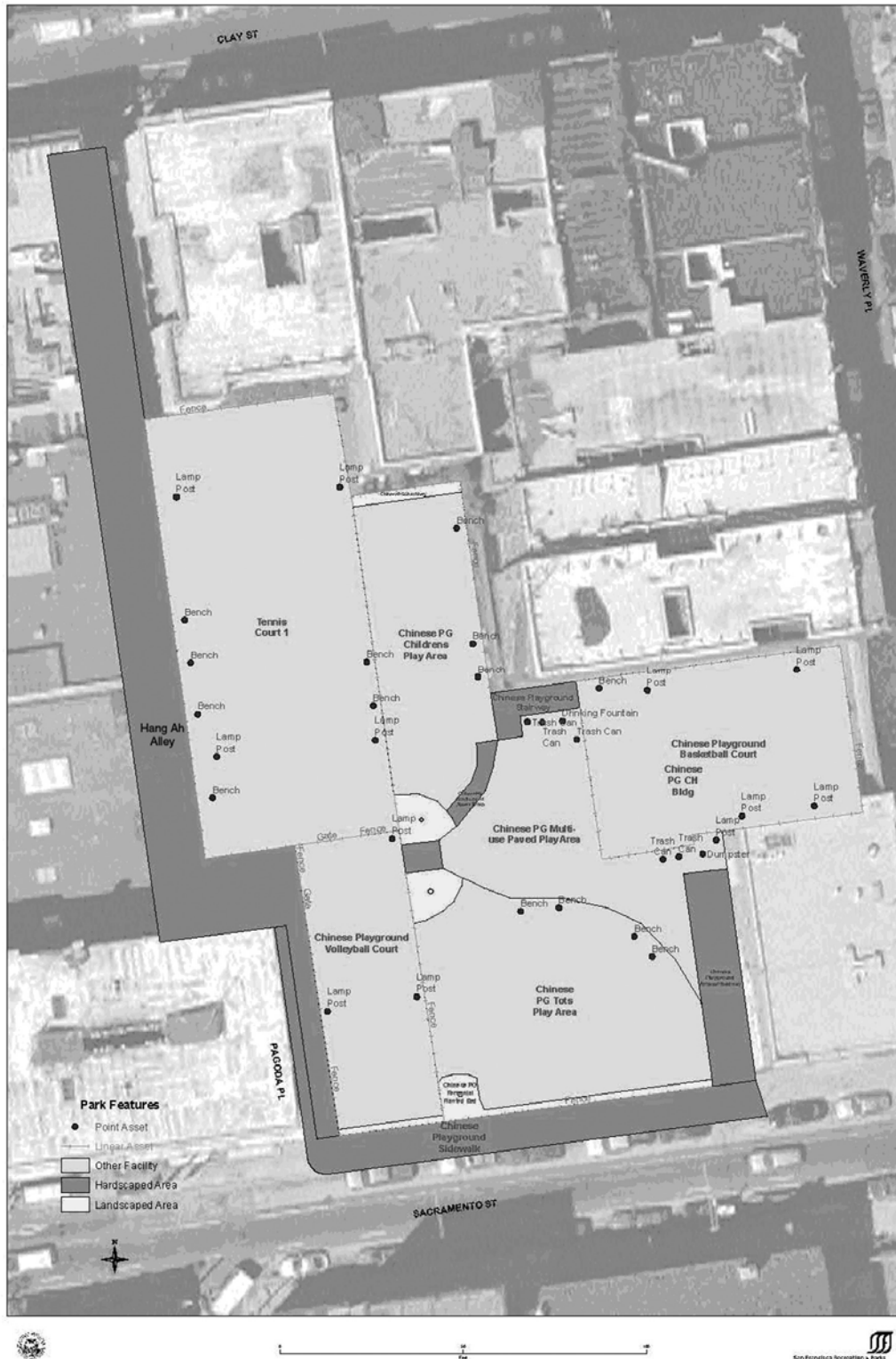
Source: PB/Wong, 2007

**FIGURE 10-7****PLAQUE ON THE WALL OF PAGODA/HANG AH ALLEY**

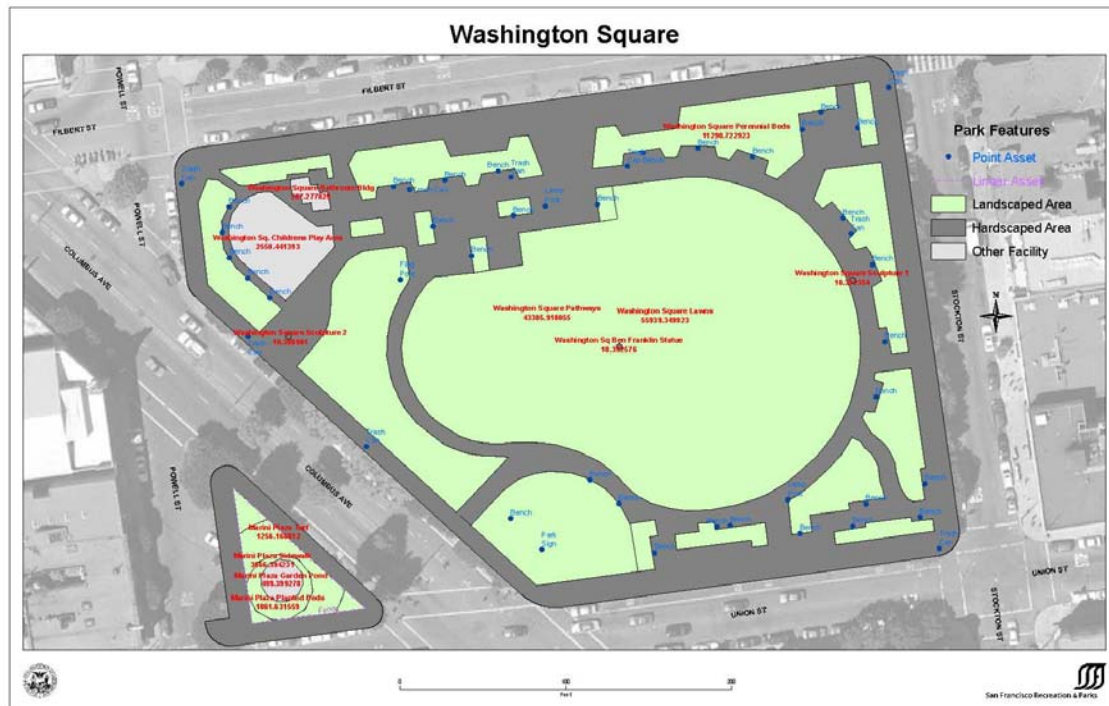
Source: PB/Wong, 2007



**FIGURE 10-8**  
**WILLIE “WOO WOO” WONG PLAYGROUND SCHEMATIC PLAN**  
**Chinese Playground**



**FIGURE 10-9**  
**WASHINGTON SQUARE PARK SCHEMATIC PLAN**



Source: San Francisco Recreation and Parks

## 2.2 HISTORIC RESOURCES

Section 4.4.3 of the SEIS/SEIR describes the historic resources identified in the Area of Potential Effect (APE) for the Central Subway Project and is incorporated by reference into this Section 4(f) Report. The following Table 10-2 summarizes the Historic Districts in the APE by Alternative.

There are eight existing or proposed historic districts of local or national importance and one local conservation district that would be crossed by the Central Subway alternatives (see Table 10-2). A historic district is a group of buildings that share a common history, visual character-defining features or development that meet the criteria for listing on the National Register of Historic Places. Historic districts include a cohesive collection of buildings that represent a particular period or architectural style that serves to characterize a neighborhood. Locally established conservation districts are groupings of buildings based on their architectural quality and contribution to the built urban environment.

There are 376 properties located within the APE, including buildings, structures (e.g., Lotta's Fountain), and linear features (e.g., street lights, Stockton Tunnel). Of the 376 properties, 161 of the properties and

**TABLE 10-2****HISTORIC DISTRICTS IN THE APE CROSSED BY ALTERNATIVE ALIGNMENTS**

<b>District</b>	<b>Enhanced EIS/EIR Alignment</b>	<b>Fourth/Stockton Alternative 3A</b>	<b>Fourth/Stockton Alternative 3B</b>	<b>Reference</b>
South End Historic District	X			San Francisco Planning Code, Article 10, 1990
Rincon Point/South Beach Industrial District	X			CRHR 1998
South Park Historic District	X			Newly Proposed by Garcia and Associates
Kearny-Market-Mason-Sutter Conservation District	X	X	X	San Francisco <i>Planning Code</i> , Section 1103.1 of Article 11
Lower Nob Hill Apartment Hotel District	X	X	X	NRHP listed 1991
Chinatown Historic District	X	X	X	CRHR, 1998
North Beach Historic District <sup>1</sup>		X	X	Bloomfield 1982
Washington Square Historic District <sup>1</sup>		X	X	Bloomfield 1982
Powell Street Shops Historic District		X	X	Bloomfield 1982

<sup>1</sup> Proposed districts; not presently on any city, state, or federal lists.

eight historic districts were included in the Study Area previously evaluated by Corbett et al. in 1997 for the Central Subway segment of the Third Street Light Rail Project.

The Central Subway Historic Architectural Evaluation Report (as summarized in this SEIS/SEIR) has updated the findings of the Corbett et al. (1997) study by conducting evaluations on those additional properties included in the 1997 study that have become historic (45 years of age) in the intervening years (“newly historic”) and eliminating from further study those previously evaluated properties that were demolished between 1997 and 2006. It was also necessary to reevaluate properties in close proximity to the proposed station locations that were previously assigned a NRHP code of 4S (might become eligible for a separate listing in the National Register when more historical or architectural research is performed on the property) or 4D (might become eligible as contributor to a fully documented district when more historical or architectural research is performed on the district), so an explicit determination could be made about eligibility. As a result, 218 additional properties have been identified and categorized within the APE (see Table 10-3).

**TABLE 10-3**

**HISTORIC ARCHITECTURAL RESOURCES WITHIN THE APE IN ADDITION TO THOSE  
EVALUATED IN CORBETT ET AL. (1997)**

<b>Item No.</b>	<b>NRHP Evaluation</b>	<b>Results</b>
1	Properties previously listed on the NRHP	49
2	Properties previously determined to be ineligible	10
3	Properties not evaluated (less than 45 years of age, moved, altered, or other)	51
4	Properties demolished and replaced after 1997	4
5	“Newly historic” properties determined to be eligible in this study	42
6	“Newly historic” properties determined to be ineligible	62
<b>Total</b>		<b>218</b>
Source: Garcia and Associates, February 2007.		

The remaining 218 properties in the APE of the Central Subway Project are the main focus of the SEIS/SEIR and this Section 4(f) Report. A review of the *Directory of Historic Properties in the Historic Property Data File for San Francisco* (OHP 2006) revealed 59 properties out of the 218 have been evaluated prior to the start of this SEIS/SEIR. Of those, 49 properties were evaluated as eligible for the NRHP; nine properties were evaluated as ineligible for the NRHP; and one property was determined to be eligible for local listing only.

Another 55 properties have been eliminated from consideration because they have been identified as being less than 45 years of age and do not appear to possess exceptional significance to qualify them as eligible for the NRHP/CRHR. These include 42 buildings and nine vacant parcels or parking lots that did not require evaluation and another four properties that have been demolished since the previous study. After eliminating these 114 properties from further review; 104 properties of the 218 properties required further evaluation for historic significance for the SEIS/SEIR. It was determined that 42 of the properties appear eligible for listing on the NRHP and the remaining 62 properties appear to be ineligible. Of particular relevance to this Section 4(f) evaluation are the two historic districts (KMMS and Chinatown Districts) that include the character-defining features of Union Square (in KMMS) and the building at 814-828 Stockton Street and the building at 933-949 Stockton Street (Chinatown) proposed as alternative station locations for the Central Subway Project.

### 3.0 IMPACTS TO SECTION 4(f) RESOURCES

Section 4(f) parks affected by the Central Subway Project are briefly summarized in Table 10-4.

**TABLE 10-4**  
**SECTION 4(f) PARK PROPERTIES**

<b>Property</b>	<b>Type</b>	<b>Size</b>	<b>Ownership</b>	<b>Function/Activities</b>
Union Square	Park/plaza	2.6 acres (112,256 square feet)	City (under Recreation and Parks jurisdiction)	Open space; public space; a primary public forum; seating areas and outdoor exhibits and performances, café with outdoor seating, ticket office (theater and tourist attractions)
Willie “Woo Woo” Wong Playground and Hang Ah Alley	Park	35,724 square feet	City (under Recreation and Parks jurisdiction)	Public playground in highly urbanized area; clubhouse; basketball, tennis and volleyball courts; playfield; children and tots’ areas
Washington Square	Park	2.26 acres (95,762 square feet)	City (under Recreation and Parks jurisdiction)	Village green and civic plaza; strolling paths; gathering areas; greensward; seating; restrooms; children’s playground
Source: PB/Wong, 2007				

Union Square is the only Section 4(f) resource proposed for actual physical ‘take’ by the Project for a stairway/escalator and elevator entry to the subway station below Stockton Street and for ventilation shafts. The other two parks (Willie “Woo Woo” Wong and Washington Square) would have potential indirect “constructive use” because of adjacent construction-related activities that would last 5.5 to 6 years. Potential Project impacts to Section 4(f) resources are described in this section.

Of the historic properties evaluated during both phases of work, 36 properties in the previous study and 34 identified during the current study were determined to have some potential for temporary, construction-related indirect impacts from vibration or visual impacts from the presence of construction equipment within the Historic District under either the Enhanced EIR/EIS Alternative 2, Alternative 3A, or Alternative 3B alignments. Mitigation measures have been described to reduce potential vibration effects to less-than-significant or minor adverse effects. Some of these properties are within the listed or proposed historic districts and others are located outside established district boundaries. The station alternatives in Chinatown would have direct impacts to the Chinatown Historic District related to the demolition of the character-defining building at either 814-818 Stockton Street or at 935-949 Stockton Street. The removal of either of these buildings would result in a visual break in an otherwise contiguous

block of historic buildings that would adversely affect the District. (There are 371 contributory buildings in the Chinatown Historic District.)

### 3.1 UNION SQUARE

#### 3.1.1 ALTERNATIVE 2 - CONSTRUCTION IMPACTS

Construction for Alternative 2 would be expected to last an estimated 66 months (5.5 years) and work on the Union Square Station would last for about 36 months. (See also, Section 6.0 Central Subway Construction Methods in the SEIS/SEIR.) During that time, access to Union Square plaza and park uses would be maintained. Access to the Union Square parking garage on Geary Street would not be obstructed. Pedestrian access along the west sidewalk on Stockton Street between Geary and Post Street would be closed for the entire duration of the station construction. Pedestrian access along the other three sides of the plaza would not be affected.

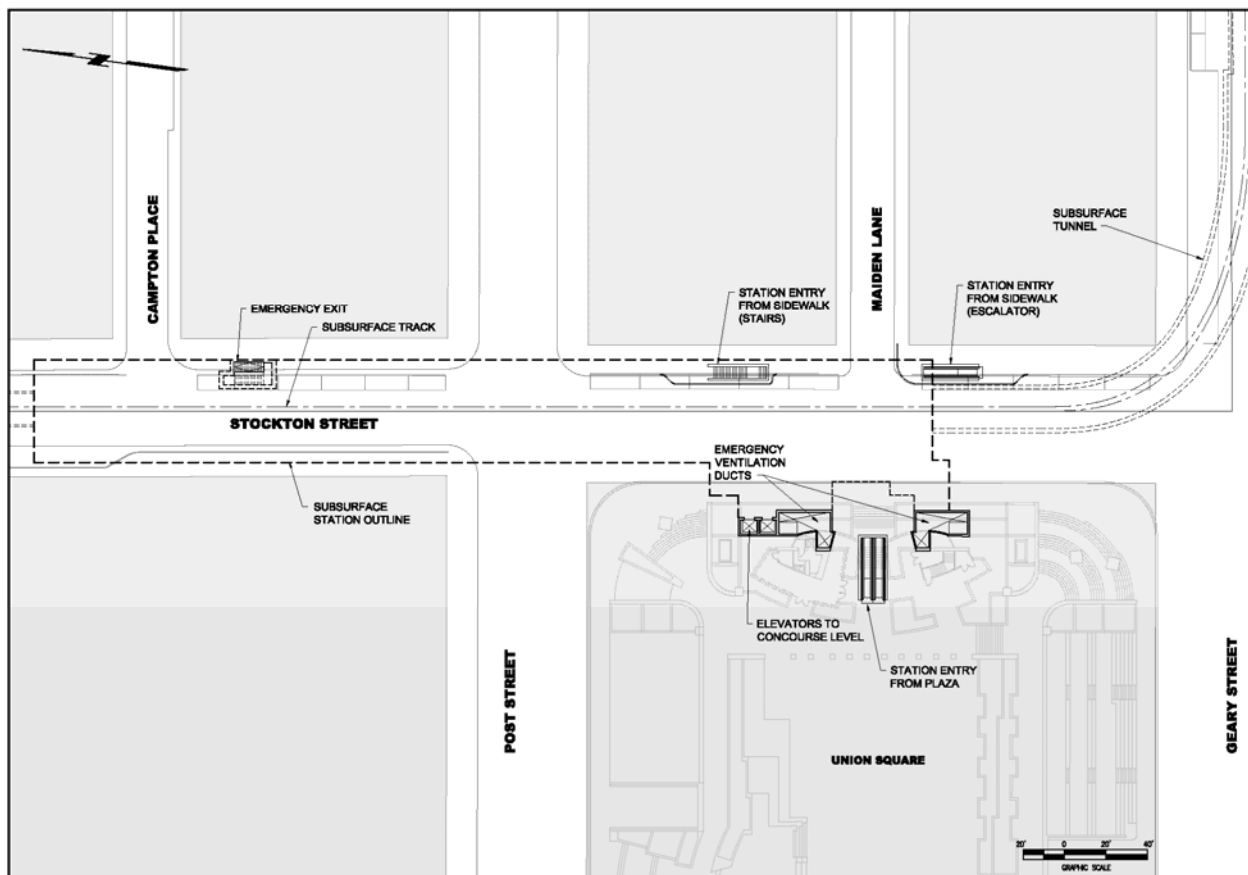
Noise, dust, and vibration would temporarily affect the recreational enjoyment of the eastern portion of Union Square until the initial station excavation is decked over and construction activities can occur below the surface. It would take approximately two months for the ~~station to be excavated and excavation to be~~ decked over.

The decked cut and cover excavation of the subway station at Union Square would require the closure of two lanes (out of four) on Stockton Street for the duration of station construction, approximately ~~66~~36 months. Spoils generated from excavation of Union Square Station and the guideway tunnels north of Union Square would be hauled to surface streets for off-site disposal. Overall construction at Union Square for Alternative 2 is ~~66~~48 months. No portion of the park would be used as a construction staging area.

#### 3.1.2 ALTERNATIVE 2 – OPERATION IMPACTS

Approximately 1,517 square feet of Union Square (1.35 percent of the total plaza area) would require a long-term encroachment permit from the Department of Recreation and Parks to MTA for the station entrance escalator, elevators and emergency ventilation shafts under Alternative 2 (see Figure 10-10). The station entrance would be located in the center of the stairway to the upper plaza, along the eastern edge of the square, near an outdoor seating area for a café. The café and outdoor seating would remain in operation.

The stairway provides access to the plaza from Stockton Street. Two ventilation shafts would be integrated into the terraced planters on the eastern side of the plaza south of the elevators. The ventilation shafts would be approximately 11 feet high and would use approximately 763 square feet of the plaza

**FIGURE 10-10****PLAN DRAWING OF UNION SQUARE STATION FOR PROPOSED ALTERNATIVE 2**

Source: PB Wong  
Not to Scale

terraced edge on the east side of the park. A reduction in both hard-surface and landscaped planters would occur. Elevators would be located to the northeast of the station entrance escalator off Stockton Street. The elevators would replace approximately 303 square feet of the landscaped terrace on the eastern side of the plaza.

The mid-block entrance stairs on the eastern side of the plaza would remain operational and accessible despite the placement of the station entrance escalator and stairs (451 square feet) at that location. The other park entrances would remain accessible as well. The station would displace 29 (of the 985) parking spaces in the Union Square garage below the plaza. MTA manages the Union Square garage on behalf of the Recreation and Parks Department and the revenue the City receives from parking fees is returned to the Recreation and Parks Department and is partially used to repay the revenue bonds for the Union Square renovation Project. Loss of revenue would not be expected to effect the debt service payment on the revenue bond as revenues exceed the debt service obligation. Transit access to Union Square would

be improved with the subway station, and increased foot traffic on the Stockton Street sidewalks on the east side of Union Square would be likely due to the introduction of the new subway station.

Visual impacts are discussed in Section 5.5 of the SEIS/SEIR and it was concluded that the proposed changes to Union Square would not significantly detract from the dominant design features of the park or surrounding landscape or result in adverse visual impacts to the park. Nor would the proposed physical changes to the park substantially change the character-defining features of the KMMS Historic District. Union Square park was substantially changed in 1998 with the renovation of the Plaza. Because of the location and scale of the proposed elevators and ventilation shafts in the plaza terraces on the east side of the park, there would be no shadow impacts from Central Subway structures on Union Square.

Project-related changes to Union Square would not cause an adverse change to the historic integrity of Union Square or to the Kearny-Market-Mason-Sutter Conservation District, particularly since Union Square's significance is derived more from its function as an open space and public square rather than its design or any specific physical attributes (San Francisco 1998). The open space and recreational function would remain in tact and would not be significantly affected by the station entrance or the additional foot traffic induced by its location.

Despite the use of a limited portion (about 1.35 percent) of park property for the Central Subway station facilities, the impacts on the park are considered de minimis under Section 4(f). ~~The San Francisco Parks and Recreation Department will need to concur with this finding.~~

### 3.1.3 ALTERNATIVE 3 OPTION A - CONSTRUCTION IMPACTS

Temporary construction impacts to Union Square plaza would occur under Alternative 3 Option A the same as those discussed above for Alternative 2, however some differences related to the underground station location and construction methods would further reduce impacts and duration of construction.

Noise, dust, and vibration may temporarily affect the use of the eastern portion of the park until the excavation is decked over and construction activities occur below the surface. It is expected that it would take approximately two months for the excavation to be decked over. During that time, construction impacts would temporarily interfere with the use, enjoyment and recreational function of Union Square.

Access to Union Square under Alternative 3 Option A would be affected in several ways:

- The sidewalk on the western side of Stockton Street along the Square would be closed for the duration of station construction (~~66~~54 months).



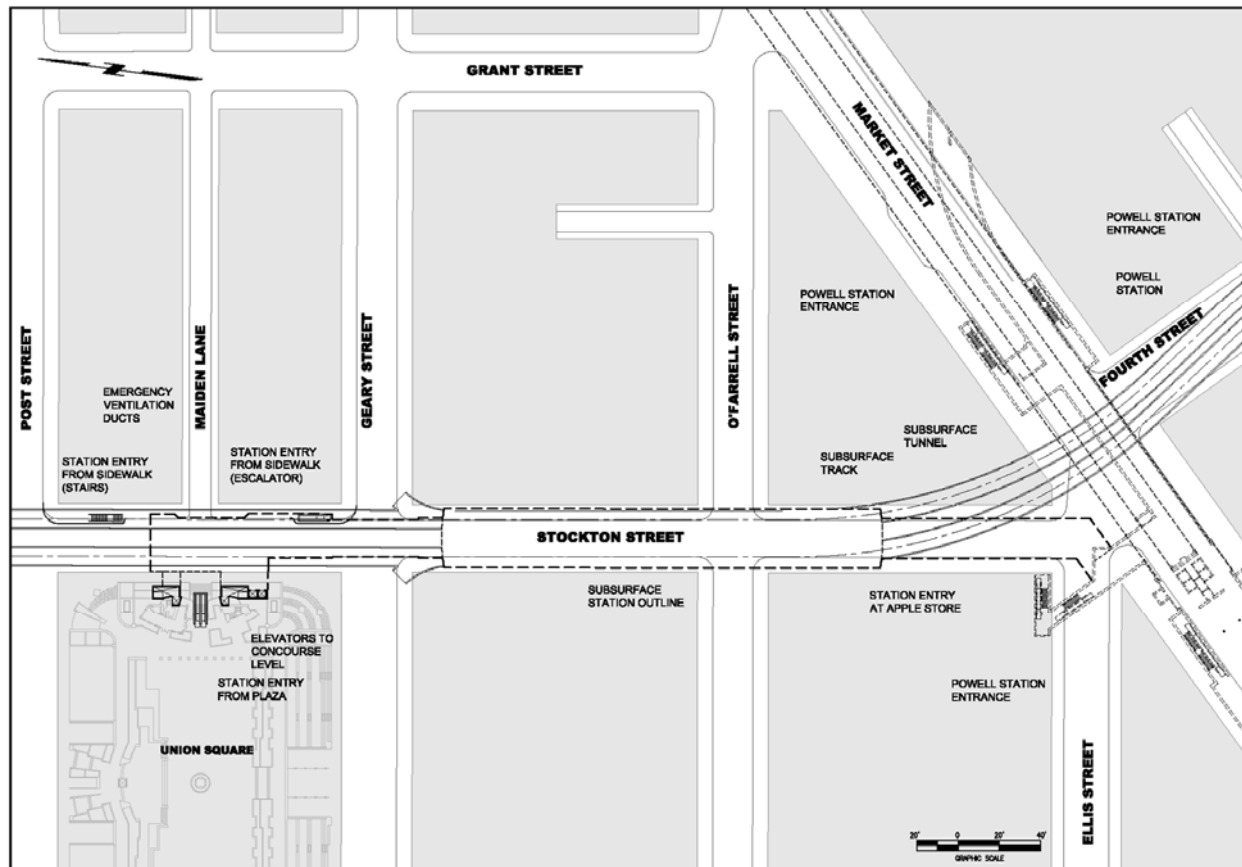
- Pedestrian access along both sidewalks on Stockton Street between Geary Boulevard and Market Street would require protective cover for about 18 months.
- The cut and cover sections of Union Square/Market Street Station would require two lanes of Stockton Street to be closed to traffic for the duration of construction.
- A 7,600 square foot staging area for the Union Square station would be required on Stockton Street adjacent to Union Square.
- Construction of the North and South Cavern Access Shafts would require the temporary use of at least two lanes of Stockton Street to accommodate a crane and trucks for muck hauling.
- After construction of the shaft, intermittent use of Stockton Street would be needed for removal of the microtunneling machines.

Spoils generated from the excavation of the station would be hauled to the surface through off-street shafts at the Union Square Station before being hauled off site for permanent disposal. Spoils removal, excavation, and ground support for the guideway tunnels and stations would require approximately 20 months. The structural works would require approximately 24 months. The entire duration of construction for this alternative would be 66 months.

#### 3.1.4 ALTERNATIVE 3 OPTION A – OPERATION IMPACTS

The Union Square/Market Street Station entrance escalator would be located in the middle of the stairway on the eastern edge of the Union Square plaza along Stockton Street in Alternative 3 Option A (see Figure 10-11), the same as where the station entrance would be located in Alternative 2. However, in Alternative 3 Option A, the elevators to the station's upper concourse would be accessed from the plaza level and would be located directly south of the escalator. Two 11 feet tall ventilation shafts would flank the entrance escalator and, as in Alternative 2, would be integrated into the terraced landscaping on the eastern edge of the plaza. The ventilation shafts would be the same height as the existing structures they would be placed in front of and would not rise above the plaza because of their location on the terrace grade. The same as Alternative 2, Alternative 3 Option A would require approximately 1,525 square feet of plaza property (1.36 percent of the total plaza area) for use under a long-term encroachment permit from the Department of Recreation and Parks. Although there are slight design modifications between the two alternatives, the designs are similar enough that Alternative 3 Option A would have the same operational impacts as Alternative 2.

**FIGURE 10-11**  
**PLAN DRAWING OF UNION SQUARE STATION FOR PROPOSED**  
**ALTERNATIVE 3 OPTION A**



Source: PB Wong

Not to Scale

Despite the limited use of the park for the Central Subway facilities, the impacts on the park are considered de minimis under Section 4(f). ~~The San Francisco Parks and Recreation Department will need to concur with this finding.~~

### 3.1.5 ALTERNATIVE 3 OPTION B – CONSTRUCTION IMPACTS

Noise, dust, and vibration would temporarily affect the use and enjoyment of the eastern portion of Union Square until the excavation is decked over and construction activities occur below the surface, which would be expected to occur within six months. The relocation of utilities ahead of station construction would be required on Stockton Street between Post Street and Market Street and would generate noise and dust as well and would last approximately six months.

Access to Union Square would be affected in several ways during construction:

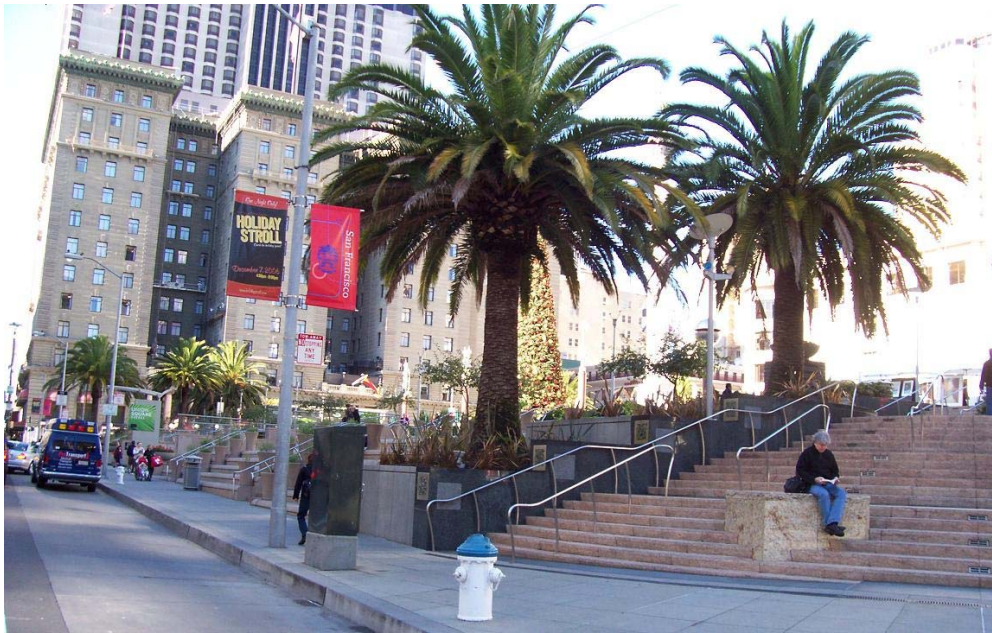
- The sidewalk on the northern side of Geary Street adjacent to Union Square would be closed for the duration of station construction.
- The relocation of utilities ahead of station construction would be required on Stockton Street between Post Street and Market Street and would disrupt traffic near Union Square for 6 months.
- To accommodate traffic flow, curb parking on Stockton Street across from Union Square would be eliminated during utility work.
- Traffic operations would be affected by the cut-and-cover sections of the station, which would require two lanes of Stockton Street to be closed to traffic for the installation of shoring and construction of the main platform box decking.
- Pedestrian access along both sidewalks of Stockton Street between Geary and Market Street just south of Union Square would require protective cover for the entire 12-month duration of shoring installation.

Spoils generated from the station excavation would be hauled to the surface through off-street shafts at Ellis Street and at Union Square before being hauled off-site for permanent disposal. Excavation and ground support for guideway tunnels and stations would require approximately 18 months. The overall construction duration for the alternative is ~~52~~60 months.

### 3.1.6 ALTERNATIVE 3 OPTION B – OPERATION IMPACTS

Approximately 1,690 square feet (1.51 percent of the total plaza area) of the southeast corner of Union Square along Geary Street would be used for the subway station entrance in Alternative 3 Option B and would require a long-term encroachment permit from the Department of Recreation and Parks for physical use of the park (see Figures 9-12 and 9-13). The station entrance would replace a portion of terraced concrete seating (about 1,378 square feet) along the southeastern corner of the park, as well as landscaping. A palm tree planted in the affected plaza corner would be moved several feet to the south to allow room for the station entrance.

All entrances to the plaza would remain operational. Thirty-four parking spaces (of a total 985 spaces) in the garage below would be removed for station facilities. As previously noted, this would not be expected to impact the debt service repayment on the revenue bond for the Union Square renovation Project. Public access to the plaza itself and to the proposed Retail Historic Shopping District would be enhanced for public transit users because of the subway station location. Overall, the reduction in parking spaces would not be a significant impact on Union Square accessibility.

**FIGURE 10-12****UNION SQUARE LOOKING EAST, POTENTIAL SITE OF FUTURE STATION**

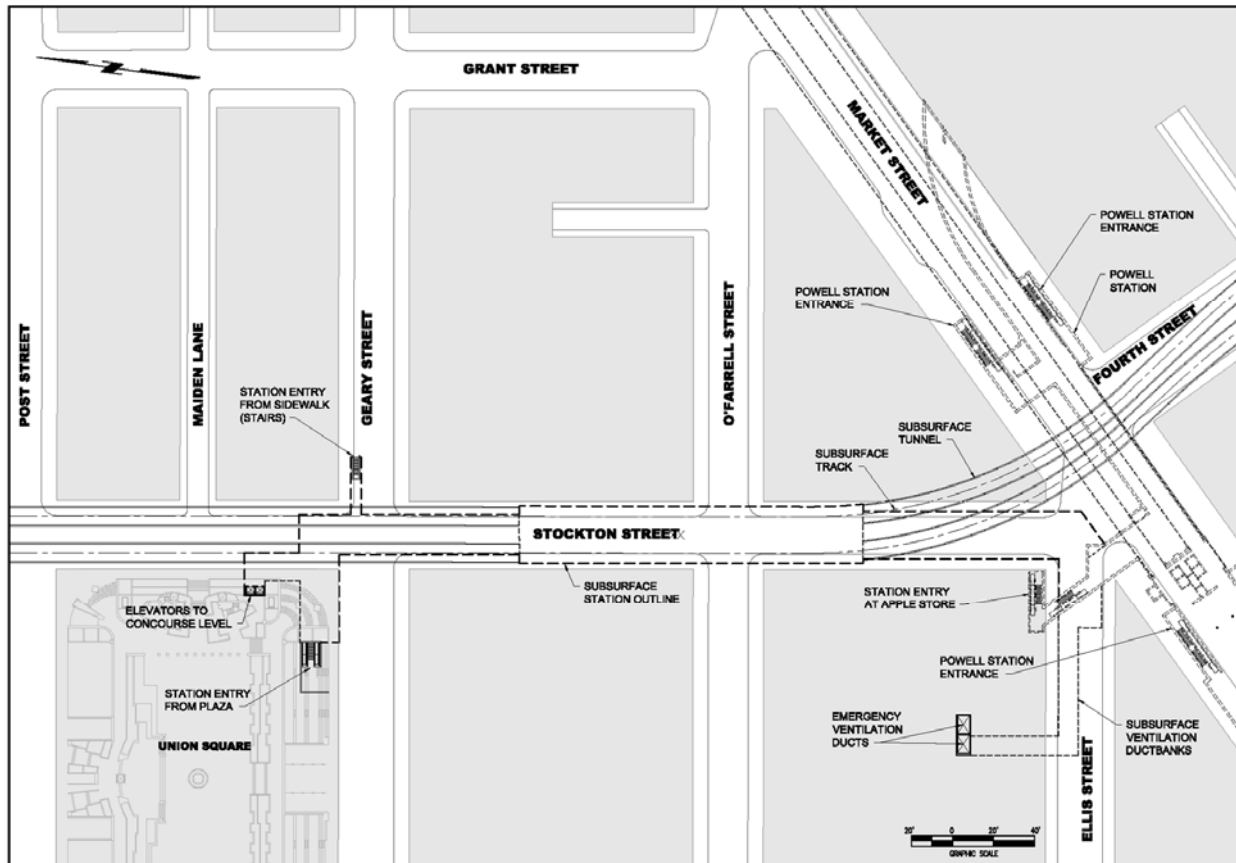
Source: PB/Wong, 2007

Union Square could experience increased foot traffic from subway users needing to cross the plaza to gain access from the north or northwest sides of Union Square or to exit onto streets on those sides of the plaza. There would not be as much increased foot traffic for Alternative 3B as under Alternatives 2 or 3A, because subway riders using the station entrance would not be required to enter the plaza to access the station.

The landscaping and design of the plaza would be altered by the possible introduction of a protective canopy and stair/escalator on the southeast corner of the park but this would not detract from the dominant visual features and landscape character of the plaza and would not result in adverse visual impacts. The canopy design would blend with the design features of the existing café and ticket booth. No new shadows would be created by the new station entrance.

An elevator to the platform level would be located to the northeast of the station entrance off Stockton Street. The elevator would replace approximately 303 square feet of the landscaped terrace on the eastern edge of the plaza. Vent shafts for this alternative would be located in the Ellis/O'Farrell garage rather than the eastern edge of Union Square, further minimizing use of the park.

**FIGURE 10-13**  
**PLAN DRAWING OF UNION SQUARE STATION FOR PROPOSED**  
**ALTERNATIVE 3 OPTION B**



Source: PB Wong  
 Not to Scale

Changes to Union Square would not cause a substantial adverse change to the character-defining features of the Kearny-Market-Mason-Sutter Conservation District, particularly since Union Square's significance is derived from its function as an open space and public plaza rather than its design. The recreational function of Union Square would not be substantially impacted and the park's appearance and activities would not be negatively affected. Despite the use of the park for station entry, the impacts are considered de minimis under Section 4(f). The San Francisco Parks and Recreation Department ~~will need to~~ has concurred with this finding (see Appendix J).

### 3.2 WILLY "WOO WOO" WONG PLAYGROUND

#### 3.2.1 ALTERNATIVE 2 – CONSTRUCTION IMPACTS

The Chinatown Station would be mined using Sequential Excavation Method (SEM) methods and all station work would be installed from the surface through the off-street shaft on the parcel adjacent to

Hang Ah Alley and Willie “Woo Woo” Wong Playground. Spoils from the station, crossover cavern and tail track tunnel excavation would be removed from the Chinatown Station shaft on Stockton Street for approximately 10 months. Excavation, ground support, and structural work would require approximately ~~66~~36 months.

No portion of Hang Ah Alley or Willie “Woo Woo” Wong Playground would be used for construction staging, and all staging would be located on the private parcel that is being acquired for the station entrance. The north elevation wall of the demolished building would be left in tact or a sound wall would be constructed to minimize noise and dust effects on the adjacent alley and playground. Construction activity would not alter or hinder access to the park from Pagoda and Hang Ah Alleys or from Sacramento Street. These construction-related impacts would be temporary, lasting approximately 36 months, and would not significantly impact the recreational function or enjoyment of the alley or park. No constructive use of park property would result from the temporary construction activities.

### 3.2.2 ALTERNATIVE 2 – OPERATION IMPACTS

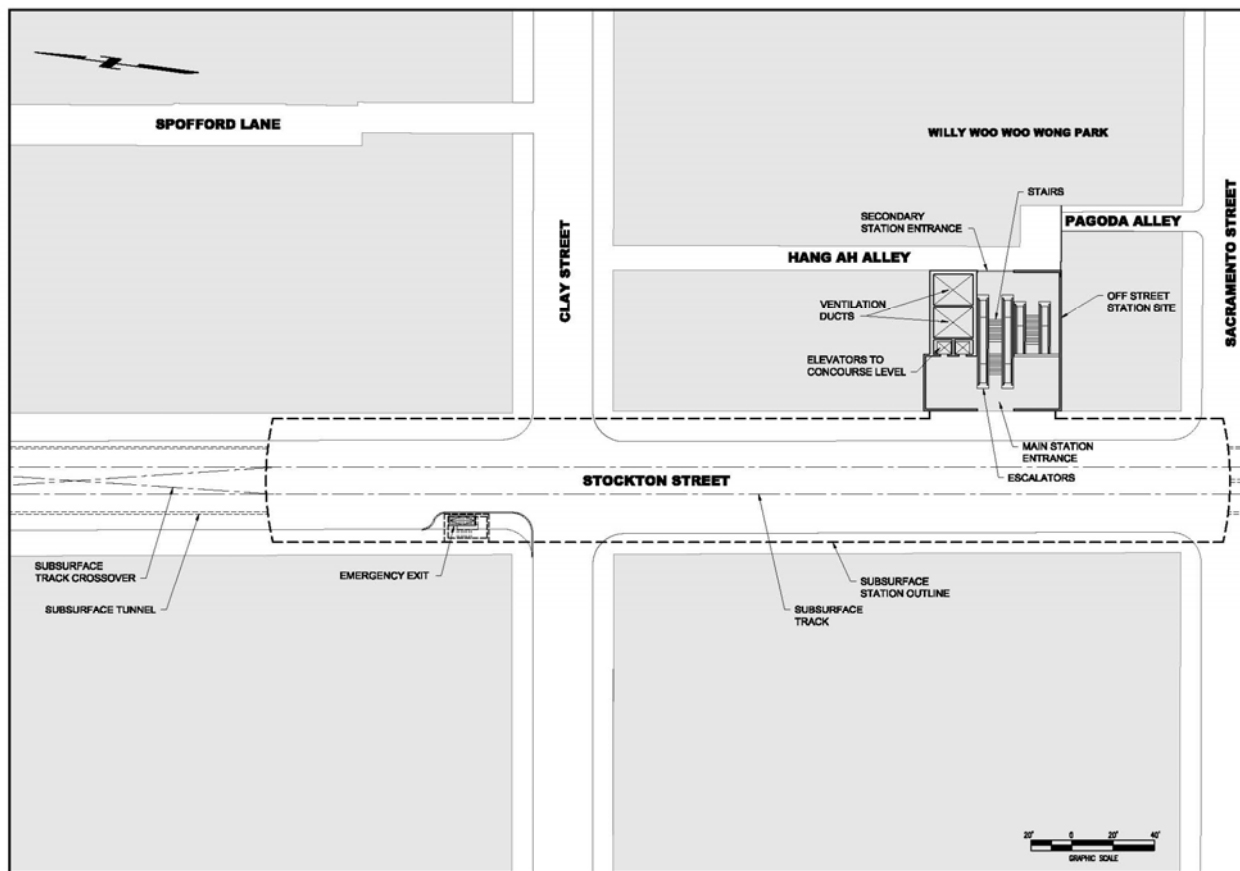
There would be no direct use of the Willy “Woo Woo” Wong Playground under Alternative 2 because the subway station entrance would not physically encroach on the playground or on Hang Ah or Pagoda Alleys (see Figure 10-14).

An optional station entry is proposed to open onto Hang Ah Alley. Access to the park from Hang Ah or Pagoda Alleys or from Sacramento Street would not be affected by the Project. Additional foot traffic around the park could result from the location of a subway entrance adjacent to the alleyway and park.

The existing building would be replaced by a new building that would be similar in height to the existing building. The new Central Subway station would be designed to be less than 40 feet tall to meet Prop K requirements and to avoid or minimize shadows cast on the park. The ventilation shafts would rise 10 feet above the station roofline and would be placed on the roof to minimize shadows to the playground. Both the building and the ventilation shafts would cast some shadows on the playground tennis courts, however, this would be minor in comparison to the adjacent four-story buildings that already cast shadows on the park.<sup>5</sup>

The vent shaft shadows would not substantially affect the use and enjoyment of the park (see Figure 10-15). Existing shadows would increase by 3 percent in March, 1 percent in June, 4 percent in September,

<sup>5</sup> The Muni facility would require only one story. However, for the purpose of this analysis it is assumed that a 40-foot high building would be constructed on the site. The maximum allowable height for this property is 65-feet, but Muni would restrict the building height on the site to 40 feet to avoid casting shadows on the park.

**FIGURE 10-14****PLAN DRAWING OF CHINATOWN STATION FOR PROPOSED ALTERNATIVE 2**

Source: PB/Wong  
Not to scale

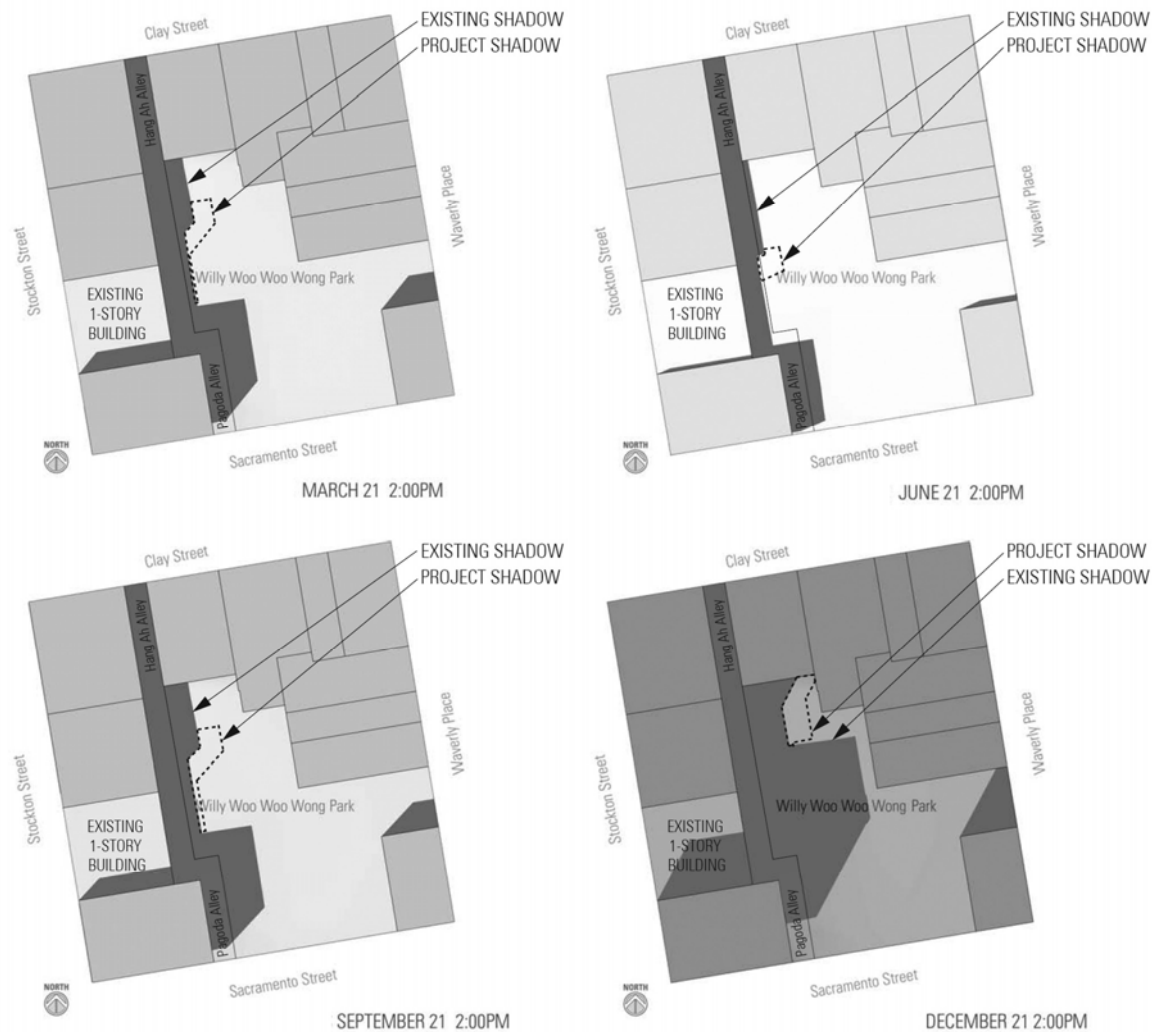
and 3 percent in December. The park's recreational uses would not be substantially affected. These impacts would not constitute a "constructive use" of the park for Section 4(f) and would meet the definition of "de minimis".

### 3.2.3 ALTERNATIVE 3 OPTION A – CONSTRUCTION IMPACTS

The proposed station entrance building footprint would be the same as under Alternative 2, but construction impacts under Alternative 3 Option A would be different because of different construction methods.

The Chinatown Station would be a SEM-mined excavation similar to the method used in Alternative 2. All construction activities for the alternative would be conducted from the off-street shaft. The off-street portion of the station access/head house shaft would be partially decked over and used as a staging area. A crane would be required for station and shaft excavation and construction. Temporary (one to two

**FIGURE 10-15:**  
**SHADOW ANALYSIS - WILLIE “WOO WOO” WONG PLAYGROUND**



Source: Kwan Kenmi

weeks) use of a higher capacity crane would be required to hoist the TBMs if they are retrieved through the Chinatown access shaft. Spoils generated from the station would be hauled to the surface through off-street shafts at each of the station locations for approximately 6 months and would be hauled off site for permanent disposal. Curb parking on Stockton Street would be used to accommodate trucks. Construction of the Chinatown Station and tail track tunnel would require approximately ~~66~~36 months. The structural work would require approximately 24 months.

The ~~north~~-east elevation wall of the demolished building would be left in tact or a temporary noise barrier would be constructed during the subway station construction to minimize noise and dust effects on the



adjacent alleyway and playground. Construction activity would not alter or hinder access to the park. Construction impacts would be temporary and would not significantly impact the recreational function of the park.

### 3.2.4 ALTERNATIVE 3 OPTION A - OPERATIONAL IMPACTS

The operational impacts of this alternative would be the same as for Alternative 2 despite the slightly different configuration of the escalators, ventilation and elevator shafts under the two alternatives. As designed, a secondary station entrance would open to Hang Ah Alley, but would not encroach on the playground property. The same as Alternative 2 above, the new Central subway station would be designed to be less than 40 feet tall and the ventilation shafts would rise 10 feet above the development roofline.<sup>6</sup> Both the building and the ventilation shafts would cause some minor shadows to fall on the playground tennis courts during some times of the year. As shadows already currently fall on the tennis courts from taller buildings along the eastern side of Stockton Street, the shadows from the vent shafts would not substantially impair the use and enjoyment of the park or alley way. Additional foot traffic on sidewalks and the alley way near the park could result from the optional location of a secondary subway entrance adjacent to the alley. The recreational function of the park would not be disrupted, and the activities and appearance of the park would not be affected. These impacts would not constitute a ‘constructive use’ of the park for Section 4(f) and would meet the definition of “de minimis.”

### 3.2.5 ALTERNATIVE 3 OPTION B – CONSTRUCTION AND OPERATION IMPACTS

The Alternative 3 Option B station entrance would be on the west side of Stockton Street at Washington Street, and would not require the use of the parcel adjacent to the Willie “Woo Woo” Wong Playground and Hang Ah Alley; therefore, no operational or construction impacts to the Park or alley (Hang Ah Alley) would occur under this alternative.

## 3.3 WASHINGTON SQUARE PARK

### 3.3.1 ALTERNATIVE 2 - CONSTRUCTION AND OPERATION IMPACTS

Alternative 2 does not include the North Beach Construction Variant for TBM retrieval and would not have any impacts on Washington Square park.

### 3.3.2 ALTERNATIVES 3 OPTION A AND 3 OPTION B – CONSTRUCTION IMPACTS

The proposed construction of the TBM retrieval shaft, which would occur in the middle lanes of Columbus Avenue, is expected to last six months. During construction of the shaft, traffic operations would be temporarily altered and increased traffic congestion on Columbus Avenue would occur. The

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<sup>6</sup> See above footnote.

construction would affect vehicle and transit access to the park from the southwestern side of Washington Square, but the park would be accessible via the other three sides of the Park. A construction method involving vertically-oriented shoring relative to the curb line would allow sidewalks adjacent to the park to remain passable during construction, and pedestrian access would remain possible during construction of the shaft. The shoring would be inclined to avoid potential impacts to tree roots along the Columbus Avenue side of the Park. The shaft would be decked over permanently after the TBM extraction. The duration of the TBM extraction would be approximately five days for each of the two TBMs.

Spoils generated from the excavation of the TBM retrieval shaft would be hauled to the surface at the shaft location for approximately 6 months before being hauled off site for permanent disposal. The TBM retrieval shaft would not be used for tunnel construction or tunnel spoils removal, but the shaft could be used periodically for night time delivery of materials to the tunnels. If the shaft were to be used for material delivery, materials could be delivered on an irregular basis over a two to three year period for several days at a time. Between deliveries the shaft would be decked over for use as a roadway. Materials delivery could include track and systems equipment. Construction deliveries would require cordoning off an area at the shaft about 40 feet by 100 feet and would cause traffic disruptions (see Figure 10-16).

Temporary increases in dust, vibration and noise levels could occur during construction of the shaft and during excavation spoils removal and materials delivery. During these times use and enjoyment of the west side of the Park would be temporarily impacted, but because of their temporary nature would be considered “de minimis”.

### 3.3.3 ALTERNATIVES 3 OPTION A AND OPTION B – OPERATION IMPACTS

The tunnel under Columbus Avenue would not be used for the Central Subway during operation of the Project. Neither the appearance nor the activities and recreational uses of the Park would be affected during operation of the Central Subway.

## 3.4 HISTORIC RESOURCES

Demolition of one of the two properties in Chinatown for a station entry and vent shaft (814-828 Stockton Street or 933-949 Stockton Street) would adversely affect the character-defining features of the two-block area of the Chinatown Historic District. (There are a total of 371 contributing buildings within the Chinatown Historic District.) Where known historic resources or resources appearing to be eligible for the National Register of Historic Places are affected, SHPO concurrence is required has concurred.

A summary of impacts on 4(f) resources by alternative is shown in Table 10-5.

**FIGURE 10-16****WASHINGTON SQUARE LOOKING NORTHEAST ACROSS COLUMBUS AVENUE**

Source: PB/Wong, 2007

## 4.0 AVOIDANCE ALTERNATIVES

Section 4(f) requires that an alternatives analysis be developed if a Project proposes to use a Section 4(f) resource. The alternatives analysis must show that the alternatives considered to avoid the use of 4(f) resources are not feasible and prudent and would result in unique problems or unusual factors such as costs or community disruption of an extraordinary magnitude. To determine that there is no feasible and prudent alternative to the use of a Section 4(f) property, an evaluation has been undertaken that addresses location alternatives and design shifts that would avoid the use of the Section 4(f) resource. Supporting information demonstrates that such alternatives would result in unique problems or unusual factors.

The discussion of avoidance alternatives focuses on Union Square, a parkland resource that would constitute a physical take for the Project and Chinatown where removal of an existing building to develop a station would potentially adversely affect the character-defining features of the Chinatown Historic District. ~~Concurrence from the SHPO of “de minimis” effects has been requested.~~

While temporary construction-related impacts to Willie “Woo Woo” Wong playground and Washington Square park are discussed, a physical take of either park for the purpose of the Project would not occur

**TABLE 10-5**  
**SUMMARY OF IMPACTS BY BUILD ALTERNATIVE**

Potential Resource	Potential Impact	Alternative 2 Enhanced FEIS/FEIR	Alternative 3 Option A	Alternative 3 Option B
Union Square (112,256 square feet)	Between 1,517-1,690 square feet used for station entrance. Temporary dust, vibration and noise impacts associated with construction; access restricted on east side only; recreational function temporarily diminished.	(de minimis)  % “take” 1.35%	(de minimis)  % “take” 1.36%	(de minimis)  % “take” 1.51%
Willie “Woo Woo” Wong Playground and Hang Ah Alley	Shadows falling on tennis courts during certain hours of the day. Temporary dust, vibration and noise impacts associated with construction; use and enjoyment the of park temporarily diminished.	Less-than- significant (de minimis)  Minimized with wall between station and Park during construction	Less-than- significant (de minimis)  Minimized with wall between station and Park during construction	None
Washington Square	Temporary dust, vibration and noise impacts associated with construction.	None	Less-than- significant (de minimis)	Less-than- significant (de minimis)
Chinatown Historic District	Demolition of building for station at 814-828 Stockton Street or 933-949 Stockton Street.	Potentially Adverse	Potentially Adverse	Potentially Adverse
Source: PB/Wong, 2006				

and measures to minimize construction impacts have been included in the Project. Therefore, avoidance alternatives for those properties are not described. If impacts to a resource have been determined “de minimis,” the Section 4(f) evaluation process is considered complete for that resource once concurrence is obtained from officials with jurisdiction over the Park, recreation area, ~~and from the SHPO [concurrence is needed]~~. The evaluation of avoidance alternatives would not be necessary for the Central Subway Project, if the impacts were determined “de minimis.”

The following avoidance alternatives include those that avoid a physical take of the Union Square Section 4(f) resource with a new alignment location or through design modifications. ~~These avoidance alternatives would be deleted from this section of the Final SEIS/SEIR if concurrence for “de minimis” impacts occurs between Draft and Final SEIS/SEIR.~~ The Recreation and Parks Commission concurred with the de minimis finding on February 21, 2008 (see Appendix J), therefore the following avoidance alternatives are not applicable.

## **4.1 EVALUATION OF AVOIDANCE ALTERNATIVES**

### **4.1.1 LOCATION ALTERNATIVES**

#### **1998 Final FEIS/FEIR Preferred Alternative**

In the 1998 Final FEIS/FEIR preferred alternative, the Union Square station entrances were located on the sidewalks on Stockton Street adjacent to Union Square rather than on any portion of the Park itself. The design was determined not prudent because it would not provide adequate space for pedestrians and did not include ventilation structures that would meet the Fire code. The preferred alternative was also reviewed with the Union Square Association and the Union Square Merchants Association, and at public meetings. A workshop held in October 2003 with Muni staff and Central Subway Project team members, Parking and Traffic Department and San Francisco Planning Department evaluated the preferred alternative. Results from the workshop were published in the March 2004 *Working Paper: Station Location and Access Recommendations – Union Square Station*. In addition to the sidewalk, pedestrian and ventilation issues identified, the report also concluded that the entrance escalators that faced away from Union Square would negatively affect way-finding for transit users.

#### **Union Square Station Entries North of the Park on Stockton**

Another station entrance alternative considered at the October 2003 workshop was locating the station entrance on Stockton Street north of Union Square near the entrance to the Hyatt Hotel. The alternative was rejected as not practicable or feasible and the report concluded that the alternative would be too costly because of the right-of-way that would have to be purchased from the hotel for the entrance location.

#### **Alternative 1 - No Project/TSM Alternative**

Although the No Build alternative would avoid Section 4(f) resources, the No Project/TSM Alternative does not meet the Project purpose and need and cannot be considered an avoidance alternative for Section 4(f) purposes because it is not feasible and prudent. The alternative would not significantly improve transit service to, from, or within the Corridor; nor would it enhance mobility in the Central Subway Corridor. The alternative would not bring transit service to the level and quality of service available in other sections of the City, nor would it support economic revitalization and development initiatives in the corridor. The No Project/TSM alternative would not maximize transit ridership or reduce the number of auto trips in the corridor and would therefore not support Muni's Transit-first Land Use Goal.

## **Eliminate the Union Square Station**

Elimination of the Union Square Station would avoid impacts to Union Square but would not meet the transit accessibility goals for the retail district of the City or the future transit connection goals of the adopted *Four Corridors Plan*.

### **4.1.2 DESIGN ALTERNATIVES**

#### **Alternative 3 Option B**

MTA staff met with Recreation and Parks Department staff and representatives of the Union Square Merchants Association to discuss designs for a station access in Union Square and consensus was reached on the two design options for the escalator, vents shafts and elevator location to minimize impacts to the Park while providing improved transit access.

As discussed previously in the report, the station location and design of Alternative 3 Option B would not be as disruptive on the recreational uses of Union Square as would the station location proposed under Alternatives 2 and 3 Option A. Alternative 3B would locate the two vent shafts in the Ellis/O'Farrell garage rather than on the eastern edge of Union Square, thus minimizing the extent of the use of the Park to only one station entry escalator/stair located on the Geary Street corner and elevators on the Stockton Street sidewalk. Further suggestions for the Union Square Station design by the Recreation and Parks staff included: reducing or eliminating the protective canopy over the escalator; reducing the size of the Muni sign; and, reducing the scale of the retaining wall leading to the top of Union Square for Alternative 3B. Because it was determined that Alternative 3 Option B would have the least impacts ("de minimis") on Union Square, Alternative 3 Option B would be a prudent and feasible design alternative for the use of the Park. Design alternatives ~~would~~ are not be required if ~~because~~ because impacts are determined to be "de minimis."

#### **Elevator Access to Station and Ventilation Shafts Routed to Sutter/Stockton Garage**

The October 2003 Workshop members looked at an alternative that would use elevators for access to the station rather than escalators because they would be less expensive and require less space. The elevators would require a 115-foot long vertical cut-and-cover box compared to 213 feet required for the escalators. Glass elevators were considered because they could provide visibility and ease safety concerns. Ventilation would be provided at the city-owned Sutter/Stockton parking garage. Although the combination of the design variations would eliminate the use of Union Square, the additional tunneling that would be required to construct the ventilation shafts and connect them to the Sutter/Stockton parking garage was found to be prohibitively expensive, and the elevators are viewed as problematic because they

could not provide adequate or efficient access for the volume of transit users to the station. The design alternative would not be feasible or prudent.

## 5.0 MEASURES TO MINIMIZE HARM TO SECTION 4(f) RESOURCES

The Secretary of Transportation may approve a Project that involves the use of Section 4(f) resources only if there is no feasible or prudent alternative to using those resources and if the Project includes all possible planning to minimize harm to the park or historic site resulting from use. This section describes potential measures that could be used to minimize harm to the affected resource. Measures to minimize harm to Section 4(f) resources will be ~~finalized~~included in the Final SEIS/SEIR and will be included in the Mitigation and Monitoring Plan and in construction specifications and plans for the project.

Although it was found that impacts would not substantially diminish the recreational uses or activities of the parks, measures to minimize indirect impacts to Willie “Woo Woo” Wong Playground and Washington Square Park are also discussed in this section.

### 5.1 UNION SQUARE

~~Before either Alternative 2 or Alternative 3 Option A or Option B is selected as the preferred alternative, and before issuance of the Final SEIS/SEIR and Record of Decision, Conditions of approval will need to:~~

a) Support a finding that use can be minimized by planning to reduce potential harm, including: minimizing the footprint of the entrance and all ventilation shafts and elevators to the greatest extent possible to minimize the physical take of Union Square; ensuring the subway entrance is located where disruptions to the Park are minimized to the greatest extent possible, as agreed on by Recreation and Park Department Commission or Department Director; ensuring station design is visually integrated with existing Park design features; minimize light and glare with direction shading of security lights; minimize noise, dust and vibration impacts to users of the park (particularly patrons of the outdoor café during construction); relocate and enhance outdoor seating or design an alternative location for café seating area effected by construction activity; and ensuring that subway access points in the plaza are regularly maintained around the station entry by MTA to keep them free of litter and graffiti in perpetuity.

Measures to minimize harm associated with construction impacts would include: using temporary construction barriers along sidewalks to control noise and dust; controlling dust and particulate matter by spraying water or the use dust palliatives in construction areas and covering dump truck loads with canvas or tarps; ensuring access to the park is maintained during construction; ensuring no part of the Park is used as a staging area for construction purposes ensuring Park access is maintained and proper signage is posted to alert park users about construction and any necessary re-routing.

Table 10-6 summarizes the evaluation of avoidance alternatives.

## **5.2 WILLIE “WOO WOO” WONG PLAYGROUND**

Measures to minimize harm to the playground and Hang Ah Alley under Alternatives 2 and 3 Option A could include ensuring that activities in the Park are not disrupted by its proximity to the subway station entrance, including making it difficult to use the Park as a shortcut to the station entrance. Shadow impacts would be minimized by maintaining a building height less than 40 feet, and locating the vent shaft to the west of the playground. Shadow impacts caused by the ventilation structures could be minimized through their design, location and orientation.

Measures to minimize harm to Willie “Woo Woo” Wong Playground and Hang Ah Alley during construction for both alternatives could include controlling dust, noise and vibration during construction with temporary construction walls and muffling construction equipment. Excessive idling of non-electric construction equipment could be avoided to minimize temporary increases in pollutant emissions. Construction crews could spray water or use dust palliatives in construction areas to control dust and particulate matter (PM 10 and PM 2.5). Air quality impacts could also be minimized by covering dump truck loads with canvas or tarps and washing truck tires. Air quality would be monitored in the playground during construction to make sure that established air quality standards are maintained. Construction would be halted if violations of air quality standards are exceeded. Monitoring reports would be provided quarterly to the City. Access to the Park would be maintained during construction.

Impacts from operation would be minimized by MTA providing trash and litter pickup in the Hang Ah Alley and providing regular security checks to monitor unauthorized use of the alley. Elimination of the second station entry on the alley side could be considered, if necessary.

## **5.3 WASHINGTON SQUARE PARK**

For Alternatives 3 Option A and Option B, measures to minimize harm to Washington Square park could include controlling noise and vibration during construction with temporary construction walls and muffling construction equipment. Pollutant emissions from work trucks would be reduced with the use of electric equipment when possible. Excessive idling of non-electric construction equipment could be avoided to minimize temporary increases in pollutant emissions. Construction crews could spray water or use dust palliatives in construction areas to control dust and particulate matter. Air quality impacts could also be minimized by covering dump truck loads with canvas or tarps and washing truck tires. Access to the park would be maintained during construction. Tree root damage could be avoided through a technique using vertically-orienting shoring relative to the curb line. A certified arborist would be present during excavation to ensure that no tree roots for historic trees in Washington Square park are impacted.



**TABLE 10-6**  
**EVALUATION OF AVOIDANCE ALTERNATIVES**

<b>Current Name (Historic Name)</b>	<b>Historic Designation</b>	<b>Potential Effects</b>	<b>Potential Feasible and Prudent Alternatives</b>	<b>Planning to Minimize Effects</b>
Union Square	California State Landmark No. 623	Used for station entrance and vent shafts in garage	Eliminate the vent shaft at this location and locate in Ellis/O'Farrell garage Alternative 3B entry on Geary Street.	Design to minimize scale of entry and retaining walls and use of Plaza area. Maximize visual compatibility with park features.
<b>Construction Impacts</b>				
Union Square	California State Landmark No. 623	Air quality, vibration and noise impacts associated with construction. Access restricted temporarily. Recreational function on east side temporarily diminished.	Use south end of station at Market Street for excavation of spoils.	Off-haul during non-peak hours and screen construction site from public use area
Willie "Woo Woo" Wong Playground	N/A	Air quality, vibration and noise impacts associated with construction. Diminished use and enjoyment of Hang Ah Alley.	Alternative 3B station location at Washington Street and Stockton Street	Screen construction area from park; minimize idling of equipment
Washington Square	Local landmark	Air quality, vibration and noise impacts associated with construction. Access limited temporarily on the Columbus Avenue side of Park.	<u>Consider relocation of Relocate</u> excavation shaft to the North or South of park along Columbus Avenue	Minimize noise and dust impacts with buffer walls; off-haul during non-peak hours
Chinatown Historic District	Historic District	Demolition of existing character- defining feature.	Retain as much as possible of existing building exterior for station.	Incorporate character-defining architectural features into station design. Fully document historic information on buildings and display in station.
Source: PB/Wong, 2006				

The arborist would have the authority to stop construction if roots are observed. The shoring would be inclined at an angle to minimize potential impacts to tree roots near the park. Locating the shaft in a slightly different location on Columbus Avenue than the existing location would be possible if the area was found to be less harmful to tree and root systems.

## 5.4 HISTORIC RESOURCES

Station design for Alternatives 2, 3A, and 3B in Chinatown will require design review and input by an architectural historian to include character-defining features compatible with adjacent buildings or using a portion of the existing building façade for the station to minimize contrasts with existing building materials, design features, and historic character of the Chinatown Historic District. Because there are 371 contributing buildings in the Chinatown Historic District and Grant Street, not Stockton Street, is the primary street that defines Chinatown’s historic character, removal of one building for the Chinatown station may be considered de minimis for Section 4(f) because neither of these buildings on Stockton Street are significant historic resources. ~~Concurrence with this finding by the SHPO and City Historic Preservation Officer has been requested.~~

## 6.0 COORDINATION AND DETERMINATION

Potential impacts on publicly owned parks and historic sites were identified based on Project design plans, field visits and findings from the Section 106 process detailed further in Section 5.4. Properties identified as potential Section 4(f) resources were analyzed to determine whether they were indeed Section 4(f) resources and whether Project impacts would meet the criteria of a use according to Section 4(f) regulations. Impacts to Park properties as a result of the Project were discussed in meetings and correspondence with the San Francisco Recreation and Parks Department, which has jurisdiction over Union Square, Willie “Woo Woo” Wong Playground and Hang Ah Alley, and Washington Square park and with Gordon Lau School officials regarding the Gordon Lau School playground on Washington Street. The discussions included use of the parks, the significance of the parks and potential impacts to the parks.

Impacts to historic resources were evaluated as part of the Section 106 process. Findings from the Section 106 consolidation process with the SHPO are summarized for the historic resources. Detailed measures to minimize harm to historic resources ~~will be developed during~~ are part of the Final Section 106 Memorandum of Agreement (Appendix C) ~~and SEIS/SEIR phase.~~

As described in *Chapter 3.0 Impacts to Section 4(f) Resources*, Union Square is the only park property that would have a physical take for the Project. For a de minimis finding, the officials with jurisdiction

over a park or recreation area must also provide written concurrence that the Project will not adversely affect the activities, features and attributes that qualify the property for protection under Section 4(f).

On July 12, 2007, MTA submitted to the San Francisco Recreation and Parks Department a letter requesting concurrence for the de minimis finding for impacts to the Union Square Section 4(f) resource. A copy of this correspondence is included at the end of this section. A “de minimis” resolution was passed by the Recreation and Parks Commission for Alternative 3B on February 21, 2008 (see Appendix J).

FTA’s rule establishing procedures for determining that the use of a Section 4(f) property has a de minimis impact on the property is found at 23 CFR Parts 771 and 774. In accordance with the provisions of 23 CFR Part 774.7(b), FTA has determined there is sufficient supporting documentation to demonstrate that the impacts to Section 4(f) property, after avoidance, minimization, mitigation, or enhancement measures are taken into account, are de minimis as defined in Part 774.17 and the coordination required in Part 774.5(b) has been completed.

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## 11.0 COORDINATION AND CONSULTATION

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### 11.1 NOTICE OF PREPARATION

A combined Notice of Preparation (NOP) and Notice of Scoping Meeting was mailed in June 2005. In September 2006, a revised Notice of Preparation was mailed. A revised NOP was sent out because a number of property owners did not receive the June 2005 notice and the Project description had changed. To ensure that the NOP was received by the appropriate recipients, the notice was mailed to the following:

- All residents within the 300-foot boundary of the proposed Project alignment, including the North Beach construction variant;
- All property owners within the 300-foot alignment, including the North Beach construction variant as listed with the San Francisco Assessor's Office;
- The citywide Central Subway mailing list; and
- The San Francisco Department of Planning's Standard Environmental Impact Report mailing list.

A Public Scoping meeting was held in June 2005 and public meetings were held again in October 2006 to inform the public of the Project changes and learn about issues of concern. Tables 11-1 and 11-2 summarize comments received the 2005 during public scoping and in response to the 2006 second NOP.

**TABLE 11-1**

#### **SUMMARY OF PUBLIC COMMENTS RECEIVED DURING THE 2005 SCOPING PROCESS**

<b>Public Comment</b>	<b>Action</b>
Construction will cause negative impacts to buildings in the vicinity of the portal between Townsend and Brannan.	Parking, noise, vibration, air quality, and utility access will be addressed in the SEIS/SEIR.
Need extra entries near the Union Square/Market Street Station.	Patronage forecasts show that proposed access facilities are adequate to meet 2030 demand and code requirements.
Add pedestrian tunnel between the Powell Street Station and Mission Street, as well as between Union Square and Mission Street.	Opening a pedestrian connection between Powell Street Station and Mission Street will be addressed, but direct connection from Union Square to Mission Street is not feasible.
Move the portal to under the I-80 freeway. Add a station between Brannan and Bryant Streets.	Both suggestions will be evaluated in the Fourth/Stockton Alignment Option B (Modified LPA).
Construction staging area under the freeway is problematic because it adds impacts to Stillman Street for businesses currently suffering from the Caltrans I-80 Freeway seismic upgrade construction project.	The SEIS/SEIR will look at construction impacts in the vicinity of the proposed staging area under the freeway.
Extend the subway to North Beach.	Service beyond the Chinatown Station in the vicinity of Washington Street will be considered as part of a future project, not part of the current Central Subway Project. The SEIS/SEIR will evaluate a tunnel extension from the Chinatown terminus to the vicinity of Washington Square on Columbus Avenue to facilitate construction.

TABLE 11-1 (CONT.)

## SUMMARY OF PUBLIC COMMENTS RECEIVED DURING THE 2005 SCOPING PROCESS

Public Comment	Action
Delete further evaluation of Moscone Station on Fourth Street between Harrison and Folsom Streets because it would not be convenient to Yerba Buena businesses or Moscone Convention Center. Move Moscone Station to a new location on Fourth Street between Mission and Howard Streets.	Various Moscone Station location options were evaluated during preparation of the SEIS/SEIR. The document analyzes the Moscone location on Fourth Street between Folsom and Howard Street (Alternative 3).
Add an entrance to the Moscone Station at the northwest corner of Fourth and Howard Streets.	Moscone entries at Fourth and Howard Streets will be further evaluated
Change name of Moscone Station to Yerba Buena.	The name change will be considered by Muni.
Connect Powell and Montgomery BART/Muni Metro Stations with a pedestrian passageway	This change is not feasible or within the Project budget.
Time construction to limit impact on businesses.	The construction effort will respect the holiday moratorium and permit restrictions.
Maintain sub-basement storage that many property owners have along Stockton Street.	Sub-basement storage areas will be identified and maintained to the extent possible.
Ensure the feasibility of a future Geary Subway connection to the Central Subway.	A Geary Subway connection will not be precluded by the Central Subway.
Concern about property owners receipt of the Notification of Preparation (NOP) of the SEIS/SEIR and the Scoping Meeting.	Muni has ensured that property owners along the EIS/EIR and Fourth Street alignments received an NOP.
Concern about lack of access to 601 Fourth Street garage next to the portal between Townsend and Brannan Street.	Local access issues at proposed portal locations will be addressed in the SEIS/SEIR.
Concern about removal of a loading zone in front of the 601 Fourth Street building next to the portal between Townsend and Brannan Street. Where will disabled residents/visitors access the building?	Local access issues at proposed portal locations will be addressed in the SEIS/SEIR. This evaluation will include ADA impacts.
Consider escalators operating at all times in <i>both</i> directions—better for riders with limited mobility.	Elevators and escalators will be built to code. Bi-directional operation of escalators will be evaluated.
Evaluate a cross platform transfer between the BART/Muni Metro Market Street Subway at Powell Street and the Central Subway.	A cross platform transfer between subways does not appear feasible but the two subways will be connected at Powell Station.
Chinatown Station will add to pedestrian congestion and will require relocation of residents and businesses.	Access to the Chinatown Station is proposed off-street, not in existing or expanded sidewalks. Any relocations required by the acquisition of property for station entries will be addressed in the SEIS/SEIR and will adhere to adopted relocation regulations.
What are the construction risks to existing buildings and their foundations?	All construction impacts will be evaluated in the SEIS/SEIR
What about loss of parking during construction and after the project is built?	Construction and operational impacts on parking will be described in the SEIS/SEIR.
Consider reducing the number of traffic lanes on Fourth Street to accommodate pedestrian flow.	The Fourth/Stockton Alignment assumes a reduction in the number of traffic lanes on Fourth Street south of the portal, limiting the number of lanes that pedestrians must cross and creating refuge areas at additional intersections.
Need to compare the proposed project to existing conditions with respect to transit and vehicular trip time, patronage, and capital and operating costs.	The Central Subway Alternatives (Enhanced EIS/EIR and Fourth/Stockton Alignment Options A and B) will be compared to the existing transportation conditions and to a No Project/TSM Alternative for future (2030) conditions.
Vibration from trains will cause harm to building structure.	Vibration during operation of Central Subway project alternatives will be evaluated in the SEIS/SEIR.

TABLE 11-1 (CONT.)

## SUMMARY OF PUBLIC COMMENTS RECEIVED DURING THE 2005 SCOPING PROCESS

Public Comment	Action
Acquisition of property to accommodate station entries and vent shaft will have negative impacts at the proposed portal locations.	The Central Subway Alternatives (Enhanced EIS/EIR and Fourth/Stockton Alignment Options A and B) do not propose acquisition of property at the portals for vent shafts. Property acquisition would be associated with off-street subway station access only. Relocations at subway stations will be addressed in the SEIS/SEIR.
Fire and Life Safety access on the east side of Fourth Street, near the Brannan Street portal location, would be severely limited.	Fire and Life Safety access will be evaluated in the SEIS/SEIR and will meet all code requirements.
The Fourth/Stockton Alignment portal between Townsend and Brannan Streets will require the removal of street trees.	Impacts of the proposed project on street trees will be addressed in the SEIS/SEIR.
The acquisition of a 601 Fourth Street condo unit may be proposed to provide secondary access to the building's garage. This could negatively affect condo owners who bought particular units to avoid the noise and vibration associated with the existing garage entry.	Acquisition of building units to provide secondary garage access is not currently proposed; if considered, its impact would have to be evaluated and mitigated if negative.
Move portal location on Fourth Street a block further south.	It may be possible to move the portal to the north a few blocks. It is not technically feasible to move the portal a block south.
Will commercial property owners be compensated for loss of business?	The City compensates businesses for physical damage but not for loss of commercial activity, which is a result of many factors.
What about loss of sunlight at the portals.	There is no loss of sunlight associated with the portals. They are low wall-like structures in the middle of the street.
Will the subway be vulnerable to earthquake activity?	Seismic activity will be addressed in the SEIS/SEIR and the Project construction will meet all applicable seismic codes.
Purpose and Need statement needs to justify spending funds for the project. No need to go past Market Street.	The Central Subway is Phase 2 of a project approved in 1999 to extend light rail service from Visitacion Valley to Chinatown. It is not a new stand alone project. Phase 1, 5.4-miles of surface rail, opened for revenue service in April 2007. The Purpose and Need for the project has not changed since the Third Street Light Rail Final EIS/FEIR was published in 1998.
Consider Bus Rapid Transit (BRT) as an Alternative.	Muni evaluated the need for a Transit Systems Management (TSM) low cost alternative, including BRT. The Third Street FEIS/FEIR had a TSM alternative with increased bus service, but not in a separate BRT right-of-way. BRT is not feasible in the congested and narrow Stockton corridor. Since two-thirds of the entire project has been built, the No Project was considered to be equivalent to a TSM Alternative.
Analyze Proof-of-Payment (POP) fare collection for all alternatives.	POP fare collection was originally assumed for subway stations, but Muni has since issued a policy directive that requires fare gates for the Project.

**TABLE 11-2****SUMMARY OF PUBLIC COMMENTS RECEIVED DURING THE 2006 NOP PROCESS**

<b>Public Comment</b>	<b>Action</b>
Question need for surface platform at Fourth and Brannan Streets. Prefer Fourth and Bryant Streets.	Ridership projections will evaluate the demand for a surface platform on Fourth Street. There are more safety and security concerns associated with the Fourth/Bryant location due to the I-80 off-ramps and elevated freeway structure at that intersection.
Concern about Project cost. Wait until funds are available to build the project and extend service to North Beach.	Project funding will be addressed in the SEIS/SEIR. A full funding plan is required for the project to move into final design and construction. The extension of rail service to North Beach is not included in the MTA long range plan and will not be evaluated in the SEIS/SEIR. The document will evaluate the impacts of extending construction tunnels from the Chinatown Station to Columbus Avenue at Filbert Street, where a temporary construction shaft would be located. The shaft would be used for extraction of Tunnel Boring Machines and would be permanently decked over after construction was completed.
Concern about diminished capacity for trucks to make left turns onto Stillman Street if the portal is located under I-80 and has only one 14-foot easterly southbound lane. Added there would also be a problem for buses entering and exiting Stillman Street to the proposed Transbay Terminal bus parking and storage facility, east of Fourth Street.	The SEIS/SEIR will evaluate traffic and circulation impacts of two portal locations. Entrance to and exit from the proposed Transbay Terminal bus facility east of Fourth Street will be addressed.
There are still access issues for residents of the building at 601 Fourth Street on the Fourth/Stockton Alignment (Option B) including the elimination of a loading zone on the east side of Fourth Street and the loss of access to Bluxome Street.	Meetings will be held with residents of 601 Fourth Street and other residents/business owners as requested to discuss access issues.
Fourth/Stockton Alignment Option B, with two-way traffic on Fourth Street, changes the pattern of entries and exits to the garage at 601 Fourth Street. The new surface operation on Fourth Street would eliminate direct access to the King Street freeway on-ramps.	The SEIS/SEIR will evaluate traffic and circulation impacts of each alternative and how local and freeway access is affected.
The semi-exclusive operation of trains in Fourth/Stockton Alignment Option B will result in the removal of mature trees near the 601 Fourth Street building.	No removal of trees is required for the Fourth/Stockton Alignment Option B.
Concern about vibration effects to the 100-year old 601 Fourth Street building during construction and operation of Option B.	Vibration impacts of construction equipment and light rail operation will be analyzed in the SEIS/SEIR.
Concern about noise during construction and operation of Option B.	Noise impacts of construction equipment and light rail operation will be analyzed in the SEIS/SEIR.
Concern about the loss of the loading zone on Fourth Street near Brannan Street next to the 601 Fourth Street building.	The SEIS/SEIR will evaluate the impacts on loading zones and other access issues.
The project needs to get an encroachment permit from Caltrans to do work on state right-of-way, such as the staging area or portal below the I-80 Freeway at Fourth and Bryant Streets.	The SEIS/SEIR will identify and secure all permits that are required for completion of the project.
An archaeological record search and cultural resource report must be done for any ground disturbing activities required within state right-of-way.	The SEIS/SEIR will include an archaeological record search and report as background for the cultural resources impact assessment. Copies will be sent to Caltrans.



TABLE 11-2

## SUMMARY OF PUBLIC COMMENTS RECEIVED DURING THE 2006 NOP PROCESS

Public Comment	Action
The SEIS/SEIR needs to include a detailed transit analysis of the number of riders transferring between the Central Subway and BART lines, the number of people entering Powell Street Station to access the Union/Square Market Street Station, and the location of access points between the two stations.	The engineering team will evaluate the capacity constraints, access needs, and emergency access requirements at the Central Subway Union Square/Market Street Station and the BART/Muni Metro Powell Street Station and will coordinate with BART during design development. Estimates of passenger activity at each station will be included in the SEIS/SEIR.

## 11.2 PUBLIC INVOLVEMENT PROGRAM

The Central Subway Outreach Team is primarily responsible for the following major outreach components:

- Creating and maintaining a public information database;
- Developing and distributing informational and marketing materials that are available in English, Chinese, and Spanish;
- Scheduling and coordinating community meetings and public presentations to existing stakeholders and all requests by interested parties;
- ~~Coordinate~~ Coordinating all meetings for the Community Advisory Group; and
- Facilitating all logistics for any presentation or event related to the Central Subway and as requested by ~~SF~~MTA staff.

Over the past several years, many public meetings have been held to solicit input to the Project. Table 11-3 lists the Project meetings. In October 2006, a series of community meetings were held along the alignment to update the public on the new Fourth/Stockton Alignment as the Central Subway Locally Preferred Alternative (LPA). (Refer Table 11-2 for a summary of the comments from those meetings.) These community meetings were anchored by the Community Advisory Group (CAG) meeting held on November 1, 2006. The ~~Community Advisory Group (CAG)~~, a body of neighborhood representatives, has met since the planning process to provide public comments, discuss technical findings and make recommendations on the Project.

Since the mailing of the NOP, the Central Subway team has held over a dozen community meetings in addition to the stakeholder meetings conducted by the executive team members and staff.

TABLE 11-3

## COMMUNITY OUTREACH PRESENTATIONS &amp; BRIEFINGS

Group/Organization	Date	Location
Community Advisory Group Meeting	12-04-2003, 7:00pm	San Francisco State University, Downtown Campus
Chinatown CDC Board of Directors (subcommittee)	02-18-2004	777 Broadway, Community Room
Chinatown CDC Board of Directors	02-25-2004	777 Broadway, Community Room
Yerba Buena Alliance (Board Meeting)	02-26-2004	Fifth & Mission Garage, Minor Miracle Room
District 3 Townhall Meeting	02-28-2004	Jean Parker Elementary School, 850 Broadway
Bicycle Advisory Committee	03-17-2004	City Hall, Room 408
Stockton Street Commercial Corridor Task Force	03-18-2004	1524 Powell Street, Second Floor
Market Street Association	03-29-2004	One California Street
Chinatown Economic Development Group Board of Directors	03-30-2004	Holiday Inn, Pearl Room
Chinese American Association of Commerce	04-01-2004	778 Clay Street
Union Square Association, Public Affairs Committee	04-06-2004	Grand Hyatt Union Square, Tiburon Room
Chinese American Citizen Alliance	04-07-2004	1044 Stockton Street
Chinese Chamber of Commerce , Board of Directors	04-13-2004	730 Sacramento Street
Chinatown Station Community Meeting	04-29-2004	Gordon J. Lau Elementary School, Multipurpose Room
Union Square Association, Public Affairs Committee	05-04-2004	323 Geary
Union Square Station Community Meeting	05-04-2004	Renaissance Parc 55 Hotel
Community Advisory Group Meeting	05-17-2004	Gordon J. Lau Elementary School, Multipurpose Room
Market Street Station Meeting	05-25-2004, 6:30pm	San Francisco Chamber of Commerce, 235 Montgomery Street
Urban Solutions Staff Meeting	06-08-2004	1083 Mission Street, 2 <sup>nd</sup> Floor
Moscone Station Community Meeting	06-15-2004, 6:30pm	Pacific Energy Center, 851 Howard Street
Union Square Association Board Meeting	06-17-2004	Location is specified
Community Advisory Group Meeting	06-21-2004, 6:30pm	San Francisco Chamber of Commerce, 235 Montgomery
San Francisco Chamber of Commerce	06-30-2004	235 Montgomery Street, Conference Board Room
Portals and Construction Community Meeting	08-17-2004, 6:30pm	Pacific Energy Center, 851 Howard Street
Fourth Street Alignment Meeting	12-14-2004, 6:30pm	Pacific Energy Center, 851 Howard Street
Community Advisory Group Meeting	01-06-2005, 6:30pm	Yerba Buena Center for the Arts, 701 Mission Street
Museum Parc Homeowners Association	03-16-2005	Harrison Street between Third & Fourth
Yerba Buena Alliance	03-21-2005	Location not specified
SFCTA Citizens Advisory Committee	03-23-2005	25 Van Ness Avenue
General Community Meeting	03-29-2005, 6:30pm	Pacific Energy Center, 851 Howard Street
SFCTA Plans & Programs Committee	04-12-2005	City Hall
SOMA Advisory Committee	04-20-2005	ARC Building, 11 <sup>th</sup> Street at Howard
Yerba Buena Alliance	04-28-2005	Marriott Hotel, Pacific Room
Rescue MUNI	04-29-2005	Location not specified
Community Advisory Group Meeting	05-10-2005, 6:30pm	Parc 55 Hotel, 55 Cyril Magnin (Fifth Street at Market)
MTA Board of Directors	05-24-2005	City Hall

TABLE 11-3

## COMMUNITY OUTREACH PRESENTATIONS &amp; BRIEFINGS

Group/Organization	Date	Location
Union Square Association	05-26-2005	312 Sutter Street
BART Staff Meeting	05-27-2005	Location not specified
Public Scoping Meeting	06-21-2005	
Union Square Association, Public Affairs Committee	08-08-2006	Stockton/Ellis Street Garage, Conference Room
SPUR/ Transit Advocates	08-23-2006	SFMTA Offices
Chinatown Community Development Center, Board of Directors	09-20-2006	777 Broadway
Transit Advocates Monthly Update	09-27-2006	SFMTA Offices
Chinese Chamber of Commerce, Board of Directors	10-10-2006	730 Sacramento
North Beach Community Pre-meeting	10-11-2006	Clay Street at Montgomery
SFMTA Press Briefing for Central Subway	10-12-2006	City Hall
Chinatown Community Meeting	10-17-2006	Gordon J. Lau Elementary School, Multipurpose Room
North Beach Community Meeting	10-19-2006	Jean Parker Elementary School, 850 Broadway
Union Square/Downtown Community Meeting	10-24-2006	SPUR, 312 Sutter
South of Market Community Meeting	10-26-2006	Salvation Army, Yerba Buena Corps, 360 Fourth Street
Community Advisory Group Meeting	11-01-2006	SFMTA Offices, 2 <sup>nd</sup> Floor Atrium
Chinese Chamber of Commerce General Meeting	11-14-2006	730 Sacramento
Renew SF Community Meeting	11-15-2006	North Beach Athletic Club
Transbay Coordinating Meeting	11-27-2006	SFMTA Offices
Bayview Rotary Presentation	12-06-2006	Location not specified
San Francisco County Transportation Authority (SFCTA) Outreach Update	12-06-2006	SFCTA Offices, 100 Van Ness
SF Transit Effectiveness Open House (Richmond District)	12-09-2006	Richmond/Outer Geary Senior Center
SF Transit Effectiveness Open House (Civic Center)	12-11-2006	Bill Graham Civic Auditorium
Transportation Authority Plans & Programs Committee	12-12-2006	City Hall
SF Transit Effectiveness Open House (Bayview)	12-12-2006	
San Francisco Planning & Urban Research Association - Executive Meeting	02-02-2007	SPUR, 312 Sutter
San Francisco Planning & Urban Research Association - Executive Meeting	02-09-2007	SPUR, 312 Sutter
Meeting with Supervisor Peskin	02-12-2007	City Hall
Rescue MUNI General Meeting & Project Briefing	02-13-2007	SPUR, 312 Sutter
Signature/Petition Drive Press Conference	02-15-2007	Organized by the Chinese Chamber of Commerce
601 Fourth Street Homeowners Project Update	02-20-2007	601 Fourth Street
Asian Heritage Street Celebration	05-1-2007	Folsom Street near Fourth Street
S.F. Arts Commission Civic Design Committee	05-21-2007	25 Van Ness Avenue, Suite 70
S. F. Arts Commission Visual Arts Committee	06-11-2007	25 Van Ness Avenue, Suite 70
SPUR	06-20-2007	312 Sutter Street, 5th Fl
Market Street Association, Board of Directors	06-25-2007	SMWM Offices, 989 Market, 3rd Fl
Metropolitan Transportation Commission	06-27-2007	MTC Offices

**TABLE 11-3**  
**COMMUNITY OUTREACH PRESENTATIONS & BRIEFINGS**

<b>Group/Organization</b>	<b>Date</b>	<b>Location</b>
<u>Transportation Forum with Mayor Newsom</u>	<u>06-30-2007</u>	<u>Jean Parker Elementary School</u> <u>840 Broadway at Powell Street</u>
<u>Sierra Club Executive Board</u>	<u>07-16-2007</u>	<u>SPUR</u> <u>312 Sutter Street, Suite 500</u>
<u>Senior Action Network, Pedestrian Safety Committee</u>	<u>07-18-2007</u>	<u>965 Mission Street</u>
<u>Mayor's Pedestrian Safety Advisory Council</u>	<u>07-23-2007</u>	<u>City Hall, Room 408</u>
<u>Women's Transportation Seminar</u>	<u>7-26-2007</u>	<u>Atrium, 101 California</u>
<u>Building Owners &amp; Managers Association – Gov't &amp; Public Affairs Committee</u>	<u>08-01-2007</u>	<u>233 Sansome Street, 8th Floor</u>
<u>SF Chamber of Commerce-Public Policy Forum</u>	<u>08-09-2007</u>	<u>235 Montgomery, 12th Fl</u>
<u>Chinatown Station Location Site Meeting</u>	<u>08-09-2007</u>	<u>City Hall</u>
<u>Bayview District Advisory Council Meeting</u>	<u>08-10-2007</u>	<u>Bayview Police Station</u> <u>201 Williams St.</u>
<u>S.F. Recreation &amp; Park Commission</u>	<u>08-16-2007</u>	<u>City Hall, Room 416</u>
<u>Central Subway Community Advisory Group Meeting</u>	<u>08-22-2007</u>	<u>SFMTA, One S. Van Ness Ave., 3rd Floor</u>
<u>District 3 Democratic Club Transportation Forum</u>	<u>09-10-2007</u>	<u>Bocce Café</u> <u>478 Green Street at Grant</u>
<u>North Beach Chamber of Commerce, Board of Directors Meeting</u>	<u>09-11-2007</u>	<u>Citibank Building, 580 Green St, Mezzanine</u>
<u>Telegraph Hill Dwellers</u>	<u>09-11-2007</u>	<u>TBD</u>
<u>S.F. Convention &amp; Visitors Bureau Executive Staff</u>	<u>09-14-2007</u>	<u>Central Subway Project Office</u>
<u>SF Immigration Rights Summit</u>	<u>09-15-2007</u>	<u>Bill Graham Civic Center Auditorium</u>
<u>Live Chinese Radio Interview with Nat Ford</u>	<u>09-18-2007</u>	
<u>SFMTA Board of Directors Meeting</u>	<u>09-18-2007</u>	<u>City Hall, Room 400</u>
<u>Autumn Moon Festival</u>	<u>09-23-2007</u>	<u>Booth is in Chinatown</u>
<u>RENEWSF Board of Directors</u> <u>(Revitalize and Energize the Northeast and Waterfront of San Francisco)</u>	<u>10-04-2007</u>	<u>Central Subway Project Office</u>
<u>Mary Peters, US DOT Secretary Project Briefing</u>	<u>10-16-2007</u>	<u>TBA</u>
<u>Transportation Authority, Plans &amp; Programs Committee</u>	<u>10-16-2007</u>	<u>City Hall, Room 263</u>
<u>SF Landmarks Preservation Advisory Board</u>	<u>10-17-2007</u>	<u>City Hall, Room 400</u>
<u>Environmental Document Release Press Conference</u>	<u>10-17-2007</u>	<u>Four Seas Restaurant</u> <u>731 Grant Avenue</u>
<u>SOMA/Union Square/Downtown Community Meeting</u>	<u>10-30-2007</u>	<u>Pacific Energy Center</u> <u>851 Howard Street</u>
<u>Yerba Buena Alliance (Community Meeting)</u>	<u>11-01-2007</u>	<u>UCB Extension</u> <u>965 Third Street</u>
<u>SF Planning Commission</u>	<u>11-01-2007</u>	<u>City Hall, Room 400</u>
<u>Chinatown Families Economic Self-Sufficiency Coalition</u>	<u>11-02-2007</u>	<u>17 Walter Lum Place (the alleyway facing Portsmouth Square).</u>

TABLE 11-3

## COMMUNITY OUTREACH PRESENTATIONS &amp; BRIEFINGS

<b>Group/Organization</b>	<b>Date</b>	<b>Location</b>
<u>SF Landmarks Preservation Advisory Board</u>	<u>11-07-2007</u>	<u>City Hall, Room 400</u>
<u>Chinatown Station Site Workshop</u>	<u>11-07-2007</u>	<u>City Hall</u>
<u>Chinatown/North Beach Community Meeting</u>	<u>11-08-2007</u>	<u>Gordon J. Lau Elementary School</u> <u>950 Clay Street</u>
<u>Central Subway Community Advisory Group Meeting</u>	<u>11-13-2007</u>	<u>SFMTA Office</u> <u>One South Van Ness, 3rd Main Conference</u>
<u>SF Convention &amp; Visitors Bureau Board of Directors Meeting</u>	<u>11-14-2007</u>	<u>Firehouse, At Fort Mason</u> <u>Entrance at Marina Blvd &amp; Buchanan Street</u>
<u>SF Planning Commission Meeting</u>	<u>11-15-2007</u>	<u>City Hall, Room 400</u>
<u>Senator Boxer's Aide Project Visit</u>	<u>11-16-2007</u>	
<u>Chinese Consolidated Benevolent Association</u>	<u>12-01-2007</u>	<u>843 Stockton Street</u>
<u>Chinatown Presbyterian Church</u>	<u>12-02-2007</u>	
<u>Central Subway Art Program Presentation</u>	<u>12-12-2007</u>	<u>Chinese Cultural Foundation</u>

### 11.3 COMMUNITY ADVISORY GROUP

The MTA established a Community Advisory Group (CAG) early in the planning process to provide input to the identification and selection of design options for the Third Street Light Rail Project and to help select the options to carry forward for environmental review. The CAG is composed of a broad cross-section of stakeholder groups from the six primary neighborhoods in the Third Street Corridor: Visitacion Valley, Bayview Hunters Point, Potrero Hill, South of Market, and Chinatown/Downtown. The CAG has met six times since December of 2003 to discuss the Central Subway phase of the project.

Members of the CAG are listed below:

#### **Visitacion Valley**

Samson Wong – Visitacion Valley Baptist Church  
Fran Martin – Visitacion Valley Planning Alliance

#### **Bayview Hunters Point**

Dorris M. Vincent - Bayview Hunters Point Project Area Committee,  
SFMTA Citizens Advisory Committee  
Pauline Peele – Residents of the Southeast Sector (ROSES)

#### **Potrero Hill**

~~Janet Carpinelli – Dogpatch Neighborhood Association~~  
Dick Millet – Potrero Boosters

#### **South of Market**

Diane Wong – Campus Planning, UCSF Mission Bay  
Chi-Hsin Shao – Yerba Buena Alliance  
Michael Kwok – Planning for Elders  
Peter Hartman – Museum PARC  
Charles Segalas – South Park Improvement Association

#### **Chinatown**

Rose Pak – Chinese Chamber of Commerce  
Tan Chow – Chinatown Community Development Center  
Peter Ho – Chinatown TRIP  
David Chiu – Grassroots Enterprise

#### **Union Square/Downtown**

~~Lynn Valente~~ Carolyn Diamond – Market Street Association  
Linda Mjellem – Union Square Association  
Leigh Ann Baughman – Union Square Business Association

#### **North Beach**

Wells Whitney – RENEW SF  
Joan Woods – Friends of Washington Square

#### **At-Large**

Norman Rolfe - San Francisco Tomorrow  
Art Michel – San Francisco Planning & Urban Research  
Andy Thornley – San Francisco Bicycle Coalition  
Jackie Sachs – San Francisco Transportation Authority CAC

## 11.4 AGENCY CONSULTATION

While preparing this SEIS/SEIR, FTA and the City consulted with the State Historic Preservation Officer for cultural resources, Section 106 analysis (see Appendix F) and with the San Francisco Recreation and Parks Department for Impacts to City parks and Section 4(f) consultation. In addition, as described in the Section 11.5, several agencies were consulted during the development of the environmental documents. Agencies and City departments actively consulted included: Caltrans, the San Francisco Transportation Authority, the San Francisco Redevelopment Agency, the Department of Parking and Traffic, BART, and the Department of Public Works. A list of persons and agencies consulted is provided below.

## 11.5 PERSONS AND ORGANIZATIONS CONSULTED (SEIS/SEIR DISTRIBUTION)

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California Department of Parks and Recreation  
P.O. Box 942896  
Sacramento, CA 94296-0001

California Department of Transportation  
Attn: Tim Sable, IGR CEQA Branch  
Office of Transportation Planning - B  
P.O. Box 23660  
Oakland, CA 94623-0660

Association of Bay Area Governments  
Attn: Suzan Ryder  
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Oakland, CA 94604-2050

Regional Water Quality Control Board  
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San Francisco Bay Region  
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235 Montgomery Street, 12th Floor  
San Francisco, CA 94104-2902

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San Francisco, CA 94109

San Francisco Tomorrow  
Attn: Jane Morrison, President  
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San Francisco, CA 94103

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25 Van Ness Avenue, 4th floor  
San Francisco, CA 94102

California Integrated Waste Management Board  
Attn: Reinhard Hohlwein  
Sue O'Leary – CEQA  
Permitting & Inspection Branch, MS#15  
1001 "I" Street – P.O. Box 4025  
Sacramento, CA 95812-4025

Dennis Baker, Chief of Operations  
City of Daly City  
Wastewater Treatment Plant  
153 Lake Merced Blvd.  
Daly City, CA 94015

Department of Building Inspection  
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1660 Mission Street  
San Francisco, CA 94103

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850 Bryant Street, Room 500  
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1 South Van Ness, 5<sup>th</sup> Floor  
San Francisco, CA 94103

Bureau of Energy Conservation  
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Habitat Conservation  
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San Francisco County Transportation Authority

- Citizen Advisory Committee

Jackie Sachs

2698 California Street #404

San Francisco, CA 94115

Union Square Association

Linda Mjellem

323 Geary Street, Suite 408

San Francisco, CA 94102

San Francisco Tomorrow

Norman Rolfe

2233 Larkin Street

San Francisco, CA 94109

Museum PARC, Yerba Buena Resident

Peter Hartman

300 Third Street, #310

San Francisco, CA 94107

Visitation Valley Baptist Church

Samson Wong

61 Leland Avenue

San Francisco, CA 94134

Union Square Business Association

Leigh Ann Baughman

323 Geary Street, Suite 703

San Francisco, CA 94102

Planning for Elders

Michael Kwok

980 Howard Street, Apt. 406

San Francisco, CA 94103

Residents of the Southeast Sector (ROSES)

Pauline Peele

1578 Innes Street

San Francisco, CA 94124

Chinese Chamber of Commerce

Rose Pak

730 Sacramento Street

San Francisco, CA 94108

RENEW SF

Wells Whitney

1308 Montgomery Street

San Francisco, CA 94133

### 11.5.4 OTHER NOTIFICATION

Two public meetings will be held to review findings of the SEIS/SEIR. Notification of these meetings was mailed to property owners and tenants within 300 feet of the Central Subway Corridor and to the general Central Subway mailing list.

## **APPENDICES**

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- A. LIST OF PREPARERS**
- B. NOTICE OF PREPARATION**
- C. PROGRAMMATIC AGREEMENT WITH STATE HISTORIC PRESERVATION  
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- D. FTA LETTER TRANSMITTING APE 2007 MAPS  
SHPO LETTER APPROVING APE 2007MAPS  
SHPO LETTER OF CONCURRENCE WITH FINDINGS OF EFFECT**
- E. TRANSPORTATION BACKUP**
- F. HISTORICAL ARCHITECTURAL RESOURCES**
- G. HAZARDOUS MATERIALS BACKGROUND**
- H. 2009 NEW STARTS COST EFFECTIVENESS**
- I. MITIGATION MONITORING AND REPORTING PROGRAM**
- J. SECTION 4(F) “DE MINIMIS” CONCURRENCE LETTERS FROM  
RECREATION AND PARKS DEPARTMENT**
- K. SHADOW ANALYSIS, ALTERNATIVE 3B, CHINATOWN STATION**





**APPENDIX A**  
**LIST OF PREPARERS**



**A. LIST OF PREPARERS**

**FEDERAL TRANSIT ADMINISTRATION (FTA)  
REGION IX**

201 Mission Street, Room 1650  
San Francisco, CA 94105

Ray Sukys  
Donna Turchie  
Renee Marler  
James Barr  
Alex Smith

**SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY (MTA)**

One South Van Ness Avenue  
San Francisco, CA 94103

John Funghi, ~~Senior Project~~ Program Manager  
Albert Hoe, Project Engineer  
Bill Neilson, Project Engineer  
David Greenaway, Environmental Liaison  
Dan Rosen, Transit Analysis

**CITY AND COUNTY OF SAN FRANCISCO PLANNING DEPARTMENT**

Major Environmental Analysis (MEA)  
1650 Mission St., Suite 400  
San Francisco, CA 94102

Paul Maltzer, Environmental Review Officer  
Joan A. Kugler, EIS/EIR Management and Oversight  
Bill Wycko, Transportation  
Randall Dean, Archaeology

Neighborhood Planning  
1650 Mission St., Suite 400  
San Francisco, CA 94103

Tim Frye, Historic Architecture  
Ericka Jackson, Jim Miller, Sue Exline; SEIR Reviewers

**CITY ATTORNEYS OFFICE**

City Hall, Room 235  
1 Dr. Carlton B. Goodlett Place  
San Francisco, CA 94102

Susan Cleveland-Knowles, Deputy City Attorney  
Audrey Williams Pearson, Deputy City Attorney

**SAN FRANCISCO DEPARTMENT OF PARKING AND TRAFFIC**

One South Van Ness Avenue  
San Francisco, CA 94102

Javad Mirabdal, Traffic Analysis  
Tony Young, Traffic Analysis  
Kevin Keck, Traffic Analysis  
Dustin White, Bicycle Analysis

**SAN FRANCISCO RECREATION AND PARKS DEPARTMENT**

McLaren Lodge  
501 Stanyan Street  
San Francisco, CA 94117

Daniel LaForte, Park Planner

**EIS/EIR CONSULTANTS**

**EnviroTrans Solutions, Inc.**

1333 Broadway, Suite 300  
Oakland, CA 94612

Rebecca Kohlstrand, SEIS/SEIR Manager

**PB/WONG TEAM**

303 Second Street, 700 North  
San Francisco, CA 94107

Gary Griggs, Project Manager  
Cliff Wong, Project Engineer  
Sue Olive, Alternatives, Purpose and Need; Alternatives;  
Community Resources  
Marilyn Duffey, Environmental Lead, Visual Resources  
Matt Fowler, Alternatives, Engineering, Construction Methods  
Joe O'Carroll, Construction Costs  
Mitch Fong, Geology, Hydrology  
Steven Wolfe and Kevin Keller, Noise and Vibration  
Ivy Edmonds-Hess, Air Quality, Energy  
Tara Cok, Section 4(f)  
Liz Fowler, Socioeconomics  
Rob Malone, Land Use  
Joe Castiglione, Travel Demand Forecasting  
Jackie Mancuso, Graphics  
~~Robert Jensen~~ Mona Tamari, Architectural Simulations  
Susan MacKenzie, Document Control  
Terry Seaborn, Word Processing  
Harriet Dietz, Outreach  
Nia Crowder, Outreach  
Betty Chau, Outreach  
Robert Jansen, Architecture

**LCW CONSULTING**

3990 20<sup>th</sup> Street  
San Francisco, CA 94114

Luba Wyznyckyj, Traffic Analysis  
Jose Farran, Traffic and Travel Demand

**GEOMATRIX**

2101 Webster Street  
Oakland, CA 94612

Peggy Peischl, Hazardous Materials

**GARCIA AND ASSOCIATES**

2601 Mission Street, Suite 600  
San Francisco, CA 94110

Carole Denardo, Historic Properties  
Joe Drennan, Biology  
Carole Garcia

**SONOMA STATE UNIVERSITY, ANTHROPOLOGICAL STUDIES CENTER**

1801 E. Cotati Avenue  
Rohnert Park, CA 94928

Adrian Praetzellis, Archaeology  
Michele Meyers



**APPENDIX B**  
**NOTICE OF PREPARATION**







# PLANNING DEPARTMENT

City and County of San Francisco • 1660 Mission Street, Suite 500 • San Francisco, California • 94103-2414

MAIN NUMBER  
(415) 558-6378

DIRECTOR'S OFFICE  
PHONE: 558-6411

4TH FLOOR  
FAX: 558-6426

ZONING ADMINISTRATOR  
PHONE: 558-6350

5TH FLOOR  
FAX: 558-6409

PLANNING INFORMATION  
PHONE: 558-6377

MAJOR ENVIRONMENTAL  
FAX: 558-599

COMMISSION CALENDAR  
INFO: 558-6422

INTERNET WEB SITE  
WWW.SFGOV.ORG/PLANNING

September 20, 2006

To: Responsible Agencies, Trustee Agencies, and Interested Parties

**Important Please Read:** This revised Notice of Preparation (NOP) is similar to a previous combined NOP and Notice of Scoping Meeting sent out in June 2005. The Scoping Meeting regarding the proposed project was held on June 21, 2005. This revised NOP is being sent out because: (1) a number of property owners said that they did not receive the June 2005 combined notice and (2) because the project description has changed (see below). Issuing this revised NOP with the current project description to the property owners, tenants and other interested persons, assures that everyone has received the required notice regarding preparation of a Supplemental EIS/EIR and is acquainted with the current description of the proposed project. Please be aware that the proposed project may affect your property. There will NOT be a second Scoping Meeting; however, there will be a series of five community meetings to describe the changes to the proposed project. (Dates and locations for these meetings are listed on the back of the notice). If you have comments on the content and/or scope of the proposed Draft Supplemental Environmental Impact Report, please send a written letter to Paul Maltzer, the Environmental Review Officer at the address above. The revised NOP is below.

## RE: CASE NO. 96.281E – CENTRAL SUBWAY, PHASE 2 OF THE THIRD STREET LIGHT RAIL PROJECT: NOTICE OF PREPARATION OF A SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT

A Notice of Preparation (NOP) of a Supplemental Environmental Impact Report (SEIR) for the above-referenced project, described below, has been issued by the Planning Department. Information regarding the environmental process for this project is available by contacting **Joan A. Kugler**, whom you may reach at (415) 575-6925 or at the above address. For questions about the Central Subway Project, sponsored by the San Francisco Municipal Transportation Agency (SFMTA), contact **John Funghi** at (415) 701-4299.

**Project Description:** The proposed project is the second phase of SFMTA's Third Street Light Rail Project. The Planning Commission certified both phases of the project in a joint FEIS/FEIR on December 3, 1998. In response to public input during and subsequent to the 2005 public scoping process, SFMTA has created an additional alternative, the Fourth/Stockton Alignment Option B. As part of the SEIR, SFMTA will be evaluating potential changes to the 1998 FEIS/FEIR Alternative including: changes to the number and location of subway stations, the use of off-street station entries, the provision for ventilation shafts, and the use of a barrier type fare collection system. SFMTA is also proposing two options for a Fourth/Stockton Alignment running exclusively on Fourth Street, south of Market. It would operate on the surface of Fourth Street, from King Street north, to a double track portal between Townsend and Brannan Streets (Option A) or between Bryant and Harrison Streets (Option B) where it would go underground and operate in both directions along Fourth Street (south of Market) and Stockton Street (north of Market) to a terminus in the vicinity of Stockton and Jackson Streets in Chinatown. The depth of the tunnel at subway stations would range from approximately 60 feet to 100 feet. The new alignment would reduce transit trip time, surface traffic and parking impacts along Third Street, along with construction impacts and duration when compared to the 1998 FEIS/FEIR project.

Under the Fourth/Stockton Alignment, the number of subway stations would be reduced from four to three and the surface station at Third/King Streets would be eliminated. Option B would add an additional surface station on Fourth between Bryant and Brannan Streets. In both options, the Moscone Station would be located between Howard and Folsom, with entrances to the north in the sidewalks and to the south in property that would be acquired and made available for Transit Oriented Development. The Market Street and Union Square subway stations would be combined at one location on Stockton between Geary and Ellis Streets, with connections to the

north in the Union Square plaza and connections to the south using the Powell Station entrances to the BART/Muni Market Street Subway. The station in Chinatown would be located in the vicinity of Stockton and Clay Streets in Option A and in the vicinity of Stockton and Washington Streets in Option B, with proposed off-street entrances in property to be acquired by SFMTA. The Chinatown Station and Moscone Station subway entries would also accommodate above ground vent shaft structures that are necessary for emergency ventilation. For the Union Square/Market Street Station, these vent shafts would be integrated into the east terrace of Union Square in Option A and in the Ellis/O'Farrell Garage in Option B. The Fourth/Stockton Alignment would include a construction variant to extend the running tunnels another 2,000 feet north of the Chinatown Station to facilitate construction and provide for a future extension to North Beach. Other proposed changes include the use of Tunnel Boring Machine technology to reduce surface impacts and construction time, and the introduction of a barrier type fare collection system now required by SFMTA in subway operations. The SEIR will also update the project operating plan, including car requirements.

These Project Changes May Have A Significant Effect On The Environment. The Planning Department has determined that a Supplemental EIR (SEIR) must be prepared for the proposed project prior to any final decision regarding whether to approve project changes. This determination is based upon the criteria of the Guidelines of the State Secretary for Resources, Sections 15063 (Initial Study), 15064 (Determining Significant Effect), and 15065 (Mandatory Findings of Significance). The Federal Transit Administration has also determined that a Supplemental Environmental Impact Statement (SEIS) must be prepared and a joint document will be issued. The purpose of the SEIS/SEIR is to provide information about potential significant physical environmental effects of the revised project that were not previously presented, to update the environmental setting as required, to identify possible ways to minimize the significant project effects, and to describe and analyze possible alternatives to the proposed project. Preparation of an NOP or environmental document does not indicate a decision by the City to approve or to disapprove the project changes. However, prior to making any such decision, the decision makers must review and consider the information contained in the environmental document.

Probable Project Environmental Impacts: The revised project would need to be analyzed for potential land use, air quality, noise, transportation, biology, hydrology, visual, geology, hazardous materials, cultural resources, and construction impacts. The Fourth/Stockton Street Alignment Options A and B and the North Beach construction tunnel variant would affect buildings not previously evaluated for historic, land use, noise, vibration, visual and construction impacts. The proposed acquisition of property to accommodate Central Subway station entries and ventilation shafts outside the public right-of-way could have visual, neighborhood, land use, noise, vibration, cultural resources, and construction impacts. At Chinatown and Moscone Stations the acquisition of property would require business and residential relocation and create opportunities for Transit Oriented Development. At the Union Square/Market Street Station the provision of an entry in Union Square would require an analysis (Section 4(f) federal evaluation) of the impact of the project on a public park.

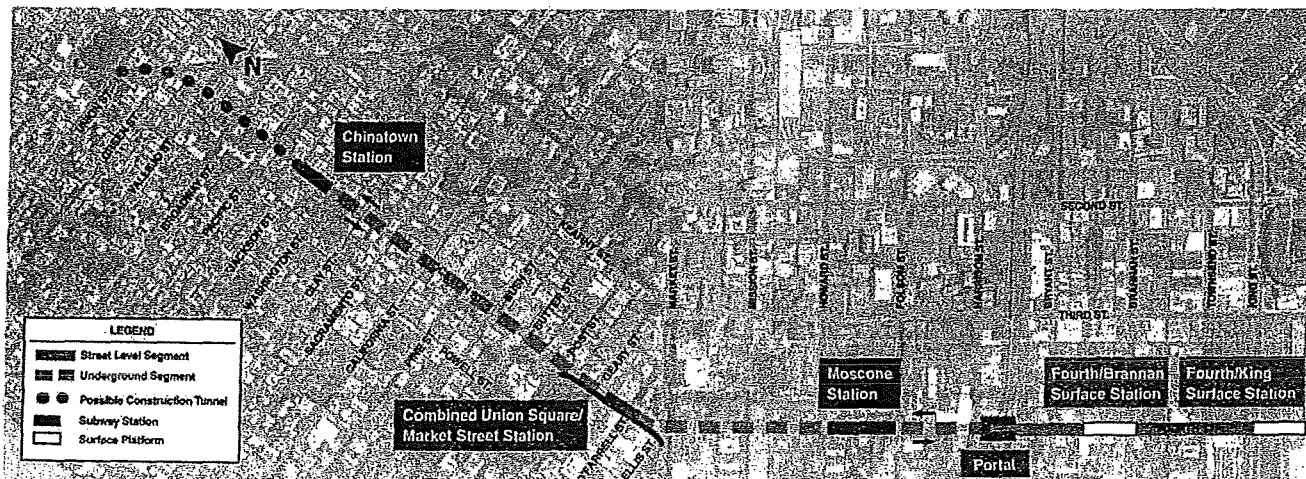
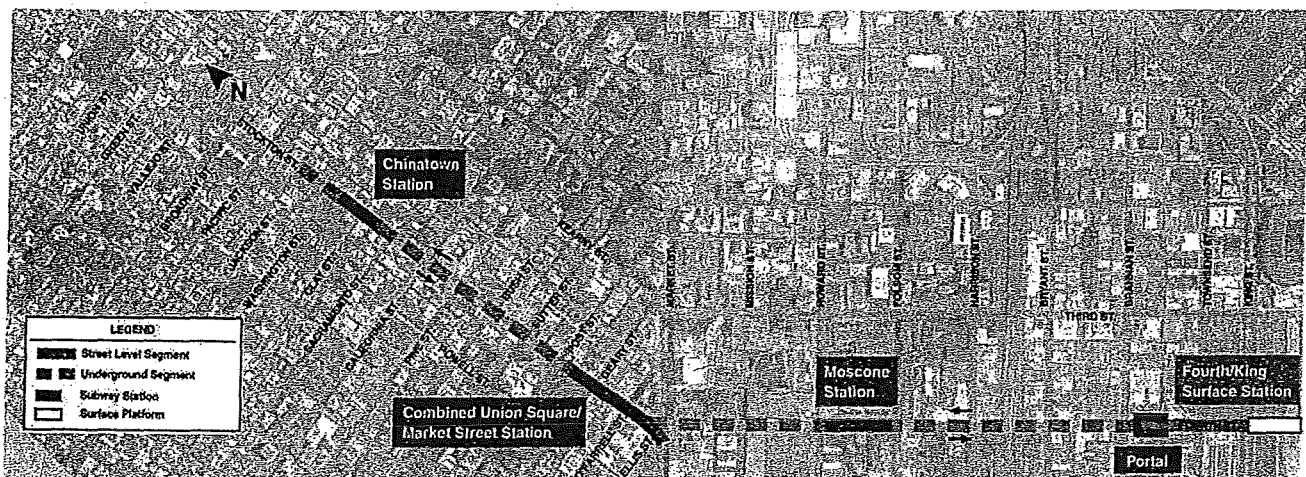
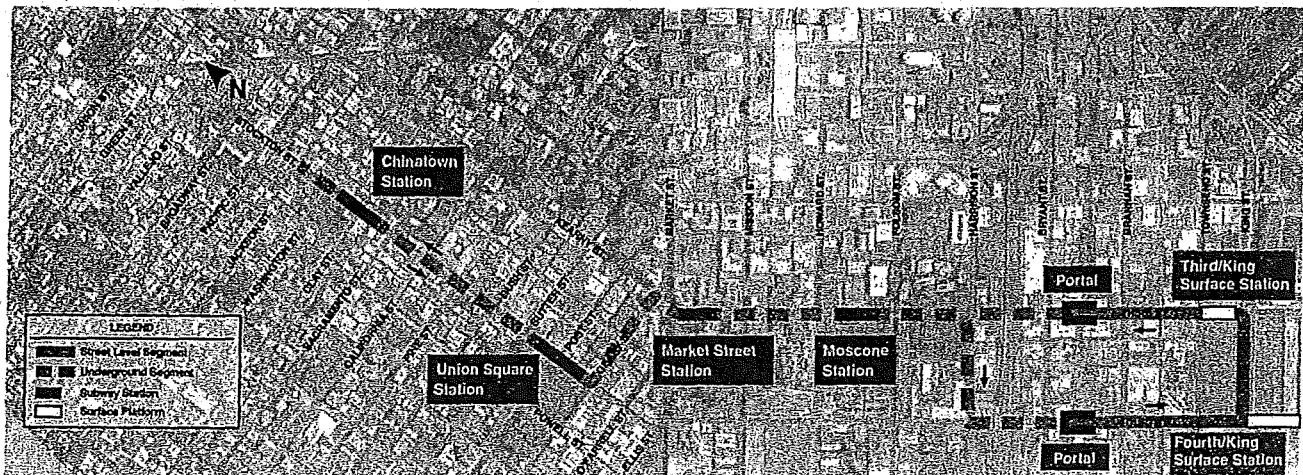
The SEIS/SEIR will analyze the proposed project changes described above relative to the original Central Subway project cleared in the 1998 Final EIS/EIR. The original FEIS/FEIR project included a shallow subway crossing above the Muni/BART tunnels at Third and Market Streets, and single-track portals between Brannan and Bryant Streets on Third and Fourth Streets. The SEIS/SEIR will also evaluate a No Project Alternative, which would include the newly completed Third Street Light Rail Initial Operating Segment and associated bus changes.

Written comments on the scope and content of the future Supplemental EIS/EIR should be sent to Paul Maltzer, Environmental Review Officer, San Francisco Planning Department, 1660 Mission Street, Suite 500, San Francisco, CA 94103. Comments are due to Mr. Maltzer by **November 10, 2006**.

Documents relating to the proposed project are available for review, by appointment, at the Planning Department's Major Environmental Analysis office, 30 Van Ness Avenue, Suite 4150. Please call Joan A. Kugler at (415) 575-6925 for an appointment. Documents can also be viewed at the SFMTA Web Site: [www.sfmta.com/central](http://www.sfmta.com/central).

If you have questions concerning environmental review of the proposed project or would like to be placed on the environmental mailing list, please contact Joan A. Kugler at (415) 575-6925 or in writing at the address above.

# Central Subway Alignments



## Upcoming Central Subway Meetings

### CHINATOWN MEETING

Tuesday, October 17, 2006 (6:30 - 8:30 pm)  
Gordon J. Lau Elementary School  
Multipurpose Room  
950 Clay Street (between Stockton and Powell)

### NORTH BEACH MEETING

Thursday, October 19, 2006 (6:30 - 8:30 pm)  
Jean Parker Elementary School  
Multipurpose Room  
840 Broadway (between Powell and Mason)

### UNION SQUARE/DOWNTOWN MEETING

Tuesday, October 24, 2006 (6:30 - 8:30 pm)  
SPUR  
312 Sutter Street, 5th Floor (between Stockton and Grant)

### SOUTH OF MARKET MEETING

Thursday, October 26, 2006 (6:30 - 8:30 pm)  
Salvation Army, Yerba Buena Corps  
360 Fourth Street (between Harrison and Folsom)

### CENTRAL SUBWAY COMMUNITY ADVISORY GROUP MEETING

Wednesday, November 1, 2006 (6:30 - 8:30 pm)  
SF Municipal Transportation Agency  
1 South Van Ness, 3<sup>rd</sup> Floor Main Conference Room  
(corner of Market Street)



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### HOW TO REACH US

#### PLANNING DEPARTMENT FOR ENVIRONMENTAL QUESTIONS:

Joan A. Kugler  
Planning Department  
1660 Mission Street, Suite 500  
San Francisco, CA 94103  
Phone: (415) 575-6925  
Email: jakugler-planning@sbcglobal.net

#### SFMTA FOR PROJECT DESIGN QUESTIONS:

John Funghi  
Municipal Transportation Agency  
1 South Van Ness, 3rd Floor  
San Francisco, CA 94103  
Phone: (415) 701-4299  
Email: central.subway@sfmta.com

Website: [www.sfmta.com/central](http://www.sfmta.com/central)  
Project Info: (415) 701-4371



**San Francisco Municipal Railway**  
A Division of the Municipal Transportation Agency



## PLANNING DEPARTMENT

City and County of San Francisco • 1660 Mission Street, Suite 500 • San Francisco, California • 94103-2414

MAIN NUMBER  
(415) 558-6378

DIRECTOR'S OFFICE  
PHONE: 558-6411  
4TH FLOOR  
FAX: 558-6426

ZONING ADMINISTRATOR  
PHONE: 558-6350  
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PLANNING INFORMATION  
PHONE: 558-6377  
MAJOR ENVIRONMENTAL  
FAX: 558-5991

COMMISSION CALENDAR  
INFO: 558-6422  
INTERNET WEB SITE  
WWW.SFGOV.ORG/PLANNING

June 3, 2005

To Responsible Agencies, Trustee Agencies, and Interested Parties:

**RE: CASE NO. 96.281E – CENTRAL SUBWAY PHASE 2 OF THE THIRD STREET LIGHT RAIL PROJECT NOTICE OF PREPARATION OF A SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT AND NOTICE OF PUBLIC SCOPING MEETING**

A Notice of Preparation (NOP) of a Supplemental Environmental Impact Report (SEIR) and a Notice of Public Scoping Meeting for the above-referenced project, described below, has been issued by the Planning Department. The NOP/Notice of Public Scoping Meeting is either attached or is available upon request from **Joan A. Kugler**, whom you may reach at (415) 558-5983 or at the above address. The NOP/Notice of Public Scoping Meetings will also be available on-line at [www.sfmuni.com/central](http://www.sfmuni.com/central) by approximately June 7. For questions about the Central Subway Project, sponsored by the San Francisco Municipal Railway, contact John Thomas at (415) 554-0719

**Project Description:** The proposed project is the second phase of Muni's Third Street Light Rail Project. The Planning Commission certified both phases of the project in a joint FEIS/FEIR on December 3, 1998. In response to public input, Muni is evaluating potential changes to the rail alignment between Fourth/King Streets and Stockton/Geary Streets, the number and location of subway stations, the use of off-street station entries, the provision for ventilation shafts, the use of a barrier type fare collection system, and the use of deep tunneling construction methods. Rather than operating on both Third and Fourth Streets south of Market Street, Muni is proposing a new alignment exclusively on Fourth Street. It would operate on the surface of Fourth Street, from King Street north, to a double track portal between Townsend and Brannan Streets where it would go underground and operate in both directions along Fourth Street (south of Market) and Stockton Street (north of Market) to a terminus in the vicinity of Stockton and Clay Streets in Chinatown. The depth of the tunnel at subway stations ranges from approximately 60 feet to 100 feet. The new alignment would reduce transit trip time, surface traffic and parking impacts along Third Street, construction duration and overall project cost when compared to the original EIS/EIR project.

The number of subway stations would be reduced from four to three and the surface station at Third/King Streets would be eliminated. The Moscone Station is proposed on Fourth Streets at several possible locations. The Base Case would be located between Howard and Folsom, with an entrance to the north in a public plaza and to the south in property that would be acquired and made available for Transit Oriented Development. One option would locate the station between Folsom and Harrison Streets. Another option would add an additional subway station on Fourth between Bryant and Brannan in combination with the Base Case Moscone Station location. The Market Street and Union Square subway stations would be combined at one location on Stockton between Geary and O'Farrell Streets, with connections to the north in the Union Square plaza and connections to the south using the Powell Street Station entrances to the BART/Muni Market Street Subway. The station in Chinatown would be located in the vicinity of Stockton/Clay Streets, with proposed off-street entrances in property to be acquired by Muni. The Chinatown and Moscone subway entries would also accommodate aboveground vent shaft structures that are necessary for emergency ventilation. At Union Square these vent shafts would be integrated into the east terrace of the square. Other proposed changes include the use of Tunnel Boring Machine technology to reduce surface impacts and construction time, and the introduction of a barrier type fare collection system now



required by Muni in subway operations. The SEIR will also update the project operating plan, including car requirements.

These Project Changes May Have A Significant Effect On The Environment. The Planning Department has determined that a Supplemental EIR (SEIR) must be prepared for the proposed project prior to any final decision regarding whether to approve project changes. This determination is based upon the criteria of the Guidelines of the State Secretary for Resources, Sections 15063 (Initial Study), 15064 (Determining Significant Effect), and 15065 (Mandatory Findings of Significance). The Federal Transit Administration has also determined that a Supplemental Environmental Impact Statement (SEIS) must be prepared and a joint document will be issued. The purpose of the SEIS/SEIR is to provide information that was not previously provided about potential significant physical environmental effects of the revised project, to update the environmental setting as required, to identify possible ways to minimize the significant project effects, and to describe and analyze possible alternatives to the proposed project. Preparation of an NOP or environmental document does not indicate a decision by the City to approve or to disapprove the project changes. However, prior to making any such decision, the decision makers must review and consider the information contained in the environmental document.

Probable Project Environmental Impacts: The revised project would need to be analyzed for potential land use, air quality, noise, traffic, visual, geology, hazardous materials, historical resources, and construction impacts. The Fourth/Stockton Street alignment, with a double track portal between Townsend and Brannan Streets, would affect buildings not previously evaluated for historic, land use, noise, vibration, visual and construction impacts. The proposed acquisition of property to accommodate Central Subway station entries and ventilation shafts outside the public right-of-way would have visual, neighborhood, land use, noise, vibration, and construction impacts. At Chinatown and Moscone Stations the acquisition of property would require business and residential relocation and create opportunities for transit oriented development. At the Union Square/Market Street Station the provision of an entry in Union Square would require an analysis (Section 4(f) federal evaluation) of the impact of the project on a public park.

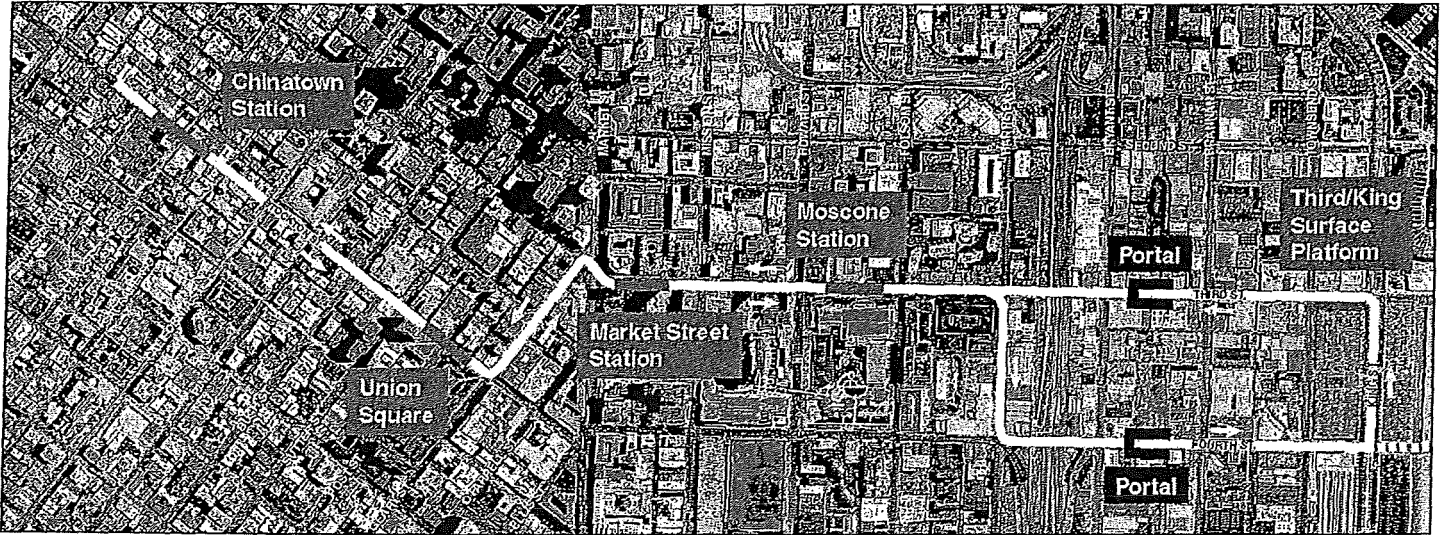
The SEIS/SEIR will analyze the proposed project changes described above relative to the original Central Subway project cleared in the 1998 Final EIS/EIR. The original FEIS/FEIR project included a shallow subway crossing above the Muni/BART tunnels at Third and Market Streets, and single-track portals between Brannan and Bryant Streets on Third and Fourth Streets. The SEIS/SEIR will also evaluate a No Project Alternative, which would include the newly completed Third Street Light Rail Initial Operating Segment and associated bus changes.

The Planning Department will hold one (1) **PUBLIC SCOPING MEETING**, at the time and location indicated in the NOP/Notice of Public Scoping Meeting. The purpose of this meeting is to receive oral comments to assist the Planning Department in reviewing the scope and content of the environmental impact analysis and information to be contained in the SEIR for the project. Written comments will also be accepted at this meeting and until the close of business on **July 13, 2005**. Written comments should be sent to Paul Maltzer, San Francisco Planning Department, 1660 Mission Street, Suite 500, San Francisco, CA 94103.

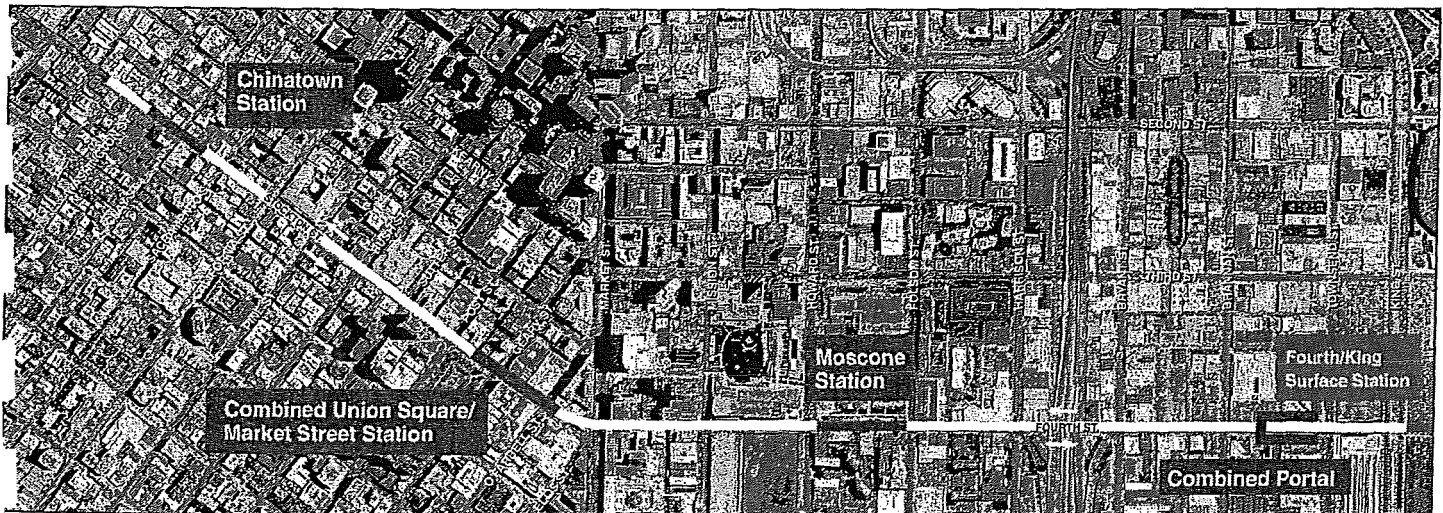
Documents relating to the proposed project are available for review, by appointment, at the Planning Department's Major Environmental Analysis office, 30 Van Ness Avenue, Suite 4150. Please call Joan A. Kugler at (415) 558-5983. Documents can also be viewed at Muni's Web Site: [www.sfmuni.com/central](http://www.sfmuni.com/central).

If you work for an agency that is a responsible or a trustee agency, we need to know the views of your agency as to the scope and content of the environmental information that is relevant to your agency's statutory responsibilities in connection with the proposed project. Your agency may need to use the SEIR when considering a permit or other approval for this project. We will also need the name of the contact person for your agency. If you have questions concerning environmental review of the proposed project, please contact Joan A. Kugler at (415) 558-5983.

# Central Subway Alignment Options



Original EIS/EIR Third/Fourth Street Alignment



Proposed Fourth/Stockton Street Alignment



# Notice of Public Scoping Meeting for the Central Subway Supplemental Environmental Impact Report

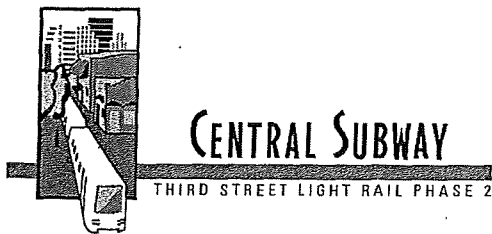
**Date:** June 21, 2005

**Time:** 6:30 PM to 8:30 PM

**Place:** PG&E Pacific Energy Center, 851 Howard Street (between Fourth and Fifth Streets)

The Planning Department of the City and County of San Francisco and the Municipal Railway are hosting a Public Scoping Meeting for the Central Subway Project. The purpose of the meeting is to solicit public input on the potential environmental effects of proposed project changes described in the attached Notice of Preparation. The meeting will satisfy criteria of the State of California Public Resources code 21083.9 and the California Environmental Quality Act (CEQA) Guidelines Section 15206.

Note: The meeting facilities are wheelchair accessible. Individuals who will need special assistance, such as listening enhancements or sign language interpreters, should request those services by calling 415-554-1803 (for relay assistance, call California Relay service) 72 hours prior to the public workshop.



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## HOW TO REACH US

### PLANNING DEPARTMENT FOR ENVIRONMENTAL QUESTIONS:

**Joan A. Kugler**  
Planning Department  
1660 Mission Street, Suite 500  
San Francisco, CA 94103  
**Phone:** 415-558-5983  
**Planning Department Email:** joan.kugler@sfgov.org

### MUNI FOR PROJECT DESIGN QUESTIONS:

**John Thomas**  
Muni Third Street Light Rail  
1145 Market Street, 5th Floor  
San Francisco, CA 94103  
**Phone:** 415-554-0719  
**Project Email:** central.subway@sfmta.com

**Muni Web Page:** <http://www.sfmuni.com/central>  
**Muni Third Street Project Hotline:** (415) 703-6655



**APPENDIX C**  
**PROGRAMMATIC AGREEMENT WITH STATE HISTORIC**  
**PRESERVATION OFFICE (SHPO)**  
**2008 MEMORANDUM OF AGREEMENT**



## OFFICE OF HISTORIC PRESERVATION

## DEPARTMENT OF PARKS AND RECREATION

BOX 942896  
SACRAMENTO 94296-0001  
(916) 653-6624  
FAX: (916) 653-9824



October 9, 1998

REPLY TO:

FTA980703A

Robert Hom, Director  
Office of Planning and Program Development  
Federal Transit Administration  
Region IX  
201 Mission Street  
SAN FRANCISCO CA 94105-1839

Re: MUNI Third Street Light Rail EIS/EIR Finding of No Adverse Effect Report, San Francisco, San Francisco County.

Dear Mr. Hom:

Thank you for submitting to our office your October 8, 1998 letter and supporting documentation regarding the Finding of No Adverse Effect (FONAE) documentation for the proposed extension of the San Francisco Municipal Railway (MUNI) Third Street Light Rail project in San Francisco, San Francisco County. The project will involve the construction an Initial Operating Segment (ISO) – Phase I consisting of a construction of a surface light rail system, and a potential New Central Subway – Phase II which will be a 1.75 mile subsurface tunnel that will begin north of King Street and extend to a terminus at Stockton and Clay Streets. The entire extension, if constructed, will serve the area running south from the downtown area to the Bayview-Hunters Point community. The Draft Environmental Impact Statement/Draft Environmental Impact Report (DEIS/DEIR) considered three alternatives for the MUNI light rail project. The San Francisco Public Transportation Commission (Commission) selected the bi-directional design option over the Fourth Street Bridge as the Locally Preferred Alternative for the Initial Operating Segment (IOS) – Phase I portion of the project. The Fourth Street Bridge has been determined, by consensus, to be eligible for inclusion on the National Register of Historic Places (NRHP). This eliminated from consideration the use of the Third Street Bridge as a directional alternative for the proposed project.

In accordance with 36 CFR 800, regulations implementing Section 106 of the National Historic Preservation Act, we have reviewed the DEIS/DEIR for information regarding the effects of the IOS - Phase I/New Central Subway - Phase II project on the 4<sup>th</sup> Street Bridge and on potential archaeological properties that may be affected as a result of a the potential New Central Subway. Funding for the second phase of the project, and its feasibility as a viable alternative, have not been established at this time. However, the 1

effect the New Central Subway could have on historic resources prompts us to request your consideration of the development of a programmatic agreement (PA), in consultation with our office, that would outline the process and procedures by which any potential historic properties would be treated in the event of their discovery. We have reviewed an initial draft of the PA and request that the following language be inserted into the text:

**PROGRAMMATIC AGREEMENT  
AMONG THE FEDERAL TRANSIT ADMINISTRATION  
THE CALIFORNIA HISTORIC PRESERVATION OFFICER  
AND  
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION  
FOR THE CONSTRUCTION OF THE THIRD STREET LIGHT RAIL/  
NEW CENTRAL SUBWAY  
SAN FRANCISCO, CALIFORNIA**

**WHEREAS**, the Federal Transit Administration (FTA) has determined that construction of the of the Third Street Light Rail Project [Initial Operating Segment (IOS) – Phase I/New Central Subway (NCS) – Phase II] (Undertaking) may have an effect on the 4<sup>th</sup> Street Bridge and may have an effect on archeological properties potentially eligible for inclusion on the National Register of Historic Places (NRHP), and has consulted with the California State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (Council) pursuant to 36 CFR 800.13 of the regulations implementing Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C. 470f); and

**WHEREAS**, the consulting parties to this Programmatic Agreement (PA) agree that although construction of the IOS-Phase I of the Undertaking will have an effect on the 4<sup>th</sup> Street Bridge, this effect will not be adverse; and

**WHEREAS**, the signatories agree that any archeological resources found during construction that are determined eligible for inclusion in the NRHP are likely to be important primarily for their data recovery potential and would be difficult to preserve in place; and

**WHEREAS**, upon full execution of this PA, the San Francisco Municipal Railway (MUNI), which has participated in this consultation and has been invited to concur in this PA, will administer the Undertaking under the authority of FTA; and

**WHEREAS**, the San Francisco Planning Department has participated in this consultation and has been invited to concur in the PA;

**NOW, THEREFORE**, the FTA, the SHPO, and the Council agree that upon FTA's decision to proceed with either phase of the Undertaking, the FTA shall ensure that the following stipulations are implemented as indicated below, in order to take into account the effects of the Undertaking on historic properties.

**Stipulations**

FTA shall ensure that the following stipulations are carried out:

The following stipulation applies only to the IOS phase of the Undertaking, if implemented:

**I. IOS**

The only historic property affected by the IOS phase of the Undertaking is the Fourth Street Bridge. The signatories agree that the proposed design of the IOS will not adversely affect the Bridge and that no further actions that would

take this effect into account are necessary.

The following stipulations apply only to the NCS phase of the Undertaking, if implemented:

## II. Research Design Treatment Plan and Implementation

1. A comprehensive archival Research Design-Treatment Plan (RD-TP) shall be developed by a consultant retained by MUNI. Based on information described in the Final Environmental Impact Statement/Environmental Impact Report (FEIS/FEIR) 1998, and information in the Archeological Resources Investigation for the Third Street Light Rail Project, October 1997, by Jan M. Hupman and David Chavez, two recorded archaeological sites (CA-SFr-114 and CA-SFr-2) and seven sections of the New Central Subway require pre-construction subsurface testing. The RD-TP shall describe the specific field methodologies and testing locations within the Area of Potential Effect (APE) in accordance with *Treatment of Archaeological Properties: A Handbook* (ACHP 1990) and *Archaeology and Historic Preservation: the Secretary of the Interior's Standards and Guidelines* (48FR 44716-44742).
- a. Supplemental archival research will be completed by MUNI's consultant in order to obtain adequate information for the development of the historic context and prediction of potentially historic archaeological properties that may be present within the APE of the NCS. This supplemental research will augment and complete the historic context and type of property information that was developed in those documents. The archival research will include, at a minimum, block and parcel-specific research using documents such as the U.S. Census, historic maps, city directories, and tax and real estate records.
- b. The RD-TP describes the specific field methodologies to be utilized, including procedures to be followed if prehistoric archaeological resources are encountered. The RD-TP shall meet the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716-44740), take into account the Council's publication, *Treatment of Archaeological Properties: A Handbook* (Advisory Council on Historic Preservation 1980) as well as standards and guidelines established by the SHPO.
- c. Upon completion in draft form, MUNI will submit the RD-TP to all other parties to this PA for a fifteen (15) working day review period. MUNI will incorporate any comments received during this review period into the final RD-TP. If any party fails to submit their comments within fifteen (15) working days or receipt, MUNI shall assume that party's concurrence with the draft RD-TP.
2. Archaeological monitoring during Construction of the New Central Subway shall be conducted for four locations:
  - On Stockton Street, between Washington and Clay Streets and between Clay and Sacramento Streets, where unidentified circa 1850 wood-framed structures once stood;
  - Third Street, between market and Mission Streets, where Happy Valley 49er Camp remains could be present; and
  - The crossover, between Third and Fourth Streets, immediately south of Harrison Street, where features, deposits, and artifacts associated with post-1850s commercial and residential use of the area may exist.
3. All activities regarding history and archaeology that are carried out pursuant to this section of the PA shall be carried out by or under the direct supervision of a person or persons who meet or exceed the "Secretary of the Interior's Professional Qualifications Standards" in these disciplines.
4. If at any time during implementation of the RD-TP or of the NCS, archaeological resources are encountered, which MUNI or its consultant, in consultation with the San Francisco Planning department, determines do not possess enough integrity to qualify for inclusion in the NRHP, FTA will promptly notify the SHPO of its determination and at its discretion, may terminate any further consideration of such resources.
5. If at any time during implementation of the NCS archaeological remains are encountered which MUNI and the San Francisco Planning department determine possess integrity, MUNI will evaluate the remains using the

NRHP Criteria of Eligibility established in the RD-TP. The identification, evaluation and treatment phases will be integrated into a single operation consistent with the RD-TP. When archaeological deposits are determined eligible, MUNI will notify FTA and SHPO of the determination and then proceed with treatment in accordance with the RD-TP. All archaeological material appropriate for curation as determined by MUNI and its consultant, in consultation with the SHPO, shall be placed with an appropriate local repository, if feasible.

6. Upon completion of field investigations, comprehensive technical reports resulting from implementation of the RD-TP and from the treatment of resources not specifically addressed in the RD-TP (if any are encountered) shall be prepared that integrate the important archaeological data recovered through excavation with the information gathered through archival research, and address relevant research considerations. MUNI shall ensure that all technical reports prepared pursuant to this PA are provided to the consulting parties and shall ensure that all such reports meet the published standards of the California Office of Historic Preservation, specifically *Preservation Planning Bulletin* Number 4(a), "Archaeological Resources Management Reports (ARMR): Recommended Contents and Format" (December 1989). Reports will be submitted in draft form by MUNI to FTA, the San Francisco Planning Department and the SHPO for a review period not to exceed fifteen (15) working days. Any comments received during this time frame will be incorporated into final reports by MUNI or its consultant. MUNI or its consultant will ensure that all reports are responsive to the "Secretary of the Interior's Standards and Guidelines for Archaeological Documentation" (48 FR 44734-37) and to relevant SHPO publications. Upon completion, copies of all final reports will be provided to the SHPO, the Council, FTA, and others identified in the RD-TP.

### III. Confidentiality

Confidentiality regarding the nature and location of any archaeological sites in this PA shall be maintained on a "need to know" basis limited to appropriate personnel and consultants of the FTA, MUNI, the San Francisco Planning Department, the SHPO and the Council involved in the planning, reviewing and implementing of this PA consistent with Section 304 of the NHPA.

The following stipulations apply to both phases of the Undertaking, if implemented:

### IV. Amendment or Addendum to this Agreement

Any party to the PA may request that it be amended or recommend an addendum, whereupon the parties shall consult to consider such amendment or addendum. Any amendment or addendum shall be executed in the same manner as the original PA.

### V. Dispute Resolution

Unless otherwise specified in this PA, should any party object within thirty (30) days to actions pursuant to this PA, FTA shall consult with the objecting party to resolve the objection. If FTA determines that the objections cannot be resolved, FTA shall forward all documentation relevant to the dispute to the Council. Within thirty (30) days after receipt of all pertinent documentation, the Council will either:

- a) provide the FTA with recommendations, which FTA will take into account in reaching a final decision regarding the dispute; or
- b) Notify the FTA that it will comment pursuant to 36 CFR 800.6(b), and proceed to comment. Any Council comment provided in response to such a request will be taken into account by FTA in accordance with 36 CFR 800.6(c)(2) with reference to the subject of the dispute.

Any recommendation or comments provided by the Council will be understood to pertain only to the subject of the dispute; FTA's responsibility to carry out all actions under the PA that are not the subject of the dispute will remain unchanged.

## VI. Public Objection

At any time during the implementation of the measures stipulated in this PA, should an objection to any such measure or its manner or implementation be raised by a member of the public, FTA shall take the objection into account and consult as needed with the objecting party, the SHPO and the Council to resolve the objection.

## VII. Termination of this Programmatic Agreement

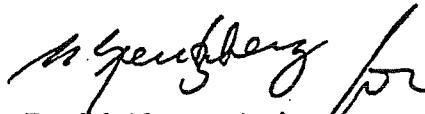
- (A) If the FTA determines that it cannot implement the terms of this PA or if the SHPO or the Council determines that the PA is not being properly implemented, the FTA, the SHPO or the Council may propose to the other consulting parties that this Programmatic Agreement be terminated.
- (B) The party proposing to terminate this PA shall notify all consulting parties to this explaining the reasons for termination and affording them at least 30 calendar days, but not more than 60 calendar days, to consult and seek alternatives to termination.
- (C) Should such consultation fail and the PA be terminated, the FTA shall either:
  - (1) Consult in accordance with Section 106 of the NHPA to develop a new PA; or
  - (2) Request the comments of the Council in accordance with Section 106 of the NHPA.

Execution of this Programmatic Agreement and implementation of its terms evidence that the FTA has afforded the Council an opportunity to comment on the Undertaking, and on the Undertaking's effects on historic properties, and that the FTA has taken into account the effects of the Undertaking on historic properties.

Please insert the aforementioned text into the body of your PA and re-submit to our office for review and/or signature.

Thank you again for seeking our comments on your project. If you have any questions, please contact staff historian Clarence Caesar at (916) 653-8902.

Sincerely,



Daniel Abeyta, Acting  
State Historic Preservation Officer



## **PROGRAMMATIC AGREEMENT**

### **Pursuant to Section 106 of the National Historic Preservation Act of 1966**

The following Programmatic Agreement has been reviewed and tentatively agreed to by the Federal Transit Administration and the California State Historic Preservation Officer, two of the parties that will sign the document, and the San Francisco Municipal Railway and the San Francisco Planning Department. Subsequent review and agreement will be requested from the Advisory Council on Historic Preservation, the third signatory of the document. The Programmatic Agreement, which is presently being circulated for signature by all parties, will be signed prior to the Record of Decision for this project.

PROGRAMMATIC AGREEMENT  
AMONG THE FEDERAL TRANSIT ADMINISTRATION,  
THE CALIFORNIA STATE HISTORIC PRESERVATION OFFICER,  
AND  
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION  
FOR THE CONSTRUCTION OF THE THIRD STREET LIGHT RAIL/  
NEW CENTRAL SUBWAY PROJECT  
SAN FRANCISCO, CALIFORNIA

WHEREAS, the Federal Transit Administration (FTA) has determined that construction of the Third Street Light Rail Project [Initial Operating Segment (IOS)- Phase I and the New Central Subway (NCS)- Phase II] (Undertaking) may have an effect on the 4<sup>th</sup> Street Bridge and may have an effect on archaeological properties potentially eligible for inclusion on the National Register of Historic Places (NRHP), and has consulted with the California State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (Council) pursuant to 36 CFR Part 800.13 of the regulations implementing Section 106 of the National Historic Preservation Act (NHPA)(16 U.S.C. 470f); and

WHEREAS, the consulting parties to this Programmatic Agreement (PA) agree that construction of the IOS-Phase I of the Undertaking will not have an adverse effect on the historic character of the 4<sup>th</sup> Street Bridge; and

WHEREAS, the signatories agree that any archaeological resources found during construction of the Undertaking that are determined eligible by SHPO for inclusion in the NRHP are likely to be important primarily for their data recovery potential and would be difficult to preserve in place; and

WHEREAS, upon full execution of this PA, the San Francisco Municipal Railway (MUNI), which has participated in this consultation, will administer the Undertaking under the authority of FTA; and

WHEREAS, the San Francisco Planning Department has participated in this consultation in the PA, and whereas, MUNI and the San Francisco Planning Department have concurred in the terms and conditions of this PA;

NOW, THEREFORE, the FTA, the SHPO, and the Council agree that upon FTA's decision to proceed with either Phase of the Undertaking, the FTA shall ensure that the following stipulations are implemented, as indicated below, in order to take into account the effects of the Undertaking on historic properties.

Stipulations

FTA shall ensure that the following stipulations are carried out:

The following stipulation applies only to the IOS Phase of the Undertaking, if implemented;

I. Initial Operating Segment-IOS

The only historic property affected by the IOS Phase of the Undertaking is the Fourth Street Bridge. The signatories agree that the proposed design of the IOS will not adversely affect the Bridge and that no further actions that would take this effect into account are necessary.

Third Street Light Rail Project  
Programmatic Agreement  
November, 1998

The following stipulations apply only to the New Central Subway (NCS) Phase of the Undertaking, if implemented:

## II. Research Design-Treatment Plan and Implementation

1. A comprehensive archival Research Design-Treatment Plan (RD-TP) shall be developed by a consultant retained by MUNI. Based on information described in the Final Environmental Impact Statement/Environmental Impact Report (FEIS/ FEIR) 1998, and information in the *Archaeological Resources Investigation for the Third Street Light Rail Project, October 1997*, by Jan M. Hupman and David Chavez, two recorded archaeological sites (CA-SFr-114 and CA-SFr-2) and seven sections of the New Central Subway require pre-construction subsurface testing for archaeological remnants. The RD-TP shall describe the specific field methodologies and testing locations within the Area of Potential Effect (APE) in accordance with *Treatment of Archaeological Properties: A Handbook (ACHP 1990)* and *Archaeology and Historic Preservation: the Secretary of the Interior's Standards and Guidelines, (48 FR 44716-44742)*.

- a. Supplemental archival research will be completed by MUNI's consultant in order to obtain adequate information for the development of the historic context and prediction of potentially historic archaeological properties that may be present within the APE of the NCS. This supplemental research will augment and complete the historic context and type of property information that was developed in these documents. The archival research will include, at a minimum, block and parcel-specific research using documents such as the U.S. Census, historic maps, City directories, and tax and real estate records.
- b. The RD-TP will describe the specific field methodologies to be utilized, including procedures to be followed if prehistoric archaeological resources are encountered. The RD-TP shall meet the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716-44740), take into account the Council's publication, *Treatment of Archaeological Properties: A Handbook (Advisory Council on Historic Preservation 1980)* as well as standards and guidelines established by the SHPO.
- c. Upon completion in draft form, MUNI will submit the RD-TP to all other parties to this PA for a fifteen (15) working day review period. MUNI will incorporate any comments received during this review period into the final RD-TP. In any party fails to submit their comments within fifteen (15) working days or receipt, MUNI shall assume that party's concurrence with the draft RD-TP.

2. Archaeological Monitoring during construction of the New Central Subway shall be conducted for four locations:

- On Stockton Street, between Washington and Clay Streets, where unidentified circa 1850 wood-framed structures once stood;
- On Stockton Street, between Clay and Sacramento Streets, where unidentified circa 1850 wood-framed structures once stood;
- Third Street, between Market and Mission Streets, where Happy Valley 49er Camp remains could be present; and
- The crossover, between Third and Fourth Streets, immediately south of Harrison Street, where features, deposits, and artifacts associated with post-1850s commercial and residential use of the area may exist.

3. All activities regarding history and archaeology that are carried out pursuant to this section of the PA shall be carried out by or under the direct supervision of a person or persons who meet or exceed the "Secretary of Interior's Professional Qualification Standards" in these disciplines.
4. If at any time during implementation of the RD-TP or of the NCS, archaeological resources are encountered, which MUNI or its consultant, in consultation with the San Francisco Planning Department, determines do not possess enough integrity to qualify for inclusion in the NRHP, FTA will promptly notify the SHPO of its determination and at its discretion, may terminate any further consideration of such resources.
5. If at any time during implementation of the NCS archaeological remains are encountered which MUNI and the San Francisco Planning Department determine possess integrity, MUNI will evaluate the remains using the NRHP Criteria of Eligibility established in the RD-TP. The identification, evaluation and treatment Phases will be integrated into a single operation consistent with the RD-TP. When archaeological deposits are determined eligible, MUNI will notify FTA and the SHPO of the determination and then proceed with treatment in accordance with the RD-TP. All archaeological material appropriate for curation as determined by MUNI and its consultant, in consultation with the SHPO, shall be placed with an appropriate local repository, if feasible.
6. Upon completion of field investigations, comprehensive technical reports resulting from implementation of the RD-TP and from the treatment of resources not specifically addressed in the RD-TP (if any are encountered) shall be prepared that integrate the important archaeological data recovered through excavation with the information gathered through archival research, and address relevant research considerations. MUNI shall ensure that all technical reports prepared pursuant to this PA are provided to the consulting parties and shall ensure that all technical reports prepared pursuant to this PA are provided to the consulting parties and shall ensure that all such reports meet the published standards of the California Office of Historic Preservation, specifically *Preservation Planning Bulletin* Number 4(a), "Archaeological Resources Management Reports (ARMR): Recommended Contents and Format" (October 1989). Reports will be submitted in draft form by MUNI to FTA, the San Francisco Planning Department, and the SHPO for a review period not to exceed fifteen (15) working days. Any comments received during this time frame will be incorporated into final reports by MUNI or its consultant. MUNI or its consultant will ensure that all reports are responsive to the "Secretary of the Interior's Standards and Guidelines for Archaeological Documentation" (48 FR 44734-37) and to relevant SHPO guidelines. Upon completion, copies of all final reports will be provided to the SHPO, the Council, FTA, and others identified in the RD-TP.

### III. Confidentiality

Confidentiality regarding the nature and location of any archaeological sites in this PA shall be maintained on a "need to know" basis limited to appropriate personnel and consultants of the FTA, MUNI, the San Francisco Planning Department, the SHPO and the Council involved in the planning, reviewing and implementing of this PA consistent with Section 304 of the NHPA.

The following stipulations apply to both Phases of the Undertaking, if implemented:

#### IV. Amendment or Addendum to this Agreement

Any party to the PA may request that it be amended or recommend an addendum, whereupon the parties shall consult to consider such amendment or addendum. Any amendment or addendum shall be executed in the same manner at the original PA.

#### V. Dispute Resolution

Unless otherwise specified in this PA, should any party object within thirty (30) days to actions pursuant to this PA, FTA shall consult with the objecting party to resolve the objection. If FTA determines that the objections cannot be resolved, FTA shall forward all documentation relevant to the dispute to the Council. Within thirty (30) days after receipt of all pertinent documentation, the Council will either:

- a) provide FTA with recommendations, which FTA will take into account in reaching a final decision regarding the dispute; or
- b) notify FTA that it will comment pursuant to 36 CFR Part 800.6(b), and proceed to comment. Any Council comment provided in response to such a request will be taken into account by FTA in accordance with 36 CFR Part 800.6(c)(2) with reference to the subject dispute.

Any recommendation or comments provided by the Council will be understood to pertain only to the subject of the dispute; FTA's responsibility to carry out all actions under the PA that are not the subject of the dispute will remain unchanged.

#### VI. Public Objection

At any time during the implementation of the measures stipulated in this PA, should an objection to any such measure or its manner or implementation be raised by a member of the public, FTA shall take the objection into account and consult as needed with the objecting party, the SHPO and the Council to resolve the objection.

#### VII. Termination of this Programmatic Agreement

- a) If the FTA determines that it cannot implement the terms of this PA or if the SHPO or the Council determines that the PA is not being properly implemented, the FTA, the SHPO or the Council may propose to the other consulting parties that this Programmatic Agreement be terminated.
- b) The party proposing to terminate this PA shall notify all consulting parties to this explaining the reasons for termination and affording them at least 30 calendar days, but not more than 60 calendar days, to consult and seek alternatives to termination.
- c) Should such consultation fail and the PA be terminated, the FTA shall either:
  - 1). Consult in accordance with Section 106 of the NHPA to develop a new PA; or
  - 2). Request the comments of the Council in accordance with Section 106 of the NHPA.

Execution of this Programmatic Agreement and implementation of its terms evidence that the FTA has afforded the Council an opportunity to comment on the Undertaking, and on the Undertaking's effects on historic properties, and that the FTA has taken into account the effects of the Undertaking on historic properties.

# **MEMORANDUM OF AGREEMENT**

between the

**U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL TRANSIT ADMINISTRATION**

and the

**CALIFORNIA STATE HISTORIC PRESERVATION OFFICER**

and the

**CITY AND COUNTY OF SAN FRANCISCO  
MUNICIPAL TRANSPORTATION AGENCY**

regarding the

**CENTRAL SUBWAY/THIRD STREET LIGHT RAIL PHASE 2,  
IN THE CITY AND COUNTY OF SAN FRANCISCO, CALIFORNIA**

**WHEREAS**, A Programmatic Agreement among the Federal Transit Administration, the California Historic Preservation Officer and the Advisory Council on Historic Preservation for the construction of the Third Street Light Rail/New Central Subway was included as part of the Record of Decision for the 1998 Final EIS/EIR; and

**WHEREAS**, The Federal Transit Administration (FTA) plans to assist the San Francisco Municipal Transportation Agency (SFMTA) to implement the Central Subway, Phase 2 of the Third Street Light Rail (undertaking) pursuant to the New Starts Funds process under Section 5309 of Title 49 of the United States Code, and the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU); and

**WHEREAS**, 36 CFR 800 et seq. requires that federal agencies take into account the effects of their projects on historic properties; and

**WHEREAS**, The undertaking consists of the construction of an underground subway, one surface station and three subway station facilities, to connect the existing T-Third light rail system at Fourth and King Streets with the Bay Area Rapid Transit District (BART) at Market Street and under Stockton Street into Chinatown; and

**WHEREAS**, FTA and SFMTA have thoroughly considered alternatives to the Undertaking, including a No-Build Alternative (Alternative 1) and three Build Alternatives (2, 3A, and 3B) that have been analyzed in the Draft and Final Supplemental Environmental Impact Statement/Environmental Impact Report (SEIS/SEIR); and

**WHEREAS,** On February 19, 2008, the SFMTA Board of Directors selected Alternative 3B as the Locally Preferred Alternative; and

**WHEREAS,** FTA has defined the undertaking's Area of Potential Effects (APE) as described in Attachment A; and

**WHEREAS,** FTA has determined that the undertaking may have an adverse effect on the historic properties described in Attachment B, several of which are listed in and others eligible for listing in the National Register of Historic Places, as well as additional archaeological properties as yet unidentified, and has consulted with the California Historic Preservation Officer (SHPO) pursuant to 36 CFR 800 of the regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. § 470f). One historic architectural resource (814-828 Stockton Street for Alternative 3A or 933-949 Stockton Street for Alternative 3B- the Locally Preferred Alternative), identified as a contributor to the NRHP-eligible Chinatown Historic District, would be demolished, constituting an adverse effect to historic properties; and

**WHEREAS,** Upon full execution of this MOA, SFMTA will administer the undertaking with the guidance and approval of FTA; and

**WHEREAS,** SFMTA and the San Francisco Planning Department Major Environmental Analysis section (SF-MEA) have participated in this consultation and have been invited to sign this MOA as concurring parties; and

**WHEREAS,** SF- MEA has consulted with the San Francisco Architectural Heritage Commission, the San Francisco Landmarks Preservation Advisory Board, and the Chinatown Community Development Center regarding the effects of the undertaking on historic properties; and

**WHEREAS,** In accordance with 36 CFR 800.6(a)(1), FTA has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination with specified documentation and has invited the ACHP to participate in the consultation pursuant to 36 CFR 800.6(a)(1)(iii). The ACHP has declined to participate.

**NOW, THEREFORE,** FTA, the SHPO and SFMTA agree that the Undertaking shall be implemented in accordance with the following stipulations in order to take into account the adverse effect of the Undertaking on historic properties and further agree that these Stipulations shall govern the Undertaking and all of its parts until this MOA expires or is terminated.

## STIPULATIONS

FTA shall ensure that the following measures are carried out:

### I. ADMINISTRATIVE PROVISIONS

#### A. STANDARDS

1. **Definitions.** The definitions provided at 36 CFR 800.16 are applicable throughout this MOA.
2. **Professional Qualifications.** All activities regarding history, historic preservation, historic architecture, architectural history, historical archaeology, and prehistoric archaeology that are performed pursuant to this MOA will be carried out by or under the direction of persons meeting, at a minimum, the Secretary of the Interior's Professional Qualification Standards (48 FR 44738-9) in the appropriate discipline.
3. **Documentation Standards.** Written documentation of activities regarding history, historic preservation, historic architecture, architectural history, historical archaeology, and prehistoric archaeology that are carried out pursuant to this MOA will conform to the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR 44716-44740) as well as to the applicable standards and guidelines established by the ACHP and the California Office of Historic Preservation.
4. **Archaeological Curation and Curation Standards.** Records and archaeological materials resulting from all archaeological investigations and other treatments that are carried out pursuant to this MOA will be curated in accordance with Curation of Federally-Owned and Administered Archeological Collections (36 CFR 79).

### II. TREATMENT OF HISTORIC PROPERTIES

FTA shall ensure that the adverse effects of the Undertaking on archaeological resources and historic buildings and structures are resolved by implementing the Mitigation Measures and Historic Properties Treatment Plan (HPTP) specified in the Final Supplemental Environmental Impact Statement/Environmental Impact Report (SEIS/SEIR) and included as Attachment C to this MOA. FTA or SFMTA will not authorize the execution of any Undertaking activity that may affect (36 CFR Section 800.16(i)) historic properties in the Area of Potential Effects (APE) prior to the completion of



the processes that the HPTP in Attachment C of this MOA prescribes. Future changes to the HPTP would not require an amendment to this MOA.

### **III. NATIVE AMERICAN CONSULTATION**

FTA or designee shall ensure that all State and federal laws and regulations regarding Native American concerns are strictly enforced. Prior to construction, FTA or its designee shall initiate consultation with a representative of the Native American group having traditional authority over the APE. The goal of this consultation will be to come to agreement on protocols to be followed if prehistoric resources are discovered. A consultant from this Native American group shall be solicited and, if possible, engaged to monitor all testing and excavation on prehistoric archaeological sites. Though there is no federally recognized tribe whose traditional territory includes San Francisco, the area was traditionally Ohlone. The practice for projects in San Francisco is to contact an individual who is listed as Ohlone on the State of California Native American Heritage Commission's contact list.

### **IV. TREATMENT OF HUMAN REMAINS**

The MOA parties agree that the treatment of human remains and associated or unassociated funerary objects discovered during any project activity shall comply with applicable State (Section 7050.5(b) of the California Health and Safety Code) and Federal laws. This shall include immediate notification to the Coroner of the City and County of San Francisco if human remains are discovered. In the event the Coroner determines that the human remains are Native American, the Coroner shall notify the California State Native American Heritage Commission, which shall appoint a Most Likely Descendant (MLD) (Pub. Res. Code Sec. 5097.98). The archeological consultant, FTA or its designee, and the MLD shall make all reasonable efforts to develop an agreement for the treatment of, with appropriate dignity, human remains and associated or unassociated funerary objects (CEQA Guidelines. Sec. 15064.5(d)). The agreement should take into consideration the appropriate excavation, removal, recordation, analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects.

### **V. CONFIDENTIALITY**

The MOA parties acknowledge that the historic properties covered by this MOA are subject to the provisions of Section 304 of the National Historic Preservation Act of 1966 and Section 6254.10 of the California Government code (Public Records Act), relating to the disclosure of archaeological site information and, having so acknowledged, will ensure that

all actions and documentation prescribed by this MOA are consistent with said sections.

## **VI. POST REVIEW DISCOVERIES**

If previously unidentified historic properties are discovered or unanticipated effects on known historic properties are found, FTA shall implement the Post-Review Discovery Plan described in Appendix C.

## **VII. MONITORING AND REPORTING**

FTA or designee shall provide all parties to this MOA a summary report detailing work undertaken pursuant to its terms annually on the anniversary of the execution of this MOA until it expires or is terminated. This report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in FTA's efforts to carry out the terms of this MOA.

## **VIII. DISPUTE RESOLUTION**

Should any signatory or concurring party to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, FTA shall consult with such party to resolve the objection. If FTA determines that such objection cannot be resolved, FTA will:

A. Forward all documentation relevant to the dispute, including FTA's proposed resolution, to the ACHP. The ACHP shall provide FTA with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, FTA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. FTA will then proceed according to its final decision.

B. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, FTA may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, FTA shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories and concurring parties to the MOA, and provide them and the ACHP with a copy of such written response.

C. FTA's responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.

## **IX. AMENDMENTS**

Any signatory party to this MOA may propose that this MOA be amended, whereupon all signatory parties shall consult for no more than thirty (30) days to consider such amendment. The amendment will be effective on the date a copy signed by all of the original signatories is filed with the ACHP. If the signatories cannot agree to appropriate terms to amend the MOA, any signatory may terminate the agreement in accordance with Stipulation X below. Potential changes to the HPTP described in Appendix C would not require an amendment to this MOA.

## **X. TERMINATION**

If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation IX, above. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.

Once the MOA is terminated, and prior to work continuing on the undertaking, FTA must either (a) execute an MOA pursuant to 36 CFR 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR 800.7. FTA shall notify the signatories as to the course of action it will pursue.

Execution of this MOA by the FTA and SHPO and implementation of its terms evidence that FTA has taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment.

## **XI. ANTI-DEFICIENCY ACT**

FTA's obligations under this MOA are subject to the availability of appropriated funds, and the stipulations of this MOA are subject to the provisions of the Anti-Deficiency Act. FTA will make reasonable and good faith efforts to secure the necessary funds to implement this MOA in its entirety. If compliance with the Anti-Deficiency Act alters or impairs FTA's ability to implement the stipulations of this agreement, FTA will consult in accordance with the amendment and termination procedures found at Stipulations IX and X of this agreement.

## **XII. BUDGET AND FISCAL PROVISIONS**

SFMTA's obligations under this MOA are subject to the budget and fiscal provisions of the Charter of the City and County of San Francisco. SFMTA will make reasonable and good faith efforts to secure the necessary funds to implement this MOA in its entirety. If compliance with the Charter alters or impairs SFMTA's ability to implement the stipulations of this agreement, SFMTA will consult in accordance with the amendment and termination procedures found at Stipulations IX and X of this agreement.

## **XIII. EFFECTIVE DATE AND DURATION**

This MOA will take effect on the date that it has been executed by FTA, SFMTA and the SHPO. Execution of this MOA and filing with the ACHP in accordance with 36 CFR 800.6(b)(1)(iv), and subsequent implementation of its terms, shall evidence, pursuant to 36 CFR 800.6(c), that FTA intends this MOA as the vehicle by which adverse effects of the Undertaking are to be resolved, and shall further evidence that FTA has afforded the ACHP an opportunity to comment on the Undertaking and its effect on historic properties, and that SFMTA has taken into account the effect of the Undertaking on historic properties. This MOA will be null and void if its terms are not carried out within fifteen (15) years from the date of execution.

**SIGNATORIES:**

**FEDERAL TRANSIT ADMINISTRATION**

\_\_\_\_\_ **Date**  
**Leslie T. Rogers**  
Regional Administrator

**CALIFORNIA STATE HISTORIC PRESERVATION OFFICER**

\_\_\_\_\_ **Date**  
Milford Wayne Donaldson, FAIA  
**State Historic Preservation Officer**

**CITY AND COUNTY OF SAN FRANCISCO**  
**San Francisco Municipal Transportation Agency**

**Approved as to Form:**  
Dennis J. Herrera, City Attorney

\_\_\_\_\_ **Date**  
Nathaniel P. Ford, Sr.  
Chief Executive Officer/CEO

\_\_\_\_\_  
Robin M. Reitzes  
Deputy City Attorney

**ATTACHMENTS**

ATTACHMENT A: HPSR (including APE maps) *HPSR available for review at Planning Department (APE maps in Appendix D)*

ATTACHMENT B: Finding of Adverse Effect *Findings of Effect available for review at Planning Department*

ATTACHMENT C: Historic Properties Treatment Plan

ATTACHMENT D: SHPO's letter concurring with FTA's evaluations of historic properties within the APE (11/5/07) and SHPO's letter concurring with FTA's Finding of Adverse Effect (7/9/08) *11/5/07 letter in Appendix F*

**.ATTACHMENT A: HPSR (including APE maps)**

## **ATTACHMENT B: Finding of Adverse Effect**

## **ATTACHMENT C: Historic Properties Treatment Plan**

This Historic Properties Treatment Plan (HPTP) is summarized from the Central Subway Final Supplemental Environmental Impact Statement/Environmental Impact Report describing mitigation measures for potential adverse impacts to historic buildings and structures and to archaeological resources within the Area of Potential Effects (APE) for the Undertaking.

This HPTP includes provision for: post-review discovery of previously unknown archaeological resources during construction; implementation of an archaeological monitoring program; implementation of a program-level archaeological research design and treatment plan; implementation of an archaeological testing program; implementation of an archaeological data recovery program; and preparation of a Final Archaeological Resources Report at the conclusion of construction of the Central Subway Undertaking.

### **I. MITIGATION MEASURES FOR EFFECTS ON BUILDINGS AND STRUCTURES**

OHP has concurred with FTA that the APE contains 97 buildings and structures that are either individually eligible to be included in the NRHP or are eligible as contributors to a historic district. NRHP-eligible and listed historic properties adjacent to the tunnel portal and station area may be affected by vibration and visual impacts. One historic architectural resource (814-828 Stockton Street for Alternative 3A or 933-949 Stockton Street for Alternative 3B- the Locally Preferred Alternative), identified as a contributor to the NRHP-eligible Chinatown Historic District, would be demolished, constituting an adverse effect to historic properties. Demolition and removal of the proposed building would also create a visual break in the cohesive grouping of related historic buildings and visually impact NRHP-eligible properties on the adjacent block.

#### **A. Mitigation Measures for Vibration Impacts**

The potential effects of vibration on historic properties within the APE—such as ground settlement caused by construction-related activities—was addressed through consultation with a noise and vibration specialist. The following mitigation measures will be carried out to minimize the potential for vibration impacts to historic properties during construction and to avoid having an adverse impact on certain properties:



- Potential effects of vibration during construction will be reduced by pre-drilling for pile installation in areas that would employ secant piles with ground-supporting walls in the cut-and-cover technology.
- Vibration monitoring will be specified in construction documents to ensure that historic properties do not sustain damage during construction. A good faith plan to ensure that vibration impacts to historic buildings would be mitigated will include a provision that the construction contractor will be responsible for the protection of vibration-sensitive historic building structures that are within 200 feet of any construction activity. The maximum peak particle vibration (PPV) velocity level, in any direction, at any of these structures should not exceed 0.12 inches/second for any length of time. An independent Environmental Compliance Monitor (ECM) will be retained to monitor construction to make sure that environmental conditions are met. The ECM will be required to perform periodic vibration monitoring at the closest structure to any construction activities using approved seismographs. If at any time the construction activity exceeds this level, that activity will immediately be halted until such time as an alternative construction method can be used that would result in lower vibration levels.
- The ECM will conduct a training program at the start of construction to educate the construction contractor and consultants about the sensitivity of historic properties to construction-related vibration. In addition, the ECM will retain the services of a City-approved preservation architect or architectural historian to monitor construction effects to historic properties in the APE.

According to the Noise and Vibration Impact Analysis in the project SEIS/SEIR, vibration caused by the operation of passenger trains on the Central Subway will not impact adjacent historic properties.

#### B. Mitigation Measures for other Vibration-related Construction Impacts

To ensure that the historic Triangular Street Lights and the Washington Street streetlights are not impacted by vibration and construction equipment, SFMTA will implement a mitigation plan that will include the following: The contractor will ensure that vibration-sensitive historic street lights within 50 feet of any construction activity are protected; the plan will include temporary removal and storage of glass globes during construction in a specific area and installation of construction barriers adjacent to the light poles.

### C. Mitigation Measures for Visual Impacts

As most of the undertaking consists of underground facilities, visual impacts will primarily be limited to the duration of construction. These impacts will be addressed during the construction and design phase. Prior to construction, the design for each of the stations will be reviewed for compliance with the Secretary of the Interior's Standards based on their compatibility with the character-defining features of each of the districts. New building designs will reinforce the established character of the historic district and visual continuity of the streetscape.

### D. Mitigation Measures for Demolition of Contributing Elements to a NRHP-eligible District

Contributing elements to an NRHP-eligible district located within the APE will be demolished. Mitigation measures are presented below:

Construction of the Chinatown Station would result in the complete or partial demolition of a contributing property in the Chinatown Historic District (one of 371 contributing buildings in the Chinatown District). The following mitigation measures will be carried out:

- Partial preservation through rehabilitation, in compliance with the Secretary of the Interior's Standards, and reuse of the building as the Chinatown Station.
- Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) documentation will be prepared. The level of documentation will conform to HABS/HAER standards as determined through consultation with the City Landmarks Board and SHPO.
- The expertise of an architectural historian will be employed in the development phase of the station to develop a design that is culturally appropriate to the setting and to the Chinatown community, representatives of which will be consulted regarding the design.
- Salvaged architectural features from the demolished building will be used in an educational exhibit inside the new station or utilized for the repair and rehabilitation of other historic buildings. The architectural elements will be disassembled in a manner that minimizes damage.
- In consultation with the City Landmarks Board and SHPO, SFMTA will design and construct a permanent interpretive display for public use on the entire route. The

display may be placed within the subway cars or on the walls of the subway stations. This display would include information about the demolished buildings as well as historic information about the buildings, historic districts, neighborhoods, important individuals, and businesses surrounding the alignments through which the Central Subway will pass. Before preparing the display, a historian will undertake contextual research to elucidate the role of the building in the events and for which it is significant. The historian or other qualified individual will conduct oral history interviews to gather data to enhance the display.

## II. MITIGATION MEASURES FOR EFFECTS ON ARCHAEOLOGICAL SITES

Effects on archaeological resources within the APE may include direct construction impacts on known archaeological sites that are currently deeply buried and effects on as yet undiscovered sites that may be inadvertently exposed during the construction process. Potential effects on archaeological resources of each undertaking alternative are summarized below:

- No known prehistoric archaeological resources will be affected by this Undertaking. However, geoarchaeological analysis has identified six locations of moderate or high sensitivity for prehistoric archaeological remains. One recorded historical archaeological site, CA-SFR-137H, is within the horizontal APE and will be impacted by construction. In addition, geoarchaeological and historical analysis has identified 13 to 15 locations that have moderate or high sensitivity for historic-era archaeological resources.

Additional prehistoric and historic archaeological resources recorded nearby may extend into the project APE. These resources may be historic properties. Identification and evaluation of archaeological resources will be deferred until construction has begun because of the potential for buried deposits in this urban environment.

### A. Mitigation Measures for Effects on Archaeological Resources

**Prehistoric Archaeological Properties.** Construction impacts will not affect any known prehistoric resources. However, geoarchaeological and historical analysis, described in detail in the Historic Context and Archaeological Survey Report (ASC 2007), identified at least six locations of prehistoric archaeological sensitivity in the proposed alignment. As no test investigations have been undertaken, there is no solid evidence confirming that subsurface prehistoric cultural deposits are present at these locations. The Post Review

Discovery Plan, outlined below, will be implemented if subsurface prehistoric archaeological resources are uncovered during construction.

**Historic-era Archaeological Properties.** One known historical archaeological resource may be affected by project activities within this alternative. CA-SFR-137H consists of the buried remains of a historic city block (bounded by Fourth, Fifth, Harrison, and Bryant streets, and intermediate streets). The location will be used for a construction yard. Resources include the archaeological remains of residential and commercial buildings, 1906 earthquake/fire debris, intact ground surfaces, and hollow-filled features from the 1870s. The site is eligible to the NRHP under Criterion D.

The block-by-block historic overview, developed in the HCASR to predict areas of potential historical archaeological sensitivity, identified at least 15 locations at which archaeological resources may be encountered.

The Post Review Discovery Plan, outlined below, will be implemented if subsurface historic-era archaeological resources are uncovered during construction.

### **Mitigation Measures for Archaeological Resources**

Based on a reasonable presumption that archeological resources may be present within the APE, the following measures shall be undertaken to mitigate the project's potential adverse effects on important, buried archaeological properties:

- SFMTA shall retain the services of a qualified archeological consultant having expertise in California prehistoric and urban historical archeology.
- The archeological consultant shall undertake an archaeological testing program as specified herein. In addition, the consultant shall be available to conduct an archaeological monitoring and/or data recovery program if required pursuant to this measure.
- An Archaeological Monitoring Plan (AMP), described below, shall be prepared and implemented. The document shall specify that areas of moderate and high archaeological sensitivity will be monitored by a qualified archaeologist;
- Post-review discoveries shall be treated according to the Post-Review Discovery Plan, below;
- A Program Level Archaeological Research Design and Treatment Plan (ARDTP) and the other documents described below, shall be prepared and implemented;
- The archaeological consultant's work shall be conducted in accordance with this measure at the direction of FTA's and SFMTA's designee—the Environmental Review Officer (ERO) of the City and County of San Francisco. All plans and

reports prepared by the consultant as specified herein shall be submitted first and directly to the ERO for review and comment, and shall be considered draft reports subject to revision until final approval by the ERO.

- Archaeological monitoring and/or data recovery programs required by this measure could suspend construction for up to a maximum of four weeks. At the direction of the ERO (in consultation with SFMTA), the suspension of construction can be extended beyond four weeks only if such a suspension is the only feasible means to reduce to a less-than-significant level potential effects on a significant archaeological resource.

SFMTA or the ERO as the FTA designee will implement these principles by implementing the following actions to identify, evaluate, and treat important archaeological properties.

### **Post-Review Discovery Plan**

Previously unknown archaeological resources discovered during project construction will be treated according to the requirements of 36 CFR 800.13. The following actions will be taken to ensure that post-review discoveries will be treated appropriately:

- FTA or its designee will ensure that archaeological resources discovered during construction that may constitute historic properties will be protected in place until they can be evaluated with regard to their eligibility to NRHP;
- Construction may continue around the resources during the evaluation process to the degree that the resources' values are not affected;
- FTA or its designee shall inform SHPO and ACHP of the discovery within 48 hours;
- Resources shall be evaluated by applying the NRHP Criteria for Evaluation at 36 CFR 60.4 and, if prehistoric, in consultation with an Ohlone Native American representative;
- The evaluation process shall employ and be guided by the program level Archaeological Research Design and Treatment Plan described below;
- FTA shall consider such resources eligible for NRHP for the purposes of Section 106 compliance until a formal evaluation has been completed;
- FTA or its designee shall consult with SHPO concerning the appropriate treatment strategy for resources determined to be historic properties including, as appropriate, archaeological data recovery, the creation of technical and popular reports, and other public outreach products;
- FTA or its designee shall provide SHPO and ACHP with a report on the treatment of NRHP-eligible resources;
- Human remains will be treated according to the protocol described above, the consultation with the appropriate Ohlone Native American representative as

required under this MOA, and the ACHP's 2007 Policy Statement Regarding Treatment of Burial Sites, Human Remains, and Funerary Objects.

### **Prepare and Implement an Archaeological Monitoring Program**

Monitoring during construction by an archaeologist will be carried out within project sections identified as moderately or highly sensitive for prehistoric and/or historical archaeological deposits, as identified in the HCASR and through pre-construction exploration, and as determined through consultation with a qualified archaeologist. Identified resources will be evaluated and treated in accordance with the requirements of this MOA.

An Archaeological Monitoring Plan (AMP) shall be prepared that will establish policies (including an artifact collection policy), protocols (including a protocol to follow when archaeological remains are discovered), schedules, and reporting requirements that will govern the monitoring program. The archaeologist, FTA, and ERO shall meet and consult on the scope of the AMP reasonably prior to the commencement of any project-related soils disturbing activities. The plan shall take into account the results of consultation with the appropriate Native American group reported in the ARDTP.

The ERO, in consultation with the archeological consultant, shall determine which project activities shall be archeologically monitored. In most cases, soils-disturbing activities—such as demolition, foundation removal, excavation, grading, utilities installation, foundation work, driving of piles (foundation, shoring, etc.), site remediation, etc.—will require archeological monitoring because of the risk these activities pose to potential archaeological resources and to their depositional context.

The AMP shall contain the following provisions:

- The archeological consultant shall advise SFMTA and the Construction Management team to advise all project contractors to be on the alert for evidence of the presence of the expected resource(s), of how to identify the evidence of the expected resource(s), and of the appropriate protocol in the event of apparent discovery of an archeological resource;
- The archeological monitor(s) shall be present on the project site according to a schedule agreed upon by the archeological consultant and the ERO until the ERO has, in consultation with the project archeological consultant, determined that project construction activities could have no effects on significant archeological deposits;

- The archeological monitor shall record and be authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis;
- If an intact archeological deposit is encountered, all soils-disturbing activities in the vicinity of the deposit shall cease. The archeological monitor shall be empowered to temporarily redirect demolition/excavation/pile driving/construction activities and equipment until the deposit is evaluated. If in the case of pile driving activity (foundation, shoring, etc.), the archeological monitor has cause to believe that the pile driving activity may affect an archeological resource, the pile driving activity shall be terminated until an appropriate evaluation of the resource has been made in consultation with the ERO. The archeological consultant shall immediately notify the ERO of the encountered archeological deposit. The archeological consultant shall make a reasonable effort to assess the identity, integrity, and significance of the encountered archeological deposit, and present the findings of this assessment to the ERO;
- Whether or not significant archeological resources are encountered, the archeological consultant shall submit written reports of the findings of the monitoring program to the ERO and to FTA.

Resources discovered in this way shall be treated according to the Post-Review Discovery Plan, described above.

#### **Prepare and Implement a Program Level Archaeological Research Design and Treatment Plan (ARDTP)**

FTA or designee shall retain a qualified archaeologist to create a program level ARDTP. The purpose of this document is to establish the methodological and theoretical groundwork for archaeological investigations that will be carried out under this MOA. The ARDTP will be the first product to be created after the approval of this MOA and before the initiation of project ground-disturbing activities. Using data from the Historic Context and Archaeological Survey Report (ASC 2007) and other sources as necessary, the ARDTP will present an overall strategy for the identification, evaluation, and treatment of archaeological properties. Portions of the document may be taken verbatim from the HSCASR.

The ARDTP shall present:

- The project's regulatory context;

- Archaeological overviews, context statements, and property types for prehistoric and historical archaeology that can be used by investigations carried out under this MOA;
- Archaeological research issues and data requirements to be used in assessing sites' research potential;
- Criteria for evaluation as well as techniques to assist in evaluation, such as archaeological data thresholds;
- Field, analysis, and laboratory methods that will be employed;
- Identification of an archaeological collections facility that is willing to curate materials discovered and developed as the result of the implementation of this MOA;
- Structure of the various reports defined in this MOA;
- Strategies to disseminate the results to professional and public audiences;
- Products to be developed for public engagement and outreach;
- Results of consultation with the appropriate Native American group required under this MOA; and
- Sequence and timing of the various programs described below as well as coordination of these programs with the overall project construction schedule;
- Recommendations for next steps.

The ERO shall provide a draft to the SHPO, who shall be given the opportunity to comment.

#### **Prepare and Implement an Archaeological Testing Program.**

The purpose of the archeological testing program will be to determine the presence or absence of archeological resources and to evaluate whether any archaeological resource encountered constitutes a historic property. FTA and SFMTA shall direct a qualified archaeologist to prepare an Archaeological Testing Plan (ATP) that will formulate and guide the archaeological testing program. The Plan shall be submitted to the ERO for review and approval.

Using the HSCSR and the ARDTP, the ATP shall identify the property types of the expected archeological resource(s) that potentially could be adversely affected by the proposed Project, the testing methods to be used, and the locations recommended for testing. The plan shall take into account the results of consultation with the appropriate Native American group reported in the ARDTP. The feasibility and scope of the testing program shall be determined through consultation among FTA, SFMTA, the ERO, and the



consulting archaeologist. The program will be conducted once a final alignment has been identified.

The goal of testing shall be to determine the presence or absence of cultural deposits, site boundaries (within the APE), and the potential for project impacts to resources. If archaeological deposits are discovered, the program may be expanded to determine site structure and content, integrity, and potential NRHP eligibility. ATPs may be developed to intensively investigate individual locations—such as a broad expose at a proposed station site—or several locations project-wide (such as the use of trenching and/or Geoprobe to confirm the existence of archaeologically sensitive paleosols).

Despite high potential for archaeological resources within the project APE, it is not certain that resources will be affected or where this may occur. Engineering and other logistical concerns constrain most forms of pre-construction archaeological testing. However, limited subsurface testing using a push sampling device—such as a Geoprobe—may be feasible for determining whether archaeological deposits are present within the horizontal and vertical APE in certain especially sensitive locations identified in the HCASR. A field program of geoarchaeological exploration, conducted in conjunction with project-related geotechnical investigations as described in the HCASR, may help refine subsurface sensitivity assessments and rule out unproductive geologic units.

At the completion of the archeological testing program, the archeological consultant shall submit a written report of the findings to the ERO. If, based on the archeological testing program, the archeological consultant finds that significant archaeological resources may be present, the ERO in consultation with the archeologist shall determine what additional measures are warranted. Additional measures that may be undertaken include archaeological testing, evaluation, data recovery, or archaeological monitoring.

If the ERO determines that a significant archaeological resource is present and that the resource could be adversely affected by the undertaking, at the discretion of FTA either: (1) The undertaking shall be re-designed so as to avoid or minimize any adverse effect on the significant archeological resource; or (2) a data recovery program shall be implemented, unless the ERO determines that the archaeological property is of greater interpretive than research significance and that interpretive use of the property is feasible.

### **Prepare and Implement an Archaeological Data Recovery Program**

If important archaeological resources are discovered that will be disturbed by project activities, an archeological data recovery program shall be conducted in accord with an Archaeological Data Recovery Plan (ADRP). The purpose of the ADRP is to describe how the important values contained in an archaeological property that is to be subjected to data recovery will be extracted, analyzed, and documented. An ADRP will be prepared for each archaeological site subjected to data recovery. The archeological consultant, FTA, and ERO shall consult on the scope of the ADRP prior to preparation of a draft ADRP. FTA shall submit a draft ADRP to the ERO, who will give the SHPO the opportunity to comment on its provisions.

The ADRP shall identify how the proposed data recovery program will preserve the significant information and other values the site is expected to contain. That is, the ADRP will identify what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research issues. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods shall not be applied to portions of the archaeological resources if nondestructive methods are practical. The Plan shall take into account the results of consultation with the appropriate Native American group reported in the ARDTP.

The ADRP shall include the following elements:

- Field Methods and Procedures. Descriptions of proposed field strategies, procedures, and operations;
- Native American coordination;
- Cataloguing and Laboratory Analysis. Description of selected cataloguing system and artifact analysis procedures;
- Discard and Deaccession Policy. Description of and rationale for field and post-field artifact discard and deaccession policies;
- Interpretive Program. Consideration of an on-site/off-site public interpretive program during the course of the archeological data recovery program;
- Security Measures. Recommended security measures to protect the archeological resource from vandalism, looting, and non-intentionally damaging activities;
- Final Report. Description of proposed report format and distribution of results;
- Curation. Description of the procedures and recommendations for the curation of any recovered artifacts and records having potential research value, identification of

an appropriate curation facility, and a summary of the accession policies of the curation facility.

### **Prepare Final Archaeological Resources Report**

The archeological consultant shall submit a Draft Final Archeological Resources Report (FARR) to the ERO that evaluates the significance of any discovered archeological resource and describes the archeological and historical research methods employed in the archeological testing/monitoring/data recovery program(s) undertaken. Information that may put at risk any archeological resource shall be provided in a separate removable insert within the final report.

Once approved by the ERO, copies of the FARR shall be distributed as follows: SHPO shall receive one (1) copy. Northwest Information Center (NWIC) of the California Historical Resources Information System shall receive one (1) copy and the ERO shall receive a copy of the transmittal of the FARR to the NWIC. The Major Environmental Analysis division of the San Francisco Planning Department shall receive three copies of the FARR (one copy will be in PDF OCR converted searchable text format), along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places. In instances of high public interest in or the high interpretive value of the resource, the ERO may require a different final report content, format, and distribution than that presented above. FTA or designee shall submit a draft FARR to the ERO and the SHPO and to ACHP, who shall be given the opportunity to comment.

**ATTACHMENT D:** SHPO's letter concurring with FTA's evaluations of historic properties within the APE (11/5/07) and SHPO's letter concurring with FTA's Finding of Adverse Effect (7/9/08)

**APPENDIX D**

**FTA LETTER TRANSMITTING APE 2007 MAPS**

**SHPO LETTER APPROVING APE 2007 MAPS**

**SHPO LETTER OF CONCURRENCE WITH FINDINGS OF EFFECT**

**RECEIVED**

U.S. Department  
of Transportation  
Federal Transit  
Administration

**FEB 02 2007**  
**CITY & COUNTY OF S.F.**  
PLANNING DEPARTMENT  
M F A

REGION IX  
Arizona, California,  
Hawaii, Nevada, Guam  
American Samoa,  
Northern Mariana Islands

201 Mission Street  
Suite 1650  
San Francisco, CA 94105-1839  
415-744-3133  
415-744-2726 (fax)

**JAN 29 2007**

Milford Wayne Donaldson, FAIA  
Office of Historic Preservation  
California Department of Parks and Recreation  
1416 9<sup>th</sup> Street, Room 1442-7  
P.O. Box 942896  
Sacramento CA 94296-0001

Re: APE maps for MUNI Central Subway

Dear Mr. Donaldson:

The Federal Transit Administration (FTA) is submitting this revised APE for your review and approval as part of the Section 106 consultation process. Recall, in 1997, FTA sent a letter to the Office of Historic Preservation transmitting maps showing the proposed Area of Potential Effect (APE) for the Third Street Light Rail project in San Francisco. The project included two phases: the Initial Operating Segment (IOS) funded with local funds and a later phase (not yet funded) referred to as the Central Subway.

A Final EIS/EIR for the two phase project was approved by FTA and the City of San Francisco Planning Commission and Municipal Transportation Agency (MTA) Commission in 1998. A Programmatic Agreement for the project was signed by the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, the Federal Transit Administration, and the San Francisco Public Transportation Department in early 1999. (copy attached)

The IOS Phase 1 has been constructed from Visitation Valley along Bayshore Boulevard and Third Street to Fourth and Townsend Streets near the Caltrain Depot. The Phase 2 Central Subway project would extend the light rail project from the current terminus at Fourth and King Streets, primarily via subway, to a terminus in Chinatown on Stockton between Washington and Jackson Streets. The Supplemental EIS/EIR being prepared for this phase of the project will evaluate three alternatives to the approved project that was evaluated in the 1998 EIS/EIR, now referred to as the Base Case.

1. No-Project/TSM: Projects programmed in the financially constrained long range plan including the Third Street Light Rail Initial operating Segment, with associated bus improvements.
2. Enhanced EIS/EIR Alignment: The Phase 2 Build Alternative presented in the 1998 EIS/EIR with a shallow subway crossing of Market Street (Base Case), plus above-ground emergency ventilation shafts, off-sidewalk station entries where feasible, and the provision of a closed barrier fare system.

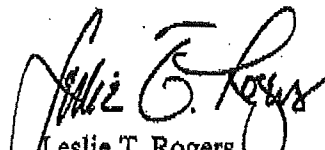
3. Fourth/Stockton Alignment: The Phase 2 Build Alternative with an alignment exclusively on Fourth and Stockton Streets and a deep subway crossing of Market Street, including two design options that assume variants of portal and station locations, and a possible tunnel extension to Columbus Street north of Union Street for extraction of tunneling equipment during construction.

These alternatives are further described and illustrated in the attached newsletter that was used for informational meetings. The key differences between the alternatives for the Central Subway phase of the project, and what was analyzed in the 1998 environmental document, are: the depth of the subway under Market Street, the addition of above-ground emergency ventilation shafts in lieu of the in-street pavement grids, station access located off sidewalks on property to be acquired by MUNI, a double subway under Fourth Street rather than a single subway under Third Street and Fourth Streets, and a possible extension of the tunnel to Columbus Street just north of Union Street to extract the construction equipment in a less constrained location than Chinatown.

The original APE for the Central Subway portion of the Third Street Light Rail project has been modified to include these changes to the project features. The revised APE has been approved by the San Francisco Planning Department, Office of Historic Preservation and Major Environmental Analysis cultural resource specialists.

Please contact Donna Turchie at (415) 744-2737 or Carole Denardo of Garcia and Associates at (805) 350-3134 if you have any questions, or if you need further information.

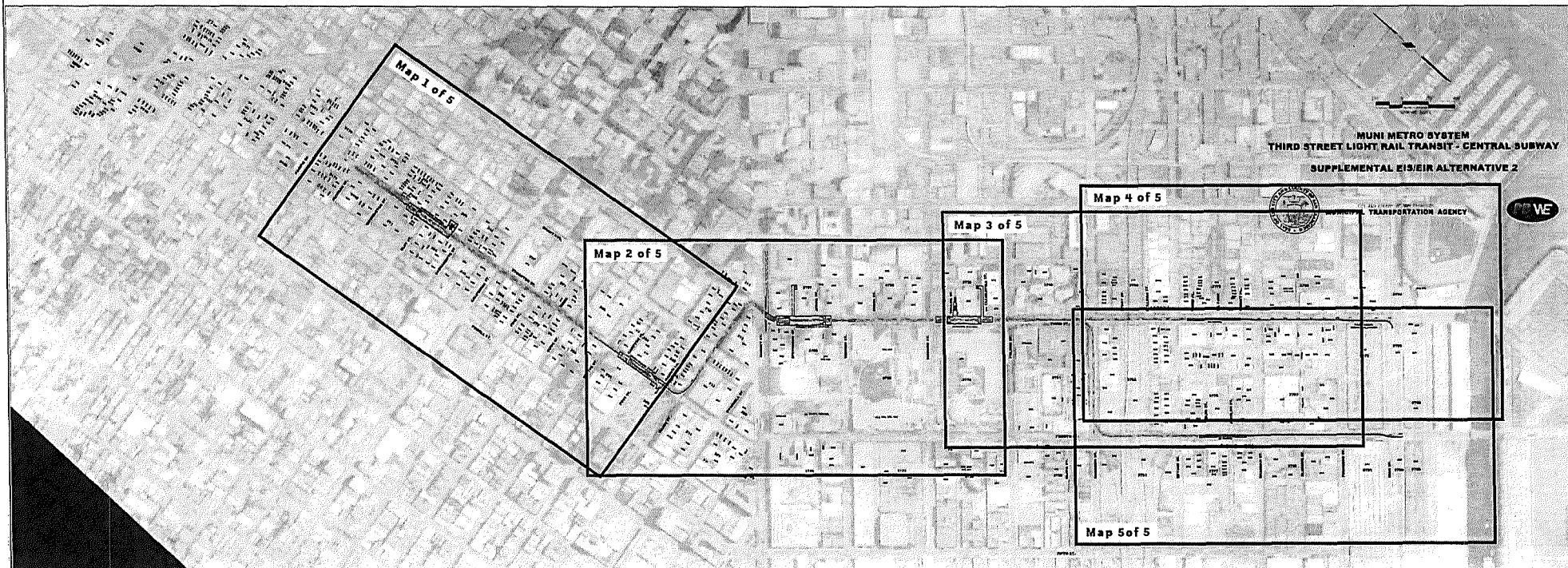
Sincerely,



Leslie T. Rogers  
Regional Administrator

Enclosures

→ cc: Joan Kugler, San Francisco Department of City Planning, MEA



**MUNI METRO SYSTEM  
THIRD STREET LIGHT RAIL TRANSIT - CENTRAL SUBWAY**

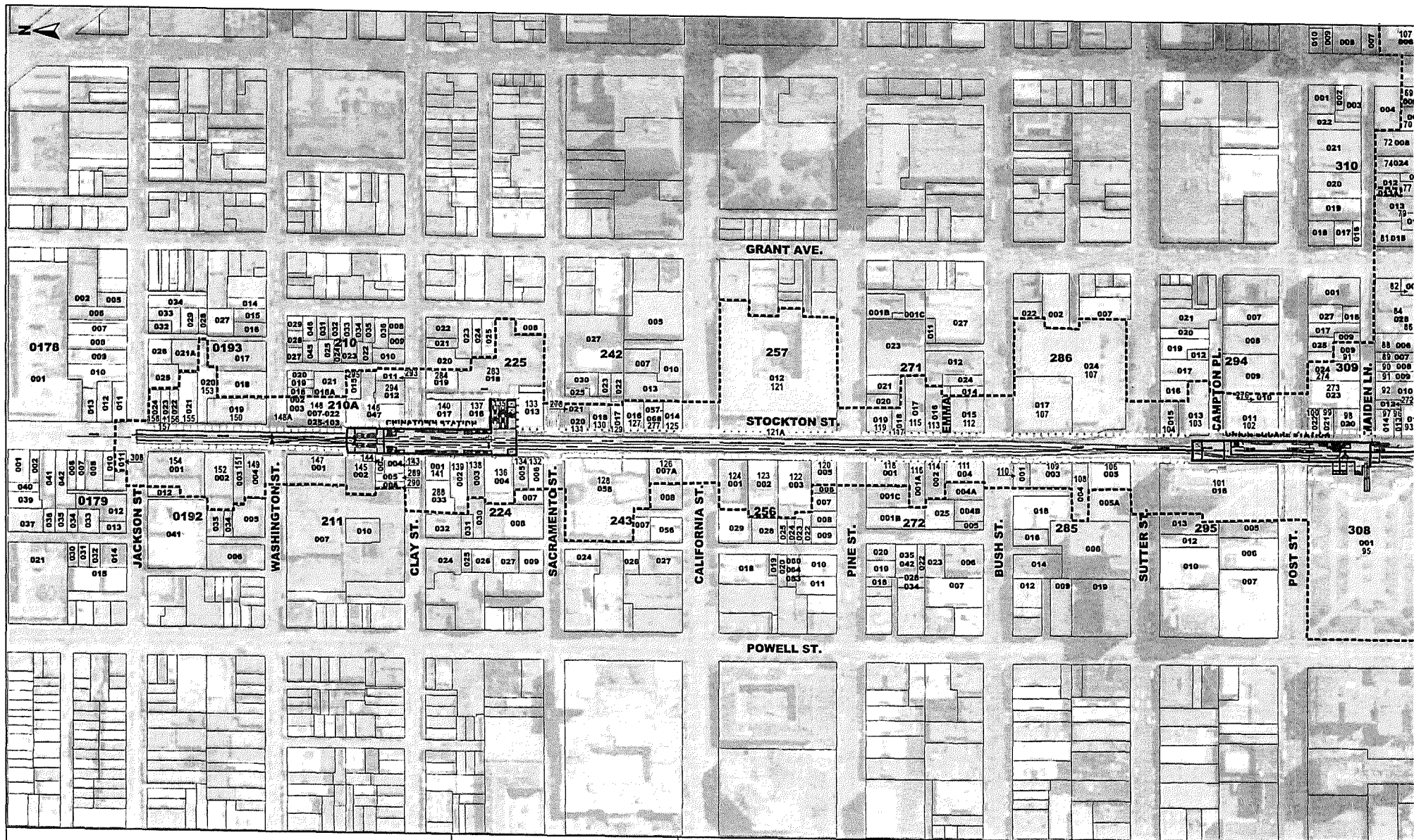
**Alternative 2  
Area of Potential Effects (APE)  
Archaeology and Architectural APE**

Alternative 2 - Index Map



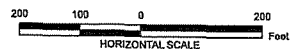
Prepared by Garcia and Associates and Sonoma State University





- Architectural Area of Potential Effect
- Archaeological Area of Potential Effect

- 128 Previously Surveyed
- 126 New Survey

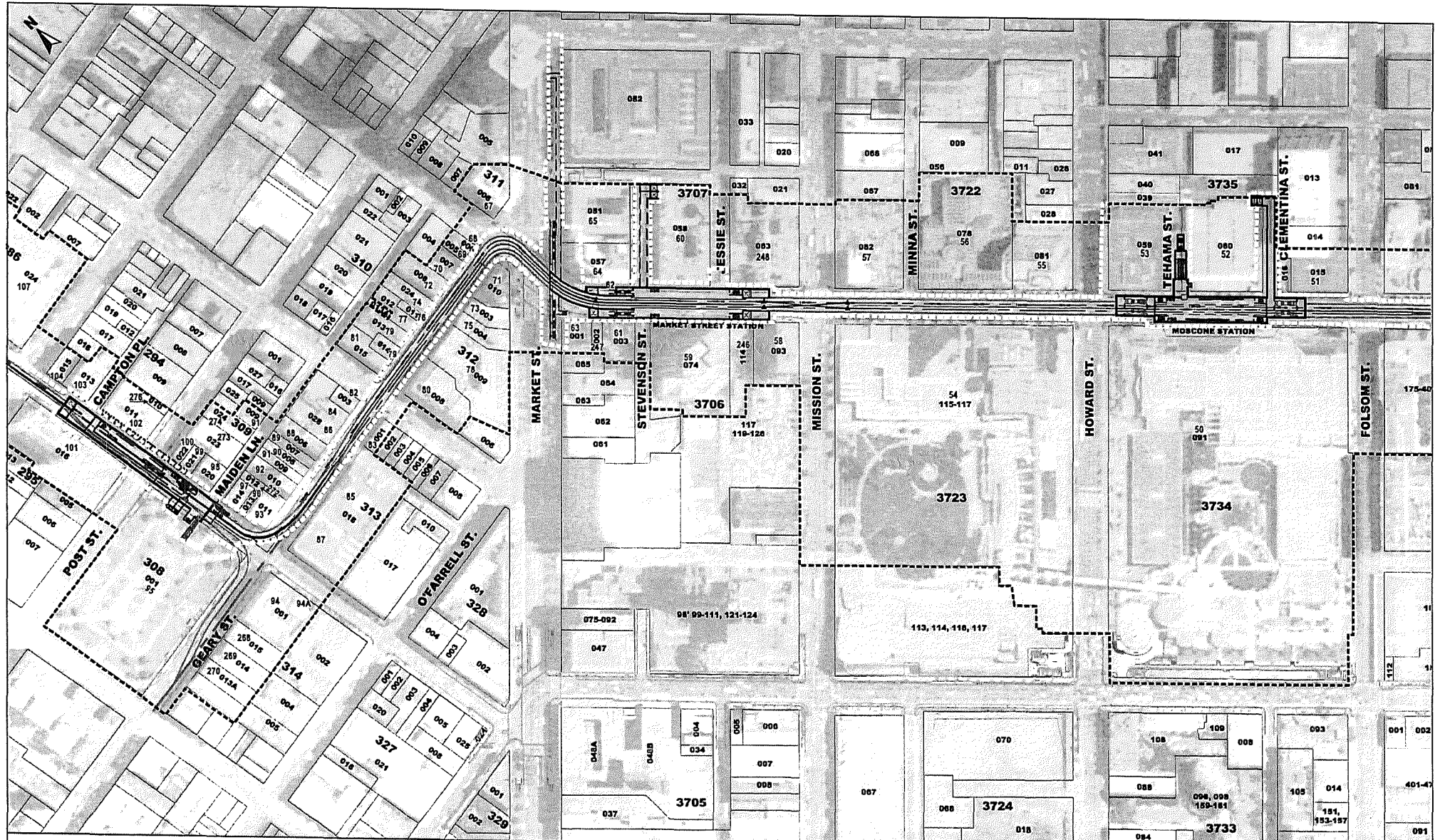


MUNI METRO SYSTEM  
THIRD STREET LIGHT RAIL TRANSIT - CENTRAL SUBWAY

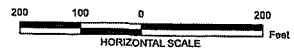
Alt 2  
Map 1 of 5



Prepared by Garcia and Associates and Sonoma State University



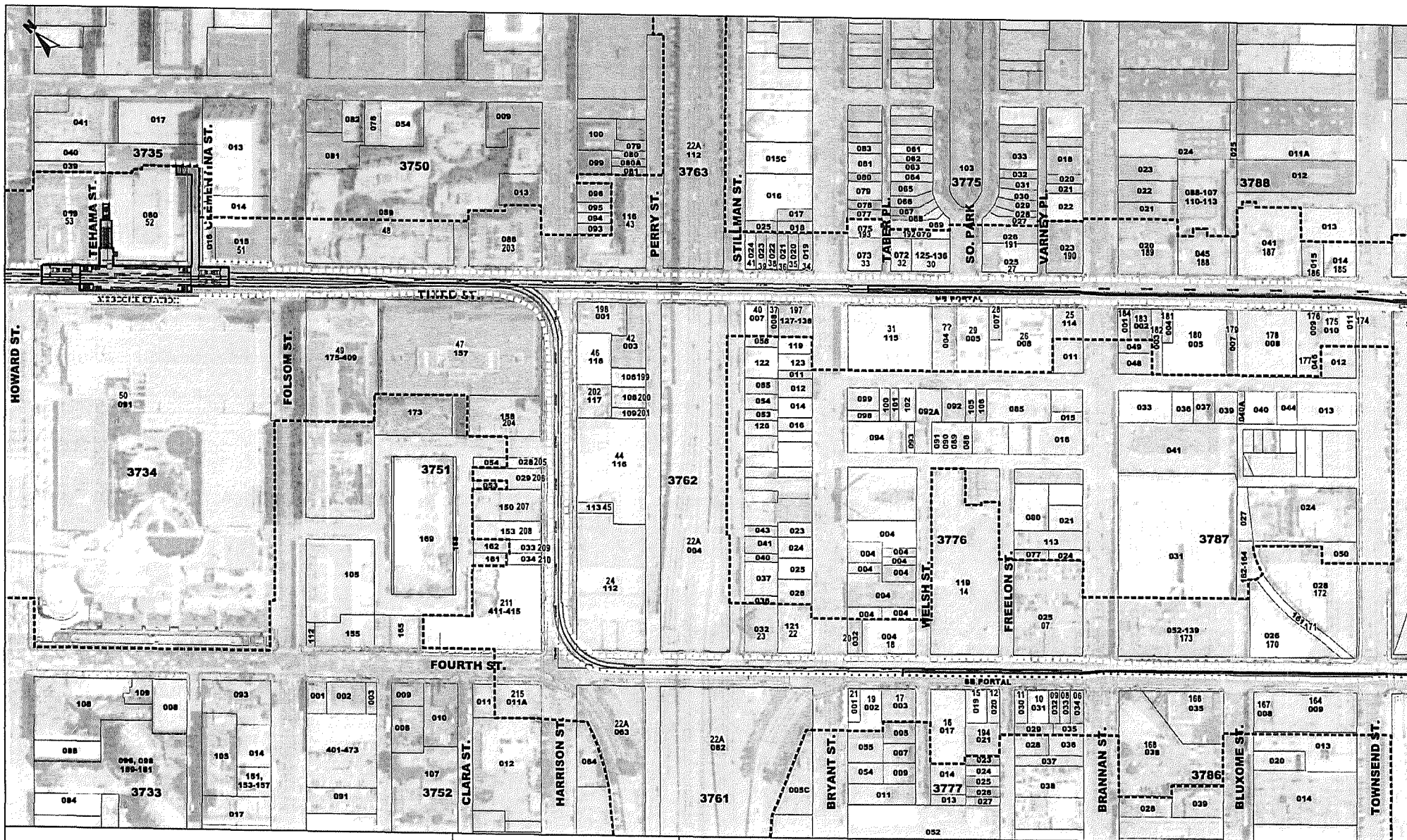
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- Archaeological Area of Potential Effect      128 New Survey



**MUNI METRO SYSTEM**  
**THIRD STREET LIGHT RAIL TRANSIT - CENTRAL SUBWAY**

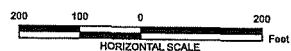
Alt 2  
 Map 2 of 5





----- Architectural Area of Potential Effect  
 ----- Archaeological Area of Potential Effect

120 Previously Surveyed  
 120 New Survey



MUNI METRO SYSTEM  
 THIRD STREET LIGHT RAIL TRANSIT - CENTRAL SUBWAY

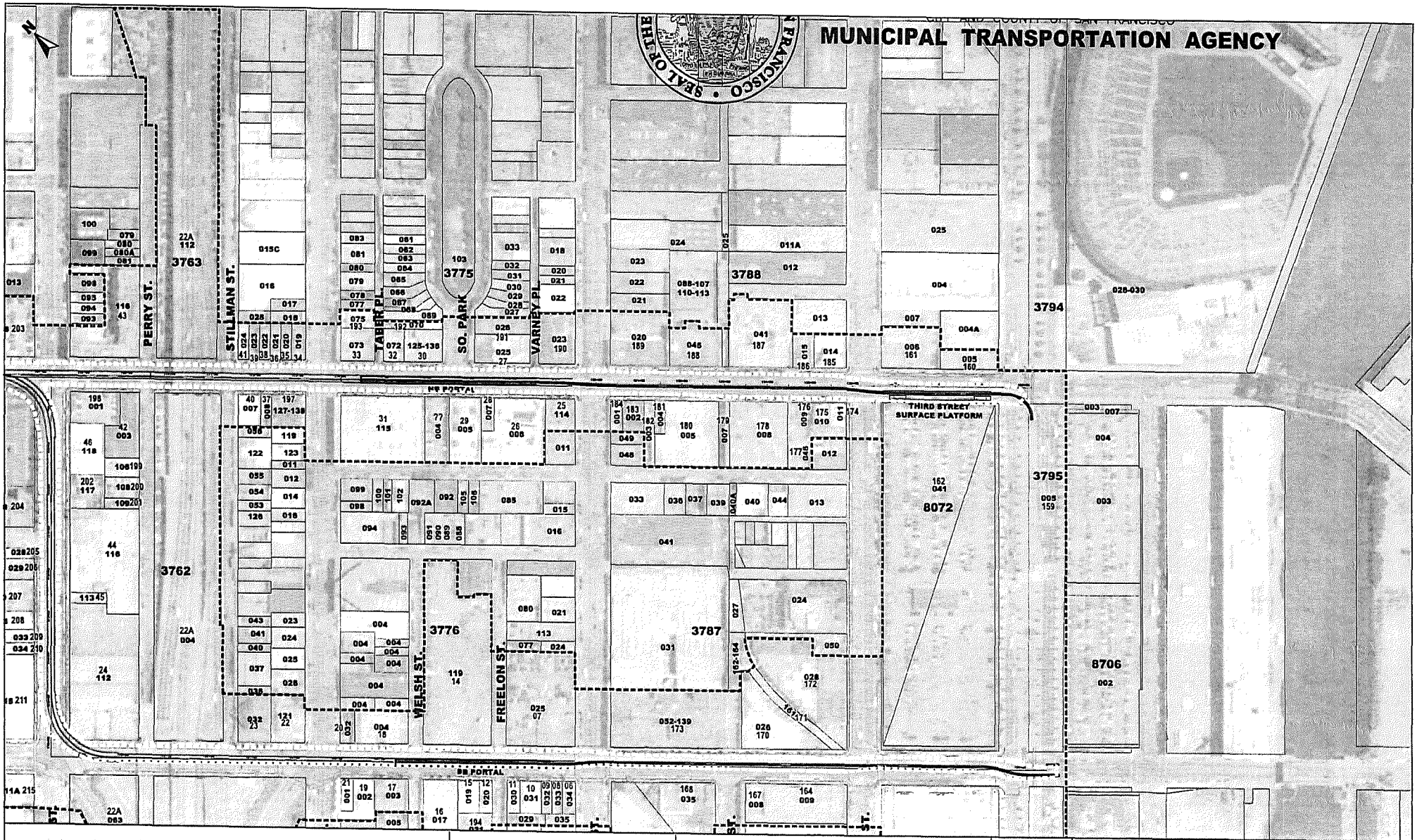
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 Map 3 of 5



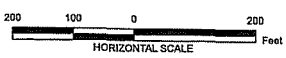
Prepared by Garcia and Associates and Sonoma State University



# MUNICIPAL TRANSPORTATION AGENCY



- Architectural Area of Potential Effect
  - Archaeological Area of Potential Effect
- 128 Previously Surveyed  
128 New Survey



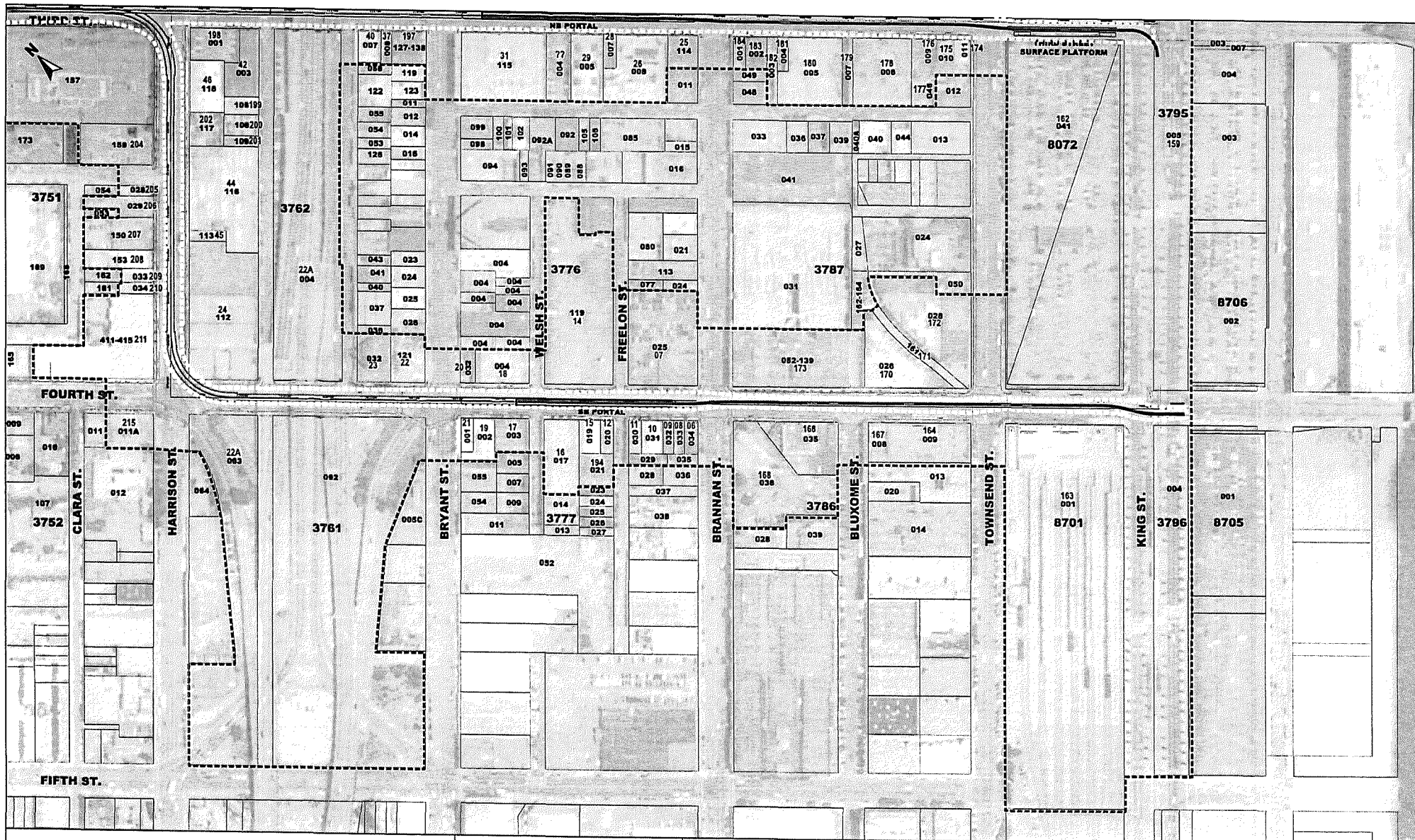
MUNI METRO SYSTEM  
THIRD STREET LIGHT RAIL TRANSIT - CENTRAL SUBWAY

Alt 2  
Map 4 of 5

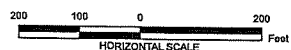


Prepared by Garcia and Associates and Sonoma State University





- |  |   |     |                     |
|--|---|-----|---------------------|
|  | Architectural Area of Potential Effect  | 128 | Previously Surveyed |
|  | Archaeological Area of Potential Effect | 128 | New Survey          |

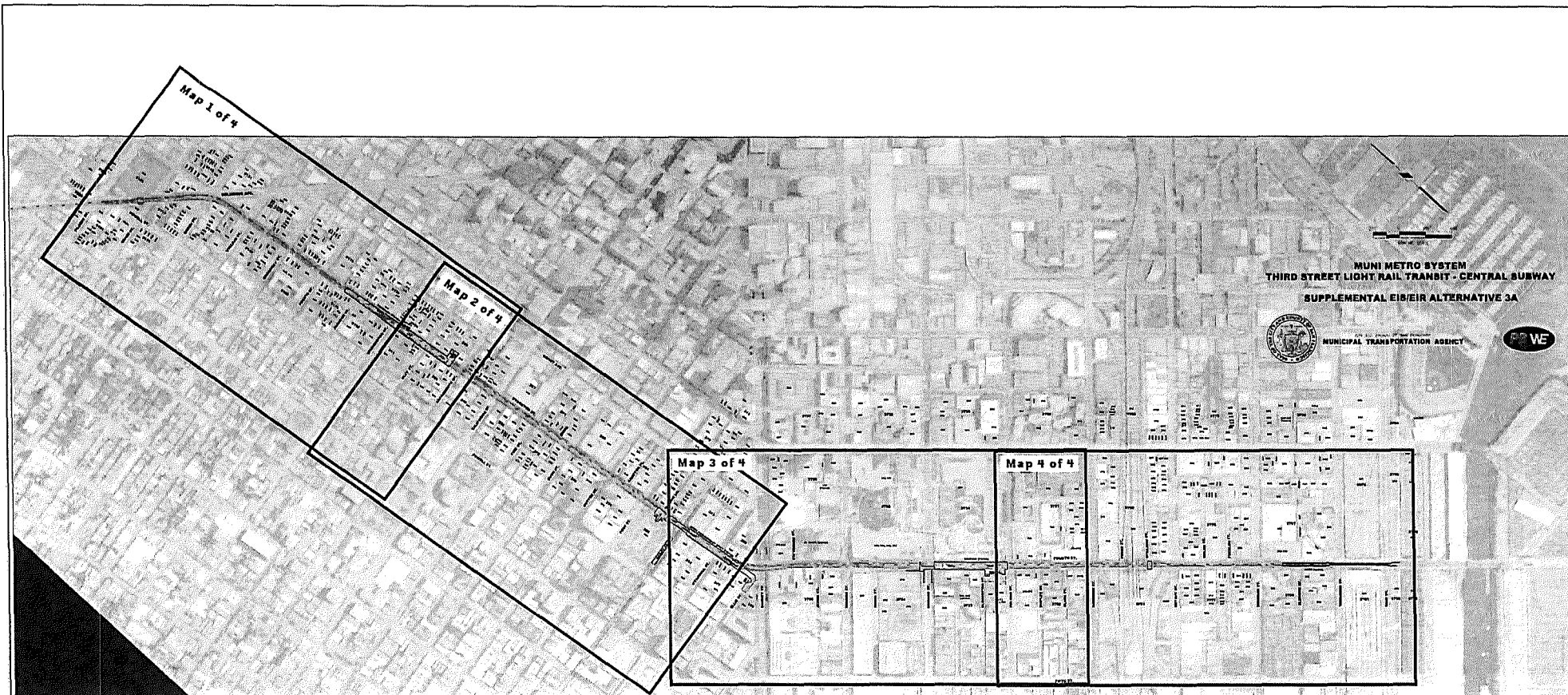


MUNI METRO SYSTEM  
THIRD STREET LIGHT RAIL TRANSIT - CENTRAL SUBWAY

Alt 2  
Map 5 of 5



Prepared by Garcia and Associates and Sonoma State University



**MUNI METRO SYSTEM  
THIRD STREET LIGHT RAIL TRANSIT - CENTRAL SUBWAY**

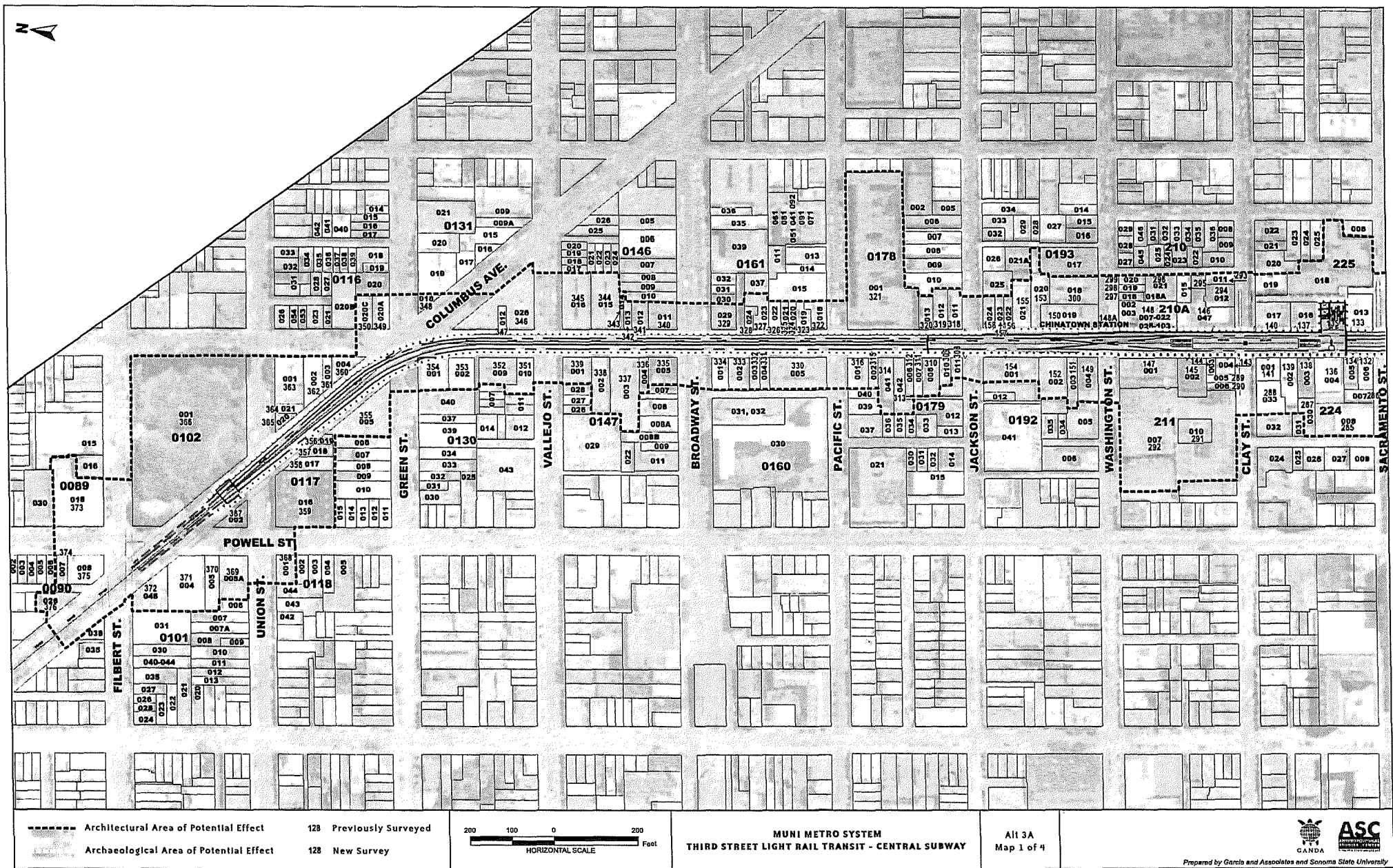
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Area of Potential Effects (APE)  
Archaeology and Architectural APE**

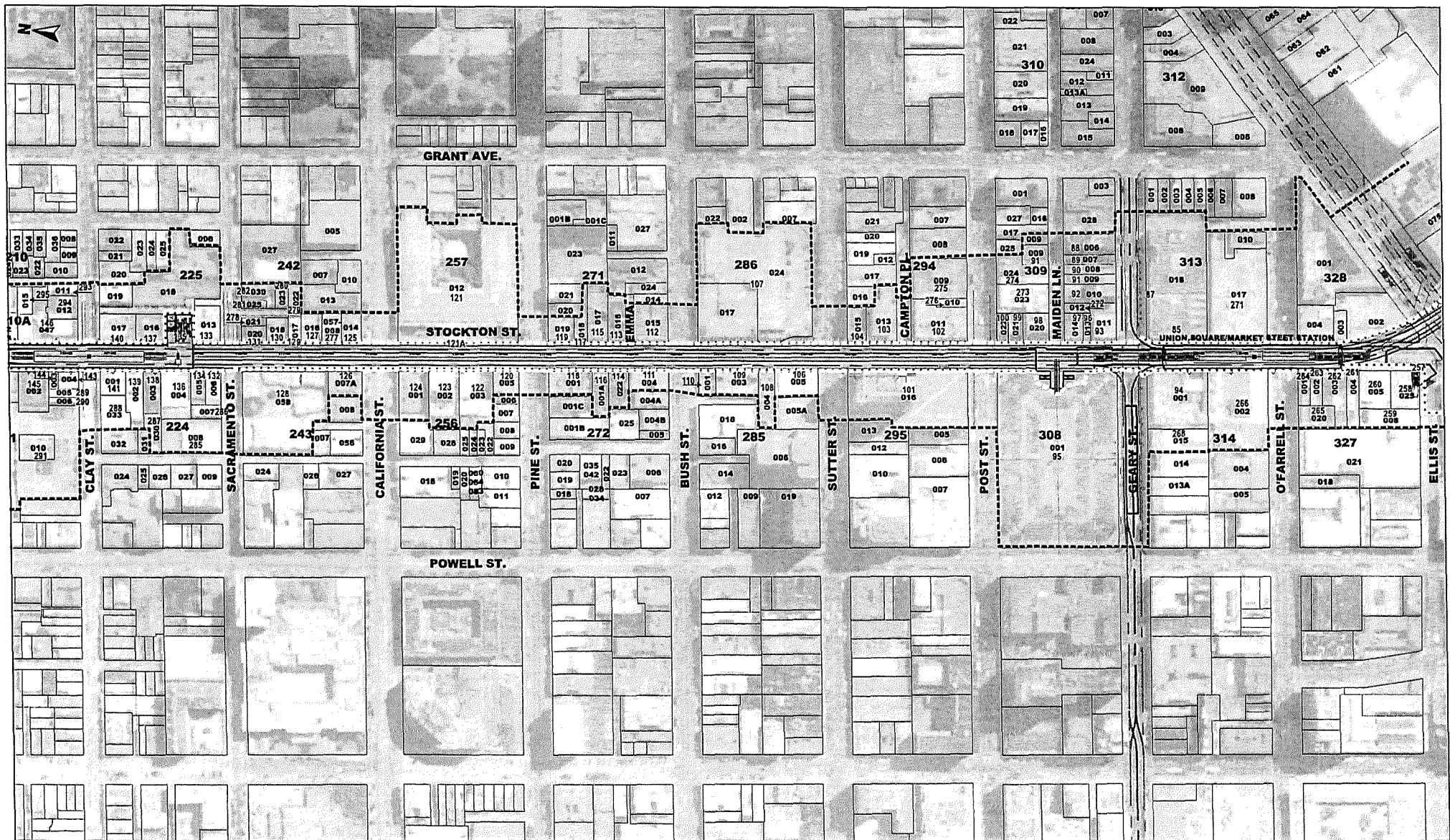
Alternative 3A - Index Map



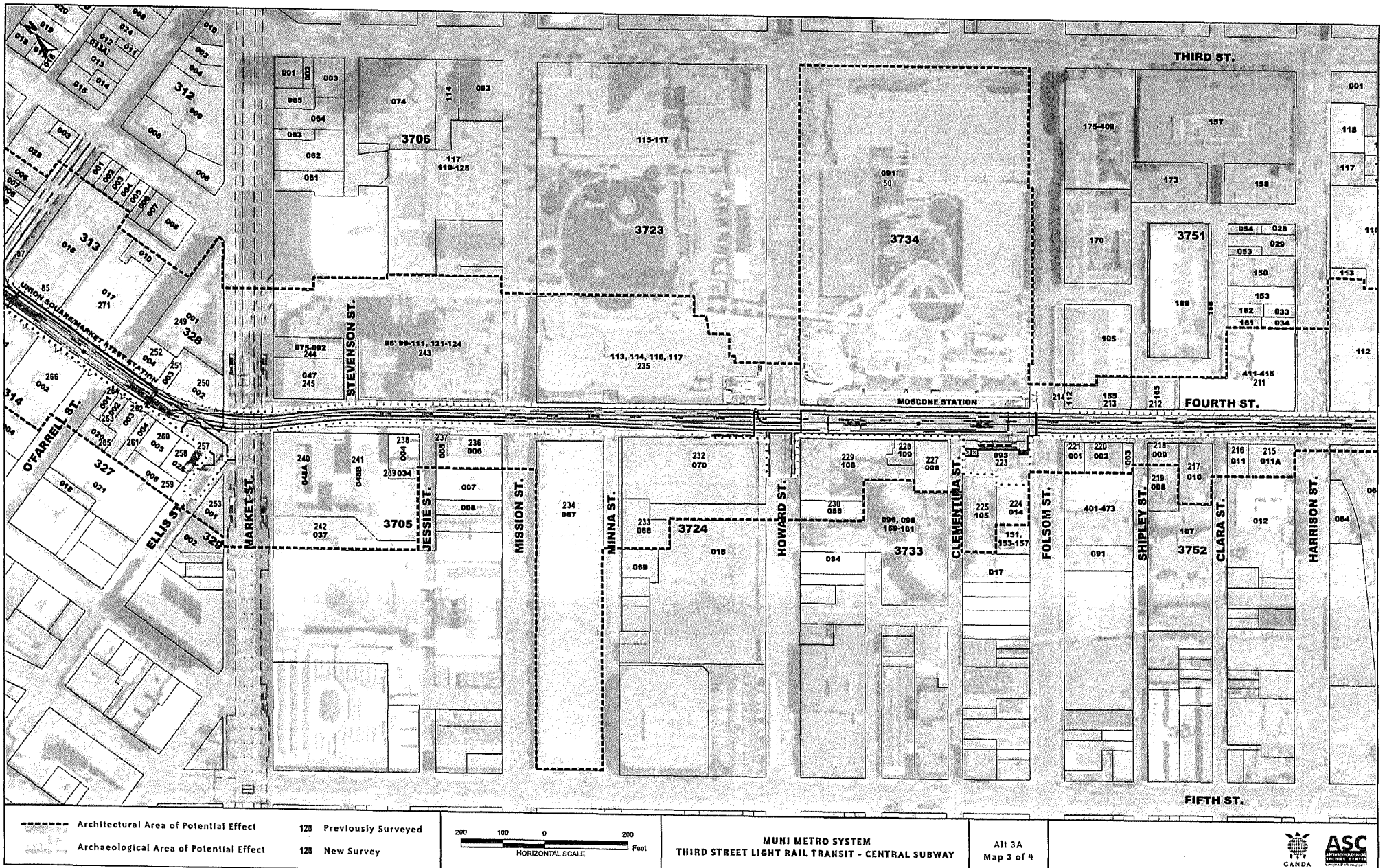
Prepared by Garcia and Associates and Sonoma State University

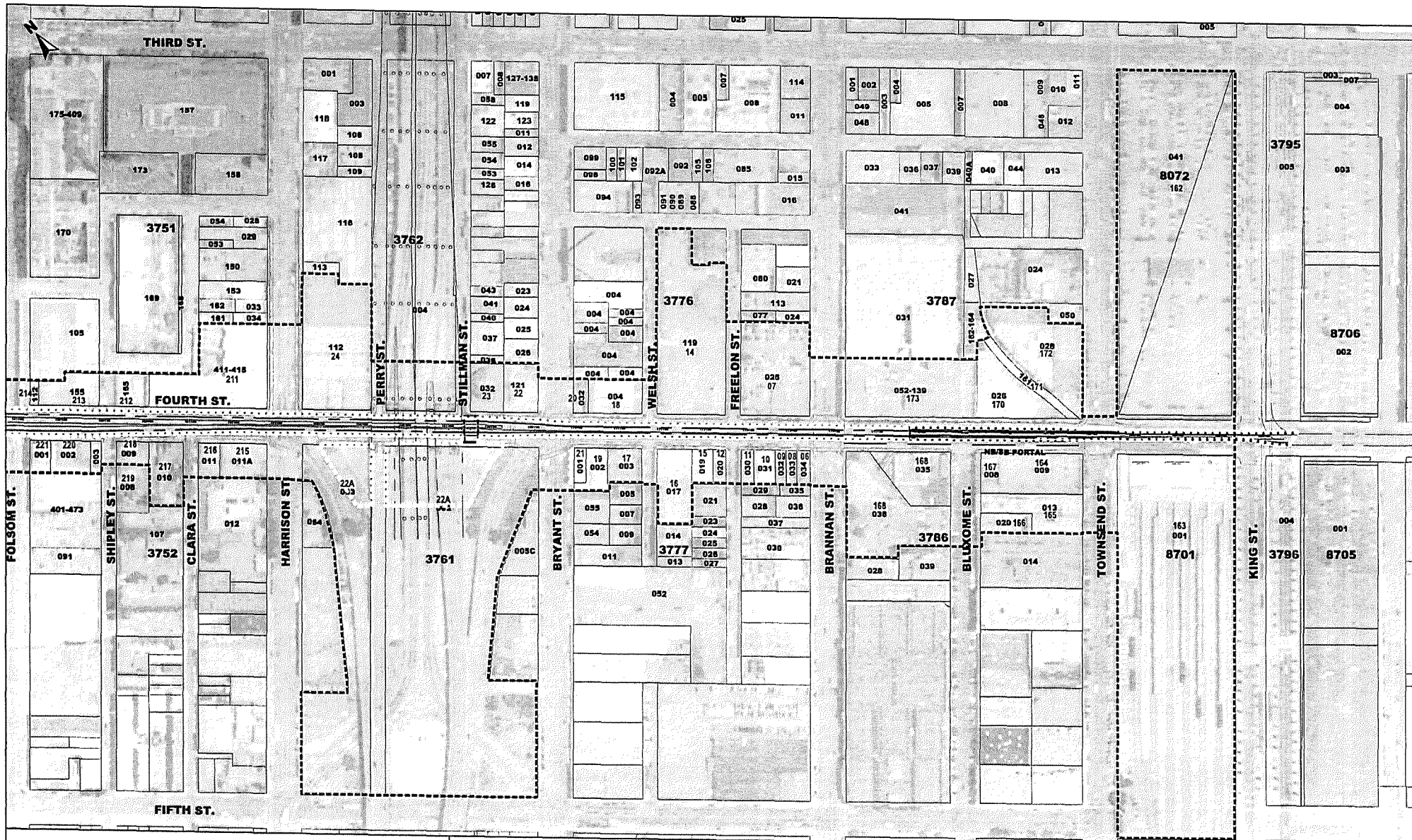




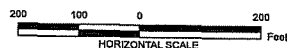








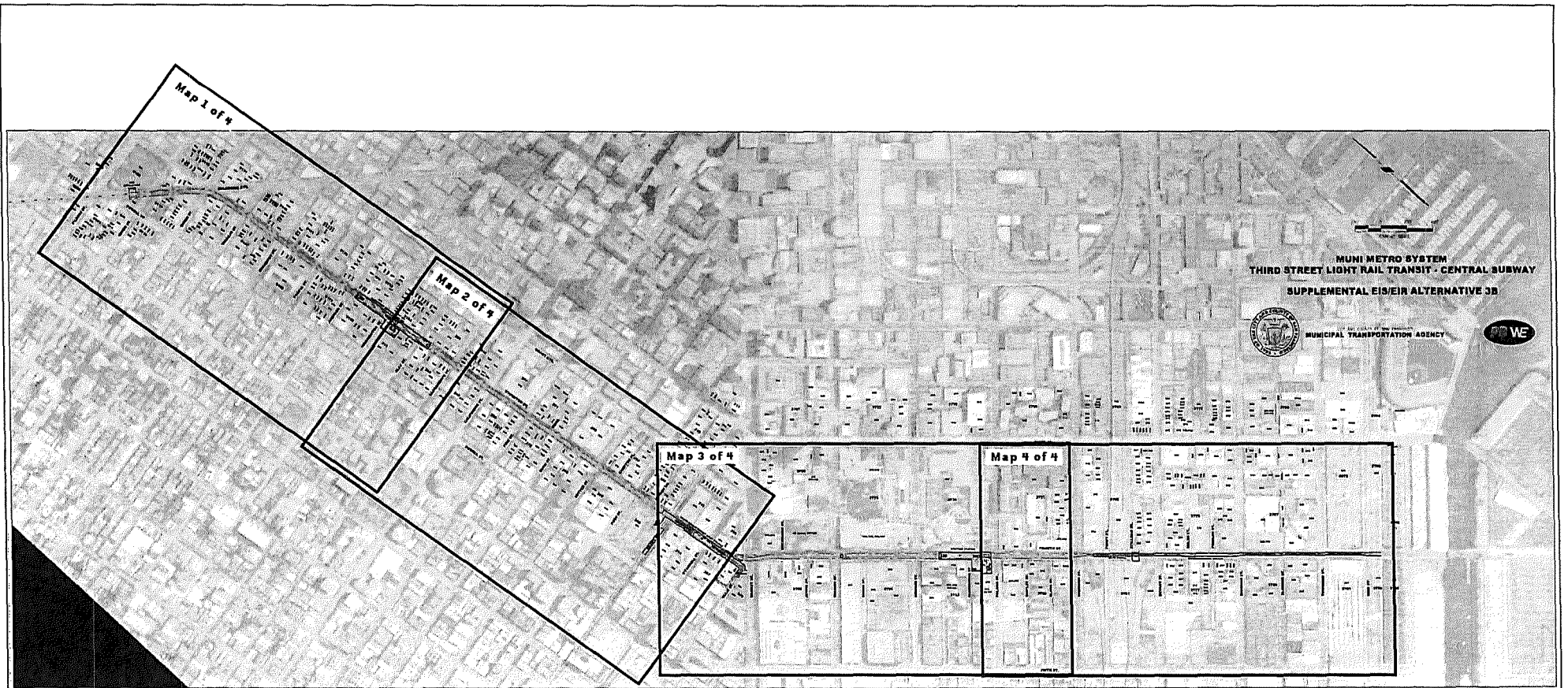
- Architectural Area of Potential Effect
- Archaeological Area of Potential Effect
- 128 Previously Surveyed
- 128 New Survey



MUNI METRO SYSTEM  
THIRD STREET LIGHT RAIL TRANSIT - CENTRAL SUBWAY

Alt 3A  
Map 4 of 4





MUNI METRO SYSTEM  
THIRD STREET LIGHT RAIL TRANSIT - CENTRAL SUBWAY  
SUPPLEMENTAL EIS/EIR ALTERNATIVE 3B



OFFICE OF THE DIRECTOR  
MUNICIPAL TRANSPORTATION AGENCY



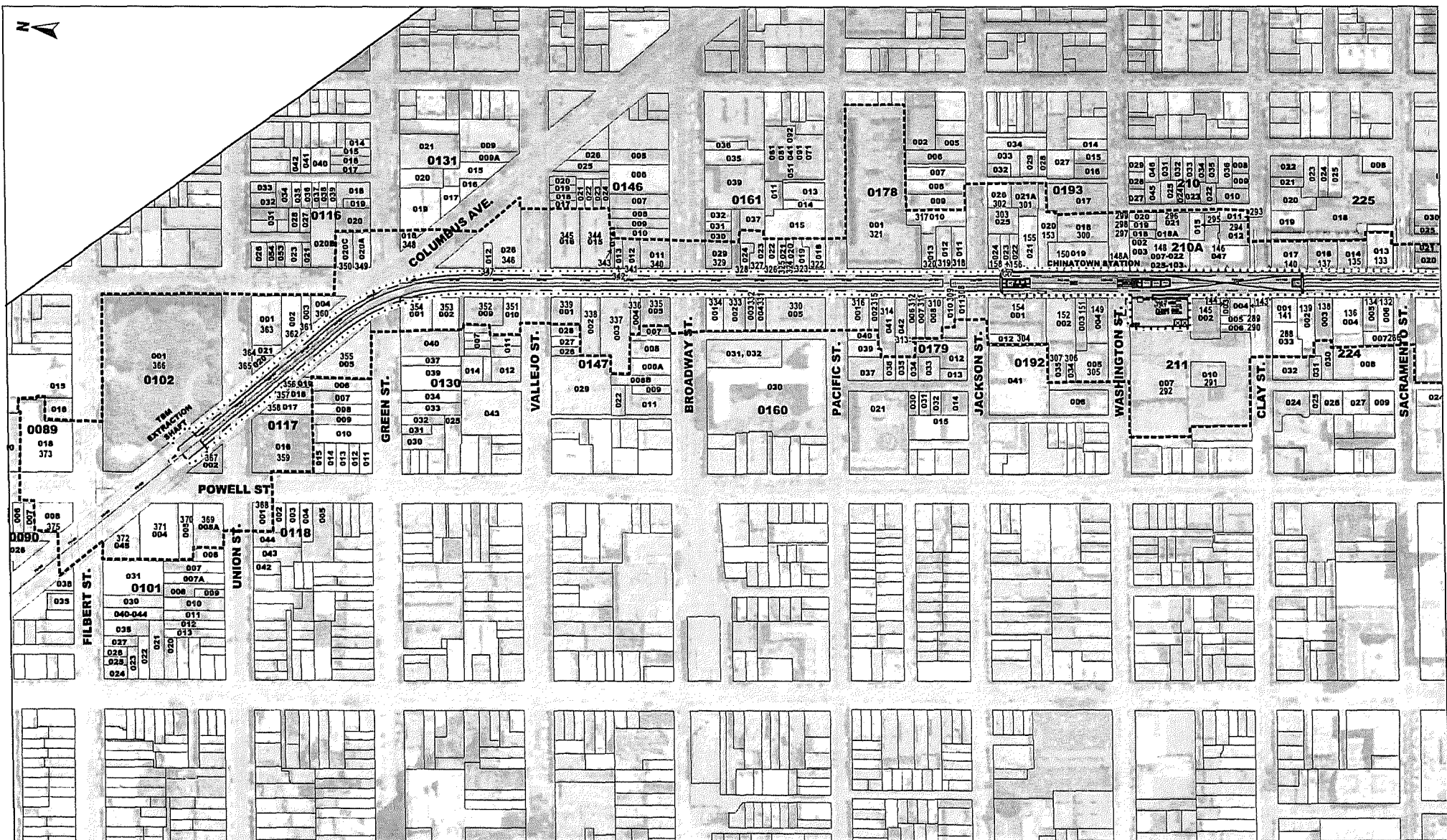
**MUNI METRO SYSTEM  
THIRD STREET LIGHT RAIL TRANSIT - CENTRAL SUBWAY**

**Alternative 3B  
Area of Potential Effects (APE)  
Archaeology and Architectural APE**

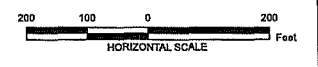
Alternative 3B - Index Map



*Prepared by Garcia and Associates and Sonoma State University*



- - - - - Architectural Area of Potential Effect      128 Previously Surveyed  
 - - - - - Archaeological Area of Potential Effect      128 New Survey



MUNI METRO SYSTEM  
 THIRD STREET LIGHT RAIL TRANSIT - CENTRAL SUBWAY

Alt 3b  
 Map 1 of 4





- - - - - Architectural Area of Potential Effect  
 - - - - - Archaeological Area of Potential Effect

128 Previously Surveyed  
 128 New Survey

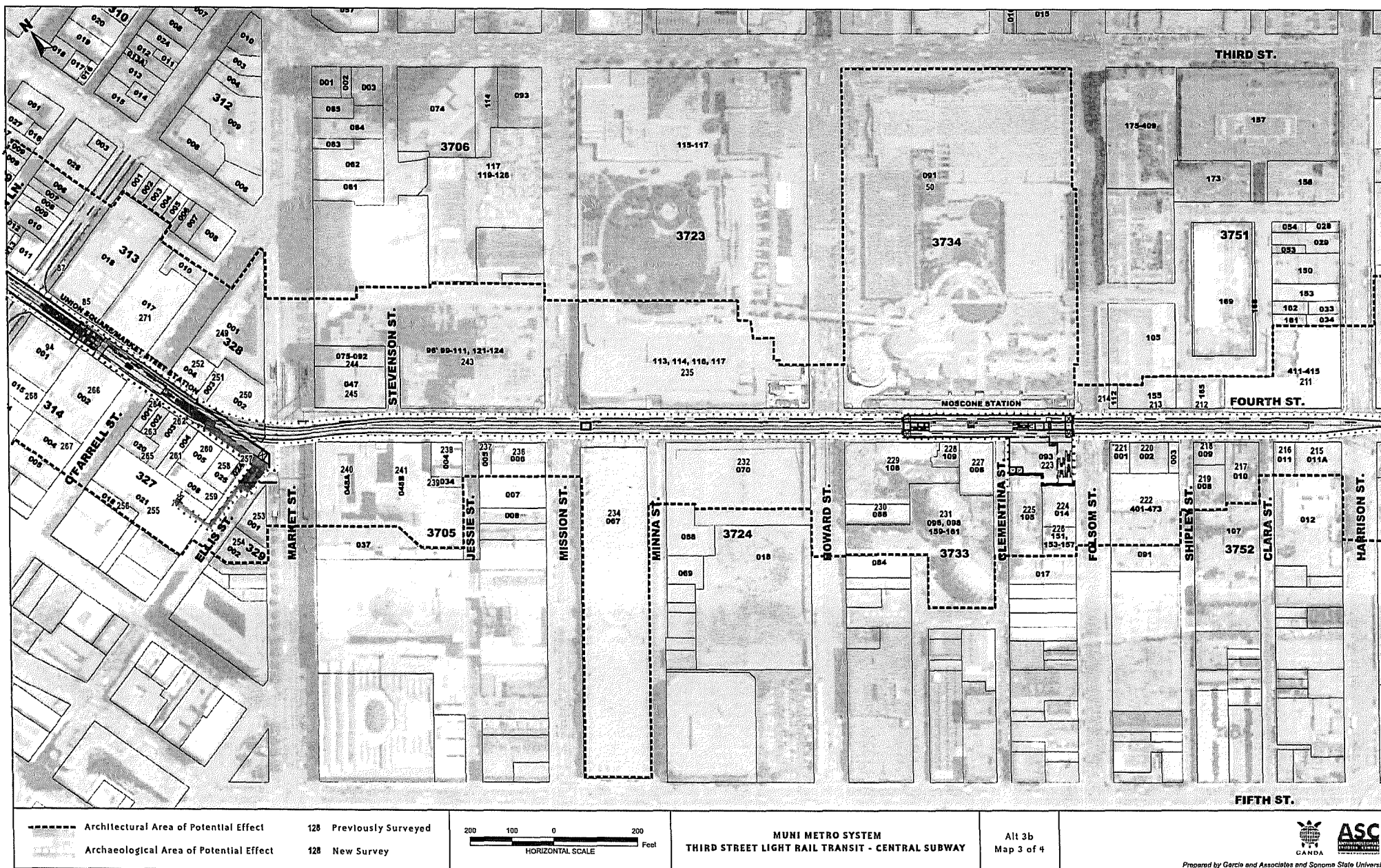
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 HORIZONTAL SCALE  
 Feet

MUNI METRO SYSTEM  
 THIRD STREET LIGHT RAIL TRANSIT - CENTRAL SUBWAY

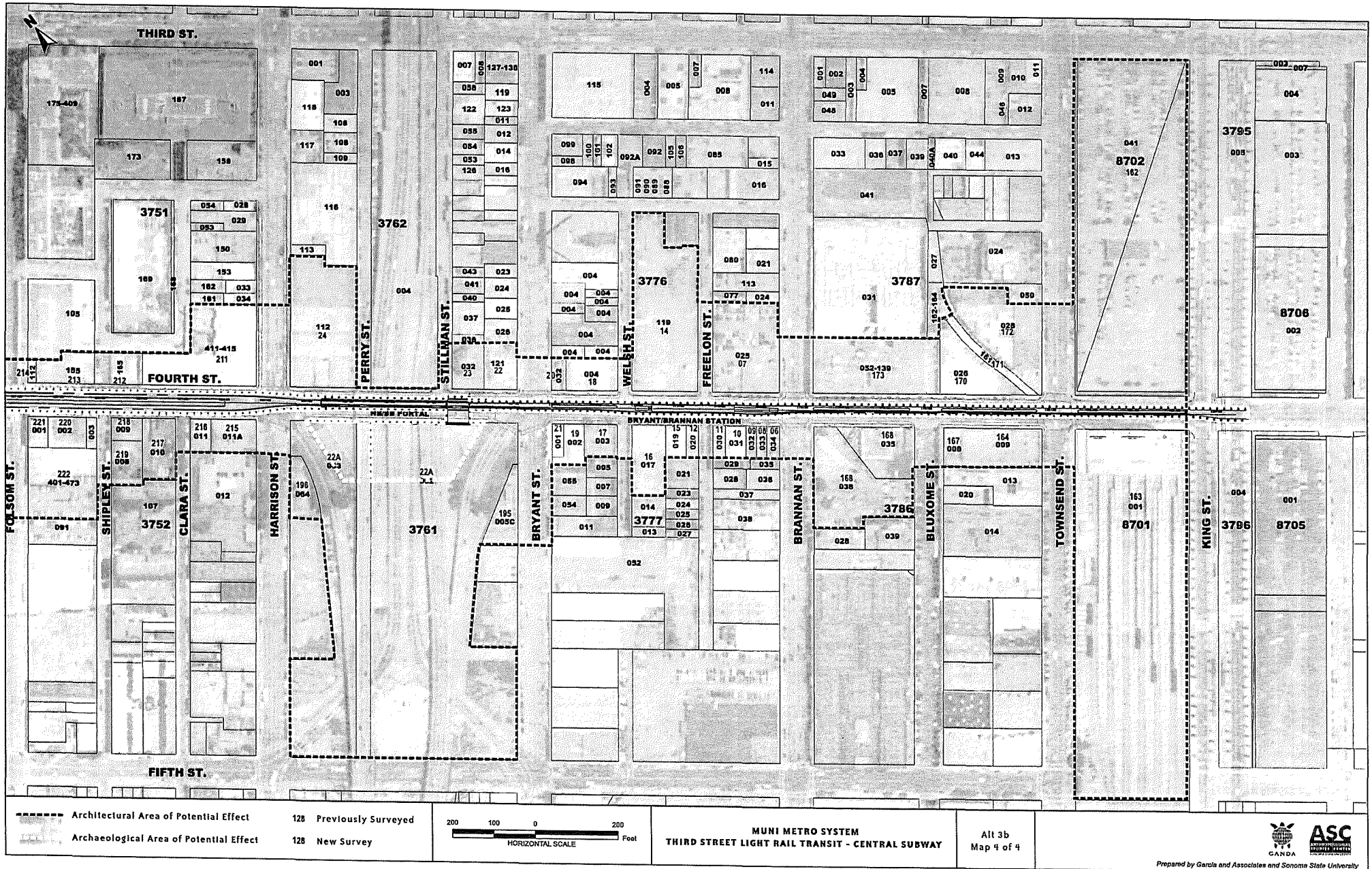
Alt 3b  
 Map 2 of 4



Prepared by Garcia and Associates and Sonoma State University

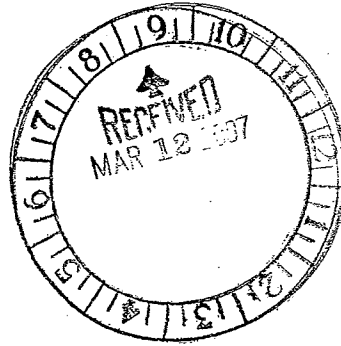






**OFFICE OF HISTORIC PRESERVATION  
DEPARTMENT OF PARKS AND RECREATION**

P.O. BOX 942896  
SACRAMENTO, CA 94296-0001  
(916) 653-6624 Fax: (916) 653-9824  
calshpo@ohp.parks.ca.gov  
www.ohp.parks.ca.gov



9 March 2007

Reply To: FTA970609A

Leslie Rogers, Regional Administrator  
US Department of Transportation  
Federal Transit Administration, Region IX  
201 Mission Street, Suite 1650  
San Francisco, CA 94105-1839

Re: APE Determination for the 3<sup>rd</sup> Street Light Rail, Initial Operating Segment, San Francisco,  
San Francisco County, CA

Dear Mr. Rogers:

Thank you for initiating consultation with me pursuant to Section 106 of the National Historic Preservation Act as amended and the implementing regulations codified in 36 CFR 800 with regards to the above referenced undertaking. You are requesting I review and comment on the revised APE for this undertaking.

As I presently understand it, the undertaking consists of extension of the light rail from the current terminus at Fourth and King Streets, primarily via subway, to a terminus in Chinatown on Stockton between Washington and Jackson Streets.

FTA had modified the APE for the undertaking as shown in the maps attached to your letter. After reviewing these maps, I find the determination of the APE satisfactory pursuant to 36 CFR 800.4(a)(1).

I look forward to continued consultation on this project. If you have any questions, please contact Amanda Blosser of my staff at (916) 653-9010 or e-mail at [ablosser@parks.ca.gov](mailto:ablosser@parks.ca.gov).

Sincerely,

*Susan K. Shattuck for*

Milford Wayne Donaldson, FAIA  
State Historic Preservation Officer

MWD:ab



**OFFICE OF HISTORIC PRESERVATION  
DEPARTMENT OF PARKS AND RECREATION**

P.O. BOX 942896  
SACRAMENTO, CA 94296-0001  
(916) 653-6624 Fax: (916) 653-9824  
calshpo@ohp.parks.ca.gov  
www.ohp.parks.ca.gov



July 9, 2008

Reply To: FTA080501A

Leslie T. Rogers, Regional Administrator  
Federal Transit Administration  
201 Mission Street, Suite 1650  
San Francisco, CA 94105-1839

RE: Finding of Effect for the Proposed San Francisco Municipal Transportation Agency  
Third Street Light Rail – Central Subway, San Francisco, CA

Dear Mr. Rogers:

You have provided me with the results of your efforts to determine whether the project described above may involve or affect historic properties. You have done this, and are consulting with me, in order to comply with Section 106 of the National Historic Preservation Act and implementing regulations codified at 36 CFR Part 800.

The Federal Transit Administration (FTA) has found that the proposed project will have an adverse effect on historic properties. I concur with this finding.

Thank you for considering historic properties as part of your project planning. If you have any questions, please contact Natalie Lindquist of my staff at your earliest convenience at (916) 654-0631 or e-mail at [nlindquist@parks.ca.gov](mailto:nlindquist@parks.ca.gov).

Sincerely,

*Susan K Shattuck for*

Milford Wayne Donaldson, FAIA  
State Historic Preservation Officer

**APPENDIX E**  
**TRANSPORTATION BACKUP**



**APPENDIX E****TRANSPORTATION ANALYSIS TECHNICAL MEMORANDUM**

Tables E-1 through E-13 provide existing and 2030 Level of Service information, transit ridership, and parking conditions in the Central Subway Corridor. Figures E-1 through E-12 indicate proposed construction-related detours and truck restrictions in the Corridor.

TABLE E-1

## ESTIMATED WEEKDAY A.M. PEAK HOUR TRANSIT RIDERSHIP COMPARISON

LRT/BUS LINE	2000	2030 NO PROJECT /TSM	2030 Enhanced EIS/EIR ALIGNMENT	2030 FOURTH / STOCKTON ALIGNMENT OPTION A (LPA)	2030 FOURTH / STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)
<b>CORRIDOR BOARDINGS</b>					
<b>RAIL</b>					
T Long Line (1)	n/a	8,050 5,650	8,400 6,350	8,370 6,460	9,120 6,320
T Short Lline	n/a	n/a	5,050 3,240	4,670 3,200	5,520 3,190
T Very Short Line	n/a	n/a	2,900	2,850	2,850
<b>Subtotal</b>		<b>8,050 5,650</b>	<b>13,450 12,490</b>	<b>13,040 12,510</b>	<b>14,640 12,360</b>
<b>BUS</b>					
Line 15 <sup>(2)</sup>	3,680 3,930	n/a	n/a	n/a	n/a
Lines 9X, 9AX, 9BX	1,620 1,720	5,100 3,320	5,540 3,290	5,090 2,970	3,880 3,070
Lines 30, 45 <sup>(3)</sup>	12,700 7,220	5,010 10,950	3,170 5,070	3,310 5,060	3,220 5,060
<b>Subtotal</b>	<b>14,320 12,870</b>	<b>10,110 14,270</b>	<b>8,710 8,360</b>	<b>8,400 8,030</b>	<b>7,100 8,130</b>
<b>TOTAL IN CORRIDOR:</b>	<b>14,320 12,870</b>	<b>18,160 19,920</b>	<b>22,160 20,850</b>	<b>21,440 20,540</b>	<b>21,740 20,490</b>
Increase Over Existing:	0	3,840 7,050	7,840 7,980	7,120 7,670	7,420 7,620
Increase Over No Project/TSM:	0	0	4,000 930	3,280 620	3,580 570
<b>SYSTEM BOARDINGS</b>					
RAIL	20,590 19,620	32,360 26,690	35,650 36,760	37,060 37,540	38,180 37,390
BUS	61,350 70,200	68,500 76,720	65,590 70,530	64,060 70,460	62,740 70,480
<b>TOTAL SYSTEM:</b>	<b>81,940 89,820</b>	<b>98,160 103,710</b>	<b>101,240 107,290</b>	<b>101,120 108,000</b>	<b>100,920 107,870</b>
Increase Over Existing:	0	16,220 13,980	19,300 17,470	19,180 18,180	18,980 18,050
Increase Over No Project/TSM:	0	0	3,080 3,580	2,960 4,290	2,760 4,160
n/a Not Applicable					
Source: San Francisco Model, January 2007. Revised January 2008.					
Notes: <sup>1</sup> Central Subways T-Third long-line to Visitacion Valley and T-Third short-line to 18 <sup>th</sup> and Third Streets.					
<sup>2</sup> 15-Third Line shifts to 9X-San Bruno or to the T-Third line.					
<sup>3</sup> 45 Union/Stockton extended into Mission Bay.					

TABLE E-2

## ESTIMATED WEEKDAY P.M. PEAK HOUR TRANSIT RIDERSHIP COMPARISON

LRT/BUS LINE	2000	2030 NO PROJECT /TSM	2030 Enhanced EIS/EIR ALIGNMENT	2030 FOURTH / STOCKTON ALIGNMENT OPTION A (LPA)	2030 FOURTH / STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)
<b>CORRIDOR BOARDINGS</b>					
<b>RAIL</b>					
T Long Line (1)	n/a	6,720 4,290	7,370 4,980	7,270 5,040	7,850 4,960
T Short line	n/a	n/a	4,530 2,630	4,080 2,640	4,810 2,620
T Very Short Line	n/a	n/a	2,370	2,350	2,350
<b>Subtotal</b>		<b>6,720 4,290</b>	<b>11,900 9,980</b>	<b>11,350 10,030</b>	<b>12,660 9,930</b>
<b>BUS</b>					
Line 15(2)	3,500 7,510	n/a	n/a	n/a	n/a
Lines 9X, 9AX, 9BX	1,300 3,180	3,160 1,980	3,190 1,820	3,630 1,730	2,490 1,770
Lines 30, 45(3)	11,190 5,020	4,710 8,560	2,550 3,860	2,640 3,810	2,500 3,790
<b>Subtotal</b>	<b>12,490 15,170</b>	<b>7,870 10,540</b>	<b>5,740 5,680</b>	<b>6,270 5,540</b>	<b>4,990 5,560</b>
<b>TOTAL IN CORRIDOR:</b>	<b>12,490 15,170</b>	<b>14,590 14,830</b>	<b>17,640 15,660</b>	<b>17,620 15,570</b>	<b>17,650 15,490</b>
Increase Over Existing:	0	2,100 2,340	5,150 3,170	5,130 3,080	5,160 3,000
Increase Over No Project/TSM:	0	0	3,050 830	3,030 740	3,060 660
<b>SYSTEM BOARDINGS</b>					
RAIL	18,780 16,690	27,130 21,780	30,840 29,600	31,350 30,120	32,620 30,120
BUS	49,950 51,400	56,100 58,830	57,650 52,250	54,750 52,310	53,340 52,260
Increase Over Existing:	0	44,510 12,520	19,760 13,760	17,370 14,430	17,230 14,290
Increase Over No Project/TSM:	0	0	5,250 1,240	2,860 1,910	2,720 1,770
n/a Not Applicable					
Source: San Francisco Model, January 2007. Revised January 2008.					
Notes: <sup>1</sup> Central Subways T-Third long-line to Visitacion Valley and T-Third short-line to 18 <sup>th</sup> and Third Streets.					
<sup>2</sup> 15-Third Line shifts to 9X-San Bruno or to the T-Third line.					
<sup>3</sup> 45 Union/Stockton extended into Mission Bay.					

TABLE E-3

## ESTIMATED DAILY TRANSIT RIDERSHIP

## SUMMARY OF ORIGIN-DESTINATION PATTERNS FOR 15-THIRD-BUS LINE

FROM														
Vis Valley— Crocker Amazon	Bayview-Hunters Point	Mission—Bernal	Potrero— Mission Bay	SOMA	Financial District —Civic Center	Chinatown— North Beach	Superdistrict 2	Superdistrict 3	Superdistrict 4	South Bay	East Bay	North Bay	Total	
744	754	79		762	262	476	101	262	187	284			3,911	
640	1,010	9	163	1,775	945	666	139	110	121	94	27		5,701	
115	264		28	37				27	48				520	
			32	107	260	75	39	24					692	
250	825		182	57	230	553	74	24	116	75	88		2,473	
289	543		195	74	48	566	44			207	59	28	2,054	
200	700	408	136	976	909	935	107	112	45	314	112		4,954	
305	312			61		321				61			1,060	
24	370			135		184	27			58			797	
243	99			28		14							384	
91	139			192	230	43	27	64	16	75			878	
529	174		28							75			805	
30							30						60	
Total	5,346	496	764	4,204	2,885	3,832	589	623	533	1,243	286	28	24,289	

TABLE E-4

## ESTIMATED DAILY TRANSIT RIDERSHIP

## SUMMARY OF ORIGIN-DESTINATION PATTERNS FOR ALL CORRIDOR ROUTES

(9AX, 9BX, 9X, 15, 30, 45)

FROM	TO														
	Vis Valley—Crocker-Amazon	Bayview-Hunters Point	Mission—Bernal	Potrero—Mission Bay	SOMA	Financial District—Civic Center	Chinatown—North Beach	Superdistrict 2	Superdistrict 3	Superdistrict 4	South Bay	East Bay	North Bay	Total	
	1,935	821	292	45	1,587	1,064	1,684	252	424	295	335	116	-	8,831	
	694	1,010	9	163	2,268	1,064	1,356	155	232	121	94	27		7,194	
	211	264		54	219		246		91	48				1,133	
	82	155	64	42	347	519	551	39	105						1,905
	1,070	883	7	601	1,324	1,433	2,791	282	915	116	356	148			9,926
		658		560	337	237	1,487	94	1,750	22	261	59	28		6,061
	2,783	758	674	280	4,012	2,633	3,273	276	2,904	251	387	173			18,405
	356	312			247		530		147		88				1,681
	135	580	330	134	2,220	2,768	7,404	48	841	115	281	292			15,149
	276	99			103		133		16						626
	141	139		16	485	404	321	27	153	16	82				1,782
594	174		28			339		196		75				1,406	
							109	30						169	
	8,874	5,855	1,347	1,924	13,150	10,122	20,223	1,203	7,784	983	1,959	815	28	74,268	



**TABLE E-5**  
**LEVEL OF SERVICE DESCRIPTIONS**  
**FOR SIGNALIZED INTERSECTIONS**

<b>LEVEL OF SERVICE</b>	<b>CONTROL DELAY / VEHICLE (s/veh)</b>	<b>DESCRIPTION</b>
A	$\leq 10.0$	Free flow and insignificant delays. No approach phase is fully used by traffic and no vehicle waits longer than one red signal indication.
B	$> 10 - 20$	Stable operation and minimum delays. An occasional approach phase is fully used. Many drivers begin to feel somewhat restricted.
C	$> 20 - 35$	Stable operation and acceptable delays. Major approach phases are fully used. Most drivers feel somewhat restricted.
D	$> 35 - 55$	Approaching unstable and tolerable delays. Drivers may have to wait through more than one red signal indication. Vehicle queues may develop, but dissipate rapidly, without excessive delays.
E	$> 55 - 80$	Unstable operation and significant delays. Vehicles may wait through several signal cycles. Long queues sometimes form upstream from intersection.
F	$> 80$	Forced flow and excessive delays. Represents jammed conditions. Intersection operates below capacity with low volumes. Vehicles queues may block upstream intersections.
Source: Highway Capacity Manual 2000, Transportation Research Board, 2004.		

**TABLE E-6**  
**LEVEL OF SERVICE DESCRIPTIONS**  
**FOR CLASS IV URBAN STREETS**

LEVEL OF SERVICE	AVERAGE OPERATING SPEED (mph)	DESCRIPTION
A	> 25	Primarily free-flow operations at average travel speeds. Vehicles are unimpeded in their ability to maneuver within the traffic stream. Stopped delay at signalized intersections is minimal.
B	> 19-25	Reasonably unimpeded operations at average travel speeds. The ability to maneuver within the traffic stream is only slightly restricted and stopped delays are not bothersome.
C	> 13-19	Stable operations; but ability to maneuver and change lanes midblock may be more restricted. Longer queues and/or adverse signal coordination may contribute to lower travel speeds.
D	> 9-13	Range in which small increases in flow cause substantial increases in delay due to adverse signal progression, inappropriate signal timing, and/or high volumes.
E	> 7-9	Combination of adverse progression, high signal density, high volumes, extensive delays at critical intersections, and inappropriate signal timing.
F	≤ 7	Extremely low speeds. Intersection congestion is likely at critical signalized locations, with high delays and extensive queuing. Adverse progression is frequently a contributor to this condition.
Source: Highway Capacity Manual 2000, Exhibit 15-2.		
Note: Class IV Urban Streets are those with speeds in the range of 25 to 35 miles per hour.		

TABLE E-7

## A. M. PEAK HOUR INTERSECTION PERFORMANCE COMPARISON

INTERSECTION	EXISTING CONDITIONS	2030 NO PROJECT / TSM ALTERNATIVE	2030 ENHANCED EIS/EIR ALTERNATIVE	2030 FOURTH / STOCKTON ALTERNATIVE OPTION A (LPA)	2030 FOURTH / STOCKTON ALTERNATIVE OPTION B (MODIFIED LPA)
Third Street / King Street	D	<del>D</del> <u>E</u>	F	F	F
Fourth Street / King Street	E	E	<del>D</del> <u>E</u>	E	E
Fourth Street / Harrison Street	B	<del>E</del> <u>C</u>	C	C	F
Sixth Street / Brannan Street	F	F	F	F	F
Fourth Street/ Bryant Street	B	B	C	C	D
<p>Note: Shaded cells indicate intersections where the Project would contribute more than five percent to the overall growth of an intersection with cumulative significant impacts.</p> <p><b>Bold</b> indicates a project-specific impact.</p> <p>Source: San Francisco Department of Parking and Traffic, March and May 2007. <u>Revised January 2008.</u></p>					

TABLE E-8

## P. M. PEAK HOUR INTERSECTION PERFORMANCE COMPARISON

INTERSECTION	EXISTING CONDITIONS	2030 NO PROJECT / TSM ALTERNATIVE	2030 ENHANCED EIS/EIR ALTERNATIVE	2030 FOURTH / STOCKTON ALTERNATIVE OPTION A (LPA)	2030 FOURTH / STOCKTON ALTERNATIVE OPTION B (MODIFIED LPA)
Third Street / King Street	F	F	F	F	F
Fourth Street / King Street	F	F	F	F	F
Fourth Street / Harrison Street	B	C	D	E	F
Sixth Street / Brannan Street	F	F	F	F	F
Fourth Street / Bryant Street	<del>C</del> <u>B</u>	C	B	<del>D</del> <u>C</u>	D
<p>Note: Shaded cells indicated intersections where the Project would contribute more than five percent to the overall growth of an intersection with cumulative significant impacts.</p> <p><b>Bold</b> indicates a project-specific impact.</p> <p>Source: San Francisco Department of Parking and Traffic, March 2007. <u>Revised January 2008.</u></p>					

**TABLE E-9**  
**EXISTING PARKING CONDITIONS**

SEGMENT	APPROXIMATE NUMBER OF ON-STREET PARKING SPACES			NUMBER AND PERCENTAGE OCCUPIED		NOTES
	WEST	EAST	TOTAL	NO.	%	
<b><i>Third Street:</i></b>						
King to Townsend Streets	13	10	23	20	87	
Townsend to Brannan Streets	19	16	35	20	57	
Brannan to Bryant Streets	21	13	34	25	74	
Subtotal (Third Street)	53	39	92	65	71	
<b><i>Fourth Street:</i></b>						
King to Townsend Streets	0	0	0	0	0	
Townsend to Brannan Streets	5	15	20	14	70	
Brannan to Bryant Streets	20	16	36	30	83	
Bryant to Harrison Streets <sup>1</sup>	17	12	29	N/A	N/A	
Subtotal (Fourth Street)	42 (25)	43 (31)	85 (56)	-- (44)	-- (79)	With Bryant and Harrison (Without Bryant and Harrison)
<b><i>Stockton Street:</i></b>						
Geary to Post Streets	0	10	10	4	40	
Clay to Washington Streets	11	3	14	11	79	
Washington to Jackson Streets	8	12	20	18	90	
Subtotal (Stockton Street)	<del>41</del> 19	<del>43</del> 25	<del>24</del> 44	<del>45</del> 33	<del>63</del> 75	
<b>TOTAL CORRIDOR<sup>2</sup></b>	<del>106</del> 114 (89) (97)	<del>95</del> 107 (83) (95)	<del>201</del> 221 (172) (192)	-- (109) (142)	-- (74)	With Bryant and Harrison (Without Bryant and Harrison)
Source: San Francisco Department of Parking and Traffic, October 2006 and May 2007. Revised January 2008.						
<sup>1</sup> This segment of Fourth Street was under construction during the recent counts. Therefore, no parking occupancy data was available.						

**TABLE E-10**  
**2030 PARKING CONDITIONS**

SEGMENT	APPROXIMATE NUMBER OF ON-STREET PARKING SPACES			
	NO PROJECT / TSM ALTERNATIVE	ENHANCED EIS/EIR ALTERNATIVE	FOURTH / STOCKTON ALTERNATIVE OPTION A (LPA)	FOURTH / STOCKTON ALTERNATIVE OPTION B (MODIFIED LPA)
<b>Third Street:</b>				
King to Townsend Brannan Streets	23	0	23	23
Townsend to Brannan Streets	35	35	35	35
Brannan to Bryant Streets	34	0	34	34
Subtotal (Third Street)	92	35	92	92
<b>Fourth Street:</b>				
King to Townsend Streets	0	0	0	0
Townsend to Brannan Streets	20	20	2	Semi-Exclusive <del>0</del> <u>2</u>
				Mixed-Flow 5
Brannan to Bryant Streets	36	0	36	Semi-Exclusive 7
				Mixed-Flow <del>3</del> <u>7</u>
Bryant to Harrison Streets	29	29	29	<u>Both</u> 0
Subtotal (Fourth Street)	85	49	67	Semi-Exclusive <del>7</del> <u>9</u>
				Mixed-Flow <del>8</del> <u>12</u>
<b>Stockton Street:</b>				
Geary to Post Streets	10	2	5	10
Clay to Washington Streets	14	4	8	10
<u>Washington to Jackson Streets</u>	<u>20</u>	<u>20</u>	<u>20</u>	<u>18</u>
Subtotal	<del>24</del> <u>44</u>	<del>6</del> <u>26</u>	<del>13</del> <u>33</u>	<del>20</del> <u>38</u>
<b>TOTAL CORRIDOR</b>				
	<del>201</del> <u>221</u>	<del>90</del> <u>110</u>	<del>172</del> <u>192</u>	Semi-Exclusive <del>119</del> <u>139</u>
				Mixed-Flow <del>120</del> <u>142</u>
Source: San Francisco Department of Parking and Traffic, October 2006 and May 2007. Revised January 2008.				
NOTE: Under Alternative 3B up to three parking spaces would potentially be removed on the north side of Ellis Street to accommodate the expansion of One Stockton Street (the Apple Store) access/egress into the public sidewalk area.				

**TABLE E-11**  
**ESTIMATED PM PEAK PERIOD RIDERSHIP**  
**BY CENTRAL SUBWAY STATION**  
**2030 CONDITIONS**

STATION	2030 NO PROJECT /TSM	2030 ENHANCED EIS/EIR ALIGNMENT	2030 FOURTH / STOCKTON ALIGNMENT OPTION A (LPA)	2030 FOURTH / STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)
Fourth and King	---	9,580 8,200	9,750 9,800	9,400 8,900
Fourth and Brannan	---	---	---	3,840 1,500
Third (between King and Townsend)	---	1,880 1,800	---	---
Moscone	---	2,830 2,400	1,800 1,700	1,740 1,300
Market Street	---	7,130 6,500	8,370 7,000	8,960 6,700
Union Square	---	1,140 800		
Chinatown	---	2,510 2,700	3,350 3,900	3,130 3,700
<b>TOTAL IN CORRIDOR:</b>	---	<b>25,070 22,400</b>	<b>23,270 22,400</b>	<b>27,070 22,100</b>

Source: San Francisco Model, January 2007, Revised January 2008.

NOTE: Under Alternative 3B up to three parking spaces would potentially be removed on the north side of Ellis Street to accommodate the expansion of the One Stockton Street (the Apple Store) access/egress into the public sidewalk area.

**TABLE E-12**  
**TRAFFIC VOLUME PROJECT CONTRIBUTIONS**  
**WEEKDAY AM PEAK HOUR**

Intersection	Northbound			Southbound			Eastbound			Westbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
<b>1. Fourth/King</b>													
Existing	4	26	22	75	321	281	53	1805	32	48	779	24	3470
2030 No Project	11	149	88	158	922	406	63	1531	36	150	1232	78	4824
2030 Enhanced EIR/EIS	0	149	88	158	922	406	83	1536	36	150	1243	78	4849
Change from 2030 No Project	-11	0	0	0	0	0	20	5	0	0	11	0	25
Contribution to Total 2030 Volume	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	24.1%	0.3%	0.0%	0.0%	0.9%	0.0%	0.5%
Change as % of Growth Existing to EIR/EIS	275.0%	0.0%	0.0%	0.0%	0.0%	0.0%	66.7%	-1.9%	0.0%	0.0%	2.4%	0.0%	1.8%
2030 4th-Stockton Option A	0	149	88	0	922	376	63	1531	36	150	1243	78	4636
Change from 2030 No Project	-11	0	0	-158	0	-30	0	0	0	0	11	0	-188
Contribution to Total 2030 Volume	0.0%	0.0%	0.0%	0.0%	0.0%	-8.0%	0.0%	0.0%	0.0%	0.0%	0.9%	0.0%	-4.1%
Change as % of Growth Existing to Option A	275.0%	0.0%	0.0%	210.7%	0.0%	-31.6%	0.0%	0.0%	0.0%	0.0%	2.4%	0.0%	-16.1%
2030 4th-Stockton Option B	0	299	88	0	872	306	63	1531	36	150	1293	78	4716
Change from 2030 No Project	-11	150	0	-158	-50	-100	0	0	0	0	61	0	-108
Contribution to Total 2030 Volume	0.0%	50.2%	0.0%	0.0%	-5.7%	-32.7%	0.0%	0.0%	0.0%	0.0%	4.7%	0.0%	-2.3%
Change as % of Growth Existing to Option B	275.0%	54.9%	0.0%	210.7%	-9.1%	-400.0%	0.0%	0.0%	0.0%	0.0%	11.9%	0.0%	-8.7%
<b>4. Fourth/Bryant</b>													
Existing	0	0	0	127	595	0	0	1425	171	0	0	0	2318
2030 No Project	0	0	0	188	1095	0	0	1625	671	0	0	0	3579
2030 Enhanced EIR/EIS	0	0	0	188	1095	0	0	1625	621	0	0	0	3529
Change from 2030 No Project	0	0	0	0	0	0	0	0	-50	0	0	0	-50
Contribution to Total 2030 Volume	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-8.1%	0.0%	0.0%	0.0%	-1.4%
Change as % of Growth Existing to EIR/EIS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-11.1%	0.0%	0.0%	0.0%	-4.1%
2030 4th-Stockton Option A	0	0	0	188	1015	0	0	1625	541	0	0	0	3369
Change from 2030 No Project	0	0	0	0	-80	0	0	0	-130	0	0	0	-210
Contribution to Total 2030 Volume	0.0%	0.0%	0.0%	0.0%	-7.9%	0.0%	0.0%	0.0%	-24.0%	0.0%	0.0%	0.0%	-6.2%
Change as % of Growth Existing to Option A	0.0%	0.0%	0.0%	0.0%	-19.0%	0.0%	0.0%	0.0%	-35.1%	0.0%	0.0%	0.0%	-20.0%
2030 4th-Stockton Option B	0	0	155	188	845	0	0	1775	421	0	0	0	3384

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Change from 2030 No Project	0	0	155	0	-250	0	0	150	-250	0	0	0	-195
Contribution to Total 2030 Volume	0.0%	0.0%	100.0%	0.0%	-29.6%	0.0%	0.0%	8.5%	-59.4%	0.0%	0.0%	0.0%	-5.8%
Change as % of Growth Existing to Option B	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%	0.0%	42.9%	100.0%	0.0%	0.0%	0.0%	-18.3%
<b>5. Fourth/Harrison</b>													
Existing	0	0	0	0	1276	171	0	0	0	137	1034	0	2618
2030 No Project	0	0	0	0	1595	179	0	0	0	379	2295	0	4448
2030 Enhanced EIR/EIS	0	0	0	0	1595	179	0	0	0	379	2295	0	4448
Change from 2030 No Project	0	0	0	0	0	0	0	0	0	0	0	0	0
Contribution to Total 2030 Volume	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Change as % of Growth Existing to EIR/EIS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2030 4th-Stockton Option A	0	0	0	0	1515	179	0	0	0	379	2295	0	4368
Change from 2030 No Project	0	0	0	0	-80	0	0	0	0	0	0	0	-80
Contribution to Total 2030 Volume	0.0%	0.0%	0.0%	0.0%	-5.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-1.8%
Change as % of Growth Existing to Option A	0.0%	0.0%	0.0%	0.0%	-33.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-4.6%
2030 4th-Stockton Option B	0	0	0	0	1495	179	0	0	0	229	2295	0	4198
Change from 2030 No Project	0	0	0	0	-100	0	0	0	0	-150	0	0	-250
Contribution to Total 2030 Volume	0.0%	0.0%	0.0%	0.0%	-6.7%	0.0%	0.0%	0.0%	0.0%	-65.5%	0.0%	0.0%	-6.0%
Change as % of Growth Existing to Option B	0.0%	0.0%	0.0%	0.0%	-45.7%	0.0%	0.0%	0.0%	0.0%	-163.0%	0.0%	0.0%	-15.8%
<b>6. Third/King</b>													
Existing	50	389	185	0	0	0	640	1250	12	187	773	16	3502
2030 No Project	142	401	296	0	0	0	419	1304	29	431	1318	32	4372
2030 Enhanced EIR/EIS	153	401	296	0	0	0	399	1304	29	431	1318	32	4363
Change from 2030 No Project	11	0	0	0	0	0	-20	0	0	0	0	0	-9
Contribution to Total 2030 Volume	7.2%	0.0%	0.0%	0.0%	0.0%	0.0%	-5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-0.2%
Change as % of Growth Existing to EIR/EIS	10.7%	0.0%	0.0%	0.0%	0.0%	0.0%	8.3%	0.0%	0.0%	0.0%	0.0%	0.0%	-1.0%
2030 4th-Stockton Option A	153	401	296	0	0	0	419	1304	29	431	1318	32	4383
Change from 2030 No Project	11	0	0	0	0	0	0	0	0	0	0	0	11
Contribution to Total 2030 Volume	7.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%
Change as % of Growth Existing to Option A	10.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.2%
2030 4th-Stockton Option B	153	251	296	0	0	0	419	1254	29	431	1368	32	4233
Change from 2030 No Project	11	-150	0	0	0	0	0	-50	0	0	50	0	-139
Contribution to Total 2030 Volume	7.2%	-59.8%	0.0%	0.0%	0.0%	0.0%	0.0%	-4.0%	0.0%	0.0%	3.7%	0.0%	-3.3%
Change as % of Growth Existing to Option B	10.7%	108.7%	0.0%	0.0%	0.0%	0.0%	0.0%	-1250.0%	0.0%	0.0%	8.4%	0.0%	-19.0%



<b>8. Sixth/Brannan</b>													
Existing	0	1456	925	0	871	138	0	348	242	261	314	149	4704
2030 No Project	0	1722	894	0	1201	225	0	214	354	468	668	138	5884
2030 Enhanced EIR/EIS	0	1722	894	0	1201	225	0	214	354	468	668	138	5884
Change from 2030 No Project	0	0	0	0	0	0	0	0	0	0	0	0	0
Contribution to Total 2030 Volume	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Change as % of Growth Existing to EIR/EIS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2030 4th-Stockton Option A	0	1722	894	0	1231	225	0	214	354	468	668	138	5914
Change from 2030 No Project	0	0	0	0	30	0	0	0	0	0	0	0	30
Contribution to Total 2030 Volume	0.0%	0.0%	0.0%	0.0%	2.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%
Change as % of Growth Existing to Option A	0.0%	0.0%	0.0%	0.0%	8.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.5%
2030 4th-Stockton Option B	0	1722	894	0	1276	225	0	214	354	468	668	138	5959
Change from 2030 No Project	0	0	0	0	75	0	0	0	0	0	0	0	75
Contribution to Total 2030 Volume	0.0%	0.0%	0.0%	0.0%	5.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%
Change as % of Growth Existing to Option B	0.0%	0.0%	0.0%	0.0%	18.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.0%
Note: Shaded cells indicate intersection critical approaches where the Project contribution exceeds five percent of projected growth.													

**TABLE E-13**  
**TRAFFIC VOLUME PROJECT CONTRIBUTIONS**  
**WEEKDAY PM PEAK HOUR**

Intersection	Northbound			Southbound			Eastbound			Westbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
<b>1. Fourth/King</b>													
Existing	43	57	43	63	235	577	178	2045	18	8	1151	47	4465
2030 No Project	88	177	104	80	423	629	249	2194	27	53	1325	78	5427
2030 Enhanced EIR/EIS	0	177	104	80	423	629	269	2164	27	53	1413	78	5417
Change from 2030 No Project	-88	0	0	0	0	0	20	-30	0	0	88	0	-10
Contribution to Total 2030 Volume	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.4%	-1.4%	0.0%	0.0%	6.2%	0.0%	-0.2%
Change as % of Growth Existing to EIR/EIS	204.7%	0.0%	0.0%	0.0%	0.0%	0.0%	22.0%	25.2%	0.0%	0.0%	33.6%	0.0%	-1.1%
2030 4th-Stockton Option A	0	177	104	80	423	629	99	2464	27	53	1413	78	5547
Change from 2030 No Project	-88	0	0	0	0	0	-150	270	0	0	88	0	120
Contribution to Total 2030 Volume	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	151.5%	11.0%	0.0%	0.0%	6.2%	0.0%	2.2%
Change as % of Growth Existing to Option A	204.7%	0.0%	0.0%	0.0%	0.0%	0.0%	189.9%	64.4%	0.0%	0.0%	33.6%	0.0%	11.1%
2030 4th-Stockton Option B	0	247	104	186	313	399	269	2424	27	53	1473	78	5573
Change from 2030 No Project	-88	70	0	106	-110	-230	20	230	0	0	148	0	146
Contribution to Total 2030 Volume	0.0%	28.3%	0.0%	0.0%	-35.1%	-57.6%	7.4%	9.5%	0.0%	0.0%	10.0%	0.0%	2.6%
Change as % of Growth Existing to Option B	204.7%	36.8%	0.0%	86.2%	-141.0%	129.2%	22.0%	60.7%	0.0%	0.0%	46.0%	0.0%	13.2%
<b>4. Fourth/Bryant</b>													
Existing	0	0	0	164	684	0	0	948	135	0	0	0	1931
2030 No Project	0	0	0	226	1013	0	0	1458	223	0	0	0	2920
2030 Enhanced EIR/EIS	0	0	0	226	1013	0	0	1508	223	0	0	0	2970
Change from 2030 No Project	0	0	0	0	0	0	0	50	0	0	0	0	50
Contribution to Total 2030 Volume	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.3%	0.0%	0.0%	0.0%	0.0%	1.7%
Change as % of Growth Existing to EIR/EIS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.9%	0.0%	0.0%	0.0%	0.0%	4.8%
2030 4th-Stockton Option A	0	0	0	226	933	0	0	1578	223	0	0	0	2960
Change from 2030 No Project	0	0	0	0	-80	0	0	120	0	0	0	0	40
Contribution to Total 2030 Volume	0.0%	0.0%	0.0%	0.0%	-8.6%	0.0%	0.0%	7.6%	0.0%	0.0%	0.0%	0.0%	1.4%

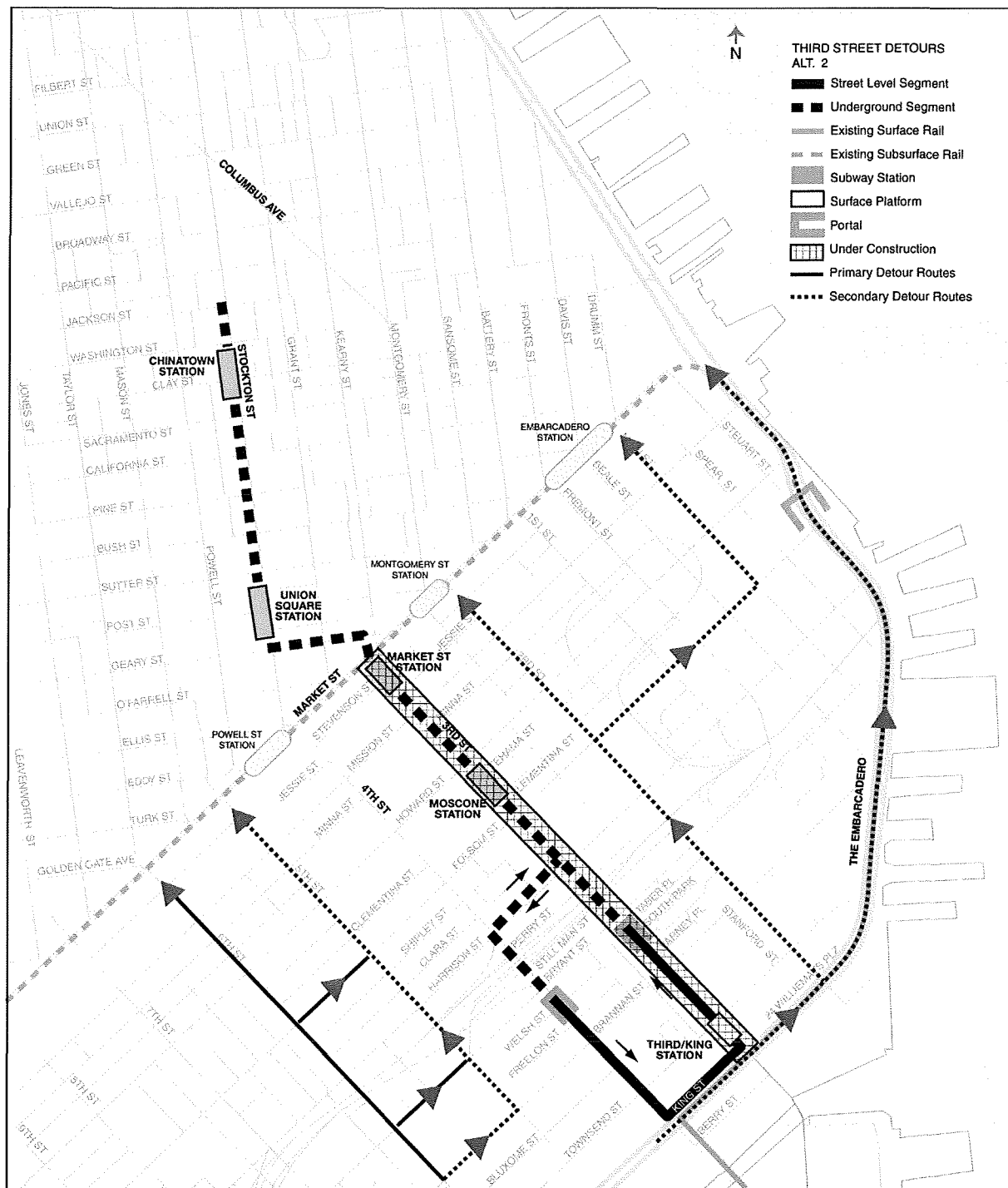
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Change as % of Growth Existing to Option A	0.0%	0.0%	0.0%	0.0%	-32.1%	0.0%	0.0%	19.0%	0.0%	0.0%	0.0%	0.0%	3.9%
2030 4th-Stockton Option B	0	0	85	276	583	0	0	1458	143	0	0	0	2545
Change from 2030 No Project	0	0	85	50	-430	0	0	0	-80	0	0	0	-375
Contribution to Total 2030 Volume	0.0%	0.0%	100.0%	18.1%	-73.8%	0.0%	0.0%	0.0%	-55.9%	0.0%	0.0%	0.0%	-14.7%
Change as % of Growth Existing to Option B	0.0%	0.0%	100.0%	44.6%	425.7%	0.0%	0.0%	0.0%	-1000.0%	0.0%	0.0%	0.0%	-61.1%
<b>5. Fourth/Harrison</b>													
Existing	0	0	0	0	1500	268	0	0	0	232	1569	0	3569
2030 No Project	0	0	0	0	1939	455	0	0	0	182	1626	0	4202
2030 Enhanced EIR/EIS	0	0	0	0	1939	455	0	0	0	182	1626	0	4202
Change from 2030 No Project	0	0	0	0	0	0	0	0	0	0	0	0	0
Contribution to Total 2030 Volume	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Change as % of Growth Existing to EIR/EIS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2030 4th-Stockton Option A	0	0	0	0	1859	615	0	0	0	182	1626	0	4282
Change from 2030 No Project	0	0	0	0	-80	160	0	0	0	0	0	0	80
Contribution to Total 2030 Volume	0.0%	0.0%	0.0%	0.0%	-4.3%	26.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%
Change as % of Growth Existing to Option A	0.0%	0.0%	0.0%	0.0%	-22.3%	46.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.2%
2030 4th-Stockton Option B	0	0	0	0	1559	775	0	0	0	182	1626	0	4142
Change from 2030 No Project	0	0	0	0	-380	320	0	0	0	0	0	0	-60
Contribution to Total 2030 Volume	0.0%	0.0%	0.0%	0.0%	-24.4%	41.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-1.4%
Change as % of Growth Existing to Option B	0.0%	0.0%	0.0%	0.0%	-644.1%	63.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	-10.5%
<b>6. Third/King</b>													
Existing	107	642	224	0	0	0	1032	1039	37	130	1153	45	4409
2030 No Project	199	1583	506	0	0	0	1178	1088	112	498	1257	64	6485
2030 Enhanced EIR/EIS	287	1553	536	0	0	0	1138	1098	112	498	1257	64	6543
Change from 2030 No Project	88	-30	30	0	0	0	-40	10	0	0	0	0	58
Contribution to Total 2030 Volume	30.7%	-1.9%	5.6%	0.0%	0.0%	0.0%	-3.5%	0.9%	0.0%	0.0%	0.0%	0.0%	0.9%
Change as % of Growth Existing to EIR/EIS	48.9%	-3.3%	9.6%	0.0%	0.0%	0.0%	-37.7%	16.9%	0.0%	0.0%	0.0%	0.0%	2.7%
2030 4th-Stockton Option A	287	1513	506	0	0	0	1428	1108	112	498	1257	64	6773
Change from 2030 No Project	88	-70	0	0	0	0	250	20	0	0	0	0	288
Contribution to Total 2030 Volume	30.7%	-4.6%	0.0%	0.0%	0.0%	0.0%	17.5%	1.8%	0.0%	0.0%	0.0%	0.0%	4.3%
Change as % of Growth Existing to Option A	48.9%	-8.0%	0.0%	0.0%	0.0%	0.0%	63.1%	29.0%	0.0%	0.0%	0.0%	0.0%	12.2%
2030 4th-Stockton Option B	287	1513	506	0	0	0	1514	1088	112	498	1317	64	6899
Change from 2030 No Project	88	-70	0	0	0	0	336	0	0	0	60	0	414

APPENDIX E - TRANSPORTATION

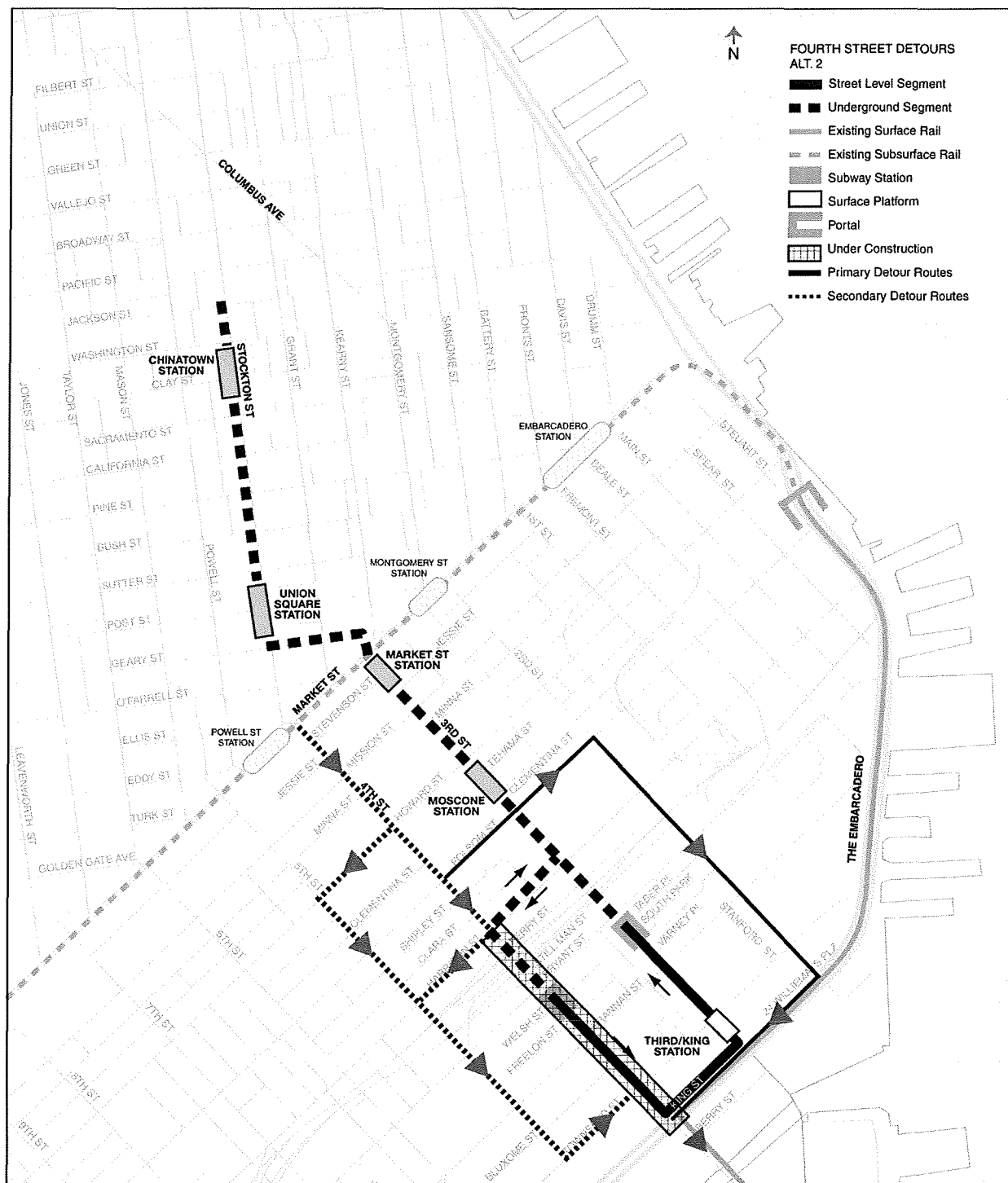
Contribution to Total 2030 Volume Change as % of Growth Existing to Option B	30.7%	-4.6%	0.0%	0.0%	0.0%	0.0%	22.2%	0.0%	0.0%	0.0%	4.6%	0.0%	6.0%
	48.9%	-8.0%	0.0%	0.0%	0.0%	0.0%	69.7%	0.0%	0.0%	0.0%	36.6%	0.0%	16.6%
<b>8. Sixth/Brannan</b>													
Existing	0	1476	610	0	1611	84	0	331	486	769	684	42	6093
2030 No Project	0	1607	838	0	1948	263	0	404	541	569	769	18	6957
2030 Enhanced EIR/EIS	0	1657	898	0	1948	263	0	404	541	569	769	18	7067
Change from 2030 No Project	0	50	60	0	0	0	0	0	0	0	0	0	110
Contribution to Total 2030 Volume Change as % of Growth Existing to EIR/EIS	0.0%	3.0%	6.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%
	0.0%	27.6%	20.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.3%
2030 4th-Stockton Option A	0	1607	838	0	1948	263	0	404	541	569	769	18	6957
Change from 2030 No Project	0	0	0	0	0	0	0	0	0	0	0	0	0
Contribution to Total 2030 Volume Change as % of Growth Existing to Option A	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2030 4th-Stockton Option B	0	1537	808	0	2138	263	0	404	541	569	709	18	6987
Change from 2030 No Project	0	-70	-30	0	190	0	0	0	0	0	-60	0	30
Contribution to Total 2030 Volume Change as % of Growth Existing to Option B	0.0%	-4.6%	-3.7%	0.0%	8.9%	0.0%	0.0%	0.0%	0.0%	0.0%	-8.5%	0.0%	0.4%
	0.0%	-114.8%	-15.2%	0.0%	36.1%	0.0%	0.0%	0.0%	0.0%	0.0%	-240.0%	0.0%	3.4%
Note: Shaded cells indicate intersection critical approaches where the Project contribution exceeds five percent of projected growth.													

**FIGURE E-1**  
**PROPOSED TRAFFIC DETOURS FOR THIRD STREET CONSTRUCTION**  
**ALTERNATIVE 2 – ENHANCED EIS/EIR ALIGNMENT**



Source: PB Wong  
 Not to scale

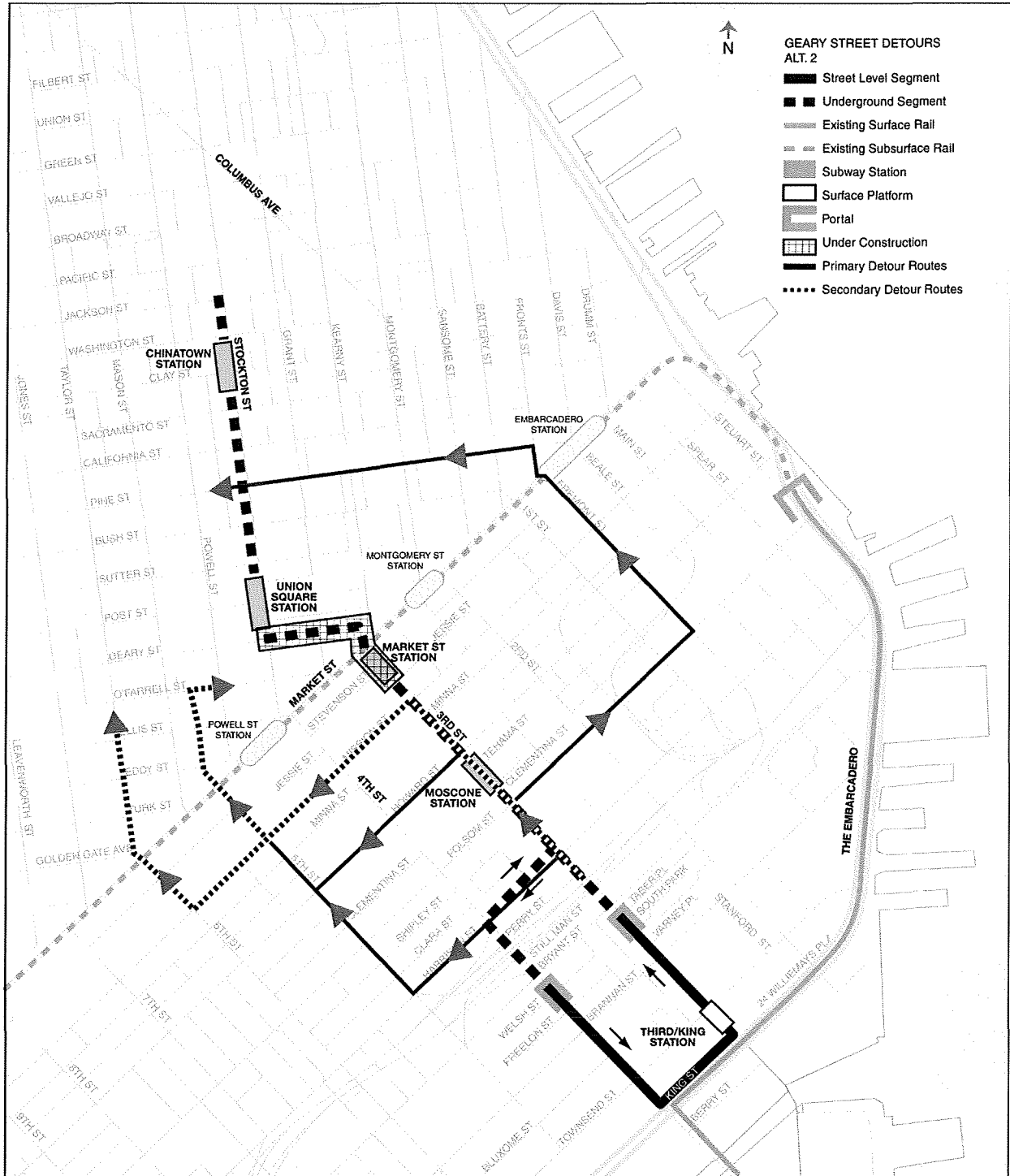
**FIGURE E-2**  
**PROPOSED TRAFFIC DETOURS FOR FOURTH STREET CONSTRUCTION**  
**ALTERNATIVE 2 – ENHANCED EIS/EIR ALIGNMENT**



Source: PB Wong  
 Not to scale

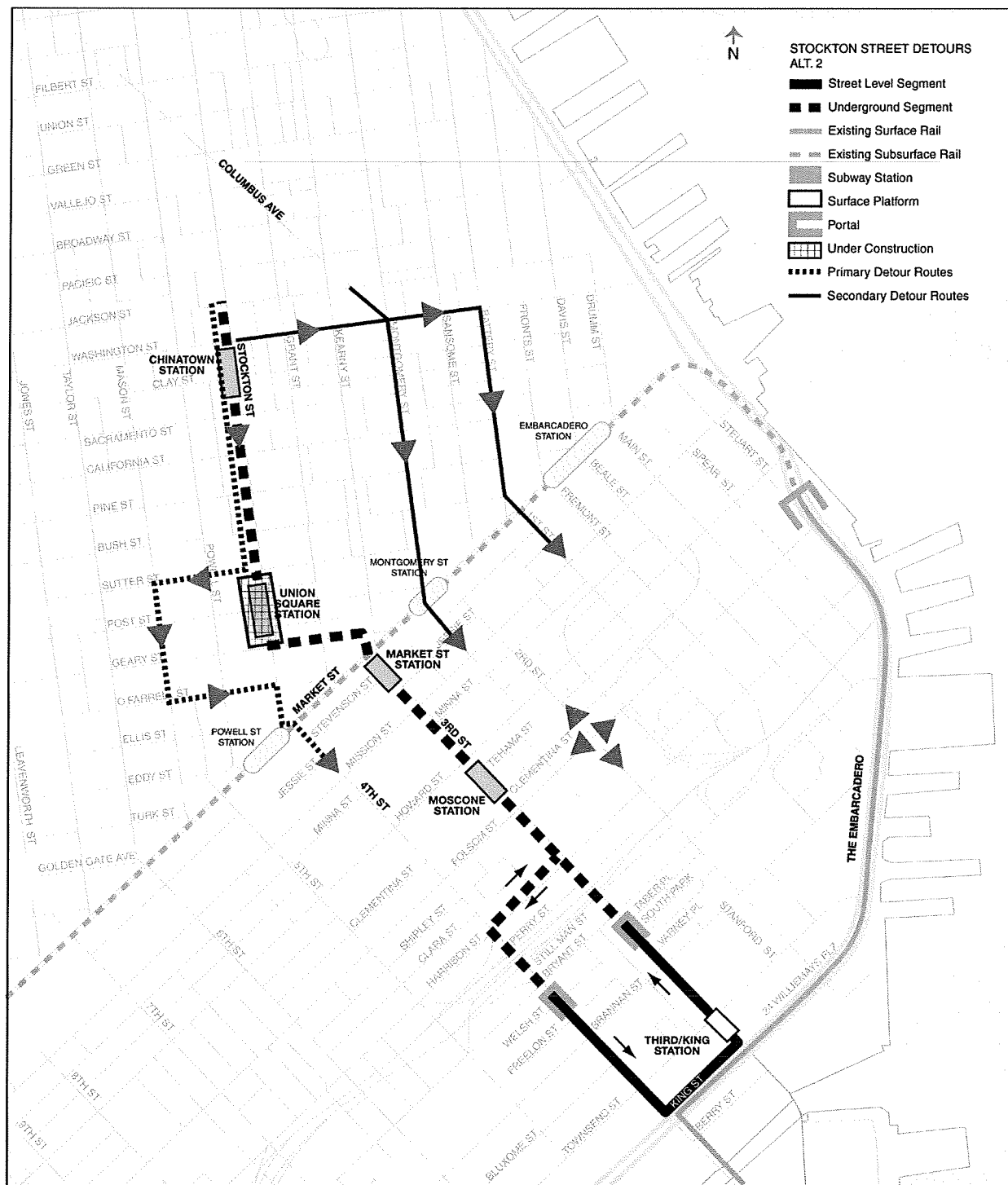
FIGURE E-3

**PROPOSED TRAFFIC DETOURS FOR GEARY STREET CONSTRUCTION**  
**ALTERNATIVE 2 – ENHANCED EIS/EIR ALIGNMENT**



Source: PB Wong  
 Not to scale

**FIGURE E-4**  
**PROPOSED TRAFFIC DETOURS FOR UNION SQUARE STATION CONSTRUCTION**  
**ALTERNATIVE 2 – ENHANCED EIS/EIR ALIGNMENT**

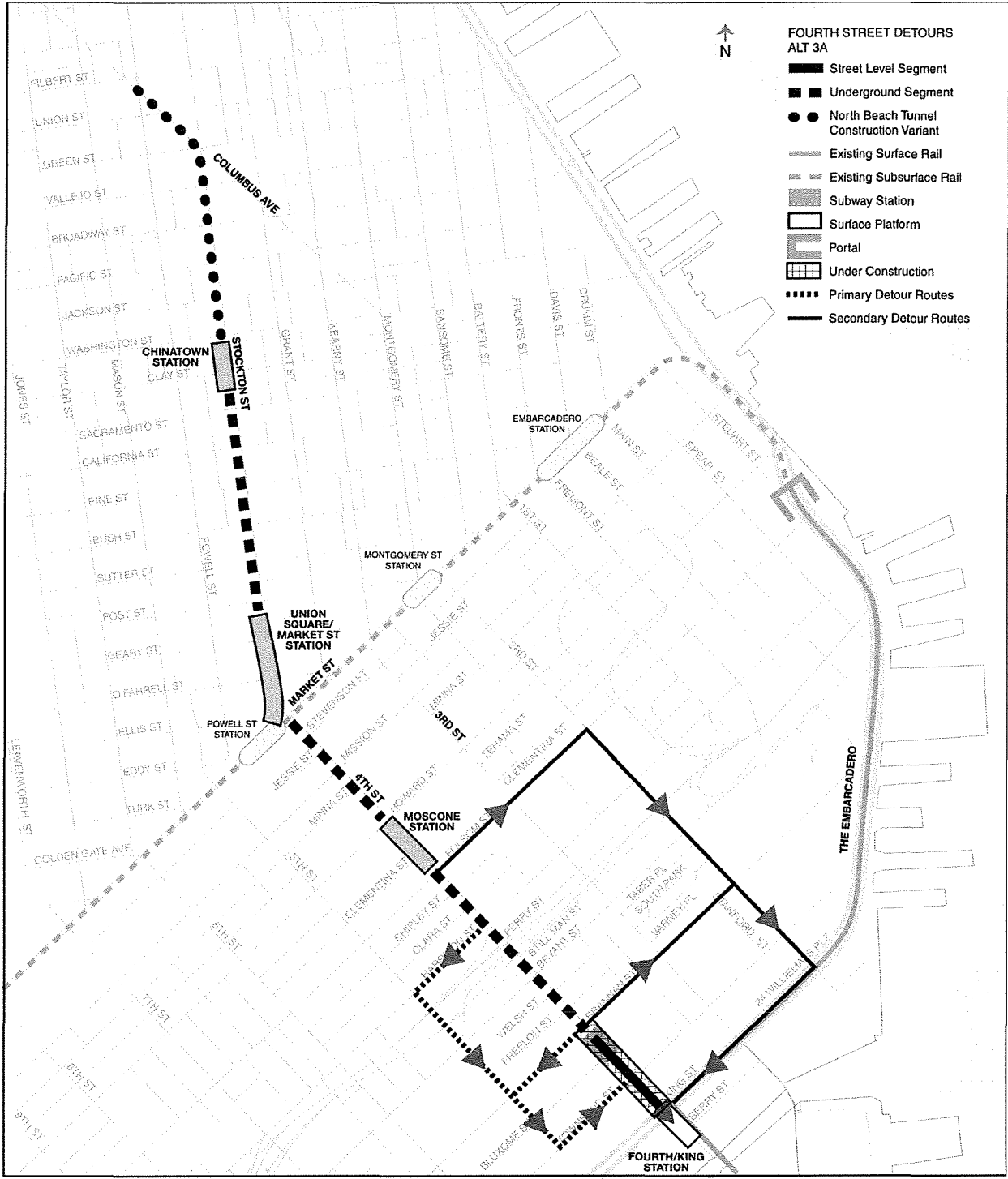


Source: PB Wong  
 Not to scale



FIGURE E-5

PROPOSED TRAFFIC DETOURS FOR FOURTH STREET CONSTRUCTION  
ALTERNATIVE 3 – FOURTH/STOCKTON ALIGNMENT OPTION A (LPA)



Source: PB Wong  
Not to scale

FIGURE E-6

# PROPOSED TRAFFIC DETOURS FOR UNION SQUARE/MARKET STREET CONSTRUCTION

## ALTERNATIVE 3 – FOURTH/STOCKTON ALIGNMENT OPTION A (LPA)

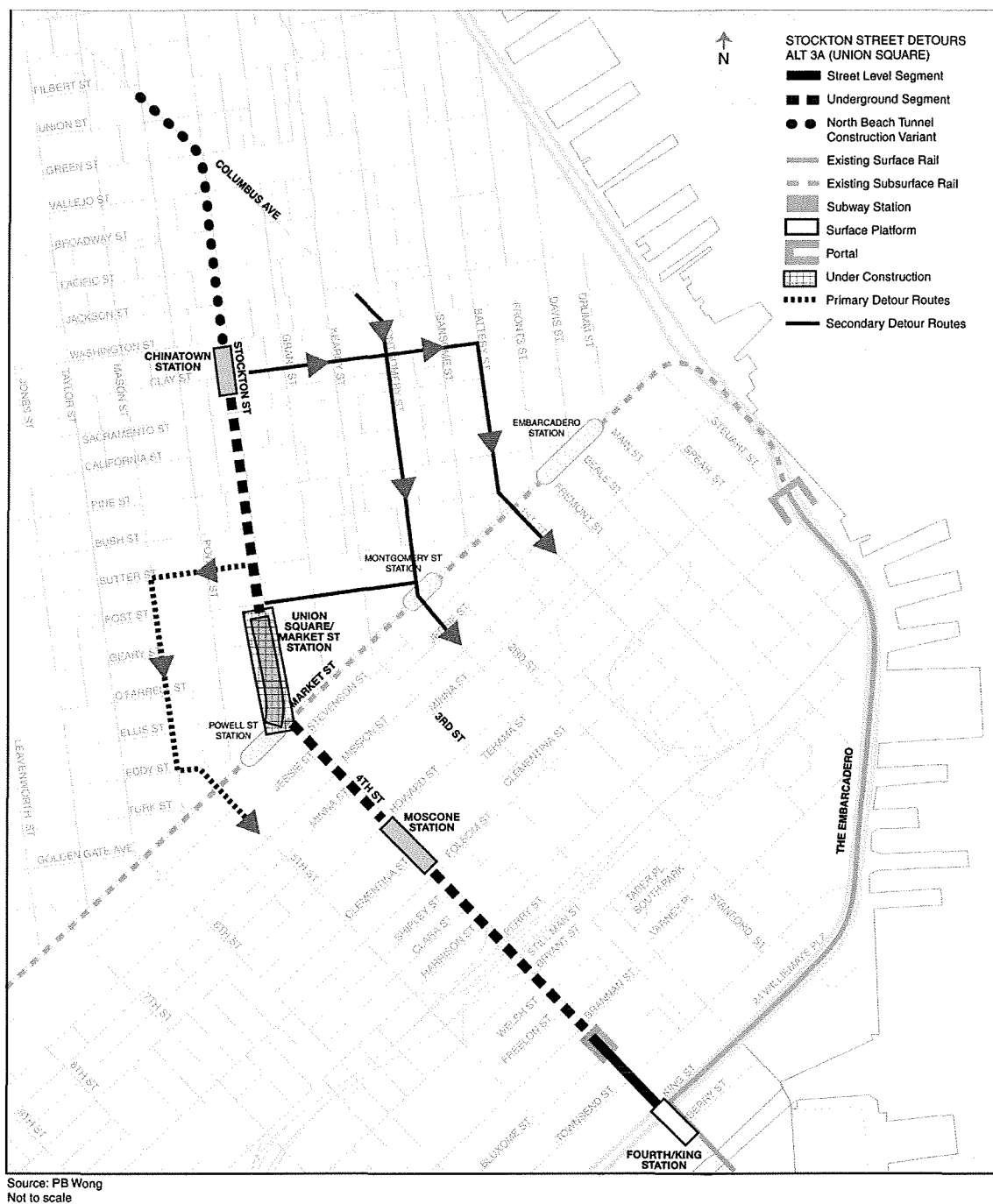


FIGURE E-7

**PROPOSED TRAFFIC DETOURS FOR CHINATOWN STATION CONSTRUCTION**  
**ALTERNATIVE 3 – FOURTH/STOCKTON ALIGNMENT OPTION A (LPA)**

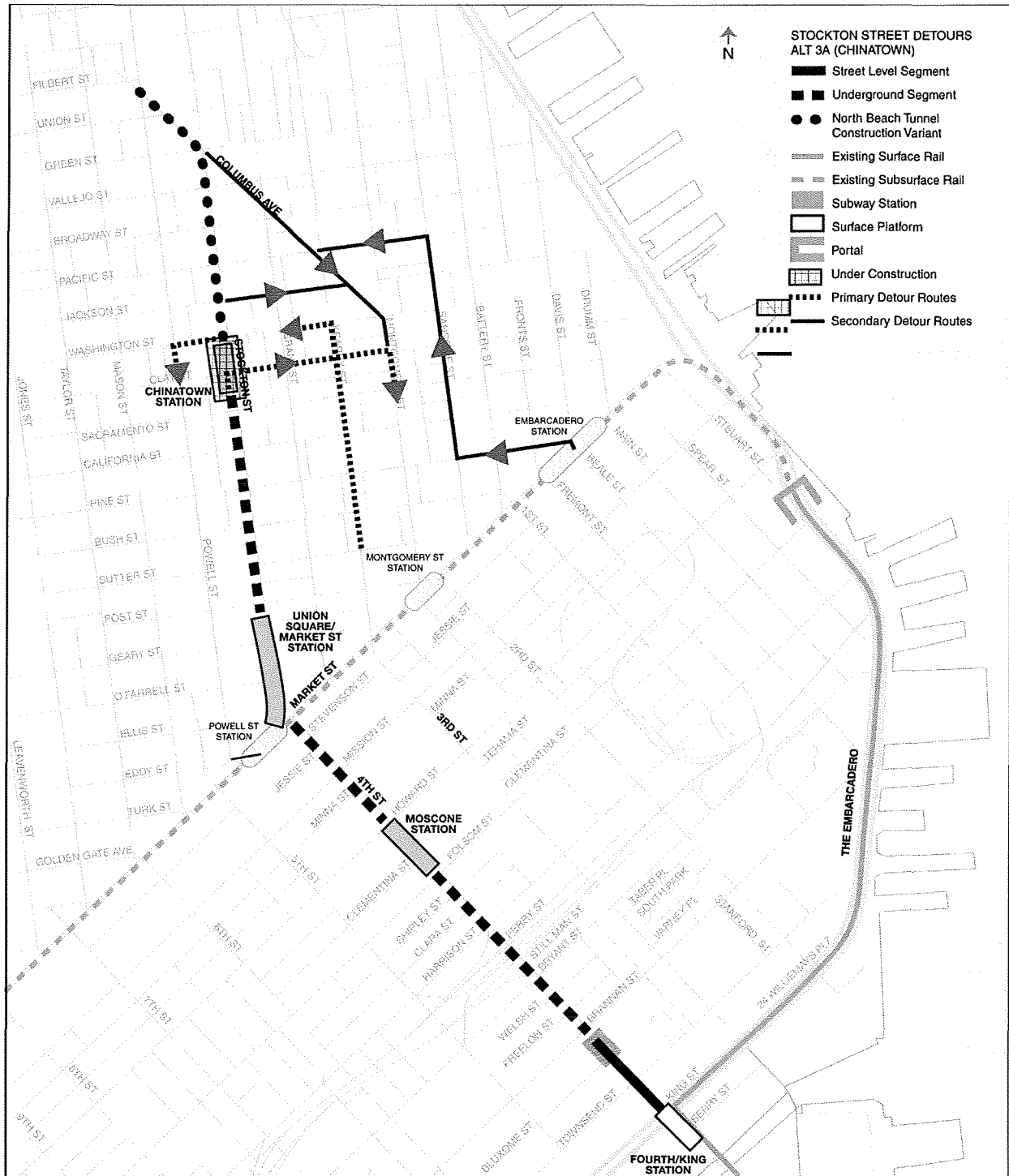
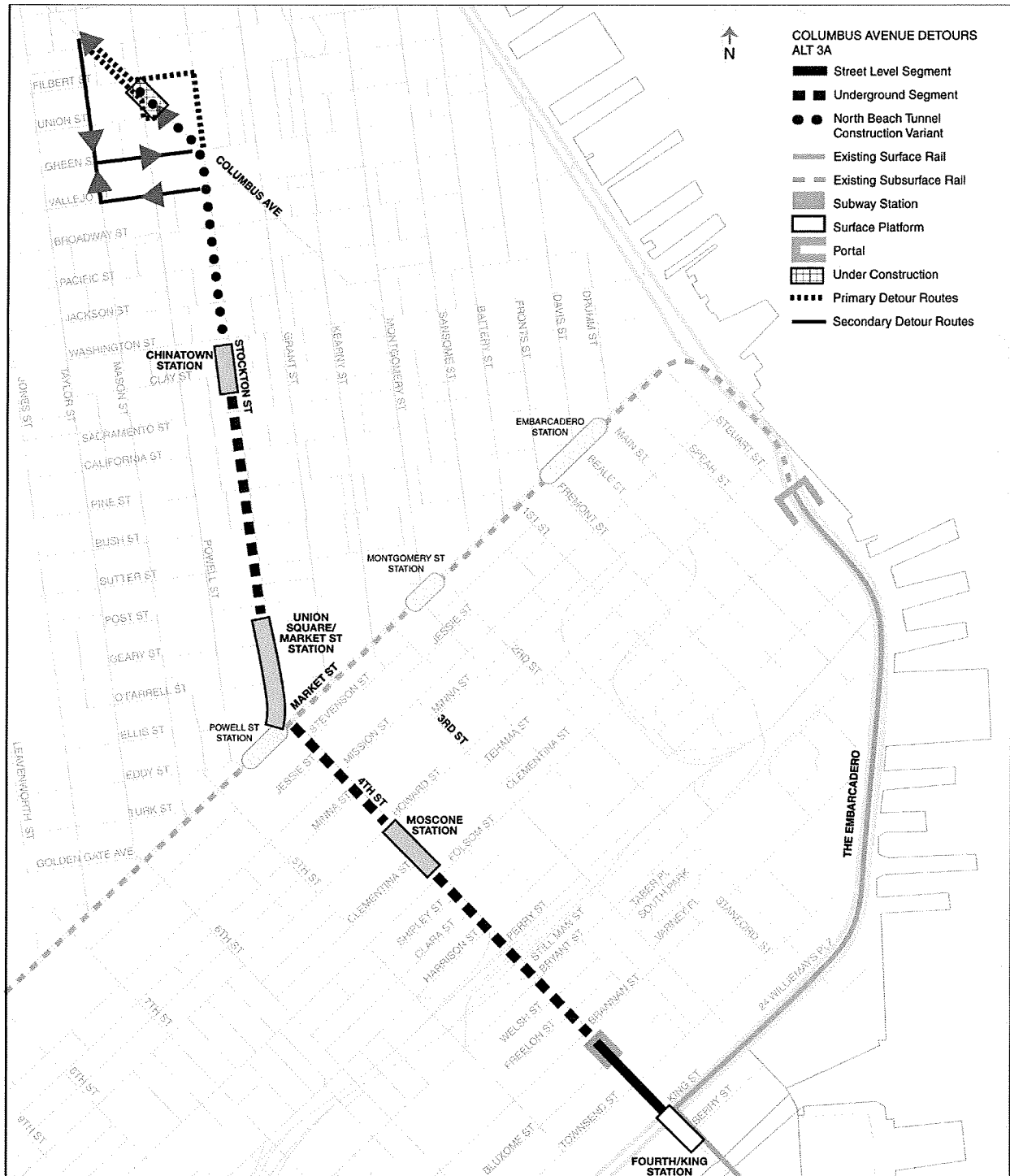


FIGURE E-8

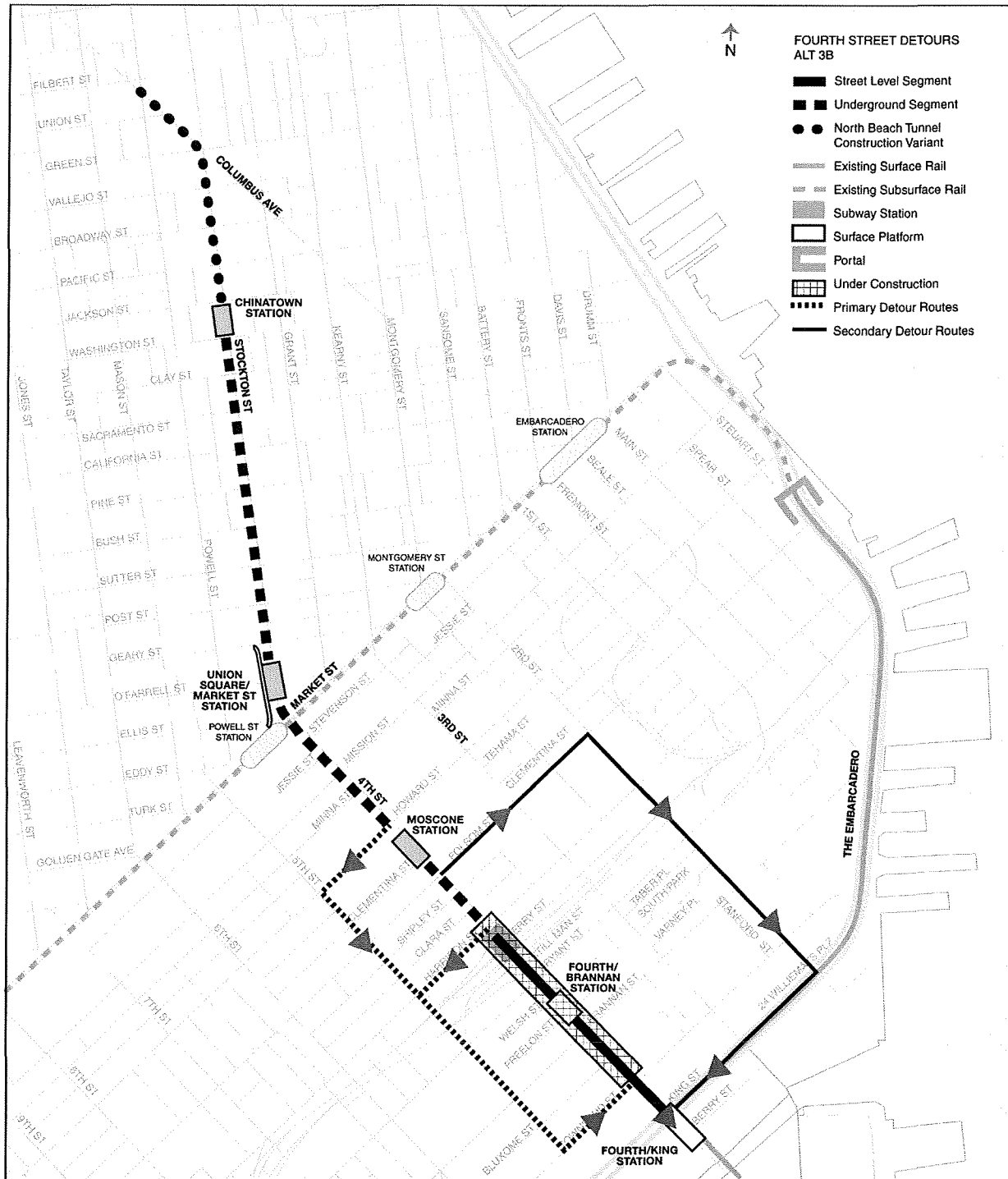
**PROPOSED TRAFFIC DETOURS FOR NORTH BEACH CONSTRUCTION VARIANT**  
**ALTERNATIVE 3 – FOURTH/STOCKTON ALIGNMENT OPTION A (LPA)**



Source: PB Wong  
 Not to scale

FIGURE E-9

**PROPOSED TRAFFIC DETOURS FOR FOURTH STREET CONSTRUCTION**  
**ALTERNATIVE 3 – FOURTH/STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)**



Source: PB Wong  
 Not to scale

FIGURE E-10

# PROPOSED TRAFFIC DETOURS FOR UNION SQUARE/MARKET STREET CONSTRUCTION

## ALTERNATIVE 3 – FOURTH/STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)

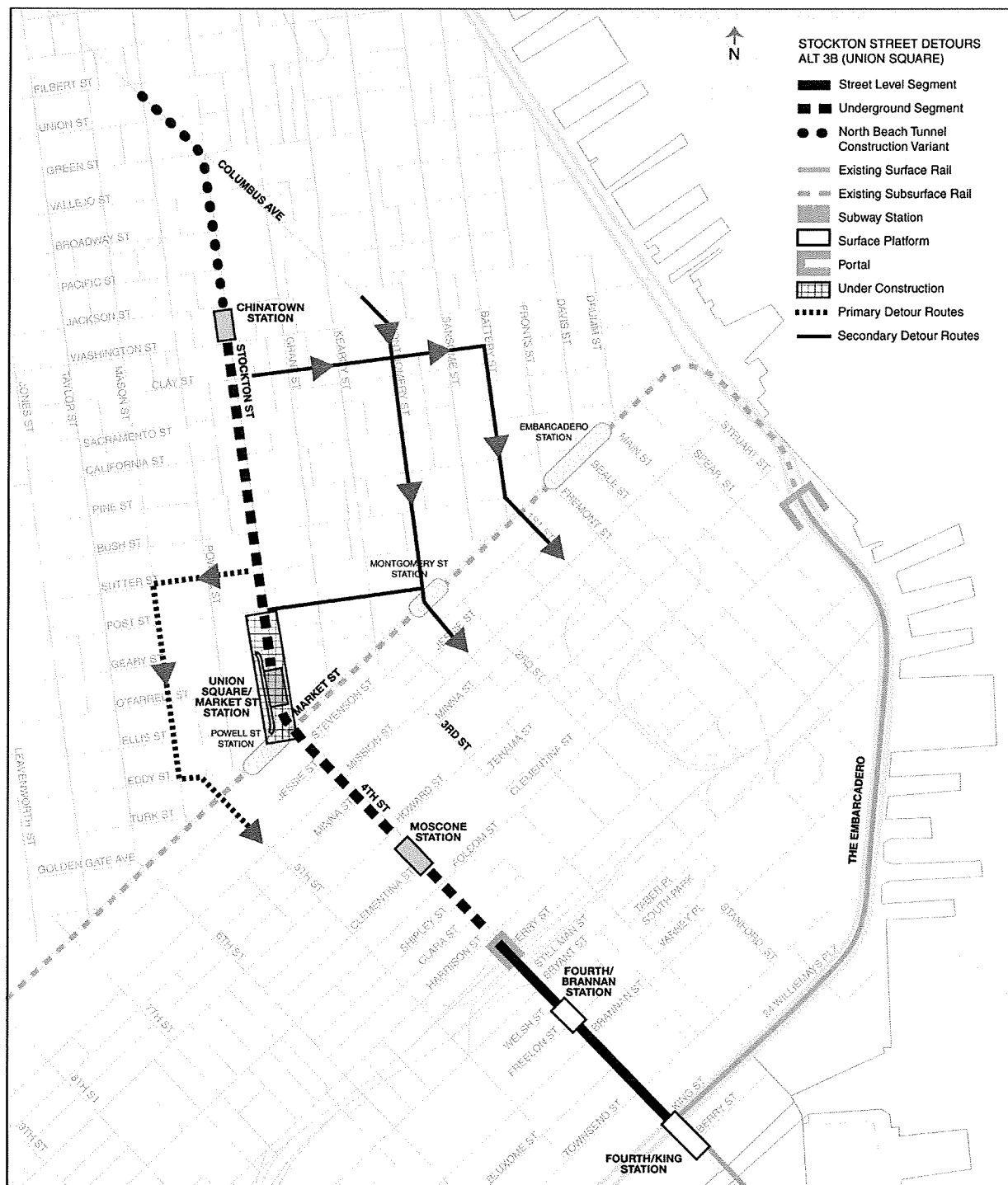
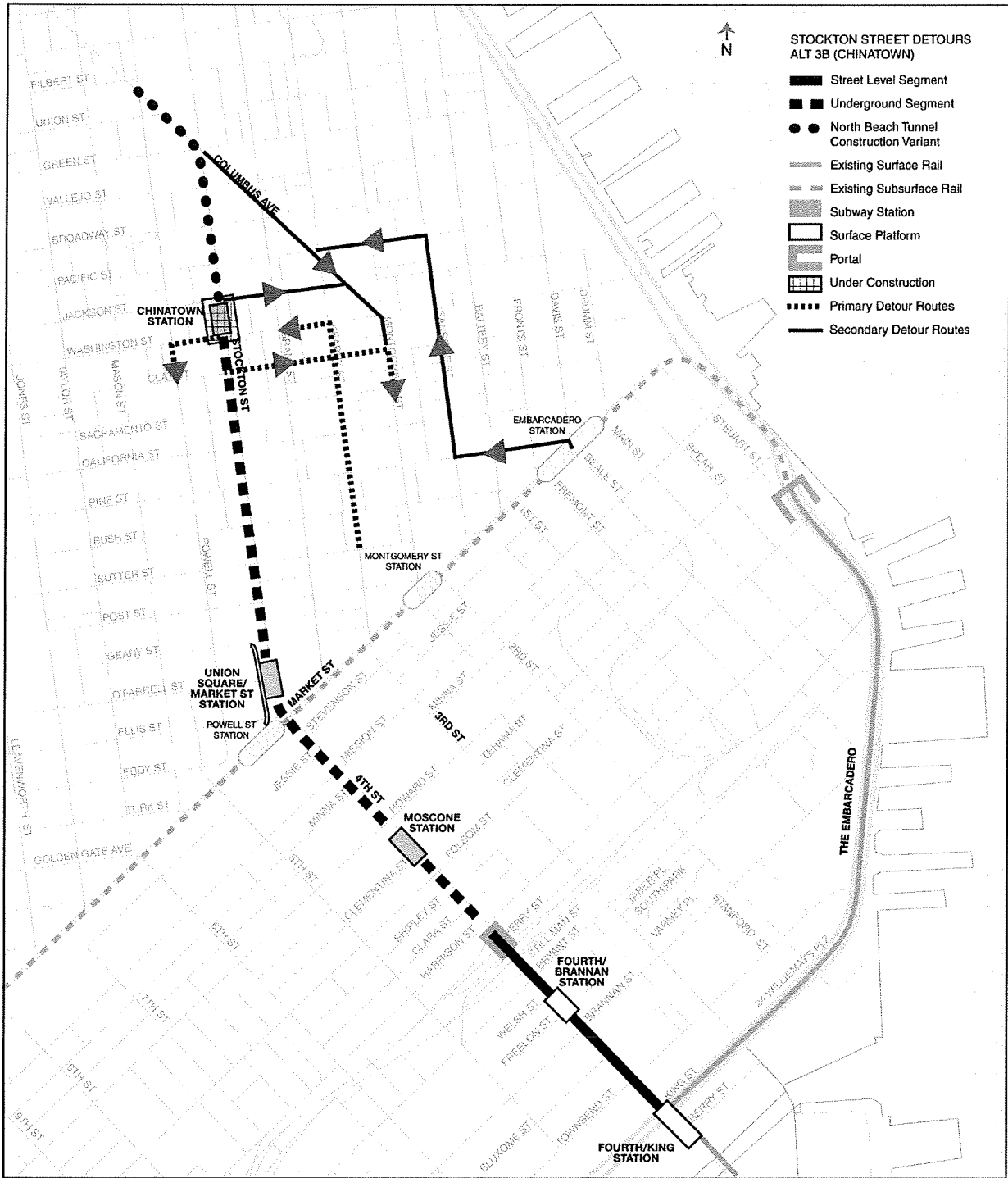


FIGURE E-11

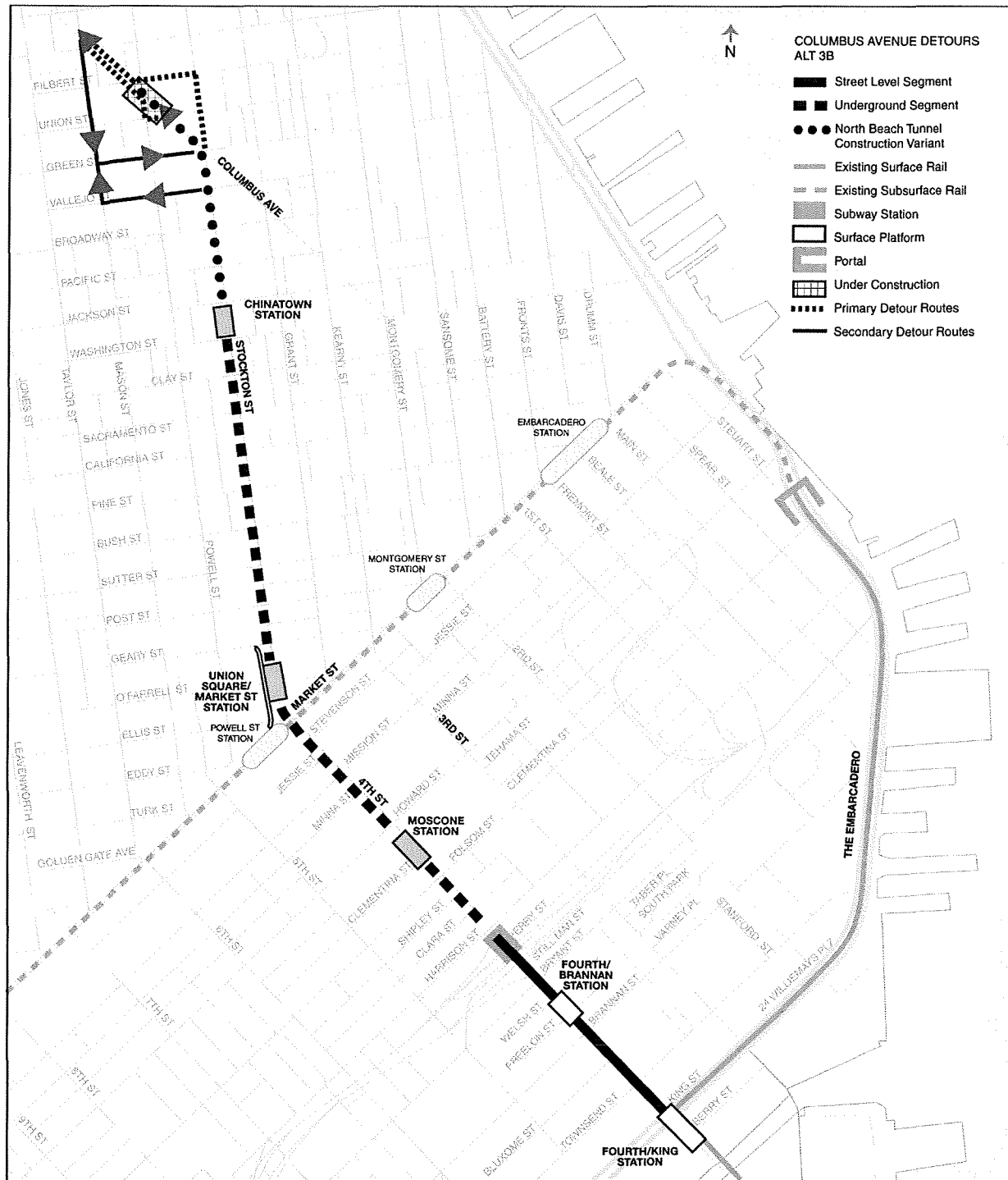
**PROPOSED TRAFFIC DETOURS FOR CHINATOWN STATION CONSTRUCTION**  
**ALTERNATIVE 3 – FOURTH/STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)**



Source: PB Wong  
Not to scale

FIGURE E-12

**PROPOSED TRAFFIC DETOURS FOR NORTH BEACH CONSTRUCTION VARIANT  
ALTERNATIVE 3 – FOURTH/STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)**



Source: PB Wong  
Not to scale



**APPENDIX F**  
**HISTORICAL ARCHITECTURAL RESOURCES**

- **Historical Architectural Properties in APE**
- **Properties With Potential for Impacts**
- **Historic Architectural References**



**OFFICE OF HISTORIC PRESERVATION  
DEPARTMENT OF PARKS AND RECREATION**

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calshpo@ohp.parks.ca.gov  
www.ohp.parks.ca.gov



05 November 2007

Reply To: FTA980703A

Leslie Rogers, Regional Administrator  
US Department of Transportation  
Federal Transit Administration, Region IX  
201 Mission Street, Suite 1650  
San Francisco, CA 94105-1839

Re: Determination of Eligibility for Phase 2 of the 3<sup>rd</sup> Street Light rail, San Francisco, San Francisco County, CA

Dear Mr. Rogers:

Thank you for initiating consultation with me pursuant to Section 106 of the National Historic Preservation Act as amended and the implementing regulations codified in 36 CFR 800 with regards to the above referenced undertaking. You are requesting I review and concur with the determination of eligibility for 76 properties and 18 previously evaluated properties.

As I presently understand it, the undertaking consists of extension of the light rail from the current terminus at Fourth and King Streets, primarily via subway, to a terminus in Chinatown on Stockton between Washington and Jackson Streets.

I concurred with the delineation of the APE in our earlier consultation.

FTA has determined that 39 properties are eligible for inclusion in the National Register of Historic Places (NRHP). Of those properties the following were reevaluated and recommended as **eligible** for inclusion in the NRHP:

1. 920 Sacramento Street, (Reference 285), eligible under Criterion A and C both individual and as a contributor to the Chinatown Historic District. I concur with this determination but am unable to concur with the eligibility under Criterion B.
2. 950 Clay Street (Reference 292), eligible as a contributor to the Chinatown Historic District
3. 1325-1341 Stockton Street (Reference 337), eligible as a contributor to the North Beach Historic District
4. 470-480 Columbus Avenue (Reference 348), eligible under Criterion C as an example of Moderne Architecture. At this time I am unable to concur with the determination of eligibility under Criterion B.
5. 1435 Stockton Street (Reference 353), eligible as a contributor to the North Beach Historic District
6. 1455 Stockton Street (Reference 354), eligible individually under Criterion C for its architecture and as a contributor to the North Beach Historic District
7. 500-524 Columbus Avenue (Reference 360), eligible as a contributor to the North Beach Historic District

8. 532 Columbus Street/1527 Stockton Street (Reference 362), eligible as a contributor to the North Beach Historic District
9. 548 Columbus Street/629 Union Street (Reference 364), eligible as a contributor to the North Beach Historic District and the Washington Square Historic District
10. 552-566 Columbus Street (Reference 365), eligible as a contributor the North Beach Historic District and the Washington Square Historic District
11. 600-668 Columbus Street (Reference 366), eligible as a contributor to the North Beach Historic District and Washington Square Historic District
12. 651 Columbus Avenue (Reference 367), eligible as a contributor to the North Beach Historic District and Washington Square Historic District
13. 701-705 Union Street (Reference 368), eligible as a contributor to the North Beach Historic District and Washington Square Historic District
14. 1701-1715 Powell Street (Reference 369), eligible as a contributor to the North Beach Historic District and Washington Square Historic District
15. 1717-1719 Powell Street (Reference 370), eligible as a contributor to the North Beach Historic District and Washington Square Historic District
16. 1731-1741 Powell Street (Reference 371), eligible as a contributor to the North Beach Historic District and Washington Square Historic District, but I am unable to concur with the determination that the building would be eligible if it were to be restored (7N1)

FTA has determined that two newly identified properties are **individually eligible** for listing in the NRHP:

17. 601 Fourth Street (Reference 173), eligible under Criterion A for its association with the Liggett and Meyers Tobacco Company and under Criterion C as a significant example of industrial architecture for the early twentieth century. I am able to concur with the determination under Criterion C but will need more justification under Criterion A to consider the building eligible.
18. 54 Fourth Street (Reference 238), at this time I am unable to concur with the eligibility under Criterion B and C unless more information is provided. Additionally FTA may want to consider eligibility under Criterion A for its association with construction of new commercial buildings and hotel to showcase San Francisco during the Panama-Pacific Exposition.

Additionally, FTA has determined that the following properties are **eligible as contributors** to historic districts and I concur with the following determinations:

19. 165-167 O'Farrell Street (Reference 256)
20. 918 Sacramento Street (Reference No. 286)
21. 910-914 Clay Street (Reference No. 289)
22. 916-918 Clay Street (Reference No. 290)
23. 868-870 Clay Street (Reference No. 294)
24. 45-53 Ross Alley (Reference No. 301)
25. 168-770 Jackson Street (Reference No. 317)
26. 1200-1206 Stockton Street (Reference No. 322)
27. 1208-1214 Stockton Street (Reference No. 323)
28. 1216-1218 Stockton Street (Reference No. 324)
29. 1220-1222 Stockton Street (Reference No. 325)
30. 1224-1226 Stockton Street (Reference No. 326)
31. 1230 Stockton Street (Reference No. 327)
32. 1238-1242 Stockton Street (Reference No. 328)
33. 1201-1217 Stockton Street (Reference No. 330)
34. 1241-1245 Stockton Street (Reference No. 332)
35. 1247 Stockton Street (Reference No. 333)
36. 1265 Stockton Street/705 Broadway (Reference No. 334)

37. 1301-1317 Stockton/700 Broadway (Reference No. 335)
38. 1319-1323 Stockton Street (Reference No. 336)
39. 1355-1365 Stockton Street (Reference No. 339)
40. 1300 Stockton Street (Reference No. 340)
41. 1318-1324 Stockton Street (Reference No. 341)
42. 1326-1328 Stockton Street (Reference No. 342)
43. 1334-1338 Stockton Street (Reference No. 344)
44. 637 Vallejo Street/1362 Stockton Street (Reference No. 345)
45. 1424 Stockton/401-451 Columbus Ave (Reference No. 346)
46. 1418 Stockton Street (Reference No. 347)
47. 702-712 Vallejo Street/1401-1405 Stockton Street (Reference No. 351)
48. 1411 Stockton Street (Reference No. 352)
49. 501-543 Columbus Ave (Reference No. 355)
50. 526 Columbus Ave/1521 Stockton Street (Reference No. 361)
51. 549-561 Columbus Ave (Reference No. 356)
52. 561-571 Columbus Ave (Reference No. 357)
53. 575-579 Columbus Ave (Reference No. 358)
54. 166 South Park (Reference No. 192)

Of the properties determined eligible for the NRHP as contributors to a historic district, I am unable to concur with the following:

55. Willie "Woo Woo" Wong Playground- 850 Sacramento Street (Reference No. 283), the property still has to maintain integrity to be considered a contributor to a historic district, and as the report states, the property does not maintain integrity.

As for archeological resources, FTA has determined there is potential for buried deposits and that a new Programmatic Agreement for deferred identification is appropriate. I agree with this approach.

I look forward to continuing consultation on this project. If you have any questions, please contact Amanda Blosser of my staff at (916) 653-9010 or e-mail at [ablosser@parks.ca.gov](mailto:ablosser@parks.ca.gov).

Sincerely,

*Susan K Stratton for*

Milford Wayne Donaldson, FAIA  
State Historic Preservation Officer

MWD:ab



**APPENDIX F - HISTORIC ARCHITECTURAL RESOURCE IMPACTS**

The following tables describe each of the historic architectural properties in areas identified for potential impacts from proposed project features (stations, tunnel portals) that are individually listed or appear eligible for an individual listing on the National Register of Historic Places, and properties that have been identified as contributors to a NRHP District, or an eligible Historic District. The shaded properties are in the first row of buildings adjacent to the project features, and the un-shaded properties in the tables are in the second row of properties, behind the first row of buildings.

### HISTORIC ARCHITECTURAL PROPERTIES IN POTENTIAL IMPACT AREAS THAT ARE INDIVIDUALLY LISTED OR APPEAR ELIGIBLE FOR AN INDIVIDUAL LISTING

Ref. No.	Potential Impact Area	Address/Parcel	Parcel No. (Block/Lot)	Building History, Description, and NRHP Eligibility
19	Alt 2- SB Portal; Alt 3B- Bryant/Brannan Station	508-514 Fourth	3777/002	508-514 Fourth Street was built in 1925 for owners William Hoelscher, an investor, and Frank J. Merschen, a painter. The architect was Walter C. Falch who worked for Bliss and Faville in 1910 and practiced in San Francisco from 1911 to the 1940s. The building is generally L-shaped and has façades on both Fourth and Bryant streets. In appearance, the building is designed as a Renaissance and Baroque pilaster order of three bays on the Fourth Street frontage and one bay on the Bryant Street frontage. The building appears eligible for the NRHP under Criteria A and C at the local level of significance. Under Criterion A it is an example of a widespread pattern of speculative industrial development south of Market street between the two world wars. Its significance under Criterion C relates to its fireproof, reinforced concrete construction, an effective use of Renaissance motifs to the façade design of an industrial building (Corbett et al. 1997). (NRHP Code 3S)
21	Alt 3B- Bryant/Brannan Station	500-504 Fourth	3777/001	Constructed in 1908, the Hotel Utah is a four-story wood-framed residential hotel with a ground floor saloon and two stores designed by John F. Deininger. The building displays a series of second floor-to-roof projected bays and a rounded corner bay. It is identified in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as an individual property. (NRHP Code 3S)
26	Alt 2-TBM NB Portal	566-586 Third	3776/008	The Central Hotel at 566-586 Third Street is a three-story and basement building constructed of brick with wood interior columns, wood floors, and steel columns in the front walls. The building has a two-part composition with Renaissance-Baroque ornamentation. It was built in 1906-1907 for Edward Rolkin who co-owned several residential hotels. The architectural firm of Sutton and Weeks designed the 440-room building. Albert Sutton had attended the University of California and partnered with Charles Peter Weeks who had attended the prestigious Ecole des Beaux Arts in Paris. The Central Hotel appears eligible for the NRHP under Criterion A at the local level of significance for the period 1906 to 1943. This is one of the last surviving large buildings of this type, which was once common and played an important role in the history of the city. The hotel was built to house seasonal workers who had no permanent residence but moved frequently from farm to city following work. With the exception of aluminum framed windows replacing the original wood windows, the exterior still appears today much as it did during its period of significance (Corbett et al. 1997). (NRHP Code 3S)
31	Alt 2-TBM NB Portal	500 Third	3776/031	500 Third Street is a fireproof reinforced concrete building first built in 1920 by Lange & Bergstrom and leased to the Schwabacher-Frey Stationary Company for a period of twenty years. The building was expanded in 1927 using identical architectural detailing. Schwabacher-Frey used the building as a printing plant and warehouse at least through 1959. The building appears eligible for the NRHP under criteria A and C at the local level of significance. Under Criterion A, it appears that Schwabacher-Frey was the largest printing plant in San Francisco at a time when printing was the largest major local industry (1920-1959). Under Criterion C, it is both the largest, and most characteristic, example in its



## APPENDIX F – HISTORICAL ARCHITECTURAL RESOURCE IMPACTS

				structure and architectural design of the modern type of reinforced concrete printing building that began in the 1920s. The building is little changed and retains integrity (Corbett et al. 1997). (NRHP Code 3S)
58	Alt 2-Market Street Station	700-706 Mission	3706/093	The large ten-story Aronson Building was constructed in 1903 for real estate investor Abraham Aronson. The building was designed by Hemenway and Mille and consists of a glass base with skeletal shaft and embellished arcade and Renaissance/Baroque embellishments. It partly withstood the 1906 San Francisco earthquake and fire, but the tile-clad steel columns failed. The building was sold in the 1930s and was renamed the Mercantile Building. The building was determined eligible for a separate listing in the NRHP under Criterion A for its association with Abraham Aronson and under Criterion C for its fine architectural design (Corbett 1979). (NRHP Code 2S1)
62	Alt 2-Market Street Station	17-29 Third	3707/057	17-29 Third Street is a three-story brick masonry building designed by Arthur T. Ehrenfort for Herman Levy in 1907. This building is located on the same parcel as the Hearst Building, is linked to it internally, and its upper floors are only accessed via the Hearst Building. It appears to be eligible for the NRHP under Criterion C at the local level of significance for the period 1907 to 1919 and 1931 to 1975. This is the last building known to survive which housed a newspaper bar, a legendary type of establishment in San Francisco (Corbett 1979). (NRHP Code 3S)
63	Alt 2-Market Street Station	703-705 Market 26 Third	3706/001	The Reid Brothers designed the Call/Claus Spreckels Building constructed in 1898. The dome-towered steel-framed skyscraper was renowned as one of the finest in San Francisco. A remodel by Albert Roller in 1938 added six floors to the top of the building with an Art Moderne tower. The building is eligible for the NRHP under Criterion A at the local level for its association with the 1906 San Francisco earthquake, Criterion B for its association with structural engineer Charles Strobel, and under Criterion C for its association with noted architects and its architectural design (Corbett 1979). (NRHP Code 3S)
64	Alt 2-Market Street Station	691-699 Market	3707/057	The twelve-story San Francisco Examiner Building was constructed in 1909 for William Randolph Hearst, the American newspaper magnate. Architect Julia Morgan remodeled the building in 1937 by adding elaborate ornamentation to the façade and grand entrance. The building is eligible for the NRHP due to its association with William Randolph Hearst (Criterion B) and master architect Julia Morgan and her masterful architectural detailing (Criterion C). (NRHP Code 3S)
65	Alt 2-Market Street Station	673-687 Market	3707/051	Frederick H. Meyer designed the ten-story Monadnock Building. The building was only half built at the time, but it survived the 1906 earthquake. The large 1906 Beaux-Art style building is noted for its expansive use of glass and fireproof construction. It houses fine offices and retail spaces in the Financial District. The building is eligible for the NRHP under Criterion A at the local level for its association with the 1906 San Francisco earthquake and under Criterion C for its association with Frederick Meyer and its architectural design. (NRHP Code 3S)
85	Alt 3A, 3B, Union Square Station	150 Stockton	0313/018	The Neiman Marcus Building was constructed in 1908 and exhibits fine Beaux Art embellishments. It has been identified in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as an individual property. (NRHP Code 3S)
92	Alt 3A- Union Square Station	160-170 Geary	0309/010	Shea and Shea Architects designed the Whittell Building, an early skyscraper fronting Geary Street near Union Square. Innovative engineering features of the prominent steel-framed building, under construction during the 1906 earthquake, enabled it to withstand the tremors.



**PRELIMINARY DRAFT – SUBJECT TO CHANGE – NOT FOR PUBLIC DISTRIBUTION**

**APPENDIX F – HISTORICAL ARCHITECTURAL RESOURCE IMPACTS**

				The building is eligible for the NRHP under Criterion A at the local level for its association with the 1906 San Francisco earthquake, Criterion B for its association with structural engineer J. B. C. Locke, and under Criterion C for its association with noted architects and its architectural design (Corbett 1979). (NRHP Code 3S)
94	Alt 3A, 3B- Union Square Station	233 Geary	0314/001	233 Geary Street began as the Butler Building in 1907. The building was under construction when the 1906 San Francisco Earthquake occurred, extending the total construction period to two years. The nine-story steel-framed building, at the corner of Geary and Stockton streets, featured Renaissance/Baroque embellishments. The kitchenware shop closed its doors in 1946 and the building was transformed into an architecturally Art Moderne building by architects Miller & Pflueger, with sleek walls of white marble to house the upscale I Magnin women's clothing store. I Magnin was housed in that same location until 1995. The building was proposed for listing in the NRHP as an individual property (Corbett 1997). (NRHP Code 3S)
94A	Alt 3A, 3B- Union Square Station	Geary, Grant, Kearny, Post, Stockton, Sutter		The Triangular District Street Lights were completed in the retail area of the city in 1919. They are located on Kearny, Geary, Grant, Stockton, Post, and Sutter streets and in 1919 the area had the distinction of being "the best lighted business district in any city in the world." The street lights have been identified in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as an individual property. (NRHP Code 3S)
95	Alt 2, 3A, 3B- Union Square Station	333 Post	0308/001	The Union Square Garage was constructed at 333 Post Street in 1942. It was the first parking garage in the United States to be constructed underground with a park above it. The innovative design by architect Timothy Pflueger provided a natural area within an urban space; however, today much of the grassy mound has been paved over (Corbett 1979). It is identified in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as an individual property. (NRHP Code 3S)
97	Alt 2, 3A - Union Square Station	218-222 Stockton	0309/014	The A.M. Robertson Building was constructed at the corner of Stockton and Maiden Lane in 1908. A. B. Foulks designed the two-part vertical composition, which exhibits eighteenth century ornamentation. The building is eligible for the NRHP under Criterion C for its architectural design (Corbett 1979). (NRHP Code 3S)
98	Alt 2, 3A- Union Square Station	234-240 Stockton	0309/020	The Scroth Building (aka TWA Building) at 234-240 Stockton Street was constructed in 1908-1909 with modified Renaissance/Baroque decor. The early reinforced concrete building was designed by Cunningham and Politeo and exhibits ten stories with an Art Moderne parapet (Corbett 1979). It has been identified in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as an individual property. (NRHP Code 3S)
100	Alt 2, 3A- Union Square Station	275-299 Post	0309/022	The Lathrop Building was constructed at the southeast corner of Stockton and Post streets in 1909 and occupies an important location at Union Square. The seven-story steel-framed brick building of stacked vertical composition displays Renaissance/Baroque embellishments (Corbett 1979). It has been identified in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as an individual property. (NRHP Code 3S)
102	Alt 2- Union Square Station	278-298 Post	0294/011	The Joseph Fredericks Co. Building was built in 1910 at the northeast corner of Stockton and Post streets at Union Square. Willis Polk designed the six-story building with an attic for D. H. Burnham and Co. The building has a two-part vertical block composition and features Renaissance/Baroque embellishments. It bears a similar design to a building in Paris



**PRELIMINARY DRAFT – SUBJECT TO CHANGE – NOT FOR PUBLIC DISTRIBUTION**

**APPENDIX F – HISTORICAL ARCHITECTURAL RESOURCE IMPACTS**

				(Corbett 1979). This building is identified in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as an individual property. (NRHP Code 3S)
173	Alt 3A- NB/SB Portal	601 Fourth	3787/052-139	This large three-story plus basement, reinforced concrete industrial loft was built at the southeast corner of Fourth and Brannan streets in 1916. The surface of the building is covered with stucco that has been lightly scored to suggest masonry construction. Paneled sheet metal spandrels can be found between the second and third stories and a molded cornice with dentils tops the composition of both façades. It appears the building was remodeled in 1945. By 1950, it housed the Liggett and Meyers Tobacco Company. Today, the building has been converted into residential lofts. This property appears NRHP-eligible as an individual property under Criterion C. (Proposed NRHP Code 3S)
249	Alt 3A, 3B- Union Square Station	760 Market/35 O'Farrell	0328/001	Prominent architect William Curlett designed the Phelan Building at 760 Market Street (also 35 O'Farrell Street) in 1908. The exquisite fire-proof, steel-framed ten-story building with Classical Revival embellishments was constructed for James Duvall Phelan, the mayor of San Francisco from 1897 to 1902 and U. S. Senator from 1913 to 1919 (Corbett 1979). The flatiron-shaped office building has ground floor retail storefronts. The top eight stories of this building are clad in glazed white terra cotta; the second story has ornamental cast iron over the steel frame; and the first story has paneled pilasters over a steel frame. The building was registered as Landmark No. 156 by the city of San Francisco. It is identified in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as an individual property. (NRHP Code 3S)
251	Alt 3A, 3B- Union Square Station	77-81 O'Farrell	0328/003	77-81 O'Farrell Street was designed by Lansburgh & Joseph architects in 1909. The five-story steel-frame retail commercial building is at the southeast corner of O'Farrell and Stockton streets. The style is a blend of Classical Revival and Gothic Revival. By 1913, Newman & Levinson occupied the space along with the adjacent building. Later, Joseph Magnin Department Store occupied the building. It should be noted that although 77-81 O'Farrell Street was constructed as a separate building on the parcel next to 79 O'Farrell Street, they now appear as one building. It is identified in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as an individual property. (NRHP Code 3S)
252	Alt 3A, 3B- Union Square Station	79 O'Farrell (previously 46-68 Stockton/77-79 O'Farrell)	0328/004	Lansburgh & Joseph architects designed 46-68 Stockton Street at the southeast corner of O'Farrell Street in 1909. Newman & Levinson dry goods/clothing store first housed the five-story building, but Joseph Magnin later moved into the building. The steel-framed building has a three-part vertical composition with a curved cornice, and arched five-part bays in the capital (Corbett 1979). It is identified in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as an individual property. (NRHP Code 3S)
266	Alt 3A, 3B- Union Square Station	101 Stockton	0314/002; 0314/004	When constructed in 1928, Lewis Hobart designed the building at 101 Stockton. It originally housed the O'Connor-Moffatt Department Store, but Macy's later moved into the three-part vertical block building. The same architect, Lewis Hobart, designed a building expansion in 1948. The building is identified in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as an individual property. (NRHP Code 3S)
272	Alt 2, 3A- Union Square Station	177-179 Maiden	0309/012; 0309/010	When constructed in 1907, Anna Whittell owned the small brick building at 177-179 Maiden Lane. It is a two-part commercial block with a Medieval corbelled brick cornice and

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				Classical Revival storefront. It is eligible under Criterion C for its architectural design. The building is identified in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as an individual property. (NRHP Code 3S)
273	Alt 2, 3A- Union Square Station	259 Post	0309/023	In 1909, 259 Post Street was constructed as a four-story department store using reinforced concrete framing. The three-part vertical block composition was retained in 1918 when architect G. Lansburg added four stories to the top of the building. In about 1940, the building was remodeled in Art Moderne styling to create a very elegant form clad with a gray stone veneer and accented by a tasteful bronze entrance and window frames. Ransohoffs Department Store was housed in the building continuously from 1909 until 1973 (Corbett 1979). This building is identified in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as an individual property. (NRHP Code 3S)
276	Alt 2- Union Square Station	272 Post	0294/010	272 Post Street is a four-story reinforced concrete commercial building designed by Meyers and Ward and constructed in 1909. Over the years, it housed the Martin Sachs Company and then the Lengfeld Drug Company. Martin Sachs dabbled in real estate and was a stockholder of the North American Navigation Company. In form, the building is a two-part vertical composition with Renaissance/Baroque embellishments. It is identified in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as an individual property. (NRHP Code 3S)
305	Alt 3B- Chinatown Station	940 Washington	0192/005	In 1911, prominent architect Julia Morgan designed this three-story red brick building that resembles a "Florentine villa." It features an arched entrance and a projected cornice, and contains 43 rooms. It became the Gum Moon Residential Hall and was operated by the Women's Home Mission Society of the Methodist Episcopal Church. It served as an orphanage through the 1930s and as a residence for Asian women. The building is identified in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as an individual property. (NRHP Code 3S)
359	Alt 3A, 3B-TBM Extraction Shaft	1636-1656 Powell	0117/016	The 1914 Verdi Apartment Building is a large three-story, light-colored brick building of Renaissance/Baroque styling located in North Beach. The building features storefronts on the ground level and residential flats on the upper floors. It is identified in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as an individual property. (NRHP Code 3S)



## CONTRIBUTORS TO A NRHP HISTORIC DISTRICT OR NRHP-ELIGIBLE HISTORIC DISTRICT

Ref. No.	Potential Impact Area	Address/Parcel	Parcel No. (Block/Lot)	Building History, Description, and NRHP Eligibility
132	Alt 2, 3A- Chinatown Station	801-805 Stockton	0224/006	In 1925, contractor H. A. Hogreve constructed the three-story reinforced concrete building for owner William D. Brown, a realtor (Corbett et al. 1997; Choy et al. 1994). The San Francisco Landmarks Preservation Advisory Board identified this building as a contributing element to the Chinatown District in 1994. In 1996, the FSF Landmarks Board noted its contextual importance to the Chinatown District. It is now listed in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as a contributing element of the Chinatown Historic District. (NRHP Code 3D)
133	Alt 2, 3A- Chinatown Station	800-810 Stockton	0225/013	Constructed in 1911 by Walter K. Yorston for W. J. Gardner, the brick building with a basement is on a sloping lot that backs up to Hang Ah Alley (Pagoda Alley). The Stockton façade features four stories, but the rear of the building exhibits a fifth floor. A series of segmented arched windows and a projecting metal cornice characterize the building. In the 1920s it was known as the Lewis Gasner Hotel (Corbett et al. 1997; Choy et al. 1994). It occupies a lot considered a part of Chinatown since the 1880s and, despite alterations -- including some replacement aluminum windows and modifications to storefronts -- the integrity is consistent with other contributors to the Chinatown Historic District. The building is identified in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as a contributing element of the Chinatown Historic District. (NRHP Code 3D)
134	Alt 2, 3A- Chinatown Station	809-815 Stockton	0224/005	Architect Earl B. Scott designed the three-story brick building for owner H. Bruce Schroder in 1915. It housed storefronts and residential lodging. In 1923 it was known as the Burke Lodging House. The San Francisco Landmarks Preservation Advisory Board identified this building as a contributing element of the Chinatown Historic District in 1994; and the FSF Heritage staff noted its contextual importance to the Chinatown Historic District in 1996. It is now listed in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as a contributing element of the Chinatown Historic District. (NRHP Code 3D)
135	Alt 2, 3A- Chinatown Station Proposed for demolition	812-828 Stockton	0225/014	812-828 Stockton Street is a one-story reinforced concrete building constructed in 1923-1924 -- later than most of the buildings on the block. It is on a sloping lot that backs up to Hang Ah Alley (Pagoda Alley), and exhibits a second floor at the rear. A cast embellishment on the triangular-shaped parapet has been removed from the stuccoed façade wall; however, changes to the storefronts are minimal. Prior to 1930, there were three separate Chinese proprietors. In 1930 the Hoysan Ningyung Benevolent Society of America became the building's owners. There is a history of continuous Chinese occupation with current tenants that include a clothing factory, plumbing shop, and Chinese School in the basement. In the 1970s and 1980s, it housed a Chinese newspaper (Corbett et al. 1997).  This building is proposed for demolition and removal to make way for the Chinatown Station under Alternatives 2 and 3A. The building is identified in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as a contributing element of



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				the Chinatown Historic District. (NRHP Code 3D)
136	Alt 2, 3A- Chinatown Station	827-829 Stockton	0224/004	Constructed in 1908, 827-829 Stockton first housed the Chinese High School. It was originally a one-story building, but in the 1940s it was remodeled as Victory Hall. In 1970 a second story was added. The building has Chinese design elements that include a pagoda roof, flared roof, and bracketed Chinese eaves (Choy et al. 1994). Although not formally instituted, in 1986 the San Francisco Planning Department proposed nominating the building to an individual landmark status. The San Francisco Landmarks Preservation Advisory Board identified this building as a contributing element of the Chinatown Historic District in 1994; the FSF Heritage staff noted the building's major importance to the Chinatown Historic District in 1996. It is now listed in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as a contributing element of the Chinatown Historic District. (NRHP Code 3D)
137	Alt 2, 3A- Chinatown Station	830-848 Stockton	0225/016	In 1915, the three-story brick building at 830-848 Stockton Street was constructed for Kuo Ming Tang, the Nationalist Party of the Republic of China. In 1932, there was a building remodel and expansion after Generalissimo Chian Kai Shek achieved control of the party (Choy et al. 1994). The building is identified in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as a contributing element of the Chinatown Historic District. (NRHP Code 3D)
138	Alt 2, 3A- Chinatown Station	833-841 Stockton	0224/003	The three-story reinforced concrete building at 833-841 Stockton Street was constructed in 1914 for T. J. Gintjee, manager of the Standard Cigar Company. From the early 1920s to the 1950s, Kuo Ming Tang, the Chinese Nationalist Party, owned the building (Corbett 1997). The San Francisco Landmarks Preservation Advisory Board identified this building as a contributing element of the Chinatown Historic District in 1994; FSF Heritage staff noted the building's contextual importance to the Chinatown Historic District in 1996. It is now listed in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as a contributing element of the Chinatown Historic District. (NRHP Code 3D)
139	Alt 2, 3A- Chinatown Station	843 Stockton	0224/002	843 Stockton Street was built in 1908 to house the Chinese Benevolent Society (Chinese Six Companies). Designed by architects Cuthbertson & Mahoney, the building is set back from the street and features lions at the entry and a flight of steps leading to the formal entrance. The lively building exhibits vibrant Chinese décor including balconies on the second and third floors and green-tiled projected eaves. Although not formally recorded, it was proposed as an individual City Landmark in 1986. The San Francisco Landmarks Preservation Advisory Board identified this building as a contributing element of the Chinatown Historic District in 1994, and was considered of highest importance to the Chinatown District by the FSF Heritage staff in 1996. It is now listed in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as a contributing element of the Chinatown Historic District. (NRHP Code 3D)
140	Alt 2, 3A- Chinatown Station	850-898 Stockton	0225/017	850-888 Stockton occupies the lot at the southeast corner of Stockton and Clay streets. In 1910, contractor Walter K. Yorston constructed the three-story brick building with both storefronts and upper lodging for Sal Scheyer. In 1913, it was known as the Oriental Hotel and a print shop was housed there (Corbett et al. 1997; Choy et al. 1994). It occupies a lot considered a part of Chinatown since the 1880s and, despite alterations that include storefront modifications, the integrity is consistent with other contributors to the Chinatown Historic District. The building is identified in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as a contributing element of the Chinatown



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				Historic District. (NRHP Code 3D)
143	Alt 3B- Chinatown Station	901-907 Stockton	0211/004	Located at the northwest corner of Stockton and Clay streets, this four-story brick building was constructed in 1907. Sometime in the 1930s, the two-part vertical composition building was stuccoed and Art Deco design elements were added (Corbett et al. 1997). The San Francisco Landmarks Preservation Advisory Board identified this building as a contributing element of the Chinatown District in 1994, and was considered of contextual importance to the Chinatown Historic District by the FSF Heritage staff in 1996. It is now listed in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as a contributing element in the Chinatown Historic District. (NRHP Code 3D)
144	Alt 3B- Chinatown Station	913-917 Stockton	0211/003	The O'Brien Brothers architects designed the three-story brick building for the Hop Wo Benevolent Society in 1910, an organization committed to helping recent Chinese immigrants to San Francisco (Corbett et al. 1997). The San Francisco Landmarks Preservation Advisory Board identified this building as a contributing element of the Chinatown Historic District in 1994, and the FSF Heritage staff considered the building to be of major importance to the Chinatown District in 1996. It is now listed in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as a contributing element in the Chinatown Historic District. (NRHP Code 3D)
145	Alt 3B- Chinatown Station	925 Stockton	0211/002	In 1907, architect H. Starbuck designed the two-story concrete Chinese Presbyterian Church (and school) in the same location as an earlier one erected in 1858. In 1909, it was known as the Foreign Missions of Presbyterian Church. The Palladian style building displays Ionic pilasters, a portico, and roof pediment (Choy et al. 1994). In 1986 the San Francisco Planning Department proposed an individual landmark status, although the building was not formally recorded. The San Francisco Landmarks Preservation Advisory Board identified this building as a contributing element of the Chinatown Historic District in 1994, and the FSF Heritage staff considered the building to be of major importance to the Chinatown Historic District in 1996. It is now listed in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as a contributing element in the Chinatown Historic District. (NRHP Code 3D)
146	Alt 3B- Chinatown Station	930 Stockton	0210/047 (0210/014)	The O'Brien Brothers architects designed 930 Stockton Street for Leo J. Borch in 1906 as a four-story brick and concrete storefront property with upper residential lodging. Beginning in 1920 the building was enlarged and remodeled with second floor triple-arched windows for St. Mary's School. The San Francisco Landmarks Preservation Advisory Board identified it as a contributing element of the Chinatown Historic District in 1994. In 1996, the FSF Heritage staff determined the building to be of major importance to the Chinatown Historic District by. It is now listed in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as a contributing element of the Chinatown Historic District. (NRHP Code 3D)
147	Alt 3B- Chinatown Station <b>Proposed for demolition</b>	933-949 Stockton	0211/001	In 1908, S. H. Woodruff designed the two-part composition, two-story brick building at 933-949 Stockton Street for the Freeborn Estate. The ground floor has nine storefronts and the upper floors contain residential units. The building is clad with stucco that has been scored, and decorative plaster swags above the wood-framed double-hung windows on the second floor. The San Francisco Landmarks Preservation Advisory Board identified this building as a contributing element of the Chinatown Historic District in 1994, and the FSF Heritage staff noted its contextual importance to the Chinatown Historic District in 1996. It is now listed in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the



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				NRHP as a contributing element of the Chinatown Historic District. (NRHP Code 3D)
148A	Alt 3B- Chinatown Station	Washington Street Street Lights		Constructed in 1925, the street lights on Washington Street are listed in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as a contributing element of the Chinatown Historic District. (NRHP Code 3D)
149	Alt 3B- Chinatown Station	1003-1011 Stockton	0192/004	Henry H. Meyers designed the brick building that houses the Chinese Methodist Episcopal Church constructed at 1003-1011 Stockton Street in 1910. The building represents a fusion of Chinese and western ornamental elements including a pagoda cupola topped by a gold cross, stained glass windows, red tile cladding on storefront surrounds, projected red tile cornices and Asian motif balconies (Choy et al. 1994). In 1986 the San Francisco Planning Department proposed an individual landmark status, but it was not listed. The San Francisco Landmarks Preservation Advisory Board identified this building as a contributing element of the Chinatown Historic District in 1994, and the FSF Heritage staff noted its contextual importance to the Chinatown Historic District in 1996. It is now listed in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as a contributing element in the Chinatown Historic District. (NRHP Code 3D)
151	Alt 3B- Chinatown Station	1013-1017 Stockton	0192/003	Built in 1910, 1013-1017 Stockton Street was designed by architect George Wagner. The brick two-part vertical block composition features Renaissance/Baroque embellishments that include an ornate cornice. The ground floor has been remodeled to accommodate Wells Fargo Bank, but the upper two residential flats exhibit wood-paired double-hung windows with a keystone centered above each pairing, and scored plaster walls (Choy et al. 1994). The San Francisco Landmarks Preservation Advisory Board identified this building as a contributing element of the Chinatown Historic District in 1994, and the FSF Heritage staff noted its contextual importance to the Chinatown Historic District in 1996. It is now listed in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as a contributing element in the Chinatown Historic District. (NRHP Code 3D)
178	Alt. 2- Third Street Surface Tracks	660-670 Third	3787/008	The four-story South End Terminal Warehouse industrial building at 660-670 Third Street was constructed in c. 1906 and previously housed Butterfield and Butterfield. The building is presently a contributor to the local South End Historic District and appears to qualify for listing as a contributor to a NR-eligible district. (NRHP Code 3D)
185	Alt. 2- Third Street Surface Tracks	689-699 Third	3788/014	689-699 Third Street is a one-story brick masonry building at the corner of Third and Townsend streets constructed in 1917. Pent roofs with imitation clay tiles on top give the building a faint Mission Revival style. It is known as the Anna Davidow Building and Wall & Company has also been a tenant. The building is presently a contributor to the local South End Historic District and appears to qualify for listing as a contributor to a NR-eligible district. (NRHP Code 3D)
186	Alt. 2- Third Street Surface Tracks	679-685 Third	3788/015	Constructed in 1906, this five-story reinforced concrete industrial building one housed "A Nice Company," but is now an annex to the MJB Coffee Company. It has similar styling to 665 Third Street. The building is presently a contributor to the local South End Historic District and appears to qualify for listing as a contributor to a NR-eligible district. (NRHP Code 3D)
187	Alt. 2- Third Street Surface Tracks	665 Third	3788/041	G. Albert Lansburgh was the architect for this five-story reinforced concrete industrial building constructed in 1916. The building has a restrained Classical Revival style as exhibited by its cornice with block modillions and its entrance. The building houses the M.J. Brandenstein (MJB) Coffee Company. The building is presently a contributor to the local South End Historic District and appears to qualify for listing as a contributor to a NR-eligible



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				district. (NRHP Code 3D)
188	Alt. 2- Third Street Surface Tracks	625 Third	3788/045	Constructed in 1909, this four-story brick building displays superior use of brickwork design patterns, with a corbelled brick cornice and pedimented parapet. There is an ornate frieze over the entrance with rinceaux surrounding the date “1908” and floral supporting brackets. From 1970 to 1977, the building housed the Rolling Stone Magazine offices. The building is presently a contributor to the local South End Historic District and appears to qualify for listing as a contributor to a NR-eligible district. (NRHP Code 3D)
189	Alt. 2- Third Street Surface Tracks	601 Third	3788/020	601 Third Street is a large two-story reinforced concrete industrial building constructed in 1920, which housed the General Cigar Company Building. It has Classical Revival styling with a grand entrance graced by an entablature with wreaths across the frieze supported by Corinthian pilasters. The building is presently a contributor to the local South End Historic District and appears to qualify for listing as a contributor to a NR-eligible district. (NRHP Code 3D)
250	Alt 3A- Union Square Station	790 Market	0328/002	Albert Pissis was the original architect when the building was constructed in 1907 using a Classical Revival design. Roos Brothers Clothing Store occupied the storefront from 1908 until 1950. Bliss & Fairweather revamped the building in Art Deco styling in 1937. In ca. 1990 the flatiron end of this building was sheared off and replaced by the current metal tower. Grodins was a later tenant, but Virgin Megastore now occupies the storefront. The building is listed in the Office of Historic Preservation’s Historic Properties Directory as eligible for listing on the NRHP as a contributing element to a historic district. (NRHP Code 3D)
284	Alt 2, 3A- Chinatown Station	857-865 Clay	0225/019	857-865 Clay Street was constructed in 1913, housed two storefronts, and was known as the San Francisco Hotel. The Hang Ah Alley (Pagoda Alley) is located at the west side of the building and the Children’s Playground is to the rear (Sanborn Map 1950; Choy et. al 1994). The San Francisco Landmarks Preservation Advisory Board identified it as a contributing element of the Chinatown Historic District in 1994 and the FSF Heritage staff noted its contextual importance to the Chinatown Historic District in 1996. It is now listed in the Office of Historic Preservation’s Historic Properties Directory as eligible for listing on the NRHP as a contributing element of the Chinatown Historic District. (NRHP Code 3D)
289	Alt 3B- Chinatown Station	910-914 Clay	0211/005	In 1907, architects Samuel and Sydney B Newsom designed the three-story brick building that housed the Chinese Mission at 910-914 Clay Street. The building is a two-part vertical block composition with a storefront on the ground floor and apartments on the upper floors. Both this building and 916-918 Clay Street were constructed at the same time at the request of Toy Dong. Both of these buildings appear to be eligible for listing on the NRHP as contributing elements of the Chinatown Historic District. (NRHP Code 3D)
290	Alt 3B- Chinatown Station	916-918 Clay	0211/006	In 1907, architects Samuel and Sydney B Newsom designed the three-story brick building for Toy Dong, one of wealthiest members of the Chinese community. The building is a two-part vertical block composition with a storefront on the ground floor and apartments on the upper floors. The front of the building was used to house the Mission, and a cigar factory was in



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				the rear. By the 1950s the building was a Chinese Laundry. This building and 910-914 Clay Street appear to be eligible for listing on the NRHP as contributing elements of the Chinatown Historic District. (NRHP Code 3D)
292	Alt 3B- Chinatown Station	950 Clay	0211/007	The Oriental School was constructed in 1913, but renamed the Commodore Stockton School in 1924. In 1998 it became known as the Gordon J. Lau Elementary School in honor of the late advocate for the Chinese community. The San Francisco Landmarks Preservation Advisory Board identified it as a contributing element of the Chinatown Historic District in 1994, and the FSF Heritage staff noted its highest/major importance to the Chinatown Historic District in 1996. It is now listed in the Office of Historic Preservation's Historic Properties Directory as requiring evaluation. (NRHP Code 7N)
294	Alt 3B- Chinatown Station	868-870 Clay	0210/012	Between 1911-1912, the 54 room, four-story reinforced concrete building was constructed on Clay Street. It housed storefronts and residential lodging upstairs. The San Francisco Landmarks Preservation Advisory Board identified it as a contributing element of the Chinatown Historic District in 1994 and the FSF Heritage staff noted its contextual importance to the Chinatown Historic District in 1996. It has been identified as a possible contributor to the Chinatown Historic District. (NRHP Code 3D)
295	Alt 3B- Chinatown Station	31-37 Spofford	0210/015	Architects Albert C. J. and W. J. O'Brien designed the building at 31-37 Spofford Street in 1907. The three-story masonry building fronts Spofford Street and was constructed with two storefronts and lodging on the upper floors. It now features seventeen rooms in four units. The San Francisco Landmarks Preservation Advisory Board identified it as a contributing element of the Chinatown Historic District in 1994, and the FSF Heritage staff noted its contextual importance to the Chinatown Historic District in 1996. It is now listed in the Office of Historic Preservation's Historic Properties Directory as eligible for listing on the NRHP as a contributing element of the Chinatown Historic District. (NRHP Code 3D)
358	Alt 3A, 3B-TBM Extraction Shaft	575-579 Columbus	0117/017	When constructed in 1912, Meta Goedecke owned the property, but sold it to Italian immigrant, Guiseppe Torre, in 1924. Torre's four children received the property in 1931. It is not known who designed or built the three-story building. The exterior walls are wood siding, faced with stucco that has been scored to mimic block construction. The building is a blend of styles. There are three projected slanted bays, but the building is crowned with a parapet reminiscent of Mission Revival styling, and it expresses a projected cornice with dentils; medallions are centered below. This building appears to be a contributor to the proposed Washington Square Historic District, and it can also be considered a contributor to the overlapping proposed North Beach Historic District. (Proposed NRHP Code 3D)
366	Alt 3A, 3B- TBM Extraction Shaft	600-668 Columbus	0102/001	Washington Square park was a gift to the city of San Francisco in 1850 by John White Geary, the first mayor of the newly American San Francisco. Over the years it has served as a magnet for leisure and social events. The center of the park features a statue of Benjamin Franklin and near the west end there is a statue of a volunteer fireman given to the city by Lillie Hitchcock Coit in 1929. Washington Square is San Francisco Landmark # 226. The park has been identified as a contributor to the proposed Washington Square Historic District, and it can also be considered a contributor to the overlapping proposed North Beach Historic District. (NRHP Code 5S2; Proposed NRHP Code 3D)
367	Alt 3A, 3B- TBM Extraction Shaft	651 Columbus	0102/002	This is a triangular piece of park property created when Columbus (then Montgomery) street cut through North Beach diagonally in the mid-1870s. This portion of the park features mature trees, a birdbath and a small seasonal concrete-lined pond. The bisected park is a visual image that is familiar to residents. The park segment appears to be a contributor to the

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				proposed Washington Square Historic District, and it can also be considered a contributor to the overlapping proposed North Beach Historic District. (Proposed NRHP Code 3D)
369	Alt 3A, 3B- TBM Extraction Shaft	1701-1711 Powell 1715 Powell	0101/005A	This two-story wood-framed building was constructed in 1908 for Eliza Baum. It features slanted bay windows and a modillioned cornice. The storefronts housed drugstores, liquor and cigar stores, and restaurants, while the upper floor was used for residential purposes. By the mid-1930s it was known as the Milano Inn. The building is listed in the Office of Historic Preservation's Historic Properties Directory as requiring re-evaluation (NRHP Code 7N). This building appears to be a contributor to the proposed Washington Square Historic District, and it can also be considered a contributor to the overlapping proposed North Beach Historic District. (NRHP Code 7N; Proposed NRHP Code 3D)
370	Alt 3A, 3B- TBM Extraction Shaft	1717- 1719 Powell	0101/005	This three-story wood-framed building was constructed in 1914, and is a fine example of Art Deco architecture. Several Italians have owned the property and it has housed a grocery store and a macaroni factory. It is listed in the Office of Historic Preservation's Historic Properties Directory as requiring re-evaluation (NRHP Code 7N). This building appears to be a contributor to the proposed Washington Square Historic District, and it can also be considered a contributor to the overlapping proposed North Beach Historic District. (NRHP Code 3D)
371	Alt 3A, 3B- TBM Extraction Shaft	1731-1741 Powell	0101/004	J. P. Capurro designed the Washington Square Theatre at 1731-1741 Powell Street. Theatre was an important segment of the local Italian community. In 1925 it became the Milano Theatre, and in 1937 it was renamed the Palace Theatre. By 1974 it began to feature Chinese movies as the Pagoda Theatre. The two-story building was constructed in 1908 using a structural steel fireproof frame. The building has an Art Deco-style stepped parapet/marquee; however, the building's exterior was stripped as part of a renovation project that was halted. It is listed in the Office of Historic Preservation's Historic Properties Directory as requiring re-evaluation (NRHP Code 7N). Presently, the building has the potential to be eligible for the NR as an individual property and/or as a contributor to the proposed Washington Square Historic District, and also to the overlapping proposed North Beach Historic District, but not in its current state. The building may become eligible for the NR if it is restored to its original appearance. (NRHP Code 7N1)

Of the historic properties evaluated during both phases of work, 57 properties in the previous study (shaded entries) and 40 identified during the current study were determined to have some potential for impacts under either the Enhanced EIR/EIS Alternative, Alternative 3A, or Alternative 3B alignments. Some of these properties are within the listed or proposed historic districts; others are outside established district boundaries. A detailed analysis of historic properties with potential impacts by the project is included in Section 5.4 of this document.



## MASTER TABLE OF HISTORIC PROPERTIES WITH THE POTENTIAL FOR PROJECT IMPACTS

(Alt 2 = Enhanced EIR/EIS Alignment)

Ref. No.	Potential Impact Area	Address	Historic Name	Date Built	Parcel No. (Block/Lot)	Historic District	NRHP Eligibility
19	Alt 2- SB Portal; Alt 3B- Bryant/Brannan Station	508-514 Fourth		1925	3777/002		3S
21	Alt 3B- Bryant/Brannan Station	500-504 Fourth	The Hotel Utah	1908	3777/001		3S
26	Alt 2-NB Portal	566-586 Third	Central Hotel	1907	3776/008		3S
31	Alt 2-NB Portal	500 Third	Schwabacher-Frey	1920	3776/031		3S
58	Alt 2-Market Street Station	700-706 Mission	Aronson Bldg., Mercantile Bldg.	1906 (1903?)	3706/093		2S
62	Alt 2-Market Street Station	17-29 Third	Herman Levy Bldg	1907	3707/057		3S
63	Alt 2-Market Street Station	703-705 Market 26 Third	Claus Spreckels Bldg./ Call Bldg.	1898	3706/001		3S
64	Alt 2-Market Street Station	691-699 Market	Hearst Building	1909	3707/057		3S
65	Alt 2-Market Street Station	673-687 Market	Monadnock Building	1906	3707/051		3S
66	Alt 2-Market Street Station	Market at Kearny	Lotta Crabtree Fountain	1875	---	Kearny-Market-Mason-Sutter	SF Landmark No. 73; NRHP No. 1975000475
71	Alt 2- Geary and Stockton Streets	700-706 Market	Mutual Building, Citizen Savings	1902	0312/010	Kearny-Market-Mason-Sutter	3S, Art. 11, Cat. IV Bldg.
78	Alt 2- Geary and Stockton Streets	722-742 Market	Banker's Investment Building	1912	0312/009	Kearny-Market-Mason-Sutter	3S, Art. 11, Cat. IV Bldg.
85	Alt 3A, 3B- Market/Union Square Station	125-129 Geary (Corner of Geary and Stockton streets)	Former City of Paris Building	1908	0313/018	Kearny-Market-Mason-Sutter	3S, Art. 11, Cat. IV Bldg. NRHP No. 1975000471
89	Alt 2 – Geary Street	146 Geary		1907	0309/007	Kearny-Market-Mason-Sutter	3S, Art. 11, Cat. IV Bldg.
90	Alt 2 – Geary Street	152 Geary		1907	0309/008	Kearny-Market-Mason-Sutter	3S, Art. 11, Cat. IV Bldg.
91	Alt 2 - Union Square Station, Alt 3A Market Street/Union Square Station	156 Geary		1907	0309/009	Kearny-Market-Mason-Sutter	3S, Art. 11, Cat. IV Bldg.
92	Alt 3A Market Street/Union Square Station	160-170 Geary	Whittell Building	1906	0309/010	Kearny-Market-Mason-Sutter	3S, Art. 11, Cat. I Bldg.
94	Alt 3A, 3B- Market/Union Square Station	233 Geary	I. Magnin	1907/ 1946	0314/001		3S
94A	Alt 3A- Market/Union Square Station	Geary Grant, Kearny, Post, Stockton, Sutter	Triangular Street Lights				3S
95	Alt 2 - Union Square Station, Alt 3A, 3B Market Street/Union Square Station	333 Post	Union Square (including Garage)	1942	0308/001	Kearny-Market-Mason-Sutter; CA Landmark No. 623; SF Landmark No. 210	3S
97	Alt 2 - Union Square Station, Alt 3A, Market Street/Union Square Station	218-222 Stockton	A.M. Robertson Bldg.	1908	0309/014	Kearny-Market-Mason-Sutter	3S, Art. 11, Cat. IV Bldg.
98	Alt 2 - Union Square Station, Alt 3A Market	234-240 Stockton	Scroth Bldg., TWA Bldg.	1908	0309/020	Kearny-Market-Mason-Sutter	3S, Art. 11, Cat. I Bldg.



**PRELIMINARY DRAFT – SUBJECT TO CHANGE – NOT FOR PUBLIC DISTRIBUTION**

**APPENDIX F – HISTORICAL ARCHITECTURAL RESOURCE IMPACTS**

Ref. No.	Potential Impact Area	Address	Historic Name	Date Built	Parcel No. (Block/Lot)	Historic District	NRHP Eligibility
	Street/Union Square Station						
100	Alt 2- Union Square Station; Alt 3A- Market/Union Square Station	275-299 Post	Lathrop Bldg.	1909	0309/022	Kearny-Market-Mason-Sutter	3S , Art. 11, Cat. I Bldg.
102	Alt 2- Union Square Station	278-298 Post	Joseph Fredericks Co. Bldg.	1910	0294/011	Kearny-Market-Mason-Sutter	3S, Art. 11, Cat. I Bldg.
104	Alt 2 - Union Square Station, Alt 3A, 3B Market Street/Union Square Station	340 Stockton	Hotel Drake Wilshire Building	1909; 1984 remodeled	0294/013	Kearny-Market-Mason-Sutter	3S, Art. 11, Cat. I Bldg.
108	Alt 2 – Fourth Street; Alt 3A, 3B – Fourth Street	417 Stockton	Hotel Navarre, All Seasons Hotel	1907	0285/004	Kearny-Market-Mason-Sutter and Lower Nob Hill Apartment Hotel District	ID, Art. 11, Cat. IV Bldg.
109	Alt 2 – Fourth Street; Alt 3A, 3B – Fourth Street	423-439 Stockton	Natalia Apartments	1911	0285/003	Kearny-Market-Mason-Sutter and Lower Nob Hill Apartment Hotel District	2D2, Art. 11, Cat. IV Bldg.
110 A	Alt 3A, 3B – Stockton Street	Stockton Tunnel	Stockton Tunnel	1914	----		2S; Listed in CR.
111	Alt 2 – Stockton Street; Alt 3A, 3B – Stockton Street	600-604 Bush		1915	0272/004	Lower Nob Hill Apartment Hotel District	1D
112	Alt 2 – Stockton Street; Alt 3A, 3B – Stockton Street	590-598 Bush	Victoria Hotel	1908	0271/015	Lower Nob Hill Apartment Hotel District	1S and 1D
113	Alt 2 – Stockton Street; Alt 3A, 3B – Stockton Street	510 Stockton		1920	0271/016	Lower Nob Hill Apartment Hotel District	1D
114	Alt 2 – Stockton Street; Alt 3A, 3B – Stockton Street	525 Stockton		1921	0272/002	Lower Nob Hill Apartment Hotel District	1D
115	Alt 2 – Stockton Street; Alt 3A, 3B – Stockton Street	530 Stockton		1925	0271/017	Lower Nob Hill Apartment Hotel District	1D
116	Alt 2 – Stockton Street; Alt 3A, 3B – Stockton Street	535 Stockton	Pon Apartments	1925	0272/001A	Lower Nob Hill Apartment Hotel District	1D
117	Alt 2 – Stockton Street; Alt 3A, 3B – Stockton Street	540 Stockton		1922	0271/018	Lower Nob Hill Apartment Hotel District	1D
118	Alt 2 – Stockton Street; Alt 3A, 3B – Stockton Street	701-737 Pine	Agatha Apartments	1925	0272/001	Lower Nob Hill Apartment Hotel District	1D
119	Alt 2 – Stockton Street; Alt 3A, 3B – Stockton Street	550 Stockton	Pinemont Apartments	1923	0271/019	Lower Nob Hill Apartment Hotel District	1D
121	Alt 2 – Stockton Street; Alt 3A, 3B – Stockton Street	600 Stockton	Metropolitan Life Building – Pacific Coast Head Office	1909	0257/012		SF Landmark No. 167
124 A	Alt 2 – Stockton Street; Alt 3A, 3B – Stockton Street	California and Kearny	San Francisco Cable Cars	1873	-----		1S; Listed in CR.
132	Alt 2, 3A- Chinatown Station	801-805 Stockton		1925	0224/006	Chinatown	3D
133	Alt 2, 3A- Chinatown Station	800-810 Stockton	Lewis Gasner Hotel	1911	0225/013	Chinatown	3D
134	Alt 2, 3A- Chinatown Station	809-815 Stockton	Burke Lodging House	1915	0224/005	Chinatown	3D

**PRELIMINARY DRAFT – SUBJECT TO CHANGE – NOT FOR PUBLIC DISTRIBUTION**

**APPENDIX F – HISTORICAL ARCHITECTURAL RESOURCE IMPACTS**

Ref. No.	Potential Impact Area	Address	Historic Name	Date Built	Parcel No. (Block/Lot)	Historic District	NRHP Eligibility
135	Alt 2, 3A- Chinatown Station	812-828 Stockton		1924	0225/014	Chinatown DEMOLITION PROPOSED	3D
136	Alt 2, 3A- Chinatown Station	827-829 Stockton	Chinese High School, Victory Hall	1908	0224/004	Chinatown (1986-S.F. Planning Dept. proposed individual landmark status)	3D
137	Alt 2, 3A- Chinatown Station	830-848 Stockton	Kuo Ming Tang	1915	0225/016	Chinatown	3D
138	Alt 2, 3A- Chinatown Station	833-841 Stockton		1914	0224/003	Chinatown	3D
139	Alt 2, 3A- Chinatown Station	843 Stockton	Chinese Six Companies, Chinese Benevolent Society	1908	0224/002	Chinatown Proposed as an individual City Landmark-1986	3D
140	Alt 2, 3A- Chinatown Station	850-898 Stockton	Oriental Hotel	1910	0225/017	Chinatown	3D
143	Alt 3B- Chinatown Station	901-907 Stockton		1907	0211/004	Chinatown	3D
144	Alt 3B- Chinatown Station	913-917 Stockton	Hop Wo Benevolent Society	1910	0211/003	Chinatown	3D
145	Alt 3B Chinatown Station	925 Stockton	Foreign Missions of Presbyterian Church (1909)	1907	0211/002	Chinatown (1986-S.F. Planning Dept. proposed individual landmark status)	3D
146	Alt 3B- Chinatown Station	930 Stockton	St. Mary's School	1906	0210/047 (0210/014)	Chinatown	3D
147	Alt 3B- Chinatown Station	933-949 Stockton	S. H. Woodruff	1908	0211/001	Chinatown DEMOLITION PROPOSED under Alt 3B	3D
148 A	Alt 3B- Chinatown Station	Washington Street Street Lights		1925		Chinatown	3D
149	Alt 3B- Chinatown Station	1003-1011 Stockton	Chinese Methodist Episcopal Church	1910	0192/004	Chinatown (1986-S.F. Planning Dept. proposed individual landmark status)	3D
151	Alt 3B- Chinatown Station	1013-1017 Stockton		1910	0192/003	Chinatown	3D
---	Alt 2- Union Square Station; Alt 3A – Market/Union Square Station	590-1209 Bush 680-1156 Sutter 600-1099 Post, and intersecting streets	Lower Nob Hill Apartment Hotel District		----	Lower Nob Hill Apartment Hotel District	NRHP No. 1991000957
173	Alt 3A- NB/SB Portal	601 Fourth		1916	3787/052-139		3S
178	Alt 2- Surface tracks	660-670 Third	South End Terminal Warehouse	1906	3787/008	Rincon Point/South Beach & South End	3D
185	Alt 2- Surface tracks	689-699 Third	Wall & Co./Anna Davidow Bldg.	1917	3788/014	Rincon Point/South Beach & South End	3D



**PRELIMINARY DRAFT – SUBJECT TO CHANGE – NOT FOR PUBLIC DISTRIBUTION**

**APPENDIX F – HISTORICAL ARCHITECTURAL RESOURCE IMPACTS**

<b>Ref. No.</b>	<b>Potential Impact Area</b>	<b>Address</b>	<b>Historic Name</b>	<b>Date Built</b>	<b>Parcel No. (Block/Lot)</b>	<b>Historic District</b>	<b>NRHP Eligibility</b>
186	Alt 2- Surface tracks	679-685 Third	A Nice Co.	1906	3788/015	Rincon Point/South Beach & South End	3D
187	Alt 2- Surface tracks	665 Third	M.J. Brandenstein Bldg.	1916	3788/041	Rincon Point/South Beach & South End	3D
188	Alt 2- Surface tracks	625 Third	Rolling Stones Magazine Ofc. 1970-1977	1909	3788/045	Rincon Point/South Beach & South End	3D
189	Alt 2- Surface tracks	601 Third	General Cigar Co. Bldg.	1909	3788/020	Rincon Point/South Beach & South End	3D
217	Alt 3A, 3B – Fourth Street	360 Fourth	Salvation Army Senior Activities Center	1925	3752/010		2S; Listed in CR
238	Alt 3A – Fourth Street	54 Fourth	Keystone Hotel	1910	3705/004		3S
240	Alt. 3B- Market/Union Square Station	801 Market/12 Fourth		1907	3705/048A; now 3705/002		3S
242	Alt. 3A – Fourth Street	825-833 Market	Commercial Building; California Academy of Sciences	1908	3705/037	Kearny-Market-Mason-Sutter	3S, Art. 11, Cat. II Bldg.
244	Alt. 3B- Market/Union Square Station	785 Market	Humboldt Savings Bank Building	1906	3706/075-092	Kearny-Market-Mason-Sutter	3S, Art. 11, Cat. I Bldg.
249	Alt 3A, 3B- Market/Union Square Station	760 Market/35 O'Farrell	Phelan Building	1908	0328/001	Kearny-Market-Mason-Sutter SF Landmark No. 156	3S, Art. 11, Cat. I Bldg.
250	Alt 3A- Market/Union Square Station	790 Market	Roos Bros. (Grodins)	1907;	0328/002	Kearny-Market-Mason-Sutter	3D
251	Alt 3A, 3B- Market/Union Square Station	77-81 O'Farrell	Newman & Levinson Bldg.; Joseph Magnin	1909	0328/003	Kearny-Market-Mason-Sutter	3S
252	Alt 3A, 3B- Market/Union Square Station	79 O'Farrell (previously 46-68 Stockton/77-79 O'Farrell)		1909	0328/004	Kearny-Market-Mason-Sutter	3S, Art. 11, Cat. I Bldg.
254	Alt. 3B- Market/Union Square Station	838 Market	Sommer & Kaufman Bldg.	1930	0329/002		3S
266	Alt 3A, 3B- Market/Union Square Station	101 Stockton	O'Connor-Moffatt	1928; addition 1948	0314/002; 0314/004	Kearny-Market-Mason-Sutter	3S, Art. 11, Cat. I Bldg.
272	Alt 2- Union Square Station; Alt 3A – Market/Union Square Station	177-179 Maiden		1907	0309/012; portion of 0309/010	Kearny-Market-Mason-Sutter	3S, Art. 11, Cat. IV Bldg.
273	Alt 2- Union Square Station; Alt 3A – Market/Union Square Station	259 Post	New Hobart Building; Ransohoffs Dept. Store	1909	0309/023	Kearny-Market-Mason-Sutter	3S, Art. 11, Cat. IV Bldg.
274	Alt 3A- Market/Union Square Station	245-253 Post	Mercedes Building	1908	0309/024		3S
275	Alt 2- Union Square	250 Post (246-268	Gumps Department	1865;	0294/009	Kearny-Market-Mason-Sutter	3S, Art. 11, Cat. II Bldg.



**PRELIMINARY DRAFT – SUBJECT TO CHANGE – NOT FOR PUBLIC DISTRIBUTION**

**APPENDIX F – HISTORICAL ARCHITECTURAL RESOURCE IMPACTS**

<b>Ref. No.</b>	<b>Potential Impact Area</b>	<b>Address</b>	<b>Historic Name</b>	<b>Date Built</b>	<b>Parcel No. (Block/Lot)</b>	<b>Historic District</b>	<b>NRHP Eligibility</b>
	Station; Alt 3A and 3B – Stockton Street	Post)	Store	1906			
276	Alt 2- Union Square Station	272 Post	Lengfeld Drug Co Bldg Martin Sachs Co.	1909	0294/010	Kearny-Market-Mason-Sutter	3S, Art. 11, Cat. IV Bldg.
284	Alt 2, 3A - Chinatown Station	857-865 Clay		1913	0225/019	Chinatown	3D
285	Alt 3A – Chinatown	920 Sacramento	Donaldina Cameron House	1908	0224/008	Chinatown	SF Landmark No. 44
289	Alt 3B- Chinatown Station	910-914 Clay	Chinese Mission	1907	0211/005	Chinatown	3D
290	Alt 3B- Chinatown Station	916-918 Clay		1907	0211/006	Chinatown	3D
292	Alt 3B- Chinatown Station	950 Clay	Commodore Stockton School	1913	0211/007	Chinatown	3D
294	Alt 3B- Chinatown Station	868-870 Clay		1911-1912	0210/012	Chinatown	3D
295	Alt 3B- Chinatown Station	31-37 Spofford		1907	0210/015	Chinatown	3D
297	Alt 3B- Chinatown Station	867-869 Washington		1929	0210/018	Chinatown	3D
305	Alt 3B- Chinatown Station	940 Washington	Gum Moon Residential Hall	1911	0192/005	Chinatown	3S
358	Alt 3A, 3B-TBM Extraction Shaft	575-579 Columbus		1912	0117/017	Washington Square, North Beach	3D
359	Alt 3A, 3B-TBM Extraction Shaft	1636-1656 Powell	Verdi Apartments	1914	0117/016	Washington Square, North Beach	3S
366	Alt 3A, 3B-TBM Extraction Shaft	600-668 Columbus	Washington Square Park	Ca. 1860	0102/001	Washington Square SF Landmark # 226	5S2
367	Alt 3A, 3B-TBM Extraction Shaft	651 Columbus	Washington Square Park- triangle	Ca. 1860	0102/002	Washington Square, North Beach	3D
369	Alt 3A, 3B-TBM Extraction Shaft	1701-1711 Powell 1715 Powell		1908	0101/005A	Washington Square, North Beach	3D
370	Alt 3A, 3B-TBM Extraction Shaft	1717- 1719 Powell		1914	0101/005	Washington Square, North Beach	3D
371	Alt 3A, 3B-TBM Extraction Shaft	1731-1741 Powell	Pagoda Theatre	1908	0101/004	Washington Square, North Beach	7N1
---	Alt 2- Union Square Station; Alt 3A – Market/Union Square Station	1-2490 Market Street	Path of Gold Standards (historic street lights)	1908, 1916, 1925	----		SF Landmark No. 200

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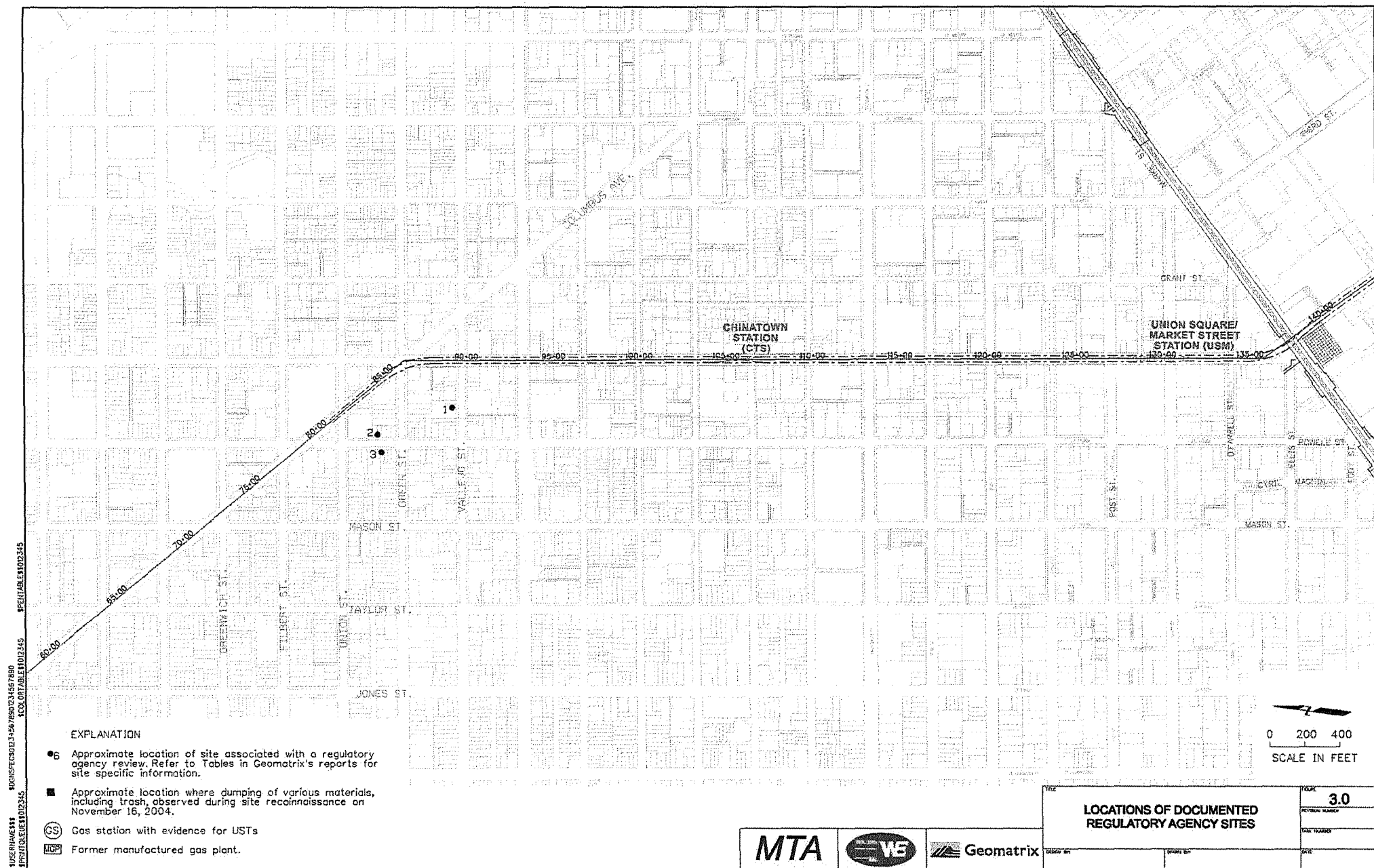
**APPENDIX G**  
**HAZARDOUS MATERIALS BACKGROUND**

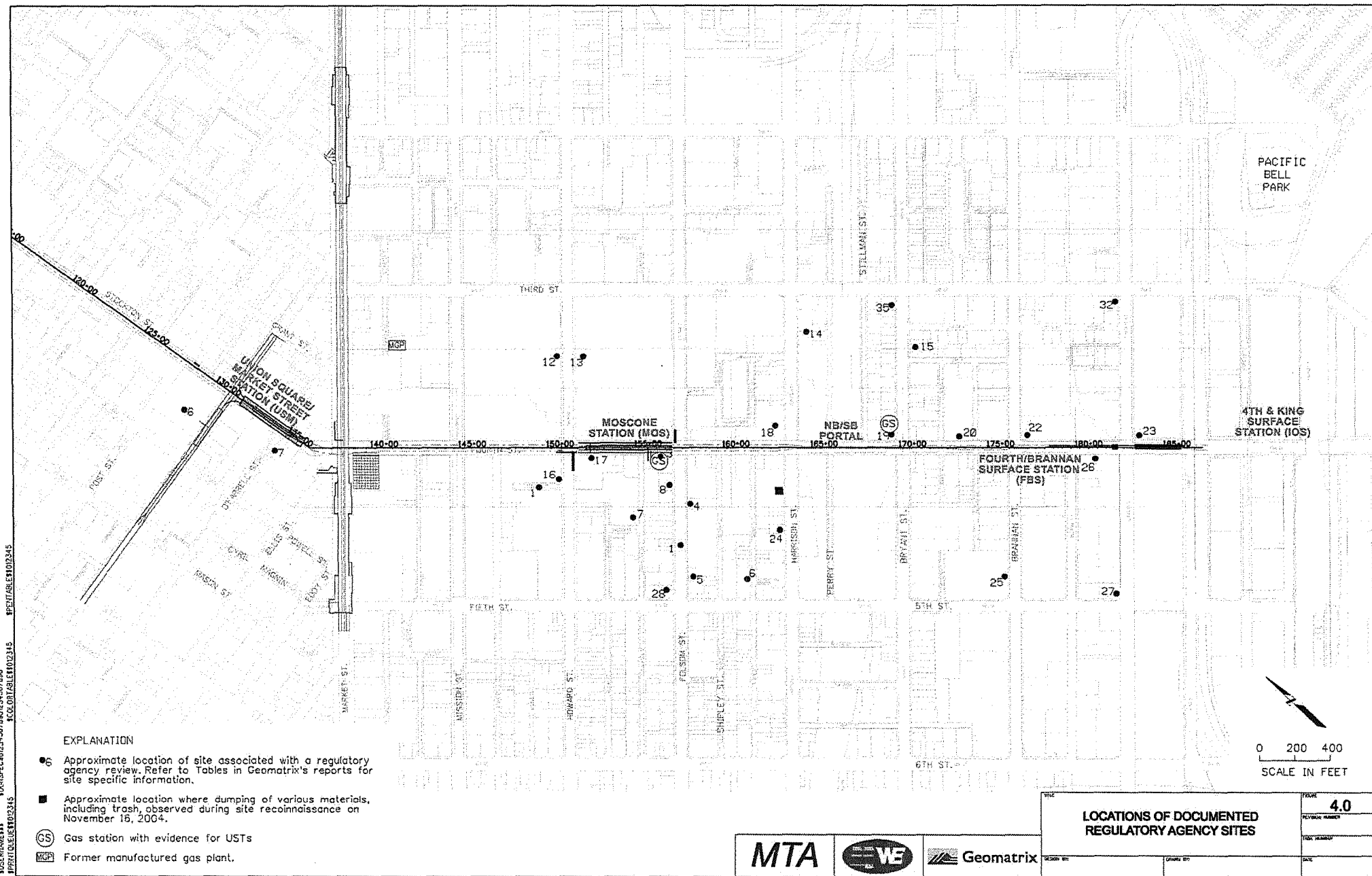












**APPENDIX H**  
**2009 NEW STARTS COST EFFECTIVENESS**



**Difference in Cost Effectiveness Between the Draft SEIS/SEIR and  
the Fiscal Year 2009 New Starts Submittal**

Cost effectiveness calculations for the Draft SEIS/SEIR alternatives were based upon the Fiscal Year 2007 New Starts Submittal prepared in August 2006. The formula for calculating the project cost-effectiveness is based on annualized capital and operating cost per hour of user benefits and is captured in the following formula:

$$\frac{(\text{Change in Annualized Capital Costs}) + (\text{Change in Annual Operating Cost})}{\text{Change in Transportation System User Benefit}}$$

For Alternative 3B shown in Table 9-9 of the Draft SEIS/SEIR the numbers used to calculate the cost effectiveness were an Annualization Factor of 317, an annualized capital cost of \$73,832,000, an annual system-wide O&M cost for the baseline of \$519,432,667, and an annual system-wide O&M cost with the project built of \$508,643,005.

As part of Section V, Part 5 of the Fiscal Year 2009 New Starts Submittal the numbers used to calculate the cost effectiveness for Alternative 3B (Modified LPA) were updated. The revised base numbers are an Annualization Factor of 319, an annualized capital cost of \$76,225,000, an annual system-wide O&M cost for the baseline of \$634,976,277, and an annual system-wide O&M cost with the project built of \$633,466,740.

The annualization factor was adjusted from 317 to 319 due to changes to the model used to calculate this number.

The annual cost changed due to refinements made to the cost estimate. As the development of the project progressed, the cost estimate was updated accordingly.

The O&M costs changed due to refinements made to the estimate that defines these. Although the O&M cost for the baseline and the new starts submittal increased when compared to the Draft SEIS/SEIR numbers, the differences in the two, used to calculate the cost effectiveness, remained similar.

These overall changes resulted in the cost effectiveness for the Draft SEIS/SEIR being \$18.36 and the cost effectiveness for the Fiscal Year 2009 New Starts Submittal being \$20.60.



**APPENDIX I**  
**MITIGATION MONITORING AND REPORTING PROGRAM**





**MITIGATION MONITORING AND REPORTING PROGRAM**  
**for the**

**Central Subway Project**  
**Locally Preferred Alternative 3B**

**City and County of San Francisco, California**

**by the**

**San Francisco Municipal Transportation Agency**

**July 2008**

The California Environmental Quality Act (CEQA) requires public agencies adopt mitigation measures and a Mitigation Monitoring and Reporting Program (MMRP) that would avoid or substantially lessen the identified significant impacts of the project, assuming such measures are feasible. This MMRP includes objectives, criteria, and specific responsibilities and procedures to administer responsibilities under the CEQA Act and the CEQA Guidelines. This document lists mitigation measures and commitments that will fulfill these requirements for the Central Subway project.

The mitigation measures table summarizes the significant impacts for construction and operations of the Central Subway Project as identified in the SEIS/SEIR and the action(s) that the Project will undertake to mitigate those effects. The mitigation actions will reduce the effects of the Project to less than significant levels, except as they relate to traffic, residential and small business displacement, archaeological resources, and historical architectural resources,. The table is organized as follows:

**Impact Area:** The table is divided into 29 sections (Operation - Transit, Operation - Traffic, Operation - Freight and Loading, Operation - Parking, Operation - Pedestrians, Operation - Bicycles, Operation - Emergency Vehicle Access, Operation - Socioeconomic, Operation - Community Facilities, Operation - Historic Architectural Resource Impacts, Operation - Visual and Aesthetic Resources, Operation - Noise and Vibration, Construction - Transit, Construction - Traffic, Construction - Freight and Loading, Construction - Parking, Construction - Pedestrians, Construction - Bicycles, Construction - Emergency Vehicle Access, Construction - Land Use, Construction - Community Facilities, Construction - Prehistoric and Historical Archaeological Resources, Construction - Historical Architectural Resources, Construction - Visual and Aesthetic Resources, Construction - Utilities, Construction - Geology and Seismicity, Construction - Hydrology and Water Quality, Construction - Biological and Wetland Resources, Construction - Hazardous Materials, Construction - Noise and Vibration. Each section identifies the potentially significant impacts and mitigation measures for a particular resource.

**Impact Summary:** Provides a brief description of the impact or effect of the Central Subway Alternative 3B project that is to be mitigated.

**Mitigation Measures/Improvement Measures:** Provides a brief description of the mitigation and/or improvement measures that San Francisco Municipal Transportation Agency (SFMTA) is required to implement to mitigate the significant impact or effect of the undertaking. Improvement measures are measures that will be undertaken to further reduce the project's less-than-significant impacts. The Final MMRP is part of the project Final SEIS/SEIR and adopted project and CEQA findings. The measures approved by SFMTA will be part of construction bid documents and will be enforced.

**Monitoring and Reporting Program:** Identifies the milestones at which the mitigation measure must be finalized and implemented.

- Check Final Engineering Documents indicates that the mitigation must be incorporated into the construction plans and specifications.
- Monitor Construction indicates that construction will be monitored to see that the project is constructed pursuant to the construction documents, that field modifications cannot be made

without review and concurrence, and that the change is consistent with the intent of the mitigation measures and that monitoring results will be reported monthly to SFMTA and quarterly to the Planning Department and the FTA.

- Test Operations During Pre-Revenue Testing indicates that the mitigation has potential for adjustment and that the system must be tested for effectiveness during pre-revenue testing.
- Real property acquisition, relocation, demolition, and clean-up will be performed by the SFMTA in accordance with Real Property Acquisition Procedures established by the Project. The Project will have to monitor and audit those activities to insure compliance with the established procedures and the federal law (Uniform Relocation Act).
- Section 106 Memorandum of Agreement requires the development of Research Design and Treatment Plans. The Mitigation Monitoring Plan will have to monitor both the development and implementation of these plans to insure conformity with the MOA.

**Responsibility:** In all instances SFMTA. Actions or activities are assigned to parties working for or reporting to the SFMTA.

- The Project Engineering Team (PE) is responsible for seeing that all mitigations that require design solutions and/or conditions in the construction specifications are implemented. An independent Environmental Compliance Manager will be retained by SFMTA to work with the PE to monitor construction activities and report to City Planning, SFMTA, and the FTA.
- The SFMTA is responsible for acquiring the real property necessary for the Project and delivering the necessary ROW to the Project free and clear of any physical or legal encumbrances. SFMTA is responsible for auditing the acquisition process for compliance with established procedures and federal law.
- Mitigation measures that are implemented pursuant to the Memorandum of Agreement will have to be accomplished in consultation with the City, FTA and the State Historic Preservation Coordinator (“SHPO”) and reports will go to the SHPO.
- Construction activities will be overseen by SFMTA who will be responsible for ensuring that all construction related mitigation measures are implemented. The SFMTA may retain a construction management consultant (CMC) to assist in the mitigation oversight.
- Contractors will be responsible for the actual implementation of construction related mitigation measures.

**Enforcement Agency:** Identifies the agency responsible for ensuring that mitigation measures are implemented. In most cases it is the SFMTA.

**Monitoring Agency:** Identifies the agencies that must approve or concur with the method of implementation of the mitigation measure. In most cases this approval will come in the form of construction permits to develop the project, or in the form of an interagency agreement.

**Implementation Schedule:** Identifies the milestones at which the monitoring action must occur. Mitigation measures associated with system operations will have to be tested for effectiveness during pre-revenue testing and monitored during on-going operational services. The SFMTA Mitigation Monitoring Manager must approve that the mitigation measure is adequately addressed at each phase of project development.

# ATTACHMENT A –MITIGATION MONITORING AND REPORTING PROGRAM

PROJECT NAME AND CASE NO. CENTRAL SUBWAY PROJECT 96.28IE

Impact No.	Impact Summary	Mitigation Measures (MM) or Improvement Measures (IM)	Monitoring and Reporting Program		
			Implementation and Reporting	Monitoring and Reporting Actions	Implementation Schedule
OPERATION – TRANSIT (TST)					
TST-1	In 2030 passenger demand could slightly exceed the capacity of proposed light rail service and 9AX bus services during certain peak hours.	IM TST-1a: SFMTA will monitor transit ridership and increase the number, frequency, and/or size of trains and buses through modification of the operating plan as warranted to increase the capacity.	Responsibility: SFMTA	Monitor operations post construction.	Post construction (2030)
TST-2	The Powell Street Station may experience capacity issues at the concourse level due to increased passenger activity at the northeast end of the station.	IM TST-2a: The SFMTA and BART will prepare and enter into a Station Improvement Coordination Plan for the Powell Street Station that will provide for, at a minimum, implementation of the allocation of cost for any station infrastructure improvements necessary to maintain pedestrian safety and a pedestrian level of service of D or better at the Powell Street Station as a result of the Central Subway Project.	Responsibility: SFMTA	Monitor passenger flow on Concourse level of station in BART shared-use area.	Post construction
OPERATION – TRAFFIC (TRF)					
TRF-1	The Fourth/Harrison Street intersection would degrade to LOS F conditions during the p.m. peak hour due to the number of right turns from Fourth Street to Harrison Street.	MM TRF-1a: Improve conditions by adding, via striping changes, a shared through and right-turn lane from Fourth Street to Harrison Street. This migration measure would require parking removal on the east side of Fourth Street, from Harrison Street to a point about 200 feet to the north for lane transition purposes. Signal timing	Responsibility: SFMTA	Check Final Traffic Engineering documents for compliance.	Post construction

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		changes would also help improve the operating conditions by allocating the appropriate amount of green time to all approaches. These improvements are projected to return intersection operations to LOS B.			
<b>TRF-2</b>	The portal at Fourth Street under I-80 may restrict large truck movements onto Stillman Street.	<b>MM TRF-2a:</b> SFMTA will explore with the TJPA, Caltrans, and Golden Gate Transit options, such as providing alternate truck routes, that will permit truck access to Stillman Street to reduce the impacts to a less-than-significant level	<b>Responsibility:</b> SFMTA with TJPA, Caltrans, and Golden Gate Transit.	Check Final Traffic Engineering documents for compliance.	Final Traffic Engineering documents.
<b>OPERATION - FREIGHT AND LOADING (FRT)</b>					
<b>FRT-1</b>	Provision of the light rail station platform on Fourth Street at Brannan Street, the surface alignment along Fourth Streets, and the location of the subway portal would displace some loading zones between King and Harrison Streets.	<b>IM FRT-1a:</b> Areas for new, permanent, on-street loading zones may be identified along Fourth Street (between King and Bryant Streets) and/or appropriate side streets. Some of the new loading zones may need to displace existing parking spaces.	<b>Responsibility:</b> SFMTA	Check Final Traffic Engineering documents for compliance.	Final Traffic Engineering documents
<b>FRT-2</b>	The portal at Fourth Street under I-80 may restrict large truck movements onto Stillman Street.	<b>IM FRT-2a:</b> SFMTA will coordinate with the TJPA and Golden Gate Transit to identify options, such as providing alternate truck routes that will permit truck access to Stillman Street.	<b>Responsibility:</b> SFMTA with TJPA, Caltrans, and Golden Gate Transit.	Check Final Engineering documents for compliance.	Final Traffic Engineering documents

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OPERATION – PEDESTRIANS (PED)					
PED-1	Sidewalk widths on Geary Street would be reduced adjacent to the Union Square Station.	<p><b>IM PED-1a:</b> During final design, consideration will be given to ensure that stairways and escalators would not compete with sidewalk space for pedestrians.</p> <p><b>IM PED-1b:</b> Elevator shafts should be located so as not to block the line of sight of motorists exiting the garage to maximize pedestrian safety.</p> <p><b>IM PED-1c:</b> During final design, elevators, escalators, and stairways should be kept as close as possible to the primary circulation path to facilitate disabled access.</p>	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance.	Design has been changed to avoid reduction in sidewalk widths.   <

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	middle of Fourth Street would require emergency vehicles from Fire Station #8 (36 Bluxome Street) to cross the entire trackway to reach the intersection of Fourth and Brannan Streets.	emergency vehicle preemption equipment in order to minimize the emergency response time and to improve the signal operation at several intersections near fire stations along the Corridor.		have been implemented.	have been implemented.
<b>OPERATION - SOCIOECONOMIC (POPULATION AND HOUSING) (PH)</b>					
<b>PH-1</b>	Acquisition of one parcel for the Chinatown Station at 933-949 Stockton would displace of 8 small businesses and 17 low income residential units.	<b>MM PH-1a:</b> Redevelopment of the Chinatown Station site will incorporate affordable housing and ground floor retail where possible.  <b>MM PH-1b:</b> State and federal relocation regulations will be implemented.	<b>Responsibility:</b> SFMTA	Redevelopment plans for the station areas are in the early stages of discussion by SFMTA Real Estate.	Pre-Construction coordination and construction or post construction implementation.
<b>OPERATION - COMMUNITY FACILITIES (CF)</b>					
<b>CF-1</b>	The placement of station entries and elevators in Union Square Plaza would permanently remove 1,690 square feet of open space for transportation purposes in Union Square Park.	<b>IM CF-1a:</b> During final design, minimize the footprint of station entrances to the subway in Union Square plaza would be designed and located in such a manner as to minimize the station entrance footprint and minimize disruption to park users.  <b>IM CF-1b:</b> Design subway entrances so they are visually integrated with the existing park design.	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance.  Coordinate with Recreation and Parks Department Planners to review plans and monitor progress.	Post construction

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OPERATION - HISTORIC ARCHITECTURAL RESOURCE IMPACTS (HARC)					
HARC-1	Demolition of the historic building at 933-949 Stockton Street, which is a contributor to a NRHP-eligible district, would create a visual break in the cohesive grouping of contextually-related buildings within the block.	<p><b>MM HARC-1a:</b> Partial preservation of 933-949 Stockton Street or incorporation of elements of the building into the design of the new station building; salvage significant architectural features from the building for conservation into a historical display or exhibit in the new Chinatown station or in museums; and/or develop a permanent interpretive display for public use on the T-Third line cars or station walls. Conform to MOA between SHPO, FTA, and SFMTA.</p> <p><b>MM HARC-1b:</b> The final design of the Chinatown Station will be reviewed by the Environmental Review Officer, the City Preservation Coordinator, and a historic architect hired by MTA for compliance with the Secretary of Interior’s standards based on their compatibility with the character-defining features of the district.</p> <p><b>MM HARC-1c:</b> Prior to demolition of the 933-949 Stockton Street building a Historic American Buildings Survey/Historic American engineering Record documentation will be</p>	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance.	In-process design reviews.

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		completed.			
<b>HARC-2</b>	Station entrances located in Union Square would permanently alter the recently redesigned plaza and parking garage.	<b>IM HARC-2a:</b> Less-than-significant visual impacts at Union Square Station will be minimized through the use of design and architectural materials that would be compatible with the surrounding structures and landscape. The final design for the station will be subject to review by the Recreation and Parks Department.	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance.  Coordinate with Recreation and Parks Department	In-process design reviews
<b>OPERATION - VISUAL AND AESTHETIC RESOURCES (VAES)</b>					
<b>VAES-1</b>	Station entrances for the Union Square Station would be visible in the plaza from Stockton and Geary Streets.	<b>MM VAES-1a:</b> Station architectural treatment for the exterior façade in the visually sensitive Union Square Park would be developed in consultation with the Planning, Recreation and Parks Departments, and the Union Square business associations.	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance.  Coordinate with city agencies and community/business groups during design development.	In-process design reviews.
<b>VAES-1</b>	The demolition of an existing building to accommodate the Chinatown Station and the construction of a new station entrance and transit-oriented development in the future would visually change the street façade along	Exterior treatment of the Chinatown Station and vent shaft would be developed in consultation with the Planning Department, Architectural historians, the City Historic Preservation Coordinator, and the Chinatown community during preliminary and final design.	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance.  Coordinate with city agencies and community/business groups during design development.	In-process design reviews.



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	Stockton Street.				
<b>OPERATION - NOISE AND VIBRATION (NV)</b>					
<b>NV-1</b>	The FTA vibration criteria of 72 VdB would be exceeded at one residential building at 570 Fourth Street at Freelon Alley.	<b>MM NV-1a:</b> Vibration propagation testing will be conducted at this location during final engineering to determine the predicted impacts and finalize the mitigation measures. MTA will implement high resilience (soft) direct fixation fasteners at this location for embedded track. Implementation of this measure would reduce the vibration impacts to a less-than-significant level.	<b>Responsibility:</b> SFMTA	Testing pre-construction.	In-process design reviews.
<b>NV-2</b>	Noise impacts could occur from operation of Emergency Vent Shafts and Traction Power Substations (TPSS).	<b>IM NV-2a:</b> Noise control improvement measures used to meet the San Francisco Noise Ordinance will be determined during final design, but could include enclosing TPSS in masonry structures with sound-rated doors or gates and providing sound attenuation on all emergency ventilation openings of any ancillary facility buildings.	<b>Responsibility:</b> SFMTA	Design has already been modified to place TPSS substations underground to provide sound attenuation.  Check Final Engineering documents for compliance related to Emergency Vent Shafts.	Design has already been modified to place TPSS substations underground to provide sound attenuation.  In-process design reviews.
<b>CONSTRUCTION – TRANSIT (CNTST)</b>					
<b>CNTST-1</b>	Temporary reduction in traffic lanes on Fourth and Stockton Streets during construction would disrupt transit operations. The	<b>IM CNTST-1a:</b> SFDPT would develop and implement detour routes for non-transit traffic to minimize disruption to transit routes.	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance.  Monitor construction.	In-process design reviews.  Construction.

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	rerouting of the 30-Stockton and 45-Union/Stockton may be required.	<b>IM CNTST-1b:</b> Overhead wires for the 30-Stockton and the 45-Union/Stockton lines will be temporarily relocated or reconstructed to alternative routes where feasible or motor coaches would be temporarily substituted on alternative routes.			
<b>CNTST-2</b>	Excavation of the construction shaft under the I-80 freeway between Bryant and Harrison Streets would also impact Golden Gate Transit bus operations.	<b>IM CNTST-2a:</b> SFMTA would coordinate with Transbay Joint Powers Authority (TJPA) and Golden Gate Bridge, Highway, and Transit District (GGBHTD) to minimize construction impacts on Golden Gate Transit. SFMTA would stage excavation shaft construction and utility relocation to maintain access to the bus storage facility by Golden Gate buses and work with GGBHTD to develop bus detour routing plans for continued access. Access to the construction shaft would be scheduled to avoid conflict with the active bus periods.	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance.  Monitor construction.	In-process design reviews.  Construction.
<b>CNTST-3</b>	Temporary disruption of BART service could occur during construction. The BART entry at One Stockton Street would need to be closed temporarily during construction.	<b>IM CNTST-3a:</b> SFMTA and BART will prepare and enter into a Station Improvement Coordination Plan to include construction management procedures and processes to address any and all construction and operational impacts resulting from the tunnel boring. SFMTA will also	<b>Responsibility:</b> SFMTA	SFMTA monitoring and report to BART	Construction

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		coordinate with BART to develop bus bridges, if needed, public outreach, and other programs to minimize impacts to transit riders during construction.			
<b>CONSTRUCTION – TRAFFIC (CNTRF)</b>					
<b>CNTRF-1</b>	Temporary reduction in traffic lanes on Fourth and Stockton Streets and the subway crossing of Market Street would disrupt traffic.	<b>IM CNTRF-1a:</b> SFMTA has identified potential traffic detours. Prior to final design, the SFMTA would select the most appropriate detour routes and develop temporary transportation system management measures along these routes, e.g., additions of turn lanes at key intersections, conversion of parking lanes into peak period travel lanes, etc. Detour routes would be advertised prior to construction in the appropriate media. When detours are initially implemented, traffic control police would monitor critical locations along the detours to promote uncongested traffic flow. All traffic detour measures would be implemented in coordination with other concurrent construction projects.	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance.  Monitor construction.	In-process design reviews.  Construction.
<b>CONSTRUCTION - FREIGHT AND LOADING (CNFRT)</b>					
<b>CNFRT-1</b>	During construction, temporary disruption to truck traffic flow and removal of on-street	<b>IM CNFRT-1a:</b> To alleviate some of the congestion that would result adjacent to construction of the light rail line, the SFDPT has identified potential	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance.  Monitor construction.	In-process design reviews.  Construction.

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	loading zones adjacent to construction work areas would occur along the Corridor on Fourth and Stockton Streets.	<p>traffic detours.</p> <p><b>MM CNFRT-1b:</b> A portion of the curb parking lanes remaining open in the construction area, or just upstream or downstream of the construction area, may be converted to short-term loading zones to enable truck loading and unloading and delivery of goods to nearby businesses.</p> <p><b>MM CNFRT-1c:</b> Temporary truck loading zones on the side streets may need to be established for the duration of the Project construction to offset any impacts along the streets that are directly affected by construction.</p>			
<b>CNFRT-2</b>	Cumulative construction impacts could occur on the block bounded by Perry, Third, Stillman, and Fourth Streets due to sequential construction of the I-80 retrofit, Golden Gate Transit bus storage facility, and the Central Subway projects.	<b>MM CNFRT-2a:</b> SFDPT will work with the property and business owners on Perry and Stillman Streets to develop temporary detour routes for traffic to maintain property access during construction and reduce the impacts to a less-than-significant level.	<b>Responsibility:</b> SFMTA	<p>Check Final Engineering documents for compliance.</p> <p>Monitor traffic during construction.</p>	<p>In-process design reviews.</p> <p>Construction.</p>
<b>CONSTRUCTION – PARKING (CNPRK)</b>					
<b>CNPRK-1</b>	All on-street parking would be temporarily prohibited in construction	<b>IM CNPRK-1a:</b> During construction signs denoting alternative parking areas (e.g., public parking garages) could be	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance.	In-process design reviews.

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	zones.	placed upstream of and through the construction zones.  <b>IM CNPRK-1b:</b> To improve the accessibility to businesses in the Corridor, it is recommended that retained and added (where applicable) parking spaces be designated for short-term parking and loading, especially in commercial districts.		Monitor construction.	Construction.
<b>CONSTRUCTION – PEDESTRIANS (CNPED)</b>					
<b>CNPED-1</b>	There will be temporary sidewalk closures during excavation of each of the subway stations and the west sidewalk of Stockton Street would be closed during construction of the Chinatown Station.	<b>IM CNPED-1a:</b> During excavation of the subway stations, access to all abutting businesses would be maintained either through the existing or a reduced sidewalk area or via temporary access ways, e.g., ramps, planking, etc. Signs would be installed indicated that the businesses are “open during construction.” All temporary access ways would be in compliance with the ADA. Temporary pedestrian walkways, as required by the City, would be covered to help protect pedestrians from noise, dust, and visual annoyances during construction.	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance.  Monitor construction.	In-process design reviews.  Construction.
<b>CONSTRUCTION – BICYCLES (CNBIC)</b>					
<b>CNBIC-1</b>	During construction, congestion on Fourth Street resulting from the	<b>IM CNBIC-1a:</b> Retain a wide curb or outside travel lane to facilitate bicycle travel. Where this is not possible,	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance.	In-process design reviews.

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	temporary lane reduction could divert traffic to Second and Fifth Streets, thereby impacting bicycle travel on Bicycle Routes #11 and #19, respectively. Temporary diversion of traffic from Geary and Stockton Streets could impact bicycle travel, especially on Route #17.	signage could be erected indicating temporary alternative routes, e.g. Second and Fifth Streets for bicyclists.  <b>IM CNBIC-1b:</b> Implementation of the new bicycle routes on Second and Fifth Streets would facilitate bicycle travel on these streets.		Monitor bicycle use on 2 <sup>nd</sup> and 5 <sup>th</sup> Streets construction.	Construction.
<b>CONSTRUCTION - EMERGENCY VEHICLE ACCESS (CNENE)</b>					
<b>CNEMER-1</b>	Emergency response times from Fire Station #8 (36 Bluxome Street) would be impacted by construction along Fourth Street for approximately 18 to 24 months and from Fire Station #2 (1340 Powell Street) by temporary lanes closures on the west side of Stockton Street between Washington and Jackson Streets for the construction of the Chinatown Station.	<b>IM CNEMER-1a:</b> DPT will develop and implement alternative detour routes for all general traffic to minimize the construction disruption to traffic flows.  <b>IM CNEMER-1b:</b> Contractor will be required to develop a site specific emergency access response plan as part of compliance with bid specifications.	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance.  Monitor emergency access during construction.	In-process design reviews.  Construction.
<b>CONSTRUCTION - LAND USE (CNLND)</b>					
<b>CNLND-1</b>	There will be temporary construction impacts	<b>IM CNLND-1a:</b> Public information programs, including signage, as well as	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance.	In-process design reviews.

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	associated with parking and access to land uses in the Study Area.	steps to ensure uninterrupted access to all uses along the Corridor, shall be used to minimize the construction impacts on neighboring land uses.		Monitor parking in study area during construction.	Construction.
<b>CONSTRUCTION - COMMUNITY FACILITIES (CNCF)</b>					
<b>CNCF-1</b>	Construction could temporarily disrupt access to community facilities and parks along the Corridor (Union Square).	<b>IM CF-1a:</b> Pedestrian access would be maintained to all community facilities, parks, and recreation areas during construction.  <b>IM CF-1b:</b> Traffic detours will be put in place to minimize disruption to traffic and public transit along the Corridor.	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance.  Monitor construction.	In-process design reviews.  Construction.
<b>CNCF-2</b>	Lane closures during construction could affect emergency vehicle access time, particularly for Fire Station #8 (36 Bluxome Street) which is located on Bluxome.	<b>IM CF-2a:</b> Alternative vehicular and pedestrian circulation patterns that permit continued access to community and public facilities in these locations during construction would be developed and clearly identified during final design, in consultation with Department of Parking and Traffic (DPT) staff.	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance.  Monitor construction.	In-process design reviews.  Construction.
<b>CNCF-3</b>	Construction of the entrance to the Union Square/Market Street Station and construction adjacent to Yerba Buena Gardens would result in	<b>IM CF-3a:</b> City noise regulations will be included in the bid specifications to ensure that construction is in compliance.	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance.  Monitor noise levels during construction.	In-process design reviews.  Construction.

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	temporary noise and dust impacts for park users.				
CNCF-4	Emergency access and circulation could be temporarily disrupted on streets leading to construction sites.	<b>IM CNCF-4a:</b> Use a traffic control officer, at construction sites to facilitate traffic flows if circulation is disrupted.	<b>Responsibility:</b> SFMTA	Monitor construction.	Construction.
<b>CONSTRUCTION - PREHISTORIC AND HISTORICAL ARCHAEOLOGICAL RESOURCES (CNPRE)</b>					
CNPRE-1	Excavation for the project will potentially affect Historical Archaeological Resources, including: 6 locations identified for the possible presence of sensitive prehistoric archaeological resources, one known archaeological resource, and 13 locations where historical archaeological resources might be uncovered.	<p><b>MM CNPRE-1a:</b> Consistent with the SHPO MOA with the City, FTA, and SFMTA shall work with a qualified archaeologist to ensure that all state and federal regulations regarding cultural resources and Native American concerns are enforced.</p> <p><b>MM CNPRE-1b:</b> Limited subsurface testing in identified archaeologically sensitive areas shall be conducted once an alignment has been selected.</p> <p><b>MM CNPRE-1c:</b> During construction, archaeological monitoring shall be conducted in those sections of the alignment identified in the completed HCASR and through pre-construction testing as moderately to highly sensitive for prehistoric and historic-era archaeological deposits.</p> <p><b>MM CNPRE-1d:</b> Upon completion of archaeological field investigations, a</p>	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance.  Monitor construction.	In-process design reviews.  Construction.



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		comprehensive technical report shall be prepared for approval by the San Francisco Environmental Review Officer that describes the archaeological findings and interpretations in accordance with state and federal guidelines. <b>MM CNPRE-1e:</b> If unanticipated cultural deposits are found during subsurface construction, soil disturbing activities in the vicinity of the find shall be halted until a qualified archaeologist can assess the discovery and make recommendations for evaluation and appropriate treatment to the ERO for approval in keeping with adopted regulations and policies.			
<b>CONSTRUCTION - HISTORICAL ARCHITECTURAL RESOURCES (CNHARC)</b>					
<b>CNHARC-1</b>	One historic architectural resource located at 933-949 Stockton Street will be demolished and replaced by the proposed Chinatown Station during construction of the project.	<b>MM CNHARC-1a:</b> Partial preservation of 933-949 Stockton Street or incorporation of elements of the building into the design of the new station building; salvage significant architectural features from the building for conservation into a historical display or exhibit in the new Chinatown station or in museums; and/or develop a permanent interpretive display for public use on the T-Third line cars or station walls.	<b>Responsibility:</b> SFMTA  The level of documentation in the HABS/HAER will be prescribed in consultation with the City Historic Preservation Coordinator, FTA, and SHPO.	Check Final Engineering documents for compliance.  Monitor construction.	In-process design reviews.  Construction.

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			Implementation and Reporting	Monitoring and Reporting Actions	Implementation Schedule
		<b>MM CN-HARC-1b:</b> If the 933-949 Stockton Street building is demolished, perform a Historic American Buildings Survey/Historic American engineering Record documentation.			
<b>CNHARC-2</b>	There are 25 historic architectural resources along the alignment that could be impacted by construction-related ground borne vibration and visual disturbance.	<p><b>MM CNHARC-2a:</b> Pre-drilling for pile installation in areas that would employ secant piles with ground-supporting walls in the cut-and-cover areas would reduce the potential effects of vibration.</p> <p><b>MM CNHARC-2b:</b> Vibration monitoring of historic structures adjacent to tunnels and portals will be specified in the construction documents to ensure that historic properties do not sustain damage during construction. Vibration impacts would be mitigated to a less-than-significant level. If a mitigation monitoring plan provides the following:</p> <ul style="list-style-type: none"> <li>• The contractor will be responsible for the protection of vibration-sensitive historic building structures that are within 200 feet of any construction activity.</li> <li>• The maximum peak particle vibration (PPV) velocity level, in any direction, at any of these historic structures should not exceed 0.12 inches/second for any length of</li> </ul>	<p><b>Responsibility:</b> SFMTA</p>	<p>Design team has selected a drilled pile system that minimizes vibration and the need for pre-drilling.</p> <p>Check Final Engineering documents for compliance.</p> <p>Monitor vibration during construction.</p>	<p>Design team has selected a drilled pile system that minimizes vibration and the need for pre-drilling.</p> <p>In-process design reviews.</p> <p>Construction.</p>

# ATTACHMENT A –MITIGATION MONITORING AND REPORTING PROGRAM

PROJECT NAME AND CASE NO. CENTRAL SUBWAY PROJECT 96.28IE

Impact No.	Impact Summary	Mitigation Measures (MM) or Improvement Measures (IM)	Monitoring and Reporting Program		
			Implementation and Reporting	Monitoring and Reporting Actions	Implementation Schedule
		<p>time.</p> <ul style="list-style-type: none"> <li>The Contractor will be required to perform periodic vibration monitoring at the closest structure to ground disturbing construction activities, such as tunneling and station excavation, using approved seismographs.</li> <li>If at any time the construction activity exceeds this level, that activity will immediately be halted until such time as an alternative construction method can be identified that would result in lower vibration levels.</li> </ul>			
<b>CONSTRUCTION - VISUAL AND AESTHETIC RESOURCES (CNVAES)</b>					
<b>CNVAES-1</b>	The presence of construction equipment at the Moscone, Union Square, and Chinatown Station locations and the North Beach tunnel excavation shaft would temporarily obstruct public views of these scenic landscapes and would temporarily change the streetscape along the Corridor.	<p><b>IM CNVAES-1a:</b> Construction staging areas and excavation sites in these areas may be screened from view during construction to minimize potential visual impacts.</p> <p><b>IM CN-VAES-1b:</b> In visually sensitive landscapes, like Union Square and Chinatown, temporary screening or physical barriers around the station construction sites and shaded night lights may be used to reduce the visual effects of construction equipment and to reduce glare.</p>	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance. Monitor construction.	In-process design reviews. Construction.

**ATTACHMENT A –MITIGATION MONITORING AND REPORTING PROGRAM**

**PROJECT NAME AND CASE NO. CENTRAL SUBWAY PROJECT 96.28IE**

Impact No.	Impact Summary	Mitigation Measures (MM) or Improvement Measures (IM)	Monitoring and Reporting Program		
			Implementation and Reporting	Monitoring and Reporting Actions	Implementation Schedule
CONSTRUCTION – UTILITES (CNUTL)					
CNUTL-1	Construction of the subway and stations would require major utility relocation work, which could affect private parcel connections to main utility lines and result in short-term utility service disruption as relocated utility lines are reconnected to the utility system.  Utility relocation would require street and sidewalk excavations that would impact traffic and pedestrian flows adjacent to the relocation areas. Permanent vacation of sub-surface sidewalk basements may be required.	IM CNUT-1a: Utility relocation coordination would take place during detailed design in consultation with the utility agencies and the design team and would be phased to ensure that pedestrian and vehicular traffic flows are maintained.	Responsibility: SFMTA	Check Final Engineering documents for compliance.  Monitor construction.	In-process design reviews.  Construction.
CONSTRUCTION – GEOLOGY AND SEISMICITY (CNSET)					
CNSET-1	Construction period settlement could cause damage to existing building foundations, subsurface utilities, and surface improvements.	MM CNSET-1a: Provisions such as concrete diaphragm walls to support the excavation and instrumentation to monitor settlement and deformation would be used to ensure that structures adjacent to tunnel alignments are not affected by excavations.	Responsibility: SFMTA	Check Final Engineering documents for compliance.  Monitor construction.	In-process design reviews.  Construction.

**ATTACHMENT A –MITIGATION MONITORING AND REPORTING PROGRAM**

**PROJECT NAME AND CASE NO. CENTRAL SUBWAY PROJECT 96.28IE**

Impact No.	Impact Summary	Mitigation Measures (MM) or Improvement Measures (IM)	Monitoring and Reporting Program		
			Implementation and Reporting	Monitoring and Reporting Actions	Implementation Schedule
		<b>MM CNET-1b:</b> Tunnel construction methods that minimize ground movement, such as pressure-faced TBMs, Sequential Excavation Method, and ground improvement techniques such as compensation grouting, jet grouting or underpinning will be used. <b>MM CNET-1c:</b> Rigorous geomechanical instrumentation would be used to monitor underground excavation and grouting or underpinning will be employed to avoid displacement of structures.			
<b>CNET-2</b>	Construction of the deep subway crossing under the BART tunnel could result in the potential displacement of the BART structures.	<b>MM CNET-2a:</b> Automated ground movement monitoring will be used to detect distortion on the BART/Muni Metro tunnels and grout pipes will be placed prior to tunnel excavation to allow immediate injection of compensation grouting to replace ground losses if deformation exceeds established thresholds.	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance. Monitor construction.	In-process design reviews. Construction.
<b>CONSTRUCTION – HYDROLOGY AND WATER QUALITY (CNHWQ)</b>					
<b>CNHWQ-1</b>	Construction activities at the Union Square Station could increase or otherwise disrupt flow of ground water to the Powell Street Station.	<b>MM CNHWWQ-1a:</b> Watertight shoring and fully waterproof station structures will be designed and constructed to avoid compounding ground water inflows to the Powell Street Station.	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance. Monitor construction.	In-process design reviews. Construction.

**ATTACHMENT A –MITIGATION MONITORING AND REPORTING PROGRAM**

**PROJECT NAME AND CASE NO. CENTRAL SUBWAY PROJECT 96.28IE**

Impact No.	Impact Summary	Mitigation Measures (MM) or Improvement Measures (IM)	Monitoring and Reporting Program		
			Implementation and Reporting	Monitoring and Reporting Actions	Implementation Schedule
<b>CONSTRUCTION - BIOLOGICAL AND WETLAND RESOURCES (CNBIO)</b>					
<b>CNBIO-1</b>	Construction could result in the removal of existing street trees along the surface segment of Fourth Street, at station entries on Fourth and Stockton Streets, and at the One Stockton entrance to Chinatown.	<b>IM CNBIO-1a:</b> Any street trees removed or damaged as part of construction would be replaced along the street at a 1:1 ratio.	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance. Monitor construction.	In-process design reviews. Construction.
<b>CNBIO-2</b>	During construction of the North Beach Tunnel Variant for removal of the tunnel boring machine at Columbus Avenue and Union Street, adjacent to Washington Square Park, exposure of roots of mature trees could occur.	<b>IM CNBIO-2a:</b> A certified arborist would be present as needed during excavation of the Columbus Avenue TBM retrieval shaft to monitor protection of tree roots.	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance. Monitor construction.	In-process design reviews. Construction.
<b>CONSTRUCTION - HAZARDOUS MATERIALS (CNHAZ)</b>					
<b>CNHAZ-1</b>	Previous subsurface soils investigations indicate the potential for exposure of site workers and the public to potentially hazardous materials, including metals, volatile organic compounds (VOCs), and	<b>MM CNHAZ-1a:</b> Implementation of mitigation measures similar to those required for properties under the jurisdiction of Article 20: preparation of a Site History Report; Soil Quality Investigation, including a Soils Analysis Report and a Site Mitigation Report (SMR); description of	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance. Monitor construction.	In-process design reviews. Construction.

**ATTACHMENT A –MITIGATION MONITORING AND REPORTING PROGRAM**

**PROJECT NAME AND CASE NO. CENTRAL SUBWAY PROJECT 96.28IE**

Impact No.	Impact Summary	Mitigation Measures (MM) or Improvement Measures (IM)	Monitoring and Reporting Program		
			Implementation and Reporting	Monitoring and Reporting Actions	Implementation Schedule
	semi-VOCs, during site excavation or transport of excavated soil materials (13,000 cubic yards) which would be disposed of at a Class I facility. Servicing and fueling of diesel-powered construction equipment on-site could result in exposure to lubricants, diesel fuel, antifreeze, motor oils, degreasing agents, and other hazardous materials. Properties landside of the 1851 highwater mark that are not subject to Article 20 would have potential for exposure to hazardous materials.	Environmental Conditions; Health and Safety Plan (HSP); Guidelines for the Management and Disposal of Excavated Soils; and a Certification Statement that confirms that no mitigation is required or the SMR would mitigate the risks to the environment of human health and safety. This measure would ensure that the project impacts are mitigated to a less-than-significant level.			
<b>CONSTRUCTION - NOISE AND VIBRATION (CNNV)</b>					
<b>CNNV-1</b>	Historic buildings within 200 feet of a construction area may be subject to adverse vibration impacts if the maximum peak particle vibration (PPV) velocity level in any direction exceeds 0.12 inches/second for any	<b>MM CNNV-1a:</b> The Contractor shall be required to perform periodic vibration monitoring using approved seismographs at the historic structure closest to the construction activity. If the construction activity exceeds a 0.12 inches/second level, the construction activity shall be immediately halted until an alternative construction method that would result in lower vibration	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance.  Monitor construction.	In-process design reviews.  Construction.

# ATTACHMENT A –MITIGATION MONITORING AND REPORTING PROGRAM

PROJECT NAME AND CASE NO. CENTRAL SUBWAY PROJECT 96.28IE

Impact No.	Impact Summary	Mitigation Measures (MM) or Improvement Measures (IM)	Monitoring and Reporting Program		
			Implementation and Reporting	Monitoring and Reporting Actions	Implementation Schedule
	length of time.	levels can be identified. <b>MM CNNV-1b:</b> During construction, an acoustical consultant will be retained by the contractor to prepare a more detailed construction noise and vibration analysis to address construction staging areas, tunnel portals, cut-and-cover construction, and underground mining and excavation operations.			
<b>CNNV-2</b>	Noise in the range of 85 to 89 dBA at 100 feet would be generated from construction activities along surface portions of the alignment and staging areas and station or portal construction areas.  Vibration levels of 58 to 112 Lv at 25 feet would be experienced as a result of equipment used during at-grade construction activities.  Vibration impacts on buildings could result from equipment used for underground construction, particularly from tunneling.	<b>IM CNNV-2a:</b> The incorporation of noise control measures would minimize noise impacts during construction: noise control devices such as equipment mufflers, enclosures, and barriers; stage construction as far away from sensitive receptors as possible; maintain sound reducing devices and restrictions throughout construction period; replace noisy with quieter equipment; schedule the noisiest construction activities to avoid sensitive times of the day; the contractor will hire an acoustical consultant to oversee the implementation of the Noise Control and Monitoring Plans; prepare a Noise Control Plan; comply with the nighttime noise variance provisions; conduct periodic noise measurements to ensure compliance with the Noise	<b>Responsibility:</b> SFMTA	Check Final Engineering documents for compliance.  Monitor noise during construction at 100 feet from activity.	In-process design reviews.  Construction.



**ATTACHMENT A –MITIGATION MONITORING AND REPORTING PROGRAM****PROJECT NAME AND CASE NO. CENTRAL SUBWAY PROJECT 96.28IE**

Impact No.	Impact Summary	Mitigation Measures (MM) or Improvement Measures (IM)	Monitoring and Reporting Program		
			Implementation and Reporting	Monitoring and Reporting Actions	Implementation Schedule
		Monitoring Plan; and use equipment certified to meet specified lower noise level limits during nighttime hours.			



**APPENDIX J**

**SECTION 4(F) “DE MINIMIS” CONCURRENCE LETTERS  
FROM RECREATION AND PARKS DEPARTMENT**



July 12, 2007

Mr. Yomi Agunbiade  
General Manager  
San Francisco Recreation and Park Department  
McLaren Lodge  
501 Stanyan Street  
San Francisco, CA 94117

Gavin Newsom | Mayor  
Rev. Dr. James McCray Jr. | Chairman  
Tom Nolan | Vice-Chairman  
Cameron Beach | Director  
Shirley Breyer Black | Director  
Wil Din | Director  
Peter Mezey | Director  
Leah Shahum | Director  
Nathaniel P. Ford, Sr. | Executive Director/CEO

SUBJECT: Central Subway Supplemental EIR/EIS; Section 4(f) Report

Dear Mr. Agunbiade:

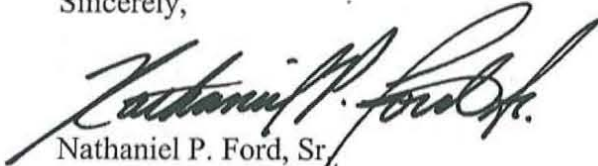
The Major Environmental Analysis (MEA) section of the City's Planning Department has completed the Administrative Draft of the Supplemental EIR/EIS (SEIR/SEIS) and the document is now being reviewed by Federal Transit Administration (FTA) staff before it is released to the public in late September 2007. John Funghi is the Project Manager for San Francisco Municipal Transportation Agency (SFMTA) and Marilyn Duffey is the Project Lead for our consultant team at PB/Wong. John and Marilyn have met with Daniel LaForte of your department to review the proposed project and to discuss potential impacts to Union Square and to Willie Woo Woo Wong Playground in Chinatown. Mr. LaForte is a member of the City review team for the SEIR/SEIS and has previously issued review comments on two Administrative Drafts.

Administrative Draft No. 3 has responded to previous comments from Recreation and Park Department staff by including information to clarify the potential impacts from additional shadows on Willie Woo Woo Wong playground, increased pedestrian use of the playground and Union Square caused by the proposed entrances for the Union Square/Market Street and Chinatown stations, and use of a small portion (1,517 to 1,690 sq. ft., dependent upon the final environmental alternative chosen) of Union Square for an off-sidewalk escalator and elevators. The Section 4(f) Report, required for a federally sponsored/funded transportation project, describes potential effects to the parks and possible mitigation and improvement measures to reduce impacts.

In accordance with recent guidance under SAFETEA-LU (Section 6009(a)) issued in 2005, the Section 4(f) process has been simplified for projects that are determined to have minor impacts to 4(f) properties, with concurrence from the officials with jurisdiction over the parks. A "de minimus" finding applies when the project would not adversely affect the activities, features and attributes of the parks. SFMTA is seeking concurrence from the Recreation and Park Department on the "de minimus" finding described in the Section 4(f) Report. We would be pleased to discuss this with you, and your staff, if you have any questions about this request or the Section 4(f) report. Concurrence from your department will greatly help to move this important transit project forward in a timely manner. If possible, we would like to receive your concurrence by July 20, 2007.

If you have questions, please contact my Environmental Coordinator, David Greenaway, at (415) 701-4237.

Sincerely,



Nathaniel P. Ford, Sr.  
Executive Director/CEO

cc: Daniel LaForte, Planner, San Francisco Recreation and Park Dept.  
James Barr, Project Manager, FTA Headquarters  
Raymond Sukys, Director of Planning and Program Development, FTA Region IX  
John Funghi, Central Subway Project Manager, SFMTA  
Joan Kugler, Environmental Planner, City of San Francisco Planning Dept.  
David Greenaway, Environmental Coordinator, SFMTA  
Gary Griggs, Project Manager, PB/Wong  
Rebecca Kohlstrand, Environmental Task Manager, ETS  
Marilyn Duffey, Environmental Lead, PB/Wong



**City and County of San Francisco  
Recreation and Park Department**

McLaren Lodge in Golden Gate Park

501 Sanyan Street, San Francisco, CA 94117

TEL: 415.831.2700 FAX: 415.831.2096 WEB: <http://parks.sfgov.org>

**DATE:** February 21, 2008

**TO:** Recreation and Park Commission

**THRU:** Yomi Agunbiade, General Manager  
Dawn Kamalanathan, Planning Director

**FROM:** Daniel LaForte, Park Planner

**RE:** SFMTA Central Subway Project

**Agenda Wording:**

Discussion and possible action to support the Federal Transit Administration's finding of de minimis, or minor, impacts on Union Square, Washington Square and Willy Woo Wong Playground (Section 4(f) properties) for San Francisco's Municipal Transportation Agency's Central Subway Project.

**Background:**

In 1998, the San Francisco Municipal Transportation Agency (SFMTA) completed a Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR) to describe and summarize the environmental and transportation impacts for both the Initial Operating Segment and Central Subway phases of the project, along with measures to improve, avoid, minimize or mitigate impacts for both phases of the project. The SFMTA is in the process of preparing a Draft Supplemental EIS/EIR to update information in the Central Subway Project study area and to address impacts focused on changes to the Central Subway portion of the Third Street Light Rail Project that have occurred since the 1998 environmental document. These changes include a new segment along Fourth and Stockton Street between Brannan and Geary Streets, extensions of the planning year from 2015 to 2030; above ground vent shafts for the subway; a need to locate station entries off sidewalks, where possible; use of tunnel boring equipment rather than cut-and-cover construction to minimize surface disruption during construction and a potential construction tunnel extension to Columbus and Union Streets to extract the tunnel boring equipment.

The Central Subway Project is the second phase of the Third Street Light Rail Project and would provide MUNI service from the present terminus of the T-Third Line at Fourth and King Streets along either Third or Fourth Streets through South of Market with a station at Moscone Center and a station with connections to BART at Market Street/Union Square in subway through Downtown and in subway under Stockton Street to Chinatown with a station between Clay and Jackson Street. A possible tunnel extension with a portal in the middle two lanes of Columbus Street, just north of Union Street, to extract the tunneling equipment is also being considered. There are seven Recreation and Park Department parks within two blocks of the alignment alternatives: South Park, Yerba Buena Gardens, Union Square, Willy Woo Wong Playground, Woh Hei Yuen Recreation Center, Portsmouth Square, and Washington Square. Only Union Square would be directly affected and other parks may have indirect impacts.



*Mayor Gavin Newsom  
General Manager Yomi Agunbiade*

**Proposal:**

The Central Subway project is designed to address mobility and transit deficiencies in the northeastern part of San Francisco by improving connections to communities in the southeastern part for the City and improving reliability of transit services. The project is also consistent with City Policy to give priority to public transportation and other alternatives in meeting San Francisco's transportation needs.

The Draft Supplemental EIS/EIR considers three project build alternatives that include varying track alignments and station locations. The project alternatives include a downtown subterranean passenger platform under Stockton Street between Market Street and Post Streets with an entry at Union Square, and a station under Stockton Street between Clay and Jackson Streets with an above-ground joint development building and station entry adjacent to Willy Woo Woo Wong Playground. The station building would be limited to 40 feet to meet Prop K shadow limits for buildings that could cast shadows on public parks. An alternative Chinatown station would be located at Stockton and Washington Streets, with no impacts to Willie Woo Woo Wong Playground. The downtown station entry would include a direct take of between 1,517 and 1,690 square feet (1.35% to 1.51%) of Union Square Plaza for the escalator, elevators and vent shafts, and the Chinatown station would have an indirect impact to Willy Woo Woo Wong Playground during construction of the station and during operation for use of a proposed second station entry on the Hang Ah Alley side of the station, adjacent to the playground.

Under Federal Law enacted as part of the Department of Transportation Act of 1966, known as Section 4(f), an assessment must be prepared when a transportation project affects a public park or recreation area, wildlife or waterfowl refuges or significant historic sites. The SFMTA prepared a Section 4(f) assessment for this project and concluded that the impacts on the parks are considered de minimus under Section 4(f) - de minimus impacts are those that would not adversely affect the activities, features and attributes of the Section 4(f) resource. Additionally, under Section 4(f) the landholder of the Section 4(f) resource - in this case, the San Francisco Recreation and Park Department - must concur with the findings of the assessment before action on the Supplemental EIS/EIR by the approval authorities (see attached letter from Executive Director Nathaniel Ford addressed to Yomi Agunbiade, July 12, 2007).

**Issues:**

Staff raised concerns to the SFMTA over potential impacts to Willy Woo Woo Wong Playground and Union Square. The issues of primary concern were related to removing Union Square parking spaces, using Hang Ah Alley to access a secondary entrance to the Chinatown Station, shadow impacts to Willy Woo Wong Playground, locating vent shafts on Union Square, Union Station design, and construction impacts to parks and park users.

The SFMTA Board will select Alternative 3B as the revised Locally Preferred Alternative on February 19, 2008 (see attached Project Alternatives Maps). Alternative 3B incorporates measures to minimize or avoid potential impacts to Union Square and Washington Square. The station entry at Union Square is on the Geary Street side of the park, with the vent shafts outside of the park located in the Ellis/O'Farrell garage. In addition, Alternative 3B would have no impacts to the Hang Ah Alley, as it would be located away from the park on Stockton and Washington Streets. The environmental document has also been changed to include mitigations for the loss of parking and construction impacts, and a commitment to work with Recreation and Park Department on the conceptual and final station design (See attached Comment Letter on SEIS/SEIR, December 5, 2007, and Response to Letter AI).

Therefore, the Recreation and Park Department staff recommends supporting Federal Transit Administration finding of de minimis, or minor, impacts on Section 4(f) properties (park land) for the



project because feasible measures to minimize or avoid potential impacts to Union Square and Washington Square parks have been incorporated into the Locally Preferred Alternative 3B as mitigation measures or design modifications.

Cost and Source Funding:

The capital cost of the Central Subway project, including the purchase of 4 vehicles, is estimated between \$1.025 billion and \$1.314 billion. Operating and maintenance costs would be an estimated \$1.121 million per year, which would be about \$23.6-\$24.2 million less than the No Project Alternative per year. Funding would be a combination of federal New Starts funds (\$762 million), state transportation funds (\$106 million), and Local transportation funds (\$126 million).

Schedule:

The Administrative Draft Supplemental EIR/EIS is currently under review by the Federal Transit Administration. A public Draft EIR/EIS is scheduled for distribution in April, 2008 followed by a 45-day review period and public hearing. The Final SEIR/SEIS is scheduled to be available by June of 2008, with a federal Record of Decision in August of 2008.

Supported By:

Unknown

Opposed By:

Unknown

**Recommendation:**

Staff recommends that the Commission support the Federal Transit Administration's finding of de minimis, or minor, impacts on Section 4(f) properties for San Francisco's Municipal Transportation Agency's Central Subway Locally Preferred Alternative 3B.

Attachments:    Project Alternatives Maps  
                      Comment Letter to SFMTA on SEIS/SEIR  
                      Response to Comment Letter  
                      SFMTA Response to Letter



**RECREATION AND PARK COMMISSION**  
**City and County of San Francisco**  
**Resolution No. 0802-011**


**CENTRAL SUBWAY PROJECT**

**RESOLVED**, That this Commission does support the Federal Transit Administration's finding of de minimis, or minor, impacts on Union Square, Washington Park and Willie Woo Woo Wong Playground (Section 4(f) properties) for San Francisco's Municipal Transportation Agency's Central Subway Project Preferred Alternative 3B.

Adopted by the following vote:

Ayes	7
Noes	0
Absent	0

I hereby certify that the foregoing resolution was adopted at the Regular Meeting of the Recreation and Park Commission held on February 21, 2008.

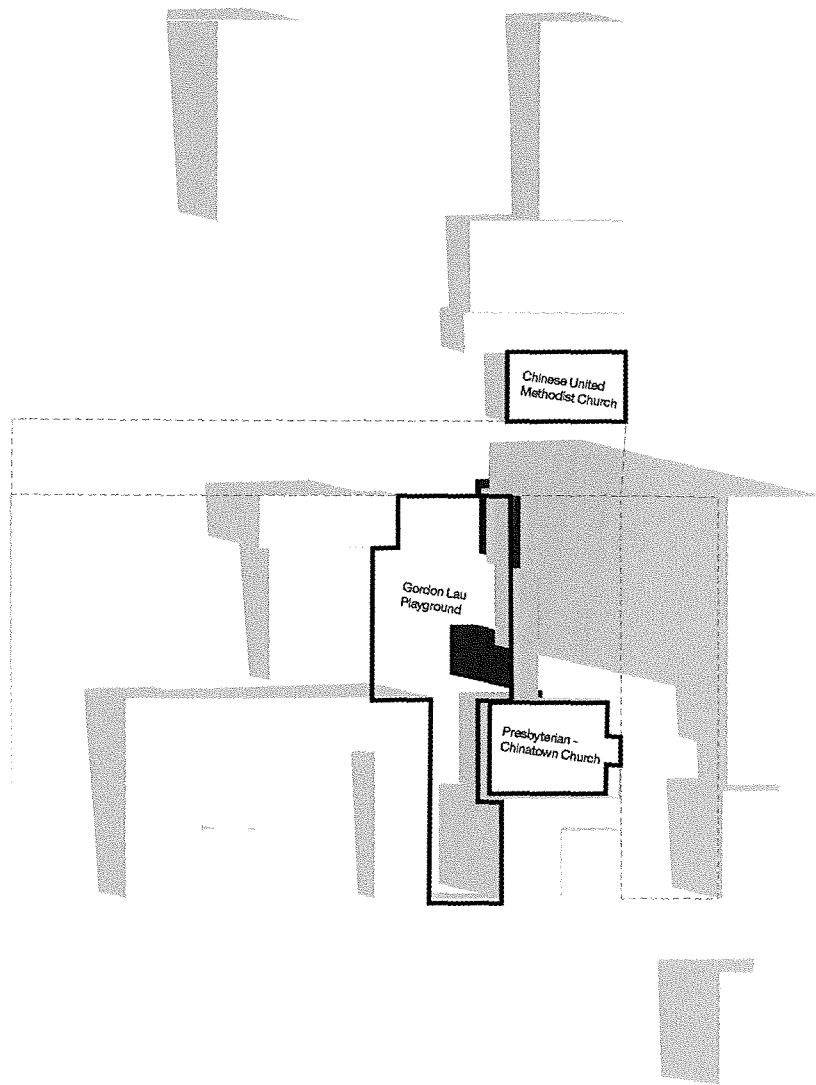
  
Margaret A. McArthur, Commission Liaison



**APPENDIX K**  
**SHADOW ANALYSIS, ALTERNATIVE 3B, CHINATOWN STATION**



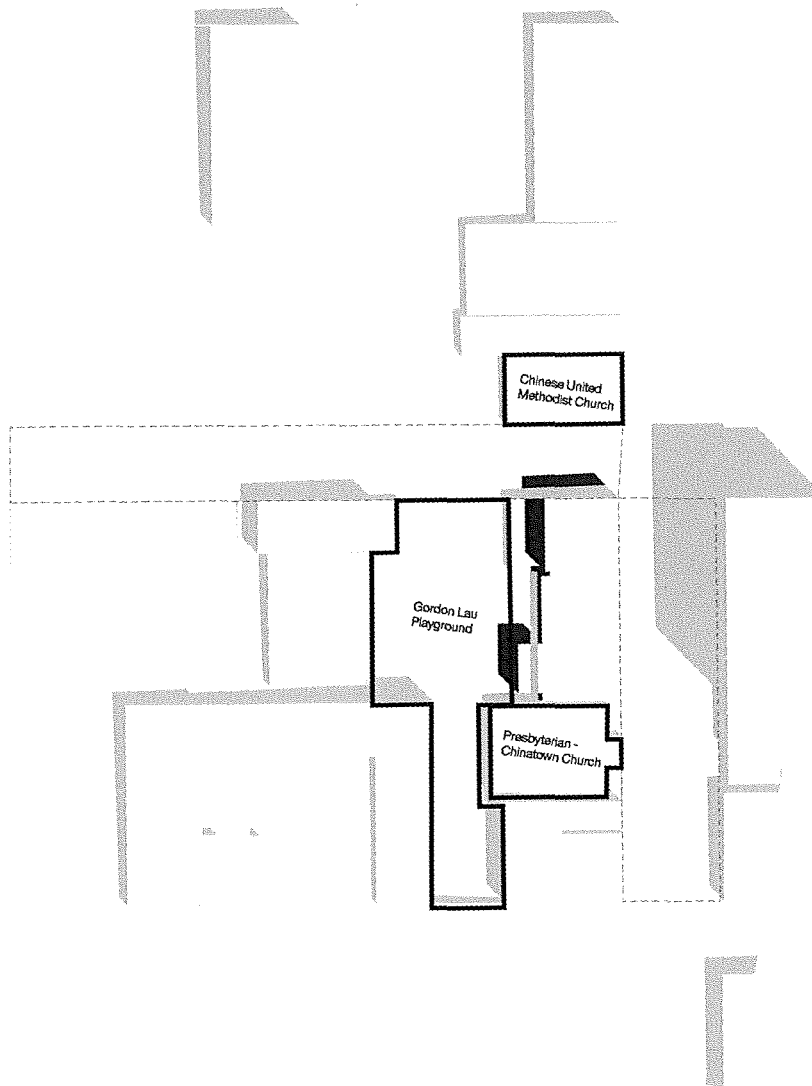
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10:00 AM

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June 21st

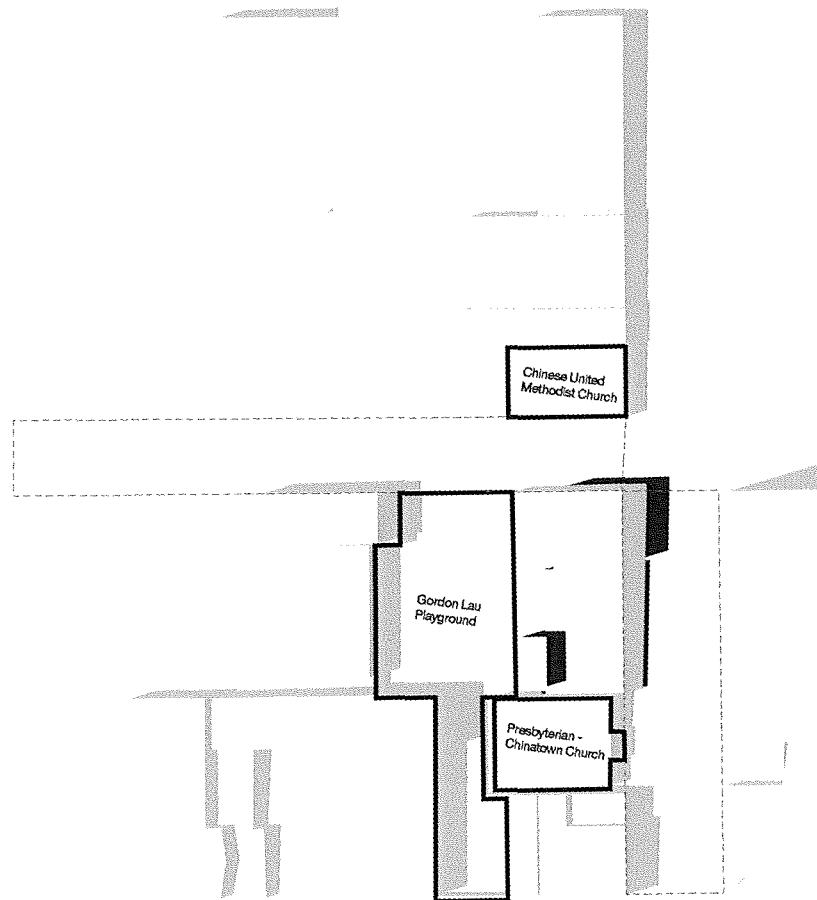


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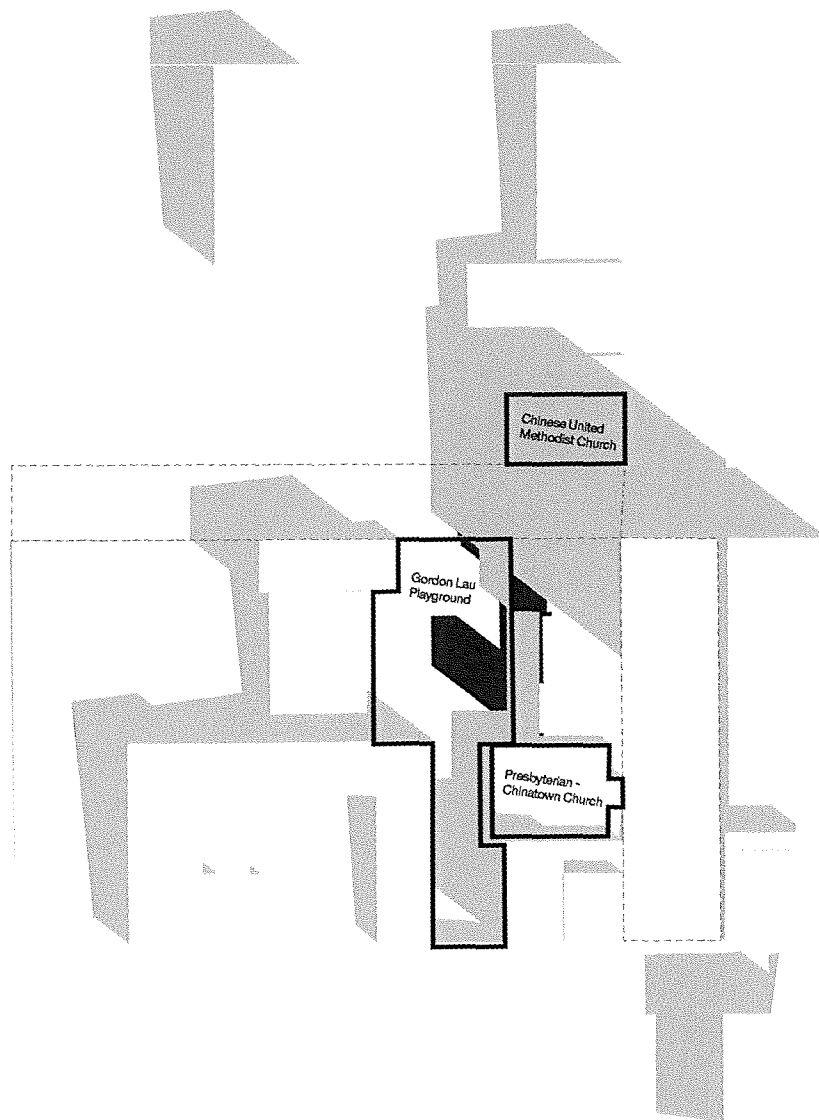
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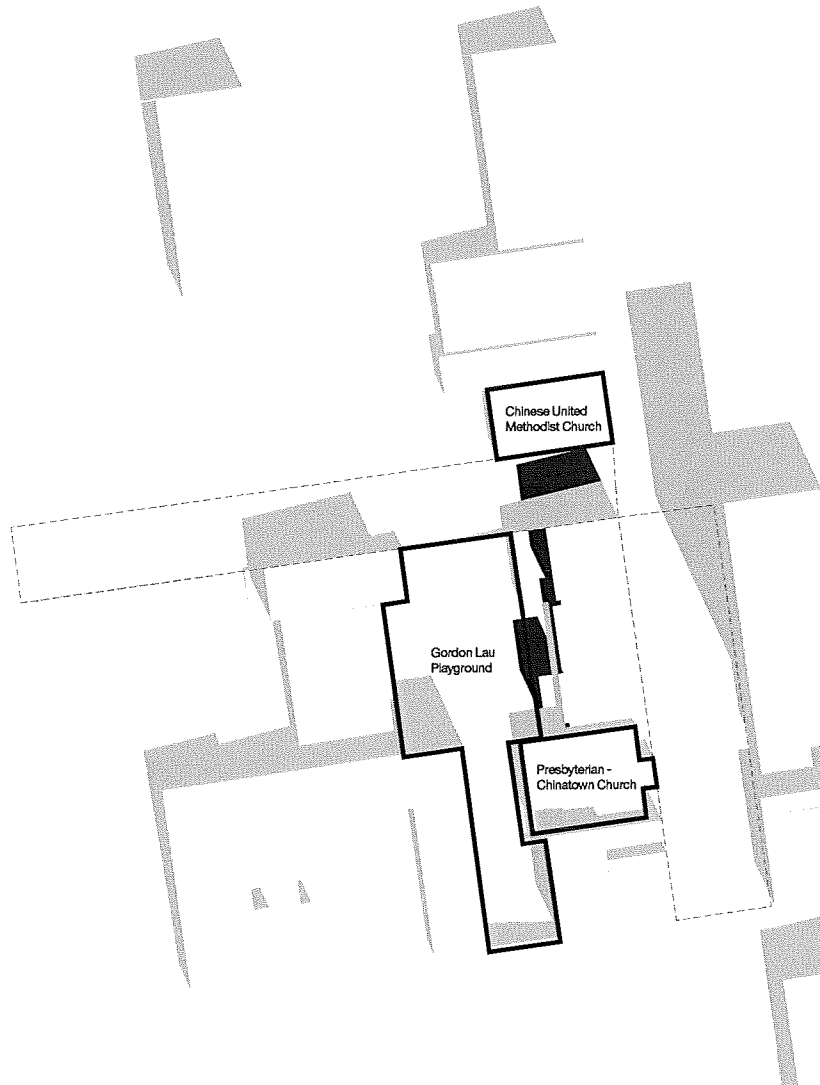
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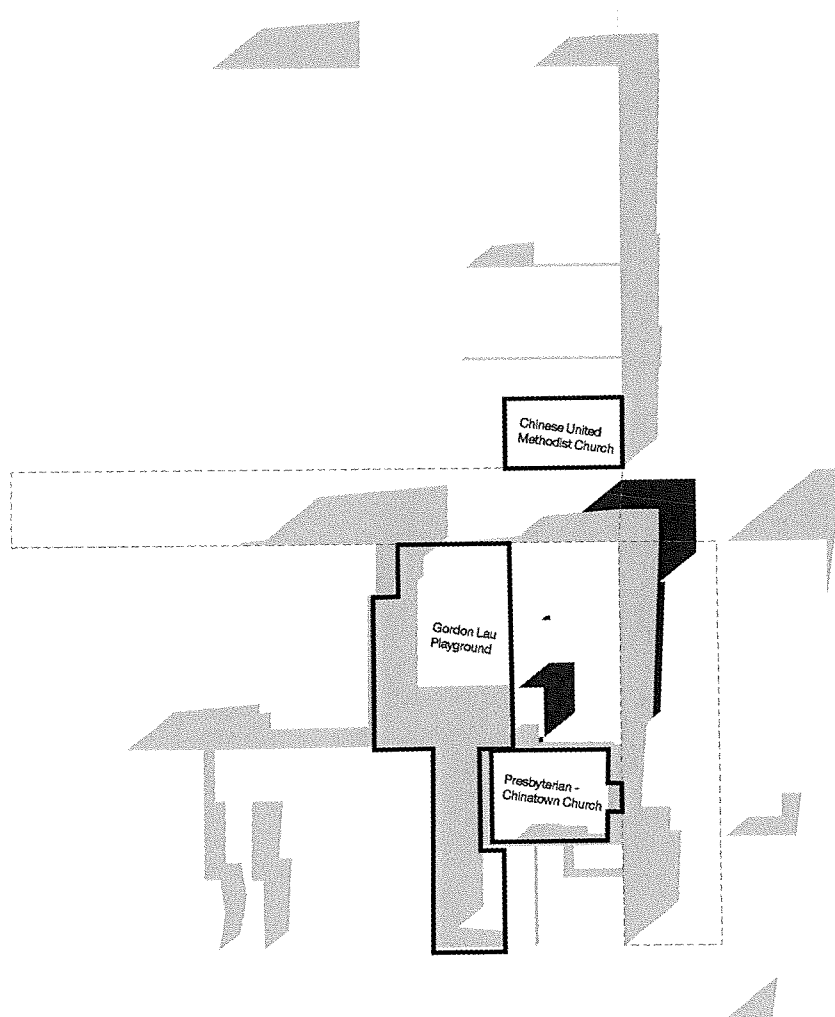
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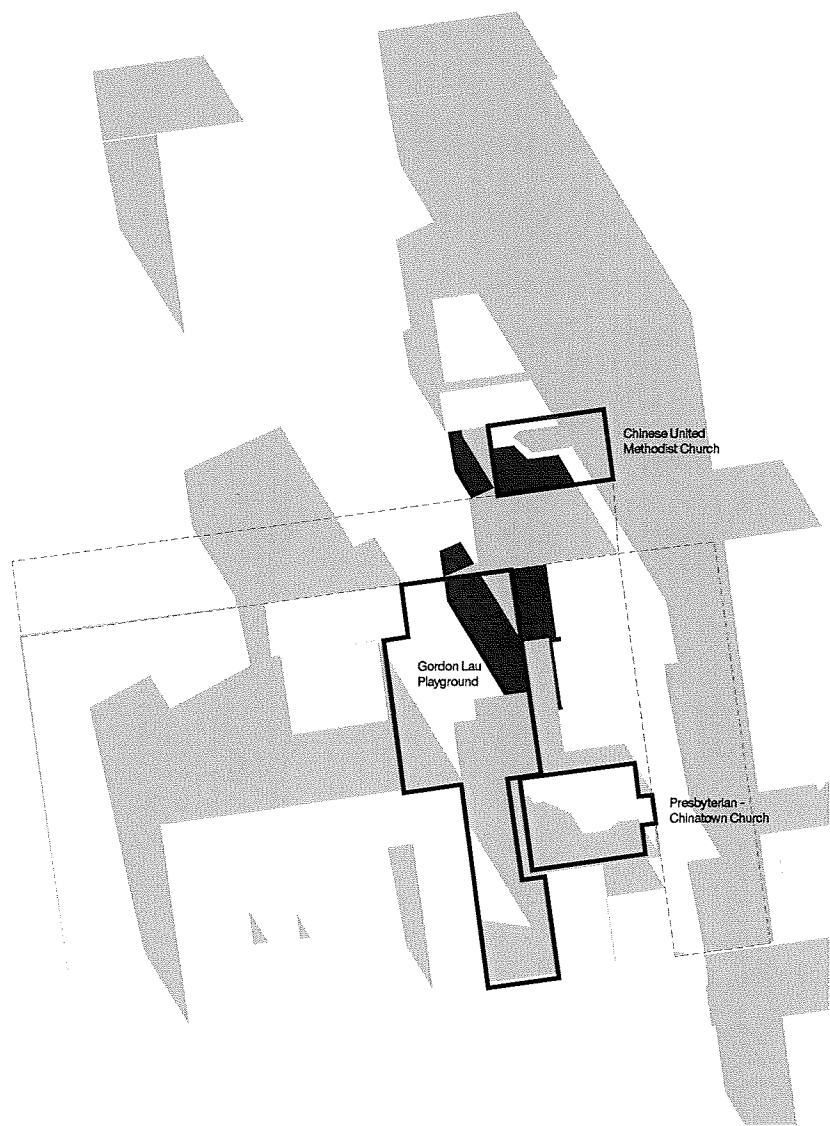
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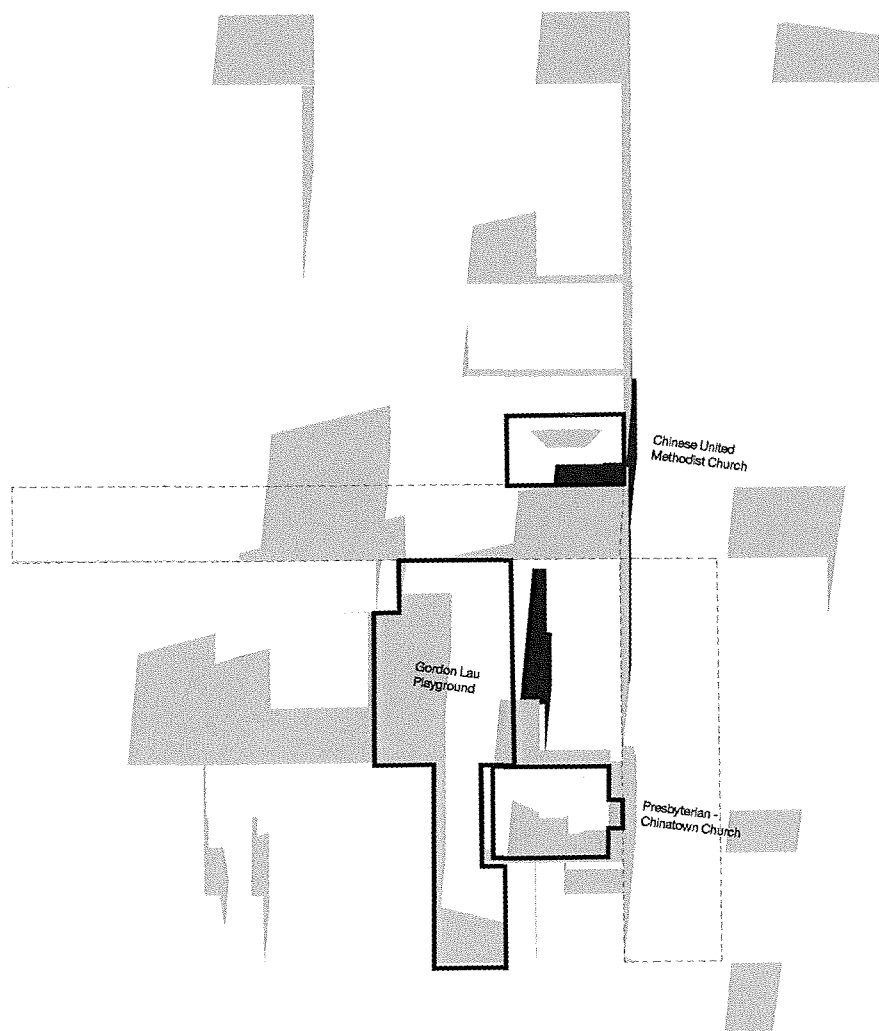
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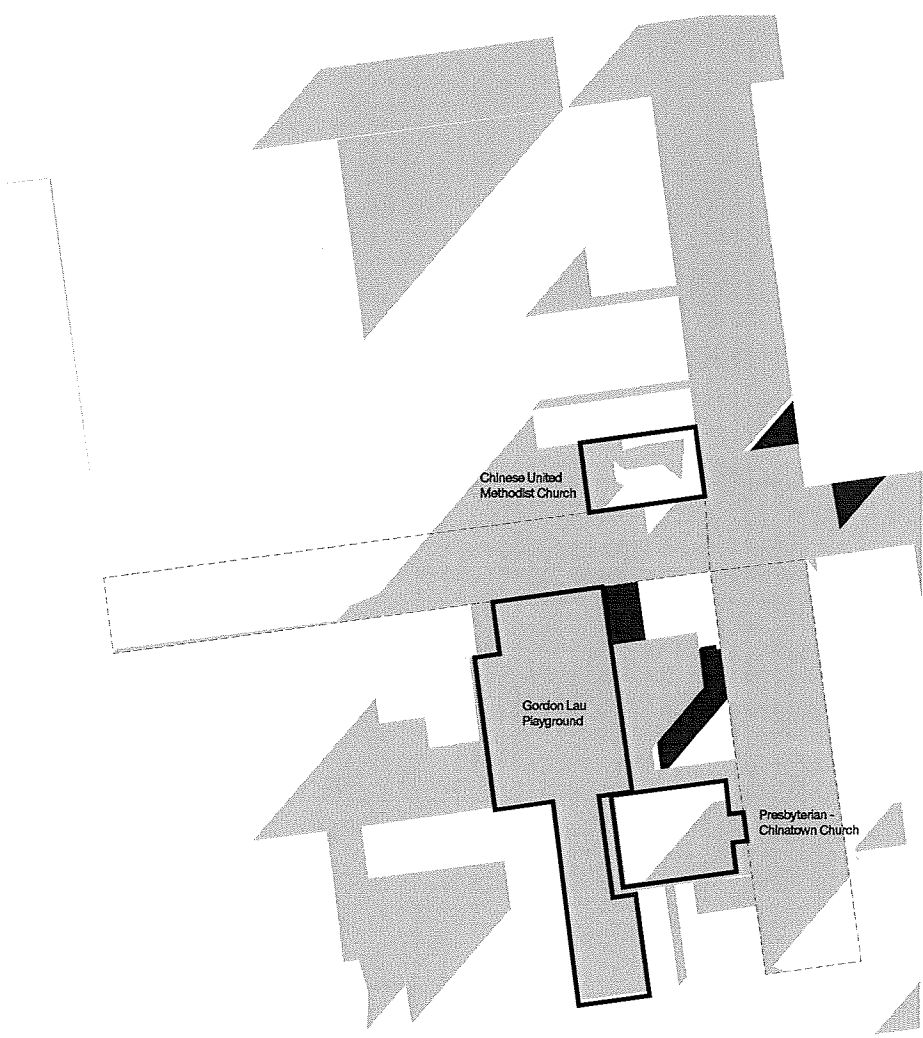
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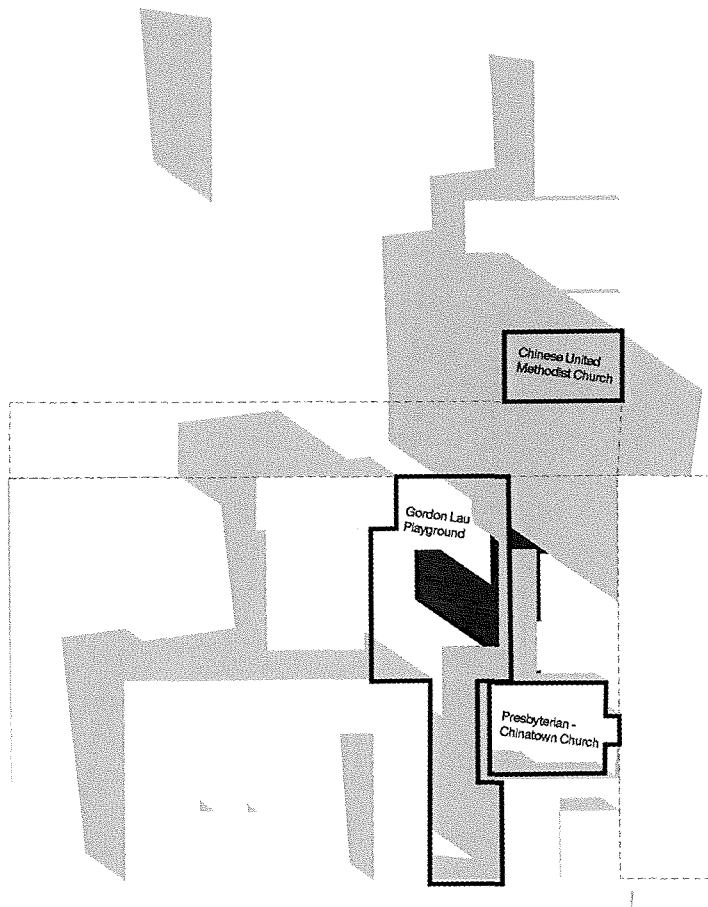
December 21st



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March 21st



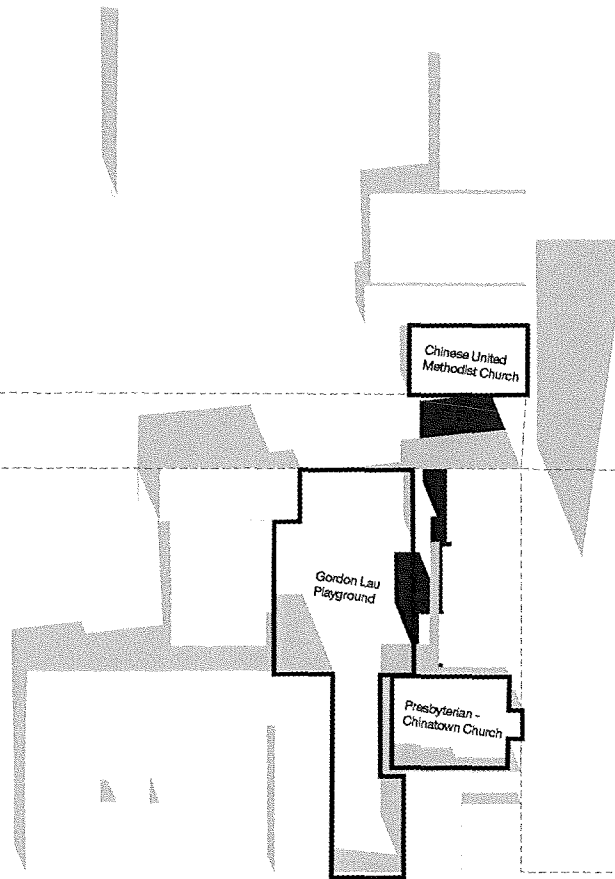
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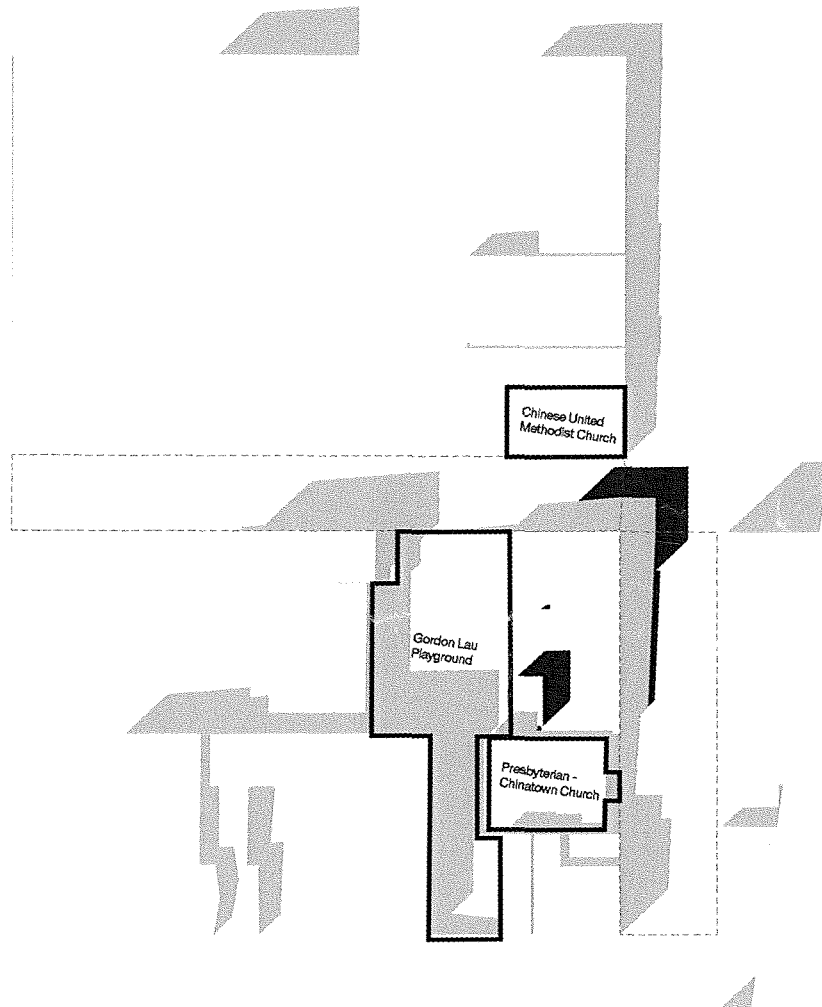
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March 21st



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# SAN FRANCISCO PLANNING DEPARTMENT

**MEMO**

**DATE:** July 11, 2008  
**TO:** Interested Parties  
**FROM:** Joan A. Kugler, Senior Environmental Planner  
**RE:** CASE NO. 96.281E: CENTRAL SUBWAY PROJECT (PHASE 2  
OF THE THIRD STREET LIGHT RAIL PROJECT) COMMENTS  
AND RESPONSES

Contract No: CS-138 – Central Subway  
Routing Date 7-11-08  
File No.: 1.70-01-20  
Doc No.: 02888 Initials: JK  
MTA Project No. M544 PB/Wong Project No. 13217

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

Reception:  
**415.558.6378**

Fax:  
**415.558.6409**

Planning  
Information:  
**415.558.6377**

Attached please find a copy of the Comments and Responses document on the Draft Supplemental Environmental Impact Report (DSEIR) for the above-referenced project, for your review. This document along with the DSEIR is scheduled to be before the Planning Commission for Final SEIR certification on July 24, 2008. The Planning Commission meeting begins at 1:30 pm in Rm. 400 of City Hall, 1Dr. Carlton Goodlett Place. Please call 558-6422 on Monday July 21, or thereafter for a recorded message giving a more precise time that this matter will be heard. Please note that the public review period closed on December 10, 2007.

The Commission does not conduct a hearing to receive comments on the Comments and Responses document, and no such hearing is required by the California Environmental Quality Act. You may, however, always write to the Commission members or to the President of the Commission at 1650 Mission Street and express your opinion about the Comments and Responses document, or the Commission's decision to certify the completion of the Final EIR for this project.

Please note that if you receive a copy of the Comments and Responses document in addition to the DEIR, you technically have a copy of the Final EIR. The Draft document was delivered to public libraries in the project area and is also posted on the SFMTA website. Thank you for your interest in this project.

We are sending this to you now, so that you will have time to review the document. If you have any questions concerning the attached Comments and Responses, or this process, please contact me at (415) 575-6925.

Thank you for your consideration of this matter.

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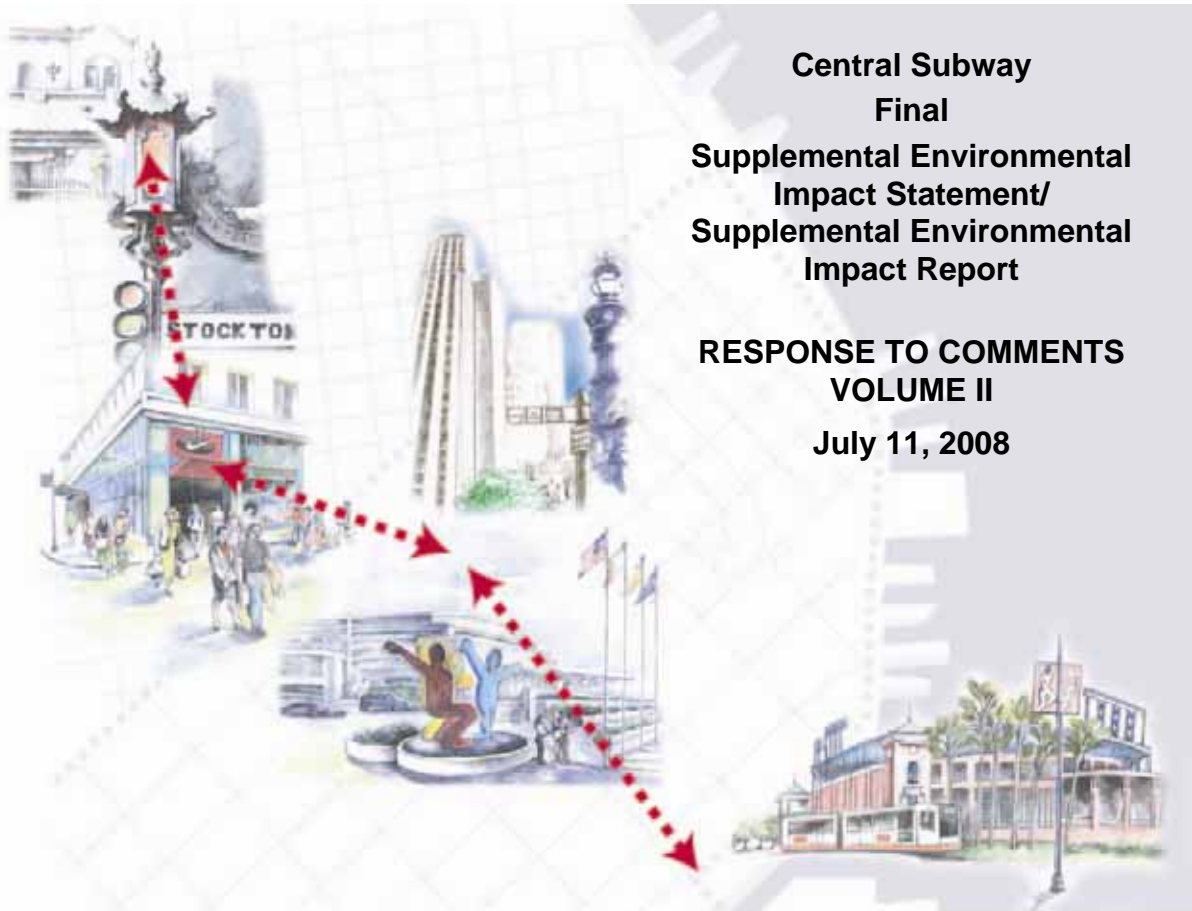
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**Central Subway  
Final  
Supplemental Environmental  
Impact Statement/  
Supplemental Environmental  
Impact Report**

**RESPONSE TO COMMENTS  
VOLUME II**

**July 11, 2008**

**FEDERAL TRANSIT ADMINISTRATION  
U.S. DEPARTMENT OF TRANSPORTATION**

**CITY AND COUNTY OF SAN FRANCISCO  
PLANNING DEPARTMENT**

Case No. 96.281E  
State Clearinghouse No. #96102097

**RESPONSE TO COMMENTS**  
**VOLUME II**  
**FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT/  
SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT**

**for the**

**CENTRAL SUBWAY/THIRD STREET LIGHT RAIL PHASE 2  
IN THE CITY AND COUNTY OF SAN FRANCISCO**

**prepared by the**

**U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL TRANSIT ADMINISTRATION**

**and the**

**CITY AND COUNTY OF SAN FRANCISCO PLANNING DEPARTMENT**

**JULY 11, 2008**

Pursuant to

National Environmental Policy Act (42 USC 94332) 49 USC Chapter 53, 49 USC 9303, 16 USC 9470, 23 CFR Part 771, 23 CFR Part 450, Executive Order 12898 Section 6002 SAFETEA-LU, 40 CFR parts 1500-1508, and California Environmental Quality Act, PRC 21000 *et seq.*; and the State of California CEQA Guidelines, California Administrative Code, 15000 *et seq.*

**FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT/  
SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT (SEIS/SEIR)**

**VOLUME II**

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## **1.0 INTRODUCTION**

This document contains all public comments received on the Draft Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report (Draft SEIS/SEIR) prepared for the Central Subway Project and the responses to those comments. Following this introduction, Chapter 2.0 contains a list of all persons and organizations who submitted written comments on the Draft SEIS/SEIR during the public review period from October 17 through December 10, 2007 or who testified at the San Francisco Planning Commission public hearing on the Draft SEIS/SEIR held on November 15, 2007.

Chapters 3.0 and 4.0 contain the comments and responses. Section 3.0 contains written comment letters received by the Planning Department during the public comment period. Section 4.0 contains transcribed comments made at the public hearing on the Draft SEIS/SEIR and the responses to each of those comments. Comments are grouped by person commenting, rather than by topic, to allow commenters to easily find the responses to their comment(s). As the subject matter of one comment may overlap with that of others, the reader may be referred to another response for a complete answer to a particular comment. Each comment letter on the Draft SEIS/SEIR has been given a letter identifier and each comment has been given an identifying number. The comments made at the public hearing have each been given a comment number. Each substantive comment on the Draft SEIS/SEIR is labeled with a number in the margin, and the responses to each comment follows each letter.

Chapter 5.0 contains the staff initiated changes to the Draft SEIS/SEIR. The staff-initiated changes, made by the preparers, revise text of the Draft SEIS/SEIR to correct or clarify information presented in the Final SEIS/SEIR. All the revisions to the text of Volume I, whether from responses to comments or staff initiated changes, are shown by underlining the text. Text that was deleted is shown with a strikeout.

The responses to comments included in the Final SEIS/SEIR, Volume II, respond solely to comments on the adequacy of the approach, analysis, and information in the Draft SEIS/SEIR. Some comments received did not pertain to physical environmental effects of the Project, but responses may be included to provide information for use by decision makers. Comments regarding the merits of and need for the Central Subway Project will be considered by the San Francisco Municipal Transportation Agency

(MTA) as part of the project approval process. A decision regarding approval of the Project will be made subsequent to certification (determination of completeness) of the Final SEIS/SEIR. In order to approve the Project, the MTA will need to adopt a “Statement of Overriding Considerations,” as required by CEQA, to explain the public good that would be achieved by implementation of the project despite the significant and unavoidable impacts that have been identified in the environmental document.

The text of the SEIS/SEIR, with the recommended text changes incorporated, is contained in Volume I of this Final SEIS/SEIR.

## **2.0 LIST OF PERSONS COMMENTING**

The following lists identify all groups, agencies, or individuals commenting on the Draft SEIS/SEIR. Each comment letter and each person commenting at the public hearing has been given a letter identifier as noted below based on the order in which their comments were received.

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### 3.0 WRITTEN COMMENTS AND RESPONSES

This chapter includes a copy of the comment letters received during the public review period on the Draft SEIS/SEIR and responses to those comments. Each letter is labeled with a letter identifier and each substantive comment on the Draft SEIS/SEIR is labeled with a number in the margin of the letter. The responses to each comment in each letter are presented immediately following the letter.

Text changes to the Draft SEIS/SEIR resulting from comments are also presented in this chapter and are included as part of the responses. Text that has been added is underlined and text that has been deleted is shown with a ~~strike through~~. The intent of these text changes is to clarify or amplify information already provided in the Draft SEIS/SEIR. The text changes do not present any new information that would alter the analysis or conclusions presented in the Draft SEIS/SEIR.

## Letter A

770 Stockton Street  
San Francisco, CA 94108

Joan Kugler  
Bill Wycko  
San Francisco Planning Department  
Central Subway Draft SEIS/SEIR  
1650 Mission Street  
San Francisco, CA 94103

RECEIVED

OCT 22 2007

CITY & COUNTY OF S.F.  
PLANNING DEPARTMENT  
M E A

RE: Central Subway/Chinatown extension-  
Demolitions, disruptions, community outreach

October 18, 2007

To the Planning Department and city officials:

On behalf of many residents of Chinatown, I am expressing my continued opposition to the proposed Chinatown extension of the Central Subway, the displacement and destruction of vital businesses and housing along the Stockton Street corridor, and the potential unintended damage to all properties along Stockton Street during construction.

I have received a copy of the SEIR/SEIS draft. Nothing in this report adequately addresses concerns that I and other individuals have expressed in the relatively few (and poorly promoted/planned/attended) "community outreach" meetings that your department, the City, and the Chinatown leadership have offered.

I have opposed the need for this politically-driven pork barrel project from the beginning. A subway system is redundant. Transit along Stockton Street has been adequately met by existing bus systems. I believe that Chinatown's citizens feel the same way, in spite of top-down speculations and projections of politicians, and a Chinatown political and business establishment that is thoroughly out of touch with ordinary citizens.

At best, the disruption and damage from the construction of this redundant subway---one that merely adds new layers of congestion to existing bus routes---far outweighs any incremental gain in time to get distance from the proposed Chinatown station to Market Street, where the vast majority of commuters transfer to the Muni metro to other Chinese neighborhoods in the city. Particularly in light of the failure so far of the T-Third line, I am extremely skeptical about a similar incursion into Chinatown.

This subway extension is window dressing for city officials, but offers little for commuters and tourists in and out of Chinatown, and, most importantly, damages Chinatown for those who live and work along Stockton Street.

The manner in which this proposed subway extension is being imposed upon the Chinatown community is despicable. In addition to **little or poor direct contact with Chinatown citizens** (on the part of every agency and organization involved), there has been extremely poor media coverage, and an **almost complete lack of materials in Chinese**. This project is being shoved down our throats *without the knowledge, permission, and input of those most affected*.

The vast majority of people who live and work on Stockton Street (most of whom do not speak or read English, are too busy to attend civic meetings, etc.) today, years later, still have not been properly informed about the planned disruptions that a huge bureaucratic machine is imposing on the people most affected.

Take this latest draft. The only notice Chinatown itself received about the new SEIR/SEIS report has come in the form of a few English-only notices crudely taped on light poles along Stockton

A-1

A-2

A-3

Street. They look like junk mailers and few people have stopped to read them. They are in English only. This is inadequate and insulting.

To add to the insult, not only is the SEIS/SEIR itself only in English, it is only available online at an SFMTA web site. Problem: very few residents and business owners of Chinatown have the language capability to read this arcane report, and even fewer have the computers with which to access this report. Chinatown is low income!! The web site is also extremely cumbersome to download, even for those with computers.

Providing the report in person at the SFMTA office is a poor option. Few Chinatown merchants or residents have the time during the work day to obtain a copy of the report in person.

Regarding the SEIR/SEIS report itself, I have many concerns.

**I am particularly alarmed by the proposed demolitions of the properties at 814-828 Stockton or 933-949 Stockton to accommodate a Chinatown station.** According to your report, these and other properties along Stockton Street were very casually targeted for demolition *"after a walkaround with Chinatown community members"*. In other words, the properties in which vital Chinatown businesses operate, and predominantly low-income residents live, will, largely without their knowledge and input, be demolished, dislocated, forced to shut down. On whose orders, and with whose permission? Who were these "members" who so cavalierly deemed which businesses will be closed, and who will be forcibly evicted?

What is going to happen to the many people who will be evicted from housing and businesses that they have operated for decades? How will the proposed destruction of these businesses, residences and lives ever be "mitigated"? Certainly not by taking rubble from properties and putting this rubble into "museums". Your projections fail to address the fact that the negative impact of even one business or a single residential unit in Chinatown is magnified exponentially, because of the closeknit nature of the neighborhood. Again, a "shiny new transit system" does not make up for such losses.

Today (10/18/07), I asked several business operators at the two demolition addresses if they are aware that their building has been targeted. **Approximately one out of ten were unaware of demolition plans.** (The notices taped along the street have clearly not been seen, read or understood.) The one operator who was aware of demolition plans was outraged at the probability that his long-established business would be forced to close, and expressed anger at being a powerless "small fish" to get the attention of politicians, city officials or community "leaders".

I also remain deeply concerned about the potential physical damage that may be done to all properties along Stockton Street due to vibration from the construction, and, longer-term vibration from the operation of the subway itself. Every building along Stockton Street and the proposed tunnel is historic, many built on masonry foundations. My property, for instance, is an historic building within 200 feet of a proposed station location. What exactly will happen to my building when "ambient vibration" rattles the walls and foundation? What inconveniences will be suffered by my tenants, many of whom are elderly? Besides vague promises to "mitigate" vibration, I see no convincing evidence that collateral damage around the construction site will be zero.

It also goes without saying that severe traffic congestion and inconvenience during construction will make working and living along Stockton Street intolerable for all of its residents.

There are other negative "impacts" that a Chinatown subway extension will introduce, and officials have failed to address most of them. These include the likely influx of crime, more homelessness (epidemic already in Chinatown), even more vandalism and graffiti (also epidemic and worsening throughout Chinatown), and nightmare scenarios for the neighborhood, such as major earthquakes and terror scenarios (streetcar bombings).

A-3  
Cont.

A-4

A-5

A-6

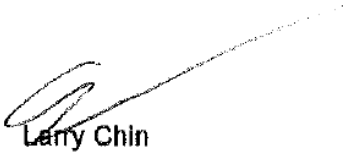
A-7

In short, the SEIS/SEIR is vague, self-serving and unresponsive.

Not only must "outreach" to Chinatown's citizenry be dramatically increased, immediately and directly, *and in their language*, the residents, tenants and business operators of Stockton Street deserve a direct vote on the project and every single aspect of it. *We deserve a say. We deserve the right to oppose.* We are talking about a large scale and unwelcome intrusion into our livelihoods and lives.

A-8

Personally, I will continue to oppose the subway extension, and will support any and all opposition from other Chinatown residents and business owners, until we are given far more convincing evidence that we stand to benefit, in any way, from years of construction nightmares, forced dislocations, property damage and unanticipated consequences.



Larry Chin

## **Reponses to Letter A**

### **A-1**

Commenter's opposition to the project due to displacement of residences and businesses is noted. Comments received at public meetings have been responded to and the project alternatives have been modified and refined throughout the project's history in response to public input. The project development history is outlined in the SEIS/SEIR on pages 2-52 through 2-62. As detailed in Section 1.3 of Volume I, there is a need for transportation improvements in the Central Subway Corridor to meet expanding population and employment. The majority of letters and comments received during the 55-day public comment period for the SEIS/SEIR expressed support for the Central Subway Project. Many of these letters and comments came from Chinatown residents and community organizations in support of the project.

### **A-2**

The Central Subway Project is projected to generate approximately 18,470 to 21,010 net new transit riders on the corridor compared to the No Project Alternative by 2030. The increase in ridership can be attributed to improvements in service reliability and reductions in travel time (over 10 minutes savings between Fourth and King Streets and Chinatown). The buses currently serving Chinatown and Union Square are routinely delayed by surface congestion on Stockton Street due to the narrow width of the street and competing demands for street space by autos, buses, bicycles, trucks, and pedestrians. In 2030, these bus lines would carry about 5,280 passengers during the p.m. peak period in the Central Subway corridor. By providing an exclusive transit right-of-way underground, the congestion problems would be reduced. Trains would be able to operate much faster as they would not be subject to surface congestion and traffic controls and there would be only a limited number of stops. This not only improves service to existing transit passengers, but is also expected to generate new transit riders to the system.

Achieving these transit improvements would require an extended construction period of from 5½ to 6 years that would result in disruption to the residents and businesses along the corridor. These impacts are described in Chapter 6.0, Construction Methods, Impacts, and Mitigation, of the SEIS/SEIR. The San Francisco Municipal Transportation Agency (SFMTA) will ultimately make the decision as to whether the project should be approved based on the project benefits and impacts and responses to public comments outlined in the Final SEIS/SEIR.

### **A-3**

During the planning and project development phase of the Central Subway, public presentations were made to community groups and stakeholders along the corridor. Many of these meetings were held in Chinatown or with representatives from the Chinatown community. Informational materials pertaining to the project have been made available in English, Chinese, and Spanish to ensure a broad distribution of information. The newsletter on the Central Subway website is posted in Chinese. Representatives of the project have attended community events in Chinatown, such as the Harvest Moon and Chinese New Year festivals, to distribute project-related information. In addition the Community Advisory Group for the project included representatives from the Chinese Chamber of Commerce, Chinatown Community Development Center, and Chinatown TRIP. Chapter 11.0 Coordination and Consultation provides a summary of the outreach effort conducted for the project.

To provide opportunities for public comment during the environmental review process, a public scoping meeting was held in June 2005 and additional public meetings were held in October 2006 to inform the public of updates to the project. When the Draft SEIS/SEIR was released on October 17, 2007, a press conference was held in Chinatown with the Chinese press and an article about the Central Subway and the availability of the environmental document was published in Chinese the following day in the Sing Tao Daily newspaper. The Draft SEIS/SEIR was mailed to those who had previously requested copies, the Notice of Availability was mailed to those expressing general interest in the project, multi-lingual postcards were mailed to property owners along the corridor, copies of the Notice of Availability were posted along the corridor (including notices in Chinese posted on November 6, 2007 in Chinatown), and two public meetings (one in South of Market and one in Chinatown) describing the project and the environmental impacts were held prior to the formal public hearing at the Planning Commission.

On October 31, the Sing Tao Daily announced the November 8 meeting at the Gordon J. Lau Elementary School located at 950 Clay Street in Chinatown. At the November 8 Chinatown meeting the presentation was made in Chinese as well as English and presentation materials, including the Executive Summary of the Draft SEIS/SEIR were provided in Chinese. Copies of the Draft SEIS/SEIR were available for review at the San Francisco Planning Department, the San Francisco main library and branch libraries, including the Chinatown library at 1135 Powell Street; and the Chinatown Resource Center, Chinatown Transportation Research and Improvement Project (TRIP), Chinatown Community Development Center (CCDC), and Chinese Chamber of Commerce.

### **A-4**

Section 2.4.4 Screening of Design Options/Alternatives Not Carried Forward (pages 2-58 to 2-62) describes the screening process used to identify the two station alternatives analyzed in the SEIS/SEIR for Chinatown. The project team involved in the screening process included representatives of SFMTA, the Community Advisory Group, the CCDC, and the engineering consultants. Four potential station sites in Chinatown along Stockton Street were assessed. Screening criteria used to evaluate the alternatives included: building size and height, accessibility for passengers, ability to accommodate station facilities and vent shafts, access to the station site by construction equipment, space for construction materials, extent of business and residential displacement, post construction transit-oriented development potential, possible environmental impacts (noise, historic property, parkland), and consistency with the project boundaries established in the certified 1998 EIS/EIR for the Third Street Light Rail Project. Two alternative locations for the station emerged from the screening assessment: the property at 814-828 Stockton Street and the property at 933-949 Stockton Street. These two properties are analyzed in the SEIS/SEIR.

Mitigation for displaced residents and businesses is described in SEIS/SEIR Section 6.5.2 Acquisition and Displacement, on pages 6-48 through 6-54. Mitigation measures include the development of a detailed relocation plan designed to minimize impacts on businesses and residents. Copies of the Draft SEIS/SEIR were mailed to the property owners identified for displacement by the project, if approved, and notices of the availability of the draft document were sent to residents and businesses along the corridor.

The Notice of Availability and the public hearing before the Planning Commission was posted along the project corridor from October 17 through December 10, 2007. In the Chinatown area, these notices were both in English and in Chinese.

Following the selection by San Francisco Municipal Transportation Agency (SFMTA) of a Locally Preferred Alternative (LPA), approval of the Final SEIS/SEIR by the San Francisco Planning Commission, and issuance of the Record of Decision (ROD) by the Federal Transit Administration (FTA), which is expected to be completed by fall 2008, the SFMTA would send a certified Notice of Intent to the property owners on the intent to appraise and possibly acquire the property. The SFMTA would offer funding assistance to the property owner to hire legal counsel and an independent appraiser. The city would review and approve the appraisal and an offer letter would be provided as a basis for negotiation of price and conditions. The responsibility to notify tenants would initially be the SFMTA in cooperation with the property owners. The transit-oriented development proposed as an independent project to be built above the Chinatown Station would also include units of low-income housing and retail

space, however, the proposed transit-oriented development would not mitigate to a less-than-significant level, the impacts to displaced residents and businesses.

#### **A-5**

As shown from the Noise and Vibration evaluation in Chapter 5, pg. 5-79, the FTA vibration criteria of 72 Vdb would not be exceeded during operation in the Chinatown portion of the Central Subway Project (page 5-79 and Tables 5-9 and 5-12) for wood-frame buildings. Noise and vibration during construction would need to meet the San Francisco Noise Ordinance (Article 29, Regulation of Noise), which limits noise from construction equipment to 80 dBA at 100 feet and all construction activities within 200 feet of a historic building would have to meet the vibration limits of 72 Vdb established by FTA. A detailed construction noise and vibration analysis would be prepared to assess potential impacts to receivers within close proximity to the underground mining and excavation operations during final engineering design for the project. The Noise and Vibration Control Plan would include pre-construction measurements and periodic vibration monitoring using approved seismographs. If at any time the construction activity exceeds the 0.12 inches/second of peak particle vibration (PPV) velocity level, in any direction, for any length of time at any historic structure, the construction activity will be halted, as described under mitigation measures, until an alternative construction method can be used that would lower vibration levels (pages 6-117 to 6-118 of the SEIS/SEIR). The Environmental Compliance Monitor would be responsible for independent monitoring during construction as described in the Mitigation Monitoring and Reporting Program (MMRP), Appendix I.

#### **A-6**

The construction period for the project, which would last 5½ to 6 years would have an impact on residents and businesses located along the corridor. These impacts and the recommended mitigation measures are summarized in Chapter 6.0, Construction Impacts and Mitigation. The transportation impacts are discussed on pages 6-34 through 6-46 of the SEIS/SEIR.

#### **A-7**

There is no evidence to indicate that the introduction of a fixed-rail system would increase crime, homelessness, vandalism or graffiti. The SFMTA, in addition to the closed circuit system used for monitoring subway stations, will provide it own security guards for patrolling its fixed-facilities (page 5-15 of the SEIS/SEIR).

#### **A-8**



The SFMTA has continued outreach to Chinatown residents and business owners along the Stockton Street corridor during the preparation of the Final SEIS/SEIR and plans to maintain community contacts as the project, if approved, progresses into the final design and construction phases. Newsletters translated to Chinese have been distributed and notices of public meetings and agency meetings in Chinese have been distributed to residents and businesses.

## Letter B

JOAN JOAQUIN-WOOD  
P.O. Box 330214  
SAN FRANCISCO CA 94133-0214

**October 21, 2007**

**Bill Wycko, Review Officer  
Planning Department  
Central Subway Project  
1650 Mission St., Suite 400  
San Francisco 94103**

**RECEIVED**  
OCT 23 2007  
CITY & COUNTY OF S.F.  
PLANNING DEPARTMENT  
M E A

**Dear Mr. Wycko,**

**I am writing in opposition to the Central Subway project which projects a subway from 4<sup>th</sup> and King Streets to Columbus and Union, with the stated goal of service to Chinatown.**

**First of all, Columbus and Union is not located in Chinatown. It is not even very close. Chinatown starts at Broadway Street, possibly Vallejo, and extends south from there. That is three blocks, possibly two, away. I am told Union and Columbus is the desired terminus as this location is more convenient for a turnaround.**

**What about the convenience of those of us who live in North Beach and Telegraph Hill? What about our convenience? Columbus and Union has 5 bus lines passing by the intersection - the 30, the 41/45, 9X, 39, and a bus numbered 20 which I have seen once though empty. Also, there is said to be an "Owl" bus after some late hour. Never seen it at all.**

**I figure it will take 3 or 4 YEARS to build this project. That will represent a 100% disruption for the thousands that live in the neighborhood. If the City wants service to Chinatown (which service obviously already exists, else how would so many individuals have arrived there?), let it build the turnaround at Broadway and Columbus.**

**I have lived continuously in North Beach and on Telegraph Hill since 1962 and use the bus lines every day. I never voted for this subway, and I suspect the City doesn't have the courage to put this proposal on the ballot now because only a few who now walk everywhere would vote for it.**

**Chinese spokespeople like Rose Pak have been proposing various ways to improve business in Chinatown ever since the 1989 earthquake. I suspect this idea started that way. Unfortunately I know that a few residents of Telegraph Hill also think this subway is a good idea. Good grief! They will be sorry if it comes to pass.**

*Joan Wood*

**Joan Wood  
Cc: Aaron Peskin**

B-1

B-2

B-3

## **Responses to Letter B**

### **B-1**

Commenter's opposition to the project is noted. The location of the temporary construction extraction pit for the tunneling machine, located at Union Street and Columbus Avenue in North Beach, is not the location of the turnaround (crossover tracks and twin storage tracks) for the Central Subway. The northern limit of the Central Subway Project, including the turnaround, is in Chinatown at Jackson Street. The Central Subway Project will not affect the 41, 30, 45 or 9X Muni buses at the Columbus Avenue and Union Street intersection.

### **B-2**

The Central subway crossover and twin storage tracks would be located between Clay Street and Jackson Streets, under Stockton Street in Chinatown. The temporary extraction shaft opening for the construction variant (North Beach Tunnel Construction Variant) described on pages 2-33 to 2-34 of the SEIS/SEIR, would be located within the middle two lanes of Columbus Avenue. The construction of this temporary construction shaft is estimated to take five to six months, and would be for the purpose of removing the tunnel boring machine (TBM) when underground construction is complete.

### **B-3**

Comment noted. The Central Subway is the second phase of the 1998 Third Street Light Rail Project, which was part of the City approved Four Corridor Plan (June 1995) and the 1997 Proposition B Local Sales Tax for Transportation passed by the voters of San Francisco in 1989.

See SEIS/SEIR Section 2.4, Project Development History (page 2-52) for a discussion of studies and decisions leading to the Central Subway Project.

## Comment Form C


**SAN FRANCISCO 三藩市規劃局**  
**PLANNING DEPARTMENT**

November 8, 2007 二零零七年十一月八日

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

 Reception:  
 415.558.6378

 Fax:  
 415.558.6409

 Planning  
 Information:  
 415.558.6377

**PUBLIC COMMENTS 公眾意見:**

OK, but most of the stations need to be relocated for convenience and possibly safety.

I would recommend moving the Chinatown Station to Stockton & Pacific for better access. Almost 95% of Miniriders board from there and 80% of those are fare evaders. Moving the station there will create better access flow and reduce traffic congestion along Stockton St. & Pacific Ave. (Illegal Parking).

I would recommend you move the Union Square Station to Geary Street to serve the BART (there is a Wikipedia article on it) and will make a valuable intermodal station, and will

請把我加入保留在你的郵寄名單內:

PLEASE ADD/KEEP ME ON YOUR MAILING LIST:

NAME 姓名

MAILING ADDRESS 郵寄地址

PHONE NUMBER 電話號碼

EMAIL ADDRESS 電郵地址

A public hearing on this Draft SEIR and other matters has been scheduled by the City Planning Commission for Thursday November 15, 2007, in Room 400, City Hall, 1 Dr. Carlton B. Goodlett Place, beginning at 1:30 p.m. or later. (Call 558-6422 the week of the hearing for a recorded message giving a more specific time.)

關於這報告之公聽會將在本年十一月十五日約下午一時半舉行，地點為市政廳 400 號室（請於週內致電 415-558-6422 查詢準確時間）。

Public comments will be accepted from October 17, 2007, to 5:00 p.m. on December 10, 2007. Written comments should be addressed to Bill Wycko, Acting Environmental Review Officer, San Francisco Planning Department, Central Subway Draft SEIS/SEIR, 1650 Mission Street, Suite 400, San Francisco, CA 94103. Comments received at the public hearing and in writing will be responded to in a Comments and Responses document. If you have any questions about the environmental review of the proposed project, please call Joan A. Kugler at 575-6925.

書面意見請郵寄到 Bill Wycko, Acting Environmental Review Officer, San Francisco Planning Department, Central Subway Draft SEIS/SEIR, 1650 Mission Street, Suite 400, San Francisco, CA 94103. 截止日期 十一月十五日 下午五時。書面意見及公聽會內發表的意見將在一個「意見及回應」的文件內作答。對補充報告有任何問題，請與規劃局 Joan A. Kugler 接洽，電話 415-575-6925。

www.sfpalanning.org

Note: Commenter's paragraph concludes with "Bus Rapid Transit route."

C-1

C-2

C-3

## **Responses to Comment Form C**

### **C-1**

The northern boundary of the Central Subway Project is Jackson Street in Chinatown. This project boundary is consistent with the San Francisco County Transportation Authority's 1995 *Four Corridor Plan* that established project priorities for transit projects in the City. Moving the station to Pacific Street, would push the station location north of the project boundary established in the Four Corridor Plan and in the original 1998 Certified EIR/EIS for the Third Street Light Rail. Several locations, including a Pacific Street station, have been evaluated for the Chinatown station. Pages 2-59 through 2-62 of the SEIS/SEIR discuss the station alternatives and the screening process for narrowing the station locations to identify those carried forward in this SEIS/SEIR for analysis. The Pacific Street station was eliminated as an option during preliminary evaluation.

### **C-2 and C-3**

Station entrances for both the Union Square/Market Street Station and Chinatown Station would provide access and egress for passengers traveling the Stockton Street Corridor. Passengers can access other Muni streetcar lines and BART at the Powell Street Station via a two-block subsurface connection from the Union Square/Market Street Station, as well as, the 2-Clement, 3-Jackson, 4-Sutter, and 38-Geary lines within one block at the surface. The Chinatown Station provides access to the 1-California line within one to two blocks of the station depending upon the alternative. The Chinatown Station under Alternatives 2 and 3A is within one block of the California Street cable car line and Alternative 3B Chinatown Station is located within one block of the Hyde Street cable car line. In addition, surface buses would remain to serve other destinations not directly served by the Central Subway.



## Comment Form D


**SAN FRANCISCO 三藩市規劃局**  
**PLANNING DEPARTMENT**

November 8, 2007 二零零七年十一月八日

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

 Reception:  
 415.558.6378

 Fax:  
 415.558.6409

 Planning  
 Information:  
 415.558.6377

**PUBLIC COMMENTS 公眾意見:**

 MY RECOMMENDATION IS TO PUT THE SUBWAY  
 STATION ON 814-828 STOCKTON ST.

**REASON:**

 1) NO TENANTS TO EVICT OR RELOCATE ON THIS SINGLE  
 STORY COMMERCIAL

 2) 1 BUS WAY ON BOTH CORNERS CLAY GOIN DOWN  
 SACRAMENTO ST GOIN UP

請把我加入/保留在你的郵寄名單內。

PLEASE ADD/KEEP ME ON YOUR MAILING LIST:

Ron Lee

NAME 姓名

814 STOCKTON ST 2ND FLR

MAILING ADDRESS 郵寄地址

756-1898

PHONE NUMBER 電話號碼

Rleeceedg@yahoo.com

EMAIL ADDRESS 電郵地址

A public hearing on this Draft SEIR and other matters has been scheduled by the City Planning Commission for Thursday November 15, 2007, in Room 400, City Hall, 1 Dr. Carlton B. Goodlett Place, beginning at 1:30 p.m. or later. (Call 558-6422 the week of the hearing for a recorded message giving a more specific time.)

關於這報告之公聽會將在本年十一月十五日約下午一時半舉行，地點為市政廳 400 號室（請於週內致電 415-558-6422 查詢準確時間）。

Public comments will be accepted from October 17, 2007, to 5:00 p.m. on December 10, 2007. Written comments should be addressed to Bill Wycko, Acting Environmental Review Officer, San Francisco Planning Department, Central Subway Draft SEIS/SEIR, 1650 Mission Street, Suite 400, San Francisco, CA 94103. Comments received at the public hearing and in writing will be responded to in a Comments and Responses document. If you have any questions about the environmental review of the proposed project, please call Joan A. Kugler at 575-6925.

書面意見請郵寄到 Bill Wycko, Acting Environmental Review Officer, San Francisco Planning Department, Central Subway Draft SEIS/SEIR, 1650 Mission Street, Suite 400, San Francisco, CA 94103。截止日期 十二月十五日下午五時。書面意見及公聽會內發表的意見將在一個「意見及回應」的文件內作答。對補充報告有任何問題，請與規劃局 Joan A. Kugler 接洽，電話 415-575-6925。

D-1

## **Responses to Comment Form D**

### **D-1**

Comment recommending a Chinatown Station at 814-828 Stockton Street as studied in the SEIS/SEIR with no residents to relocate and bus transfer opportunities at Clay and Sacramento Streets is noted.

As stated in the SEIS/SEIR on pages 6-51 and 6-52, there are five ground-floor businesses on the 814-828 Stockton Street frontage of the building five small businesses/clubs along the backside on Hang Ah Alley that would be displaced and would need to be relocated. In addition, there appear to be one or two residential units in this building.

This station alternative would impact the Hang Ah Alley and Willie “Woo Woo” Wong Park to the east of 814-828 Stockton during construction and would cast shadows on the tennis court. The Recreation and Park Commission has stated a preference for the station alternative at Stockton and Washington Streets (see Letter AI, page 3-170).

## Comment Form E


**SAN FRANCISCO 三藩市規劃局**  
**PLANNING DEPARTMENT**

November 8, 2007 二零零七年十一月八日

 (Rm 400)  
 San Francisco  
 CA 94103-3473

 Reception:  
 415.558.6373

 Fax:  
 415.558.4805

 Planning  
 Information:  
 415.558.6377

**PUBLIC COMMENTS 公眾意見:**

*The two most important aspects of the Central Subway for me are:*

- 1) The straight alignment possible so that Muni will be able to operate trains to proceed as fast as possible along the route.*
- 2) An easy to use underground pedestrian corridor to be able to walk between the Union Square/Market Street Station and the Powell Street Station.*

E-1

E-2

請把我加入/保留在你的聯名名單內

PLEASE ADD/KEEP ME ON YOUR MAILING LIST:

*Michael WIEBRACHT*

NAME 姓名

*335 El Camino Real, Unit #205 Burlingame CA 94010*

MAILING ADDRESS 電郵地址

*650-343-3118*

PHONE NUMBER 電話號碼

*mike.wiebracht@gmail.com*

EMAIL ADDRESS 電郵地址

A public hearing on this Draft SEIS and other matters has been scheduled by the City Planning Commission for Thursday November 15, 2007, in Room 400, City Hall, 1 Dr. Carlton B. Goodlett Place, beginning at 1:30 p.m. or later. (Call 558-6422 the week of the hearing for a recorded message giving a more specific time.)

關於這報告之公聽會將在本年十一月十五日的下午一時半舉行，地點為市政府 400 號室（位於溫內波電 415-558-6422 查詢準確時間）。

Public comments will be accepted from October 17, 2007, to 5:00 p.m. on December 10, 2007. Written comments should be addressed to Bill Wyke, Acting Environmental Review Officer, San Francisco Planning Department, Central Subway Draft SEIS/SEIR, 1650 Mission Street, Suite 400, San Francisco, CA 94103. Comments received at the public hearing and in writing will be responded to in a Comments and Responses document. If you have any questions about the environmental review of the proposed project, please call Joan A. Kugler at 575-6925.

書面意見請寄到 Bill Wyke, Acting Environmental Review Officer, San Francisco Planning Department, Central Subway Draft SEIS/SEIR, 1650 Mission Street, Suite 400, San Francisco, CA 94103。截止日期：十二月十五日下午五時。書面意見及公聽會內發表的意見將在一個「意見及回應」的文件內作答。郵補充報告有任何問題，請與規劃局 Joan A. Kugler 聯絡，電話 415-575-6925。



## **Responses to Comment Form E**

### **E-1**

Comment noted. The Fourth/Stockton Alignment (Alternatives 3A and 3B) as described in the SEIS/SEIR on page 2-56 evolved as a more direct alignment that provided improved transit operations and a faster travel time than Alternative 2 along Third Street.

### **E-2**

Comment noted. The underground pedestrian connection between the Union Square/Market Street Central Subway Station and the Powell Street BART/Muni Metro Station will be clearly marked to facilitate pedestrian movement between the two stations.

## Comment Form F


**SAN FRANCISCO 三藩市規劃局**  
**PLANNING DEPARTMENT**

November 8, 2007 二零零七年十一月八日

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

 Reception:  
 415.558.6378

 Fax:  
 415.558.6409

 Planning  
 Information:  
 415.558.6377

**PUBLIC COMMENTS 公眾意見:**

I AM AGAINST CHINATOWN SUBWAY PROJECT.  
 CHINATOWN IS A SMALL CROWDED NEIGHBORHOOD.  
 TO MAKE ROOM FOR A SUBWAY STATION,  
 SOME CHINATOWN PEOPLE AND BUSINESSES  
 MUST GO. THERE ARE BUSES SERVING  
 CHINATOWN: BUSES # 1, # 30, # 45 AND # 9.  
 STOCKTON STREET IS A VERY BUSY STREET  
 IN CHINATOWN. IF THERE MUST BE A SUBWAY  
 STATION IN CHINATOWN, I PREFER KEARNY STREET  
 WHICH IS LESS BUSY AND MORE ROOMY SPACIOUS.  
 THERE ARE PRO'S AND CON'S ABOUT MASS TRANSIT IN  
 CHINATOWN.

F-1

F-2

請把我加入/保留在你的郵寄名單內:

PLEASE ADD/KEEP ME ON YOUR MAILING LIST:

JONATHAN LEONG

NAME 姓名

946 STOCKTON ST. # 140, SAN FRANCISCO, CA

MAILING ADDRESS 郵寄地址

(415) (433-7156)

PHONE NUMBER 電話號碼

EMAIL ADDRESS 電郵地址

A public hearing on this Draft SEIR and other matters has been scheduled by the City Planning Commission for Thursday November 15, 2007, in Room 400, City Hall, 1 Dr. Carlton B. Goodlett Place, beginning at 1:30 p.m. or later. (Call 558-6422 the week of the hearing for a recorded message giving a more specific time.)

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書面意見請郵寄到 Bill Wycko, Acting Environmental Review Officer, San Francisco Planning Department, Central Subway Draft SEIS/SEIR, 1650 Mission Street, Suite 400, San Francisco, CA 94103。截止日期：十二月十五日下午五時。書面意見及公聽會內發表的意見將在一個「意見及回應」的文件內作答。對補充報告有任何問題，請與規劃局 Joan A. Kugler 接洽，電話 415-575-6925。

## **Responses to Comment Form F**

### **F-1**

Comment noted. Commenter is opposed to the Central Subway Project because the Chinatown area is a small crowded neighborhood with existing bus service that serves Chinatown and states that the subway project is not needed and would cause relocation of residents and businesses.

### **F-2**

Commenter prefers use of Kearny Street for the Central Subway project. The possible use of Kearny Street for the Central Subway alignment was discussed and studied during the period leading up to the 1998 EIS/EIR. Kearny Street was eliminated from consideration because the Community Advisory Group and Chinatown representatives preferred Stockton Street as the alignment and station location in Chinatown because it would serve the heart of Chinatown and the Union Square retail area. The public review process is documented in the “Design Options Screening Report Working Paper #2”, April 1997. Some 120 meetings attended by SFMTA between 1996 and 1997 with the Community and Technical Advisory Groups, the Planning Department, the Department of Parking and Traffic, and the Redevelopment Agency representatives (see Project Development History, SEIS/SEIR, page 2-54) narrowed the design options and eliminated the use of Kearny Street alignment alternatives from further study.

## Comment Form G


**SAN FRANCISCO 三藩市規劃局**  
**PLANNING DEPARTMENT**

November 8, 2007 二零零七年十一月八日

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

 Reception:  
 415.558.6378

 Fax:  
 415.558.6409

 Planning  
 Information:  
 415.558.6377

**PUBLIC COMMENTS 公眾意見:**

*I support the Central Subway*  
*The church will be next to the planned*  
*sub station on Stockton/Washington.*

G-1

請把我加入/保留在你的郵寄名單內:

PLEASE ADD/KEEP ME ON YOUR MAILING LIST:

*CYNTHIA JOE (member of Presby. Church in Chinatown)*

NAME 姓名

*1526 FUNSTON AVE*

MAILING ADDRESS 郵寄地址

*(415) 681-3796*

PHONE NUMBER 電話號碼

EMAIL ADDRESS 電郵地址

A public hearing on this Draft SEIR and other matters has been scheduled by the City Planning Commission for Thursday November 15, 2007, in Room 400, City Hall, 1 Dr. Carlton B. Goodlett Place, beginning at 1:30 p.m. or later. (Call 558-6422 the week of the hearing for a recorded message giving a more specific time.)

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書面意見請郵寄到 Bill Wycko, Acting Environmental Review Officer, San Francisco Planning Department, Central Subway Draft SEIS/SEIR, 1650 Mission Street, Suite 400, San Francisco, CA 94103. 截止日期: 十二月十五日下午五時。書面意見及公聽會內發表的意見將在一個'意見及回應'的文件內作答。對補充報告有任何問題，請與規劃局 Joan A. Kugler 接洽，電話 415-575-6925。

## **Responses to Comment Form G**

### **G-1**

Comment in support of the project adjacent to the Presbyterian Church is noted.

## Letter H


**SAN FRANCISCO 三藩市規劃局**  
**PLANNING DEPARTMENT**

October 30, 2007 二零零七年十月三十日

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

 Reception:  
 415.558.6378

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**PUBLIC COMMENTS 公眾意見:**
*attached letter*

請把我加入/保留在你的郵寄名單內：

PLEASE ADD/KEEP ME ON YOUR MAILING LIST:

*Sabina Chen, Executive Director*  
NAME 姓名
*Chinese Culture Center, 750 Kearny St. 3rd floor, SF, CA*  
MAILING ADDRESS 郵寄地址
*415-986-1822*  
PHONE NUMBER 電話號碼
*Sabina@C-C-C.org*  
EMAIL ADDRESS 電郵地址

A public hearing on this Draft SEIR and other matters has been scheduled by the City Planning Commission for Thursday **November 15, 2007**, in Room 400, City Hall, 1 Dr. Carlton B. Goodlett Place, beginning at 1:30 p.m. or later. (Call 558-6422 the week of the hearing for a recorded message giving a more specific time.)

關於這報告之公聽會將在本年十一月十五日約下午一時半舉行，地點為市政廳 400 號室（請於週內致電 415-558-6422 查詢準確時間）。

Public comments will be accepted from October 17, 2007, to 5:00 p.m. on December 10, 2007. Written comments should be addressed to **Bill Wycko**, Acting Environmental Review Officer, San Francisco Planning Department, Central Subway Draft SEIS/SEIR, 1650 Mission Street, Suite 400, San Francisco, CA 94103. Comments received at the public hearing and in writing will be responded to in a Comments and Responses document. If you have any questions about the environmental review of the proposed project, please call **Joan A. Kugler** at 575-6925.

書面意見請郵寄到 Bill Wycko, Acting Environmental Review Officer, San Francisco Planning Department, Central Subway Draft SEIS/SEIR, 1650 Mission Street, Suite 400, San Francisco, CA 94103。截止日期：十二月十五日下午五時。書面意見及公聽會內發表的意見將在一個「意見及回應」的文件內作答。對補充報告有任何問題，請與規劃局 Joan A. Kugler 接洽，電話 415-575-6925。



舊金山中華文化基金會

CHINESE CULTURE FOUNDATION OF SAN FRANCISCO

750 Kearny Street, 3rd Floor  
San Francisco, CA 94108-1809

November 8, 2007

Mr. Dwight S. Alexander, President  
San Francisco Planning Commission  
1650 Mission Street, 4<sup>th</sup> Floor  
San Francisco, CA 94103

Mr. Nathaniel Ford  
Executive Director  
San Francisco Municipal Transportation Agency  
# 1 South Van Ness Avenue, 7th Floor  
San Francisco, CA 94103

RE: Public Arts in Central Subway Project

Dear Mr. Alexander and Mr. Ford:

The Chinese Culture Foundation has been in the Chinese community for 34 years, and has had a long history of serving the artistic and cultural needs of the community. We appreciate the opportunity to review the Draft SEIR/SEIS on the Central Subway Project, but find it very difficult and impractical to thoroughly review, and hence impossible to provide you with a thorough and comprehensive response. We do, however, have some points that we want to share with you.

First of all, we would like to reiterate our strong support of the project, and see it as essential to the future social and economic vitality of the Chinatown Community. At the same time, we want to reiterate the absolute necessity for our continued inclusion and involvement in the decision making process, in light of the very serious project impacts, as well as the residential and business displacement, that may occur.

H-1

We concur with the findings of the report in terms of the need for the project and feel that the Chinatown Community has been severely underserved by Muni's current bus service. We can anticipate that the engineering and construction costs will be great, and that the overwhelming proportion of resources will be used for those efforts, but we feel strongly that adequate funds should be directed to addressing the relocation needs of both residents and businesses, and that replacement housing is provided.

H-2

In the construction of the Chinatown Central Subway Station, we urge you consider the funding of public art that is culturally sensitive and relevant to the surrounding Chinatown community. As this station will be the central transit stop and vital to the residents and visitors of Chinatown, we are concerned that the aesthetics of the station and surrounding area be reflective and representative of this community.

H-3

As 2% of construction costs for the Central Subway are designated towards public arts, the Chinese Culture Foundation requests the Planning Commission and MTA ensure that the public art in the Chinatown Central Subway Station will be culturally appropriate by designating funding towards community engagement in the selection of these public arts.

The San Francisco Arts Commission has already agreed to partner with CCF to provide access to the Chinatown community, translation services, technical and cultural assistance, and community forums on the process of selecting public arts. We ask that this process be as transparent as possible, engaging as much community input as needed. Chinatown is our home; the Central Subway Station will be a prominent landmark. The station and surrounding areas should be a public area that this community will be proud to call home.

We would like to conclude our comments by once again voicing our strong support for the Central Subway project. At the same time, we urge you to support adequate process for community input in the design and public art components of the Central Subway.

Sincerely,

A handwritten signature in black ink, appearing to read 'Sabina Chen', with a long horizontal flourish extending to the right.

Sabina Chen  
Executive Director

H-3  
Cont.



## **Responses to Letter H**

### **H-1**

Commenter strongly supports the project and wishes to continue their inclusion in the decision making process.

See SEIS/SEIR, pages 11-5 to 11-9, for a discussion of past community outreach and page 2-64 for discussion of the future project approval process.

### **H-2**

Comment expressed need for adequate funds to be directed to addressing the relocation needs of both residents and businesses and for replacement housing. See Response to Comment A-4, and SEIS/SEIR, Section 6.5.2, Acquisition and Displacement, for a summary of the notification process for residents and businesses. Minimum relocation payments are set by law and include moving and search expense payments for businesses. Affordable housing could also be part of transit-oriented station development in Chinatown. This would be the subject of an independent environmental analysis.

### **H-3**

A representative of the San Francisco Arts Commission has been part of the community meetings held in Chinatown and at the Community Advisory Group for the Central Subway Project for purposes of describing the Arts Program for the stations. Two percent of the eligible construction costs would be set aside for the arts for the subway project. The City's Administrative Code requires that all capital improvement projects allocate two percent of eligible construction costs for public art programming. The Arts Commission's Public Arts Program is responsible for management of the public arts funding and selection of artists and art, working in close coordination with local communities. SFMTA has also retained the services of CCDC to ensure the continued involvement of the Chinatown community in the project development and design. Meetings will be held in Chinatown to determine the art treatment of the station and community artists have been solicited to participate in the program in a February 2008 Call for Artists information sheet.

## Letter I

**From:** Lee Goodin [mailto:lgoodin1@mindspring.com]  
**Sent:** Monday, November 19, 2007 8:51 AM  
**To:** Subway, Central  
**Subject:** RE: Central Subway Draft Supplemental Environmental Impact Report

RE: Central Subway Draft Supplemental Environmental Impact Report

### Areas of concern

- |   |     |
|---|-----|
| 1. The three alternatives listed are only subway alternatives and "No Project/TSM Alternative". This money could be used to finance an above ground alternative as recommended by Regional Alliance For Transit (RAFT)  | I-1 |
| 2. The following is referred to a number of times: "Transit Preferential Streets (TPS) Improvements - Areas identified for TPS are Stockton Street/Columbus Avenue and Market Street." The map indicates the intersection of Stockton and Columbus as a nexus for these improvements, however there does not appear to be any additional information on these TPS programs.   | I-2 |
| 3. The MTA established a Community Advisory Group (CAG) early in the planning process to provide input to the identification and selection of design options for the Third Street Light Rail Project and to help select the options to carry forward for environmental review. The CAG is composed of a broad cross-section of stakeholder groups from the six primary neighborhoods in the Third Street Corridor: Visitation Valley, Bayview/Hunters Point, Potrero Hill, South of Market, and Chinatown/Downtown. The CAG has met six times since December of 2003 to discuss the Central Subway phase of the Project. Question: Why is there no North Beach/Telegraph Hill neighborhood representation on the CAG? | I-3 |
| 4. In the Area Plan Boundaries there is no account made for the North Beach neighborhood, see Figure 4-1. Yet the plan clearly indicates the subway will continue through North Beach in 3 of the 4 alternatives.   | I-4 |
| 5. The Waterfront Land Use Plan, BCDC, SF Bay Plan and SF Waterfront Special Area Plan, while important all seem to have limited relevance to the area in which the Central Subway is planned. The amount of space dedicated to this section doesn't seem justified as nothing of consequence is concluded.   | I-5 |
| 6. Page 39, Washington Square: <i>"Washington Square Park includes several mature trees, some along Columbus Avenue. To date, none of these trees have been designated by the City as historic landmark trees."</i> Why point out that these trees in the park are not protected? Are these trees going to be sacrificed?   | I-6 |
| 7. Page 50: "At the TBM retrieval shaft in Columbus Avenue at Washington Square, the roadway (originally Montgomery Avenue) was cut through between 1873 and 1875, bisecting Washington Square. Deposits related to the early years of Washington Square as a public space and park may be present." Question: What is  | I-7 |

the environmental impact of this?

8. Page 70: "Washington Square Park and the associated Washington Square Park Triangle are the only properties in close proximity to the Tunnel Boring Machine extraction shaft that would be placed in the middle lanes of Columbus Avenue between Union and Powell Streets for the Alternative 3A and 3B Alignments (see Table 4-15)." There are other properties – residential and commercial - in close proximity to the extraction pit. How long will this disruption last? These properties and the Park will be next to and seriously effected by the extraction pit and resulting dirt, dust and noise pollution.

I-8

9. Page 110, "North Beach Tunnel Construction Variant - Chinatown to Vicinity of Washington Square" section: "Chemical compounds that may be present in soil and groundwater along the North Beach Construction Variant may include, but not be limited to, petroleum hydrocarbon compounds and fuel-related volatile organic compounds (VOCs), such as benzene; other VOCs, such as de-greasers and thinners; and various metals (likely present in fill). At four LUST sites (766 Vallejo Street, 1625 Powell Street, 1636 Powell Street, and 1641 Powell Street), the regulatory database and review of DPH files indicated that subsurface soil and groundwater were impacted with fuel-related VOCs, total petroleum hydrocarbons (TPH) as gasoline, diesel, and motor oil." Question: Could these contaminants result in the project becoming a "Super Fund Site" requiring a major clean-up that could take years to resolve? Question; Why is there no discussion of the environmental consequences of the Tunnel Boring Machine being extracted at Washington Square?.

I-9

10. The table in page 135 does not reflect the higher noise level when the Tunnel Boring Machine is extracted at Washington Square Park.

I-10

11. There is no discussion in the Environmental Sections of the dirt that will be pushed out next to Washington Square, what portions of the street would be closed and for how long, what impact will the extraction pit have on traffic, what the impact will be on the residential and commercial life of the neighborhood, how the equipment will be removed, how and where the dirt from the extraction pit will be handled, how many people would be working there and what debris might be cast off by the construction in that area.

I-11

12. "Construction of a TBM retrieval shaft near Washington Square park for the North Beach Tunnel Construction Variant would require the temporary relocation of bus stops for the 30-Stockton and 45-Union/Stockton lines, along Columbus Avenue between Union and Powell Streets. This construction approach would require the closure of one side of the street while the shaft is excavated, keeping one travel lane in each direction, and then switching over to the other side of the street to complete the shaft. This shift in traffic lanes may also require the temporary relocation of overhead wires on the 30-Stockton and 45-Union/Stockton to accommodate continued transit operations. This construction activity is estimated to take six months, at which point the shaft would be covered and normal street operations would be restored. If the North Beach Tunnel Construction Variant is not approved, the TBM

I-12

extraction shaft would be at the Chinatown off-street station site and would last approximately one week. Trucks and cranes would occupy the nearside curb parking lane to haul materials and load the TBM." Question: What will the economic and social impacts be of a disruption of this magnitude be over a period of six months?	I-12 Cont.
13. Page 38: "This Alternative would generate an estimated 18 truck trips per day during the 2.5 year excavation of the guideway, 13 truck trips during the two-year excavation period for the Moscone Station, and 7 truck trips per day for the excavation of the Union Square/Market Street Station (3.0 year construction period) and the Chinatown Station (2.5 year construction period) associated with soils excavation and backfill." Question: How many truck trips will be needed for the extraction pit at Washington Square?	I-13
14. Page 71: "The TBM retrieval shaft in Columbus Avenue is within the original boundary of Washington Square as laid out in 1848 and until Columbus Avenue cut through it in about 1873; deposits associated with the park may be present beneath the roadway." Question: What impact will the possible uncovering of archeological site or relics have?	I-14
15. Page 78: "There would be no vibration impacts to the park and visual impacts would be limited to the duration of construction and would not substantially impact park use or historic integrity. Five additional properties, considered contributors to the proposed Washington Square Historic District, are located within 200 feet of the extraction shaft. The buildings include 1636-1656 Powell Street, 575-579 Columbus Street, 1731-1741 Powell Street, 1717-1719 Powell Street, and 1701-1711 Powell Street. Because of the distances from the extraction shaft and the temporary nature of construction activity, there would not be vibration impacts to any of the historic buildings." This discussion appears to be overly optimistic. If there is a substantial amount of earth being removed very close to the surface in the middle of street adjacent to these buildings they will experience vibration.	I-15
16. Map page 46: Map appears to indicate that there would more buildings/lots affected by the TBM extraction than listed.	I-16
17. Pages 83 and 87: The traffic alternatives for North Beach are not detailed enough and do not appear to be realistic given that Columbus is bumper to bumper during rush hours.	I-17
Summary:  <ul style="list-style-type: none"> <li>This EIR doesn't give complete coverage to the impacts to and on North Beach and specifically Washington Square Park.</li> <li>Washington Square is an historic area and a much used park - the Environment Section does not cover the impacts in detail but instead complete avoids any discussion.</li> </ul>	I-18

- Extracting the Tunnel Boring Machine (TBM) logically will be noisier and environmentally impacting than when it is deep below the ground. The anticipated noise levels and vibration appear to be underestimated and not realistic.
- Other alternative extraction locations should be discussed and considered.
- The economic and social impacts on the North Beach neighborhood have not been adequately addressed.
- North Beach needs to be represented on the Community Advisory Group (CAG).
- Washington Square does not appear to be the right choice for the location of the extraction pit.

I-18  
Cont.

Lee Goodin  
600 Chestnut Street #408  
San Francisco CA 94133  
415 346-4335  
lgoodin1@mindspring.com

## Responses to Letter I

### I-1

A surface alternative was evaluated as part of the screening process prior to the preparation of the Draft SEIS/SEIR. This alternative was rejected because it would increase surface congestion, particularly along Stockton Street, and would not improve service reliability and travel times, as set forward in the project Purpose and Need.

The third paragraph, page 2-57 of the SEIS/SEIR, is modified as follows to further explain the screening of the surface alternative:

“Subsequent to the Scoping Process, an updated Project construction cost estimate was prepared that exceeded the proposed budget for the Project. A panel of construction experts working with the Project design team undertook a cost reduction analysis to identify ways of reducing the cost of the Project without compromising its overall purpose and need. Surface alternatives along Third, Fourth, and Stockton Streets and continuing north to Fisherman’s Wharf were evaluated as part of this process, but were rejected from further evaluation in the Draft SEIS/SEIR because they had fewer benefits in terms of service reliability and greater impacts on parking and traffic. Though the capital costs were less for a surface alternative than for a subway alternative, the surface alternatives only minimally met the project purpose and need and resulted in higher operation and maintenance costs.<sup>1</sup>

In response to public input during Scoping and recommendations from the cost reduction effort, a new option for the Fourth/Stockton Alignment design was identified. The original Fourth/Stockton Alignment was designated Option A (LPA) and a modified Fourth/Stockton Alignment, described below, was designated as Option B (Modified LPA). The changes incorporated into the Option B (Modified LPA) Alternative are summarized below.”

<sup>1</sup> PB/Wong for Muni, FINAL DRAFT, Task 1.72-01, Conceptual Alternative Downtown Rail Alignment Study Volume 1, Summary Report, Revision Oc, March 20,2006.

### I-2

The Stockton/Fourth Street Transit Preferential Streets (TPS) project, as identified in the SFMTA 2005/2006 Short Range Transit Plan, called for the extension of a Stockton-Fourth Street Transit Lane

from Stockton and O'Farrell Streets across Market Street to Fourth and Clementina Streets, providing a continuous transit lane from the south end of the Stockton tunnel. This project was completed in 2004 and facilitates the surface flow of Muni buses. Further information on TPS is available in the SFMTA *Short Range Transit Plan*.

### **I-3**

The project boundary is Jackson Street, which is located in Chinatown. The Community Advisory Group (CAG), which was originally created for the Third Street Light Rail Project, did not initially include any project activities that extended into the North Beach neighborhood. In 2006, a construction variant for extraction of the Tunnel Boring Machine (TBM) extending into North Beach via Columbus Avenue was added to Alternative 3A and 3B. Since that occurred, SFMTA has met with representatives from the Telegraph Hill Dwellers and RENEWSF to discuss this proposal. In addition, the CAG has recommended the addition of a representative from the North Beach area and SFMTA is in the process of soliciting that representation.

### **I-4**

The Area Plan boundaries in Figure 4-1 reflect the boundaries of those six neighborhoods that have a specific Area Plan adopted as part of the San Francisco Planning Department General Plan (see discussion starting on page 4-3 of the SEIS/SEIR). A specific Area Plan has not been prepared for North Beach and therefore it is not depicted on this figure.

### **I-5**

The *Waterfront Land Use Plan* and BCDC's *San Francisco Bay Plan* and *San Francisco Waterfront Special Area Plan* are mentioned in the Plans and Policies section as they are relevant to the service area impacted by the No Project/TSM Alternative and all of the Build Alternatives. The No Project/TSM Alternative would continue to have surface rail operations on The Embarcadero, which falls under the scope of the *Waterfront Land Use Plan* and the BCDC plans. In addition, the eastern *Waterfront Land Use Plan* boundary extends to Third and King Streets, which falls within the study area for all Build Alternatives.

### **I-6**

As discussed in the SEIS/SEIR in Section 6.12, the mature trees within Washington Square Park and along the western edge of the park would not be impacted by construction of the Tunnel Boring Machine extraction pit that would be located in the middle two lanes of Columbus Avenue. Consistent with the Urban Forestry Ordinance, Article 16, San Francisco Public Works Code, the small street trees in the

median of the street do not meet the definition of a significant tree and would be removed and replaced at a 1:1 ratio following construction (see Biology, page 6-99, in the SEIS/SEIR). A certified arborist would be present during construction of the TMB retrieval shaft to monitor protection of tree roots during excavation.

#### **I-7**

Page 4-50 of the SEIS/SEIR documents the existing archaeological conditions of the study area, specifically along Columbus Avenue. The reference cited by the commenter goes on to say, “Due to the depth of the tunnel at this location, the only potential historical archaeological resources that may be encountered are artifacts from filled wells.” Mitigation measures for archaeological resources encountered during construction of the project are described in Chapter 6.0 Construction Methods, Impacts, and Mitigation on pages 6-61 thru 6-67 and would be responsive to both City and Federal guidelines and laws for recovery and documentation of resources. Archaeological impacts for the TBM shaft along Columbus Avenue are identified as moderately sensitive for Alternative 3A and 3B for the presence of historical park remains from 1840-1873 (see pages 6-69 and 6-71 of the SEIS/SEIR). Federal and state guidelines require that undertakings subject to environmental review address potential effects to archaeological resources. Under State environmental laws, a project that may have an adverse effect on a significant archaeological resource is a project that may have a significant effect on the environment.

#### **I-8**

Page 4-70 of the SEIS/SEIR describes the existing cultural resources that would be potentially impacted by the Central Subway Project. Washington Square Park and the associated Washington Square Park Triangle are the only historic architectural resources that are located in proximity to the TBM extraction shaft. As noted on pages 6-26 (Section 6.2.2) and 6-33 (Section 6.2.3) of the SEIS/SEIR, which describe the construction process for Alternatives 3A and 3B, respectively, the construction of the TBM excavation shaft on Columbus Avenue would take approximately six months and retrieval of the TBM would take about one week. During the construction period, businesses and residences in the immediate vicinity would be subject to construction-related impacts, such as traffic, noise, dust, and vibration. The impacts related to the North Beach Construction Variant are discussed in Construction Impacts Sections 6.3 through 6.15 in the SEIS/SEIR.

#### **I-9**

Page 4-110 of the SEIS/SEIR describes the existing hazardous material conditions that would be potentially impacted by the Central Subway Project. The construction-related hazardous material impacts are summarized in Section 6.13 on pages 6-108 and 6-109. As noted in the mitigation measures for



Alternative 3A and 3B, the North Beach Construction Variant would require an additional sampling work plan to be completed as part of the Soil Quality Investigation for the segment of Stockton Street between Jackson and Green Streets and for Columbus Avenue from Green Street to just north of Union Street. This investigation would be required to meet the requirements of Article 20 of the San Francisco Municipal Code. The findings of the soils investigation would be included in a Soils Analysis Report and Site Mitigation Report according to the Article 20 guidelines. A groundwater investigation in conformance with the state and local guidelines and requirements would also be conducted in conjunction with the soil investigation.

#### **I-10**

Table 4-32 on page 4-136 of the SEIS/SEIR describes the current noise levels along the Central Subway Corridor and therefore does not reflect any project-related noise. Table 6-3 on page 6-115 of the SEIS/SEIR identifies the range of noise expected from construction-related activities along the project corridor. As shown on page 6-115 of the document, temporary construction noise would be expected to be in the range of 85 to 89 decibels, while ambient noise level ranges from 71 to 74 decibels. A series of mitigation measures, including preparation of a Noise Control Plan, are outlined on page 6-117 to 6-118 to minimize noise disruption during construction and reduce noise impacts to a less-than-significant level. The extraction of the TBM is expected to last approximately one week, a temporary impact.

#### **I-11**

All construction impacts including those for the North Beach Construction Variant are summarized in Chapter 6.0. As noted on page 6-38 of the SEIS/SEIR, the construction of the TBM removal shaft in North Beach would take approximately six months to construct and one week would be required for the extraction of the TBM(s). During the six month period, the number of traffic lanes on Columbus Avenue would be reduced to just one lane in each direction and would be shifted to avoid the area under construction. This would also require shifting of the overhead wires for the 30-Stockton, 41-Union, and 45-Union/Stockton trolley bus lines and temporary relocation of bus stops. Temporary rerouting of traffic may be required as noted on Figure E-12. In addition to these circulation impacts, neighbors of the construction site would be impacted by noise, vibration, and dust during construction activities. The construction impacts and related mitigation measures to minimize air, dust, and noise impacts are outlined in Sections 6.14 and 6.15 of the SEIS/SEIR.

The construction shaft at Washington Square would not be used for the removal of muck from the tunnel excavation. Disposal of excavated materials from the tunnel construction (station excavation will be at each station) would occur at the portal at the south end of the subway tunnel (Fourth and Brannan for

Alternative 3B). The excavation of muck for the TBM extraction shaft itself would last about three months and is expected to generate approximately five truck trips per day during that period. Contaminated soil would be off-hauled to a treatment facility south of San Francisco while clean fill may be distributed to construction sites within the city, as needed.

**1-12**

The SFMTA would be required to maintain public access to all properties during the construction phase and to minimize social and economic impacts associated with construction activities and the potential disruption of business access. As stated in Section 6.5 of the SEIS/SEIR, no property takes are required for construction of the North Beach Construction Variant, but an easement under a parcel located at 1455 Stockton Street would be required. SFMTA would act in accordance with all existing federal and state regulations and guidelines to minimize disruption to affected property and business owners and residents during the construction phase.

**1-13**

As stated in Response to Comment I-11, an estimated five truck trips per day would be associated with the off-hauling of excavated materials associated with the TBM extraction shaft in North Beach. Other truck trips associated with muck removal for the tunnel would be off-hauled from the construction shaft at the beginning of the TBM tunnel at Fourth Street between Bryant and Harrison Streets. A limited number of truck trips would be generated in Washington Square during the one week period when the TBM is removed from the site.

**I-14**

See response to comment I-7 above.

**I-15**

Section 6.15 of the SEIS/SEIR describes noise and vibration impacts and mitigation measures during the temporary construction of the project. Potential for an adverse effect from construction vibration is controlled by adhering to vibration limits for settlement of structures and requiring monitoring to assure that vibration is within specified limits during construction activities. Mitigation measures are described on pages 6-117 to 6-119. The maximum peak particle vibration (PPV) velocity level, in any direction, at any of the historic structures along the corridor should not exceed 0.12 inches/second for any length of time. Periodic vibration monitoring at the closest structure to any construction activities would be required; construction would be halted if vibration levels exceed the 0.12 inches/second threshold level

and different construction equipment or procedures would be implemented to reduce vibration levels to less-than-significant.

**I-16**

It is not clear to which figure the commenter is referring. The potential historic architectural structures in the North Beach, Washington Square, and Powell Street Historic Districts that would potentially be affected by the construction of the North Beach Construction Variant are discussed on page 4-69 through 4-75 of the SEIS/SEIR. The boundaries of the Historic Districts are outlined on Figure 4-5, page 4-54 of the SEIS/SEIR.

**I-17**

The detour routes included in Appendix E of the SEIS/SEIR have been prepared by the Department of Parking and Traffic (DPT) and are based on the preliminary engineering information for each alternative. Once an alternative is selected and the project moves into the final design phase, SFMTA would select the most appropriate detour routes and develop temporary transportation system management measures along these routes, e.g. additions of turn lanes at key intersections, conversion of parking lanes into peak period travel lanes, etc. Detour routes would be advertised prior to construction in the appropriate media. When construction detours are implemented, traffic control police would monitor critical locations along the detours to promote uncongested traffic flow. Traffic detours would also be coordinated with other construction projects in the vicinity (see page 6-37 of the SEIS/SEIR).

**I-18**

Impacts to Washington Square from the temporary construction of the TMB extraction shaft are discussed in the SEIS/SEIR in Section 6.0 under biology, cultural resources, noise and vibration. Impacts are described as less-than-significant with mitigation measures. The construction of the TMB shaft on Columbus Avenue is estimated to take about six months and the extraction of the TBM would take about one week (page 6-26). This is considered a short-term, construction related, temporary impact that would be less-than-significant. Information about the construction activity and schedule would be posted in the Washington Square Park area and would be provided to businesses and residents around the square, and to park users prior to construction. See Response to Comments I-3 through I-17 above for detailed responses.

## Letter J



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*Executive Director*  
Sarah Ching Ting Wan, M.S.W.

*A United Way Agency*

November 27, 2007

Mr. Bill Wycko  
Acting Environmental Review Officer  
San Francisco Planning Department  
Central Subway Draft SEIS/SEIR  
1650 Mission Street, Suite 400  
San Francisco, CA 9410

Dear Mr. Wycko,

CYC is pleased to write this letter in support of the Central Subway Project and how it will affect the lives of residents in the Chinatown and North Beach/Telegraph Hill areas.


Ever since the earthquake in 1989 closed down the freeway ramp leading into Chinatown, the community has suffered in numerous ways. This project will be vital in reconnecting the community with the rest of the city. Once complete, the project will improve service reliability and travel times, enhance transit connections, and provide economic opportunities and access to jobs for residents in the area.

Additionally, this critical transportation improvement will link other neighborhoods with high Asian populations to Chinatown, thereby improving and strengthening community connections between Visitacion Valley and Chinatown. This is especially critical for CYC in that many of our youth participants are residents of underserved neighborhoods such as Visitacion Valley and deserve a safe and accessible transportation system that will enable them to travel to CYC without fear or anxiety.

After nearly 20 years of advocacy and organizing by the Chinatown community, we strongly believe it is time to address the needs and demands of our community and end the isolation they have had to endure for two decades. We also believe that once this project is completed, Central Subway, other existing bus services such as the 9X, 30, and 45 lines should not be eliminated or reduced in services. The elimination of the 15 has created insurmountable inconveniences to residents in Chinatown and North Beach/Telegraph Hill and we do not want see a repeat at the completion of this project.

Thank you for your attention and consideration in support of this important project.

Sincerely,

  
Sarah Wan  
Executive Director

RECEIVED

DEC 03 2007

CITY & COUNTY OF S.F.  
PLANNING DEPARTMENT  
M E A

J-1

J-2

## **Responses to Letter J**

### **J-1**

Statement in support of the project is noted.

### **J-2**

As noted on pages 3-36 and 3-37 of the SEIS/SEIR bus service on the 30-Stockton, 45-Union/Stockton, and 9X/9AX/BX-San Bruno would continue once the Central Subway is completed. Elimination of these lines is not contemplated at this time. The implementation of rail service on the Central Subway would provide an opportunity to adjust headways on surface bus lines as numerous long-distance passengers shift to the Central Subway. In addition, the 22-Fillmore line is planned to be extended into Mission Bay to supplement surface bus operations (see page 3-10).

## Comment Form K


**SAN FRANCISCO  
PLANNING DEPARTMENT**
**PUBLIC COMMENTS 公眾意見:**

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

 Reception:  
415.558.6378

 Fax:  
415.558.6409

 Planning  
Information:  
415.558.6377

請把我加入/保留在你的郵寄名單內:

PLEASE ADD/KEEP ME ON YOUR MAILING LIST:

 NAME 姓名 Jeanne Quock

 MAILING ADDRESS 郵寄地址 59 Temescal Ter. SF CA 94118

PHONE NUMBER 電話號碼

 EMAIL ADDRESS 電郵地址 winchellg@sbcglobal.net

Public comments will be accepted from October 17, 2007, to 5:00 p.m. on December 10, 2007. Written comments should be addressed to Bill Wycko, Acting Environmental Review Officer, San Francisco Planning Department, Central Subway Draft SEIS/SEIR, 1650 Mission Street, Suite 400, San Francisco, CA 94103. Comments received at the public hearing and in writing will be responded to in a Comments and Responses document. If you have any questions about the environmental review of the proposed project, please call Joan A. Kugler at 575-6925.

書面意見請郵寄到 Bill Wycko, Acting Environmental Review Officer, San Francisco Planning Department, Central Subway Draft SEIS/SEIR, 1650 Mission Street, Suite 400, San Francisco, CA 94103。截止日期: 十二月十五日下午五時。書面意見及公聽會內發表的意見將在一個'意見及回應'的文件內作答。對補充報告有任何問題, 請與規劃局 Joan A. Kugler 接洽, 電話 415-575-6925。



## SAN FRANCISCO PLANNING DEPARTMENT

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K-1

K-2

K-3

(shots)  
My concerns are the vents right next to our church  
property - how large are they, is there constant noise that  
comes from the vents? pollution?  
Another concern is the fire opening for the subway - will  
there be several entrance/exits in case of emergencies -  
where people can exit quickly?  
Will the Methodist Church be affected by the shadow  
of a possible 6 story building? (on the corner of Wash +  
Stockton?)

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NAME 姓名

MAILING ADDRESS 郵寄地址

PHONE NUMBER 電話號碼

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## **Responses to Comment Form K**

### **K-1**

As stated on page 5-79 of the SEIS/SEIR, potential noise levels from vent shafts would be from the passby of underground trains transmitting noise through the vent shaft and the monthly testing of emergency ventilation fans. For the most part, the train passby noise would be barely audible over background noise. The vent shafts would be designed to meet noise level limits of the San Francisco noise ordinance and would not have significant adverse impacts to adjacent properties. Specific measures for the abatement of noise from the vent shafts would be determined during final design. Testing of the emergency ventilation fans could be restricted during the times that Church services are being held (see Mitigation Measures, page 5-83 of the SEIS/SEIR). Churches fall under Category 3 for FTA noise criteria for a 1-hour Leq (equivalent sound level) with moderate impacts at 70 Leq, and the existing noise measurements at Stockton and Sacramento Streets show a noise level of 72 Leq (Table 4-32 on page 4-136 of the SEIS/SEIR). Mitigation measures to minimize the noise and vibration impacts associated with the general operation of the train are outlined on pages 5-83 and 5-85 of the SEIS/SEIR.

### **K-2**

An emergency exit would be located between Washington and Jackson Streets, on the west sidewalk of Stockton Street for Alternative 3B, as shown on Figure 2-22, page 2-46 of the SEIS/SEIR.

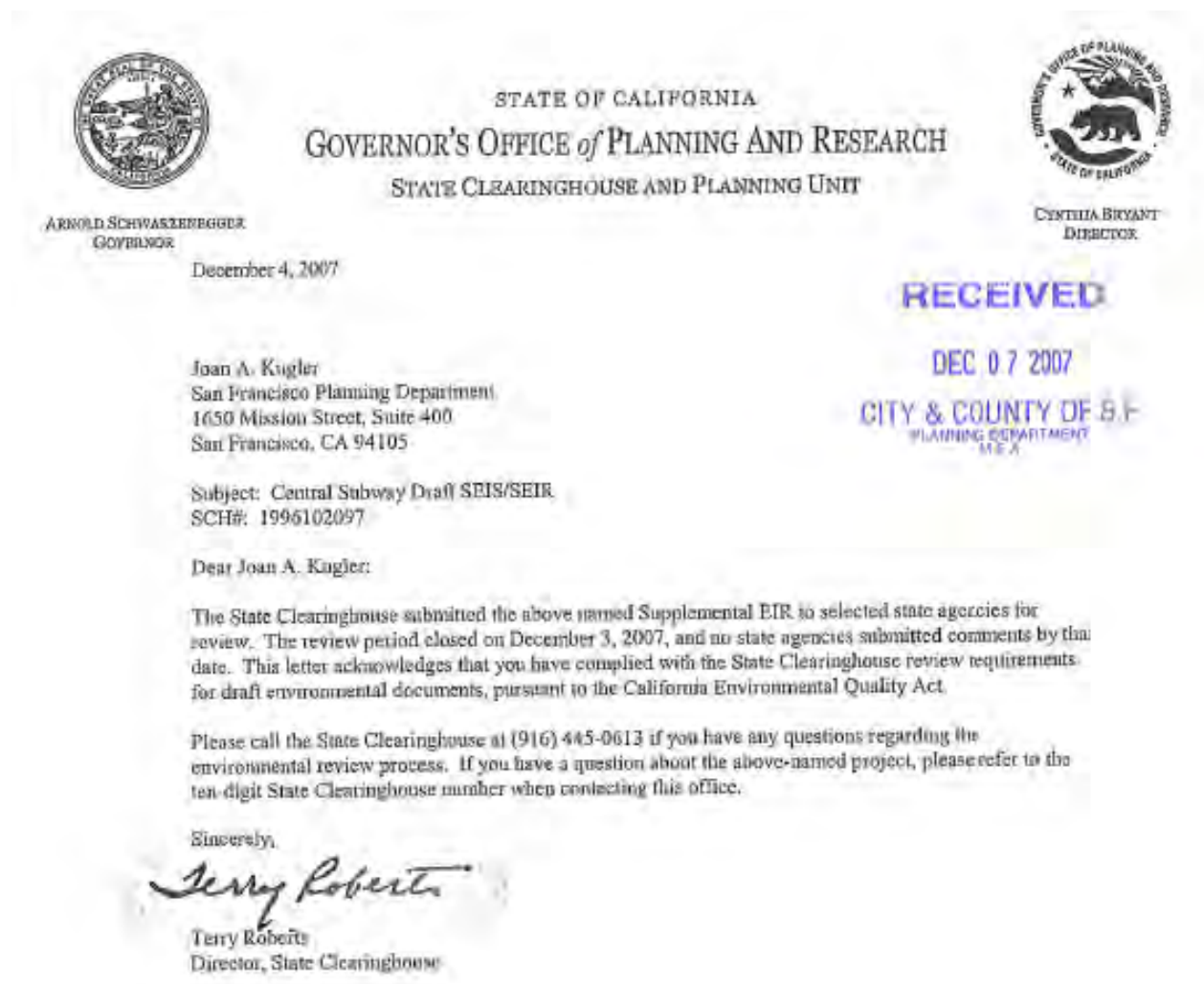
### **K-3**

Shadow analysis is required for public parks and for the reduction of shadows on certain public or publicly accessible open spaces in San Francisco, under Section 295 (Proposition K) and Section 147 of the San Francisco Planning Code. For public or publicly accessible open spaces, the amount of area shadowed, the duration of the shadow, and the importance of sunlight to the type of open space being shadowed for buildings over 50 feet high needs to be described. A preliminary shadow analysis has been conducted for the station building outline (assuming maximum height and bulk) at Stockton and Washington Streets to show the maximum new shadows on the Gordon Lau Elementary School schoolyard, the Methodist Church across Washington Street, from the proposed station and the adjacent Presbyterian Church on Stockton Street. (See Appendix K of the SEIS/SEIR). Shadows on the south wall of the Methodist Church, from the proposed Chinatown Station, would occur in the morning and early afternoon hours during winter months (December 21), but not during other times of day or months of the year. The playground of the Gordon Lau Elementary School is currently shaded by adjacent buildings and the school itself during all months of the year. Additional shading from the proposed Chinatown station building and vent shaft would occur on the eastern edge of the school playground in



the morning hours and at noon during all seasons of the year and during the winter months (December 21) in the afternoon. There would be no additional shadows cast on the Presbyterian Church from the proposed Chinatown Station based on the preliminary analysis.

## Letter L



L-1

**Document Details Report  
State Clearinghouse Data Base**

**SCH#** 1996102097  
**Project Title** Central Subway Draft SEIS/SEIR  
**Lead Agency** San Francisco Planning Department

**Type** SIR Supplemental EIR  
**Description** The Central Subway to Chinatown is Phase 2 of the Third Street Light Rail Project that would extend light rail for 1.7 miles on a surface/subway alignment from the current terminus at Fourth and King Streets to Jackson Street in Chinatown. Under the Locally Preferred Alternative, the rail would operate on the surface from Fourth and King Streets to a portal between Townsend and Brannan Streets where it would transition to subway operations. There would be three subway stations: Moscone, Union Square/Market Street, and Chinatown. Other alternatives would include one surface station and a split Union Square and Market Street station.

**Lead Agency Contact**

**Name** Joan A. Kugler  
**Agency** San Francisco Planning Department  
**Phone** (415) 575-6925 **Fax**  
**email**  
**Address** 1650 Mission Street, Suite 400  
**City** San Francisco **State** CA **Zip** 94105

**Project Location**

**County** San Francisco  
**City** San Francisco  
**Region**  
**Cross Streets** Third/Fourth St. between King & Market St. and Jackson St.; Stockton St. between Market and Jack  
**Parcel No.** Constructed in public right-of-way, except for station areas to be determined.  
**Township** **Range** **Section** **Base**

**Proximity to:**

**Highways** Hwy. 101, I-280, I-80  
**Airports**  
**Railways** Caltrain, BART, Muni Metro  
**Waterways** San Francisco Bay  
**Schools** Multiple: SF Community College, Academy of Art, Chinese Central, etc  
**Land Use** Industrial, Downtown Commercial District, Public/Open Space, Multi-Family Residential, and Mixed Use. Segments of the rail corridor traverse areas governed by the South of Market, East SOMA, Downtown, and Chinatown Area Plans.

**Project Issues** Aesthetic/Visual; Air Quality; Archaeologic-Historic; Economics/Jobs; Fiscal Impacts; Flood Plain/Flooding; Geologic/Seismic; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Schools/Universities; Soil Erosion/Compaction/Grading; Toxic/Hazardous; Traffic/Circulation; Water Quality; Water Supply; Wildlife; Landuse; Growth Inducing; Cumulative Effects; Other Issues

**Reviewing Agencies** Resources Agency; Department of Fish and Game, Region 3; Cal Fire; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; San Francisco Bay Conservation and Development Commission; California Highway Patrol; Caltrans, District 4; Caltrans, Division of Transportation Planning; Native American Heritage Commission; Public Utilities Commission; Regional Water Quality Control Board, Region 2; State Water Resources Control Board, Clean Water Program; Air Resources Board, Transportation Projects

**Date Received** 10/18/2007 **Start of Review** 10/18/2007 **End of Review** 12/03/2007

## **Responses to Letter L**

### **L-1**

This letter confirms procedural compliance with the State Clearinghouse environmental review. There were no comments from State reviewing agencies.

## Letter M

**Chinatown Transportation Research and Improvement Project**  
c/o 838 Grant Avenue, Suite #414  
San Francisco, CA 94108

Bill Wycko  
Acting Environmental Review Officer  
San Francisco Planning Department  
Central Subway Draft SEIS/SEIR  
1650 Mission Street, Suite 400  
San Francisco, CA 94103  
December 7, 2007



Dear Mr. Wycko,

Chinatown TRIP has been advocating for the transportation needs of the Chinatown community for over 30 years. Bringing together community residents, engineers, and planners, our committee has been at the forefront of analyzing and proposing solutions to the transportation problems our community faces. Over the years, this has led to the establishment of bus routes, increased bus frequency, safer crosswalks for pedestrians, and advocacy to build the Central Subway.

We strongly support the Central Subway Project. In particular, we endorse Alternative Three, Option B for the Locally Preferred Alternative with the Chinatown Station located at the intersection of Washington and Jackson Streets. We have three primary concerns with regard to the Draft SEIS/SEIR:

- Traffic flow during construction needs to be detailed and we find the maps in the SEIS/SEIR incomplete and difficult to understand. We would like to see a traffic flow and management plan from DPT well in advance of the start of construction.
- Signage in English and Chinese to notify community members of changes in transit during and after construction.
- Development of a second portal to the Chinatown Station at the lower level commercial plaza at the Mandarin Tower site (southeast corner of Stockton Street and Washington Street). The sidewalks in Chinatown are narrow and congested and it will be difficult for all SFMTA riders to enter and exit from a single portal. It is necessary to disperse pedestrian traffic volume and minimize pedestrian conflicts on the narrow Stockton Street Corridor.

Finally, Chinatown TRIP encourages community and merchant participation in developing construction activity and traffic flow guidelines to minimize negative impacts and disruptions to the community.

Sincerely,

Harvey Louie  
Chinatown TRIP President

M-1

M-2

M-3

M-4

M-5

## Responses to Letter M

### M-1

Chinatown TRIP's support of the Central Subway Project and endorsement of Alternative 3B as the Locally Preferred Alternative is noted.

### M-2

Refer to Response to Comment I-17. A more detailed traffic flow plan would be prepared once an alternative is selected and the project advances into the final design phase.

### M-3

The SFMTA has been conducting an extensive community outreach effort as summarized in Chapter 11.0 Coordination and Consultation. As indicated on page 5-12, this effort will continue through the project implementation phase. Signage will be provided in both English and Chinese on all public notices and signage posted for project meetings and construction notices.

The following text is added at the end of the third paragraph of page 6-35:

“MTA will provide signing related to transit changes in Chinese as well as English.”

The following Transit Improvement Measure (#3) is added to Table 7-2, page 7-9:

“3. MTA will provide signing related to transit changes in Chinese as well as English.”

### M-4

The request for a second entry to the Chinatown station at the lower level of the Mandarin Towers was considered, but is outside of the budgeted project cost estimate. The pedestrian level of service analysis (see Table 3-17, pages 3-66 and 3-67 of the SEIS/SEIR) has shown that the planned station entrance is sufficient to meet pedestrian demand.

### M-5

SFMTA has retained the services of the CCDC for assistance in the planning and implementation of the project in Chinatown. SFMTA is committed to including the Chinatown community in planning for construction to minimize adverse impacts to the neighborhood and community over the five to six-year construction period.



## Letter N

December 10, 2007

Dear Mr. Bill Wycko,



Chinatown Community  
Development Center

I am writing this letter to provide a Chinatown community perspective on section 5.4.3 華協中心 Historical Architectural Resource Impacts – of the Central Subway Draft Supplemental Environmental Impact Statement/ Supplemental Environmental Impact Report. I have consulted with the Chinese Historical Society of American and local architectural historian, Phil Choy to flesh out the content of this letter.

In 1986, San Francisco City Planning did not approve a proposal for a Chinatown Historic District, so it is peculiar that the mere eligibility of the neighborhood holds so much weight. There is an inherent contradiction between the local planning process and the National Register of Historic Places (NRHP) process.

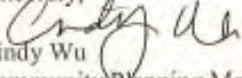
Concerning the assertion that demolition of either 814-828 Stockton Street or 933-949 Stockton Street would constitute an adverse effect to Chinatown's eligibility as a NRHP historic district, we would like to take a more nuanced look at the intent of historic preservation.

Chinatown's historical importance is founded in that fact that it is the oldest ethnic community in San Francisco. The spirit of the people who reside in the community preserve their history of immigration and ensuing development of a cross cultural identity. The daily activities and interactions of the people of Chinatown represent the historic nature of the neighborhood. In the late 1800s and early 1900s, the evolution of a "Chinese" architecture was ornaments that were added to buildings so that Chinese people could claim a place in San Francisco. It was a response to a negative reaction to Chinese immigrants from the population that lived in Chinatown at the time. This history is detailed in the 1986 proposal submitted to the San Francisco City Planning department.

The actual architecture of the buildings in Chinatown may be rather mediocre, but the history, the timeline of what happened on those sites is important. That history is not encapsulated in the buildings that are on the site right now, and would not necessarily be lost if those buildings were demolished. Present day Chinatown was not built on its architectural merits, but on the socio-political strategy that influenced architectural decoration. Why and how it happened was more important than the actual architecture or ornamentation itself.

In our opinion, demolition of either 814-828 Stockton Street or 933-949 Stockton Street does not in and of itself adversely impact the historical value of the neighborhood. There are 371 buildings that have been identified as contributors to the potential Chinatown Historic District, and the loss of either building in question could be mitigated by rebuilding the structure in a manner that best suits the neighborhood fabric.

Sincerely,

  
Cindy Wu  
Community Planning Manager

1525 Grant Avenue, San Francisco, CA 94133-3323  
tel 415.984.1450 | fax 415.362.7992 | www.chinatowncdc.org

N-1

## Responses to Letter N

### N-1

The comments made in the CCDC letter regarding input from the Chinese Historical Society of America and the local architectural historian, Phil Choy, are not inconsistent with the findings in the SEIS/SEIR. The main difference is in the identification of an adverse effect for the demolition of either of the two buildings in Chinatown that have been determined to contribute to the potential eligibility of Chinatown as a National Register Historic Place-Historic District.

As the SEIS/SEIR points out on page 4-65, a National Register of Historic Places Inventory Nomination Form was completed for the Chinatown Historic District in 1979. Though reportedly the nomination was not approved by the Planning Department in 1986, the nomination has not been rejected by the State Historic Preservation Office (SHPO). The original EIS/EIR for the Third Street Light Rail Project identified the buildings at 814-828 and 933-949 Stockton Street as contributors to the potential Historic District in 1997 (Corbett) and submitted the nomination forms to the SHPO. The Office of Historic Preservation letter dated February 17, 1998, acknowledged the potential Historic District in their response letter as two of twenty “structures that appear to be eligible for inclusion on the NRHP as contributing elements to a Chinatown Historic District, a district that has not been evaluated”. The Chinatown Historic District is listed on the California Register of Historic Resources (status code rating of 3D). An adverse effect is created when an undertaking alters either directly or indirectly the character-defining features of a NRHP-eligible property.

These factors lead to the conclusion of a potential adverse effect for the demolition of either building for a station. Page 6-73 of the SEIS/SEIR describes that “demolition of contributing elements to a NRHP eligible district constitutes an adverse effect under Section 106 of the National Historic Preservation Act of 1966 and under the California Environmental Quality Act.” Mitigation measures for historic property impacts that would reduce the adverse impact, but not to a less-than-significant level, are described on page 6-76 of the SEIS/SEIR: partial preservation, having an architectural historian involved in the design of the new station, salvage of the architectural features for preservation, and development of a permanent display that would include the history of the demolished building and the relevance to the Chinatown District.



## Comment Form O


**SAN FRANCISCO 三藩市規劃局**  
**PLANNING DEPARTMENT**

November 8, 2007 二零零七年十一月八日

 1650 Mission St.  
 Suite 400  
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 CA 94103-2479

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 Fax:  
 415.558.6409

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 Information:  
 415.558.6377

**PUBLIC COMMENTS 公眾意見:**

On a resident of Chinatown. My family & I rely on  
 Muni alot. I go to Washington High School &  
 work downtown & live in Chinatown. I take  
 Muni for at least 3 to 4 hours a day. Please  
 build the central subway soon, it not only  
 benefit adults & seniors, but also youth & the  
 whole city.

Thank You!

請把我加入/保留在你的郵寄名單內:

PLEASE ADD/KEEP ME ON YOUR MAILING LIST:

Tony Huang

NAME 姓名

MAILING ADDRESS 郵寄地址

PHONE NUMBER 電話號碼

EMAIL ADDRESS 電郵地址

A public hearing on this Draft SEIR and other matters has been scheduled by the City Planning Commission for Thursday November 15, 2007, in Room 400, City Hall, 1 Dr. Carlton B. Goodlett Place, beginning at 1:30 p.m. or later. (Call 558-6422 the week of the hearing for a recorded message giving a more specific time.)

關於這報告之公聽會將在本年十一月十五日約下午一時半舉行，地點為市政廳 400 號室（請於週內致電 415-558-6422 查詢準確時間）。

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O-1

## **Responses to Comment Form**

### **O-1**

Commenter's support for the project is noted.

## Comment Form P


**SAN FRANCISCO 三藩市規劃局**  
**PLANNING DEPARTMENT**

November 8, 2007 二零零七年十一月八日

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**PUBLIC COMMENTS 公眾意見:**

Please get central Subway built soon.  
 As a High school Student, getting to school & home  
 is very hard b/c muni isn't on time & full. The central  
 Subway will cut down at least ONE hour of my  
 traveling time.

Thank you!

請把我加入/保留在你的郵寄名單內:

PLEASE ADD/KEEP ME ON YOUR MAILING LIST:

Alan Ma

NAME 姓名

MAILING ADDRESS 郵寄地址

PHONE NUMBER 電話號碼

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P-1

## **Responses to Comment Form P**

### **P-1**

Commenter's support for the project is noted.

## Comment Form Q


**SAN FRANCISCO 三藩市規劃局**  
**PLANNING DEPARTMENT**

November 8, 2007 二零零七年十一月八日

1650 Mission St.  
Suite 400  
San Francisco,  
CA 94103-2479Reception:  
415.558.6378Fax:  
415.558.6409Planning  
Information:  
415.558.6377**PUBLIC COMMENTS 公眾意見:**

If high school students favor the central subway as a way to ensure faster bus routes in the morning on their way to school, then the building of such an extension really must transcend the ages in terms of use. If the central subway is built, not only will it allow for students who live in the area to get to school on time or early, it will cut down on the hassle of transferring buses as well as trolleys, which is necessary for a high schooler's education. Thank you for your time.

請把我加入/保留在你的郵寄名單內:

PLEASE ADD/KEEP ME ON YOUR MAILING LIST:

Connie Zhang

NAME 姓名

MAILING ADDRESS 郵寄地址

PHONE NUMBER 電話號碼

conniekundesu@yahoo.com

EMAIL ADDRESS 電郵地址

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Q-1

## **Responses to Comment Form Q**

### **Q-1**

Commenter's support for the project is noted.

## Letter R



TRANSBAY JOINT POWERS AUTHORITY

Maria Ayerdi • Executive Director

December 7, 2007

Mr. Bill Wycko  
Acting Environmental Review Officer  
San Francisco Planning Department  
1650 Mission Street, Suite 400  
San Francisco, CA 94103

Re: Central Subway Draft SEIS/EIR

RECEIVED

DEC 10 2007

CITY & COUNTY OF S.F.  
PLANNING DEPARTMENT  
M.E.A.

Dear Mr. Wycko,

The Transbay Joint Powers Authority (TJPA) recognizes the importance the City places on the San Francisco Municipal Transportation Agency's (SFMTA) Central Subway project to "link Little Hollywood and Visitación Valley with Union Square and Chinatown" with enhanced transit connections, improved service reliability, and access to economic opportunities.

As there are areas of interface between the Central Subway project and the Transbay Transit Center Program, staff from both agencies have been meeting over the last two years to identify and resolve potential conflicts. The TJPA appreciates the professional manner in which the Central Subway team has presented its project and discussed with the TJPA areas of mutual concern. SFMTA's willingness to examine issues and their responsiveness in advancing possible solutions has been notable and continued cooperative efforts will, no doubt, prove to be beneficial to all parties.

The TJPA has taken an opportunity to review SFMTA's Draft Supplemental Environmental Impact Report/Environmental Impact Statement (SEIR/EIS) of October 17, 2007, and finds that all alternatives are workable for both the Caltrain Downtown Extension (DTX) and Bus Storage facility to be constructed by the TJPA near or along the Central Subway alignment on Fourth Street. The Central Subway's design refinement of Alternate 3B (attached) locating its portal south of Perry Street makes this a viable alternative. Comments are provided below regarding specific locations requiring continued coordination with Transbay Transit Center Program projects:

1. Coordination with the TJPA bus storage access from Fourth Street into Perry Street near Central Subway's portal location in Option 3B,
2. Coordination of the DTX tunnel below Fourth and Townsend streets with Central Subway's surface alignment, and
3. Evaluation of the impact of Central Subway's temporary construction staging on Fourth Street below the I-80 structure between Harrison and Bryant streets with the construction and operation of the TJPA's Bus Storage facility.

R-1

**Coordination with the TJPA Bus Storage Access**

Chapter 3 - Section 3.2.2, pages 3-53, 3-55, and 3-56

Under Alternative 3B, the document acknowledges that the location of the portal on Fourth Street at Perry Street may restrict access to the proposed Transbay Bus Storage facility underneath I-80 between Fourth and Third streets due to the tight turning radius. Delays to bus movement through the Fourth and Harrison streets intersection during the peak could also occur due to degraded intersection traffic flow (level of service [LOS] F) as a result of project implementation. As mitigation, MTA has investigated reduction of the portal length to shift the portal location southward to allow buses to enter the Transbay bus storage area under the I-80 viaduct from Fourth Street. The mitigation needs to be identified on the project engineering drawings for this alternative. In addition, mitigation measures identified on page 3-53 to facilitate traffic flow along Fourth Street at Harrison Street should also be committed to Alternative 3B implementation.

R-2

**Coordination with Caltrain Downtown Extension**

Chapter 2 - Section 2.1.2, page 2-9 (Alternative 2) and Section 2.1.3, page 2-24 (Alternative 3)

With overwhelming support by San Francisco voters, Proposition H was approved in November 1999 establishing a local mandate that the City and County of San Francisco to extend Caltrain commuter rail service to downtown San Francisco to a new or rebuilt regional transit station on the site of the existing Transbay Terminal. It was also mandated within the proposition that the new transit station serve high-speed rail. In March 2004, a Final Environmental Impact Statement/Environmental Impact Report for the Transbay Terminal/Caltrain Downtown Extension/Redevelopment Project was certified.

R-3

The discussion of the Alternative 2 (Section 2.1.2, page 2-9) and Alternative 3 (Section 2.1.3, page 2-24) should acknowledge that an interface with the future DTX will be required at the intersection of Fourth and Townsend streets. The report should indicate that the extent and nature of the construction interface will be dependent upon the relative timing of the respective projects' construction and will be determined and resolved as part of an ongoing coordination process.

**Temporary Construction Impacts**

Chapter 6 - Section 6.2.2, page 6-18, Section 6.2.3, page 6-27, and Section 6.3.2, pages 6-37 through 6-39

The document describes construction activities for Alternative 3 that could produce temporary impacts to the movement of buses entering the TJPA bus storage area under the I-80 viaduct from Fourth Street. For both Alternatives 3A and 3B, the tunnel boring machine would be launched adjacent to the bus storage area on Fourth Street and a construction staging area would be located on the west side of Fourth Street under the I-80 viaduct. In addition, muck from the tunnel construction would be extracted and hauled away at this location. Alternative 3B would have additional construction activity in this area due to the construction of the portal north of Bryant Street on Fourth Street.

R-4



Our current schedule anticipates that the area east of Fourth Street between Perry and Stillman will be improved during and put into service prior to completion of the Central Subway construction activities on Fourth Street under the I-80 viaduct. Traffic impacts generated by construction in this area could affect bus movements and the operation of the T.J.P.A. Bus Storage facility. Specific mitigation measures that would allow buses to access the bus storage area during construction should be identified and described separately from other mitigations that propose traffic detours to avoid construction impacts unless these measures would also accommodate bus movements into and out of the bus storage area.

R-4  
Cont.

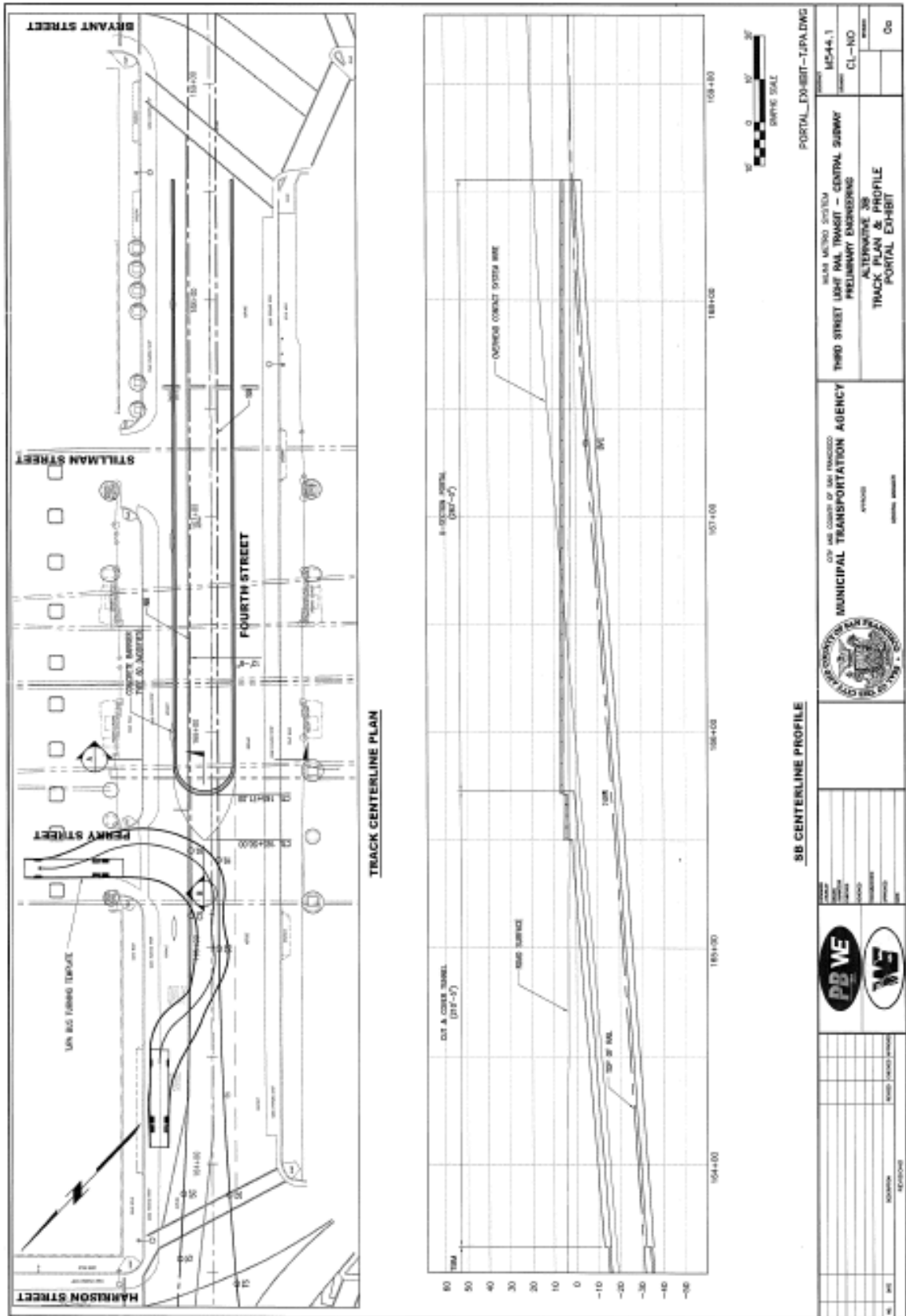
The T.J.P.A. looks forward to continued coordination of efforts with Central Subway. Should there be any questions related to the T.J.P.A. comments, please contact Robert Beck, T.J.P.A. Senior Program Manager at 415.597.4620.

Very truly yours,



Robert Beck  
Senior Program Manager

Attachment



## Responses to Letter R

### R-1

SFMTA is committed to continued close coordination with the TJPA for the interface between the Central Subway Project and the Transbay Transit Center Program, including the Caltrain Downtown Extension and Bus Storage facility on Fourth Street. The design refinement of Alternative 3B, locating the subway portal south of Perry Street is now included in the SEIS/SEIR as the proposed design. The Central Subway use of the temporary staging area under the I-80 structure between Harrison and Bryant Streets has also been refined to minimize any impacts to the TJPA bus storage facility planned for the same area.

The text of Significant Impact 2 Alternative 3B, Traffic Operation/Cumulative, page S-19 is revised as follows:

“2. In addition, the portal at Fourth Street under I-80 may restrict ~~access to the proposed bus storage facility at Perry Street and~~ large truck movements onto Stillman Street.”

The text of Mitigation Measures, Alternative 3B, Traffic Operation/Cumulative, page S-19 is revised as follows:

“Same as Alternative 3A, in addition SFMTA will explore options ~~design modifications to the portal location with Caltrans, the TJPA, and Golden Gate Transit that will permit bus access to Perry Street and~~ truck access to Stillman Street ~~that will to~~ reduce the impacts to a less-than-significant level.”

The following text is added to the second sentence, first paragraph, page 2-36:

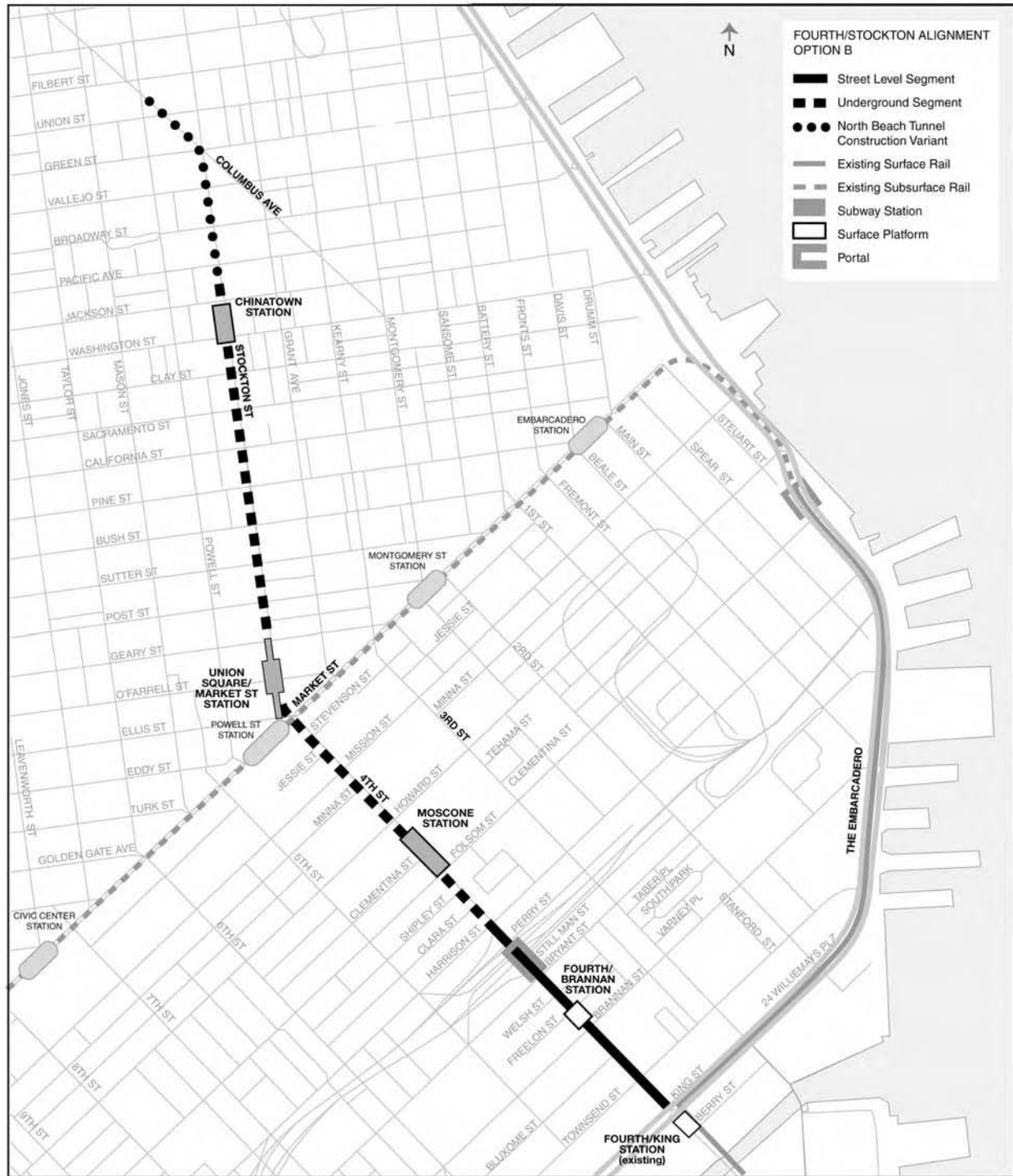
“After stopping at the station platform on Fourth at King Streets, light rail would continue north on Fourth Street to a double-track portal between ~~Bryant Perry~~ and Harrison Streets under I-80 (see Figure 2-16).”

Figures 2-16, 2-18, 2-19 and 5-10 are revised as noted in the attached pages to reflect the relocation of the subway portal and the placement of a crash barrier.

The text in the last two sentences, paragraph two, page 3-55 is revised as follows:

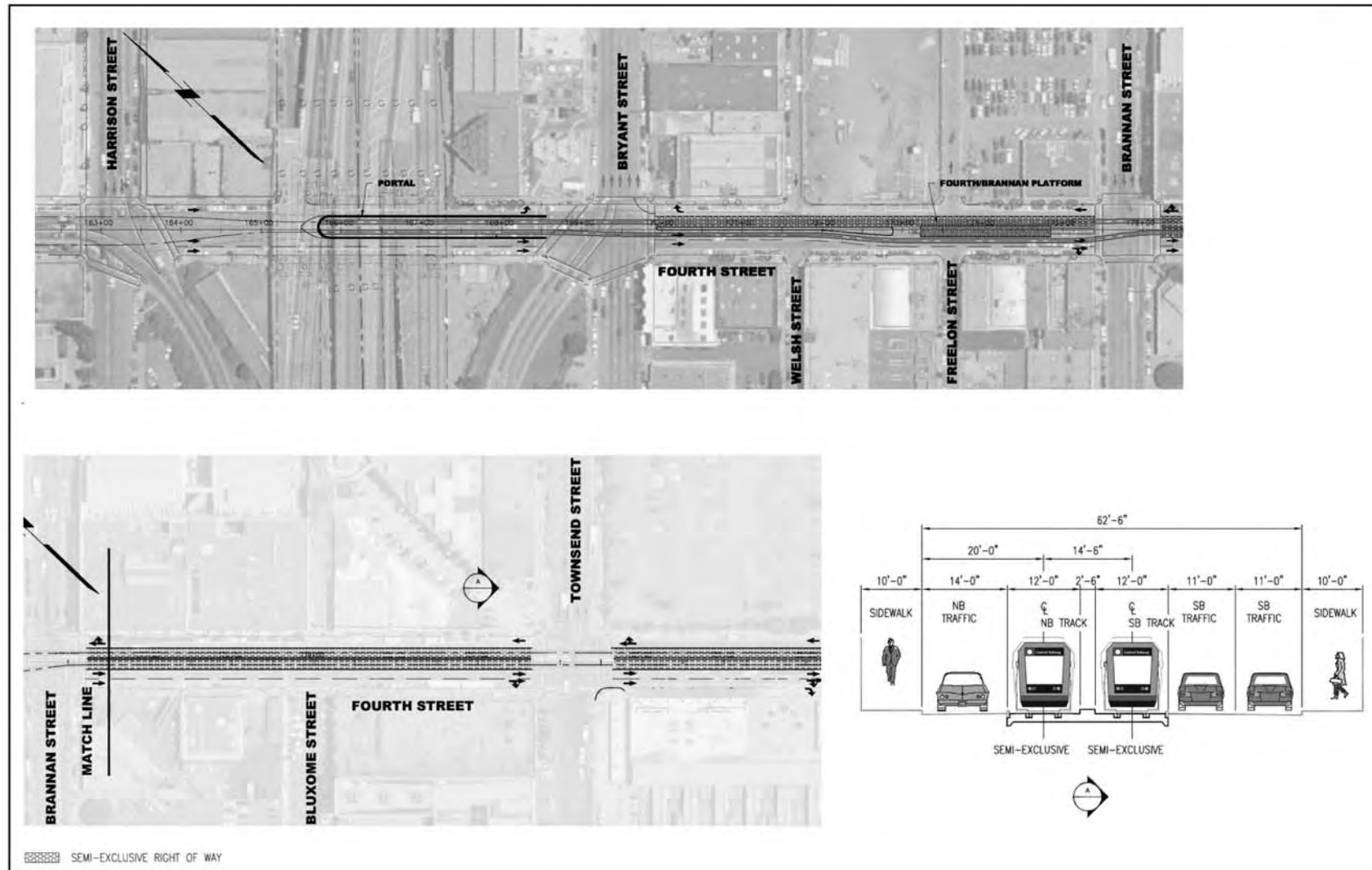
~~“Because of the location of t~~The portal on Fourth Street just south of Perry Street, under the Interstate 80 Freeway, has been located to accommodate the bus access from south-

FIGURE 2-16



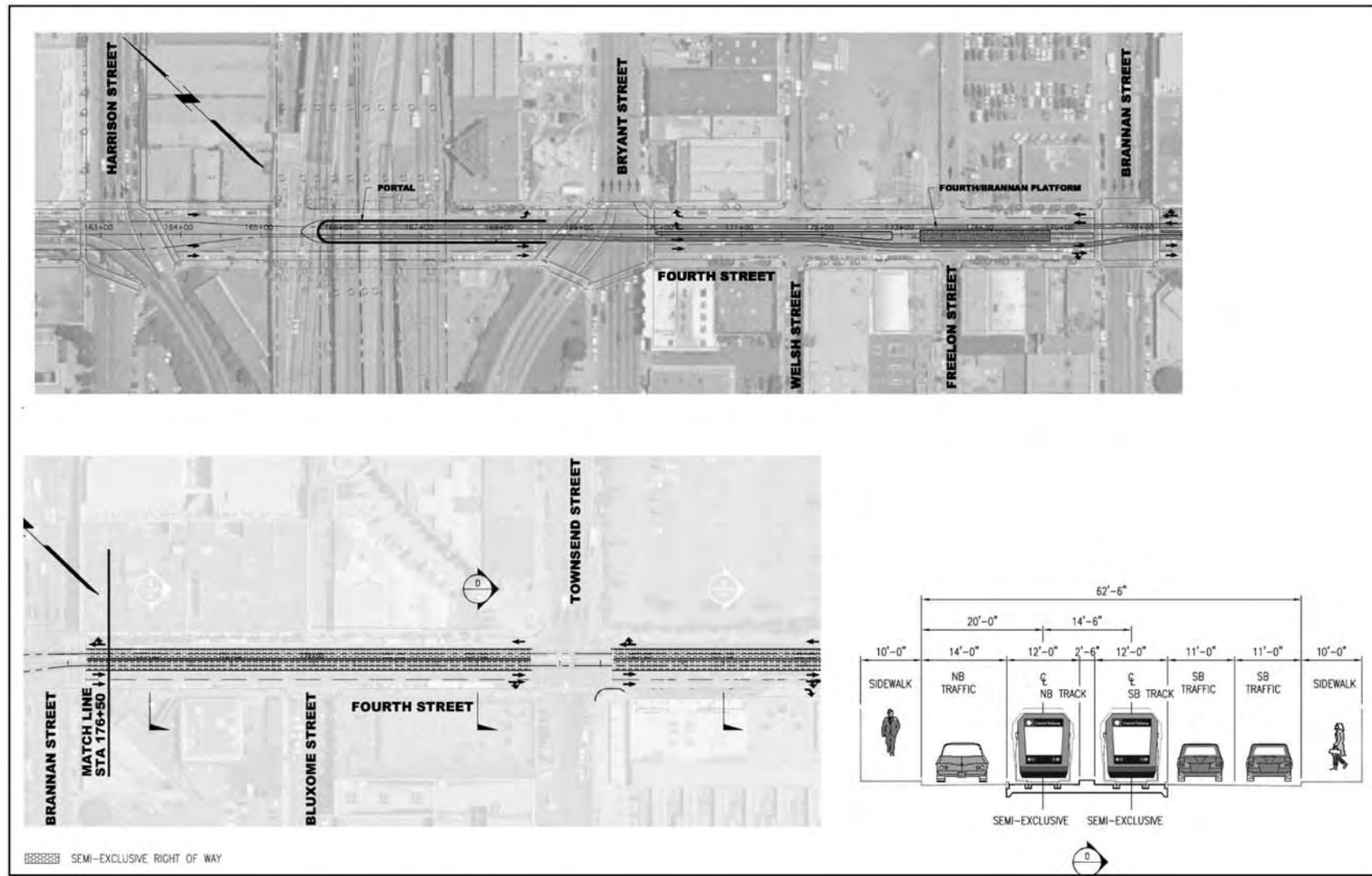
Source: PB/Wong  
 Not to scale  
 Revised 1/08

FIGURE 2-18



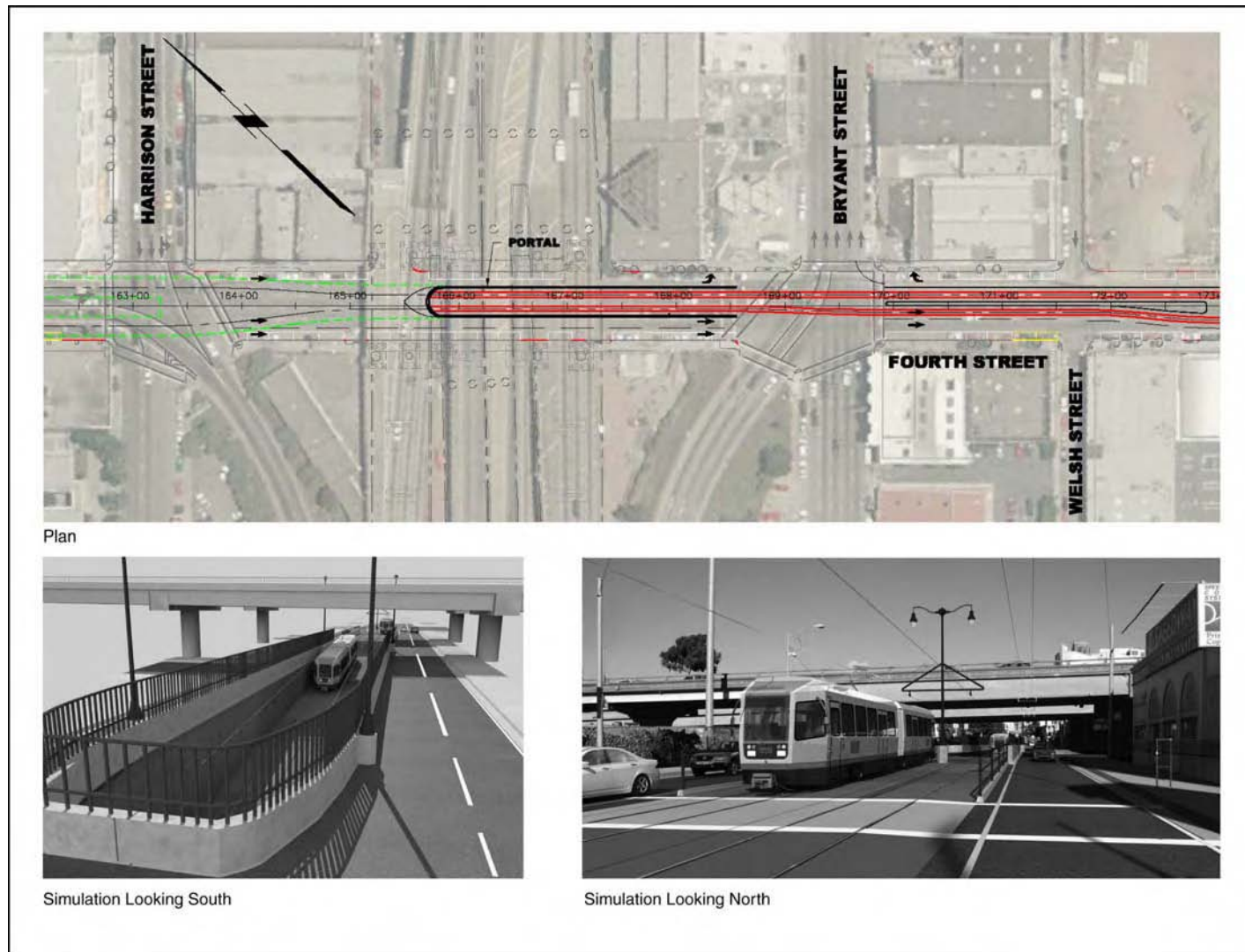
Source: PB/Wong  
 Not to scale  
 Revised 1/08

FIGURE 2-19



Source: PB Wong  
 Not to scale  
 Revised 1/08

FIGURE 5-10



Source: PB/Wong  
Not to scale  
Revised 1/08



bound Fourth Street to the bus storage facility ~~may be restricted due to the tight turning radius~~. The portal may ~~also, however,~~ restrict turn movements of larger trucks (40-foot or greater wheelbase) to Stillman Street ~~for the same reasons.~~”

The text of paragraph two, page 3-56 is revised as follows:

“Mitigation measures would be the same as those described under Alternative 3A except as noted below. To address the tight turn radius issues at ~~Perry-Stillman Street~~, MTA is currently investigating ~~reducing the portal length and shifting its location southward to allow buses and~~ with Caltrans, the TJPA and Golden Gate Transit the possibility of allowing trucks to enter Perry-Stillman Street from Fourth Street under the Caltrans I-80 structure via the bus storage facility. ~~Other possible options evaluated were to locate the subway portal opening at the immediate<sup>3</sup> north side of the Fourth Street/Bryant Street intersection and to design the incline of the tracks in the portal with a steeper grade or to shift the portal westerly by 13 feet, which would also include shifting of the two westerly traffic lanes and the west sidewalk further west. The relocation of the west sidewalk would encroach into the Caltrans right of way. All of these options would provide adequate space on the east side of Fourth Street to allow buses and trucks to access Perry and Stillman Streets.~~ Other possible options not yet identified may also be considered as part of the coordination process with the Transbay Terminal project team. When the preferred option is selected, it would be included into the design ~~of the portal~~ for this Project.”

The following text is added following the third paragraph, page 3-58:

“The access to Stillman Street for larger trucks (40-foot wheelbase and above) would be restricted under this alternative due to the location of the portal.”

The text in the fourth paragraph, page 3-58 is revised as follows:

“Mitigation measures would be the same as those described above under Alternative 2, except as noted below. To address the tight turn radius issues at Stillman Street, MTA is currently investigating with Caltrans, the TJPA and Golden Gate Transit the possibility of allowing trucks to enter Stillman Street from Fourth Street under the Caltrans I-80 structure via the bus storage facility. Other possible options not yet identified may also be considered as part of the coordination process with the Transbay Terminal project



team. When the preferred option is selected, it would be included into the design for this Project.”

The first sentence, last paragraph, page 6-18 is revised as follows:

“The tunnel construction shaft would be located on Fourth Street ~~between~~, just south of Perry Street, between Harrison and Bryant Streets.”

The text of Significant Impact 2 Alternative 3B, Traffic Operation/Cumulative, page 7-11 is revised as follows:

“2. In addition, the portal at Fourth Street under I-80 may restrict access ~~to the proposed bus storage facility at Perry Street and~~ large truck movements onto Stillman Street.”

The text of Mitigation Measures, Alternative 3B, Traffic Operation/Cumulative, page 7-11 is revised as follows:

“Same as Alternative 3A, in addition SFMTA will explore options design modifications to the portal location with Caltrans, the TJPA and Golden Gate Transit that will permit bus access to Perry Street and truck access to Stillman Street ~~that will~~ to reduce the impacts to a less-than-significant level.”

The text of Less-Than-Significant Impact, Alternative 3B, Freight and Loading Operation/Cumulative, page 7-13 is revised as follows:

“1. Permanent removal of some on-street loading spaces on Fourth Street and four spaces on Stockton Street between Washington and Jackson Streets would occur.

2. The access to Stillman Street for larger trucks would be restricted under this alternative due to the portal location.”

The text of Improvement Measures, Alternative 3B, Freight and Loading Operation/ Cumulative, page 7-13 is revised as follows:

“Same as Alternative 2, except MTA will explore with the TJPA and Golden Gate Transit options that will permit truck access to Stillman Street.”

**R-2**

See Response to Comment R-1. The design of the tunnel portal has been modified to reduce the portal length and shift the portal location south to allow buses to enter the bus storage facility under the I-80 Freeway from Fourth Street using Perry Street. The removal of the tight turning radius will also remove the potential for further bus delays at the Fourth and Harrison Streets intersection. The text has been revised to reflect discussions with the TJPA and design refinements to minimize impacts to the TJPA bus storage access.

**R-3**

The description of the TJPA Transbay Terminal, and possible future accommodations for Caltrain Peninsula Rail Service and a future high speed train is in the third bulleted item on page 2-8 of the SEIS/SEIR. Continued coordination between SFMTA and the TJPA is considered a vital part of the design development and engineering phases for the Central Subway Project to make sure that construction timing and project implementation will minimize any potential conflicts with the Caltrain Downtown Extension, should it be funded and implemented.

**R-4**

See Response to Comment X-4 for discussion of the operation of the bus storage facility and revised text on pages 3-56 and 6-36 of the SEIS/SEIR, under Mitigation Measures, for how temporary construction related impacts to the bus storage area under I-80 would be minimized.

**Letter S**

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**DEC 07 2007**

**CITY & COUNTY OF S.F.**  
PLANNING DEPARTMENT  
M.E.A.

Mary E. Gilpatrick  
946 Stockton Street Apt. 9A  
San Francisco, CA 94108

December 6, 2007

Mr. Bill Wycko  
Acting Environmental Review Officer  
San Francisco Planning Dept.  
Central Subway Draft SEIS/SEIR  
1650 Mission Street Suite 400  
San Francisco, CA 94103

Dear Mr. Wycko:

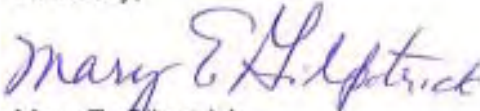
I have reviewed the Central Subway Draft Supplemental Environmental Impact Statement/Report and have some serious concerns regarding the significant negative impacts this project will have on the environment, architectural and historical integrity of the area, and health and safety of the residents and their properties due to increased noise, vibration and traffic, with attendant rise in crime. Vibrations in particular are an issue due to the fact we live in a seismically active area. The report attempts to sell a lot of "blue sky" presenting scenarios and numbers that are not supported and, therefore, speculative.

S-1

I am not in favor of such a project, but I may be outnumbered. If that is the case, then I would like to state that I would prefer Alternatives 2 or 3A be selected should the project in fact become a reality.

S-2

Sincerely,

  
Mary E. Gilpatrick

## **Responses to Letter S**

### **S-1**

Letter expresses concerns about the significant negative impacts of the project on the environment and the speculative nature of the report. The potential for environmental effects are detailed in Sections 3.0, 5.0, and 6.0 of the SEIS/SEIR. The analysis for the SEIS/SEIR has been based on accepted professional methodology for projecting potential environmental impacts associated with the implementation of a rail project as can be applied to the proposed Central Subway project in the San Francisco environment. A comparative summary of significant impacts is shown in Table 7-2, along with mitigation measures. Detailed analysis of impacts can be found in Sections 5.0 and 6.0 of the SEIS/SEIR and analysis of impacts to traffic can be found in Section 3.0.

Architectural and historic integrity impacts (for the proposed station in Chinatown) resulting from demolition of the existing building at 933-949 Stockton Street that contribute to the Chinatown Historic District would be partially mitigated through partial preservation of the building through rehabilitation, hiring an architectural historian to assist in the design development of the station and incorporation of architectural elements compatible with surrounding architectural features in the building architectural treatment, and/or salvaging of architectural features for conservation into a historic display in the station. The building at 933-949 Stockton Street is one of fourteen historic buildings in the block and 371 contributing buildings in the Chinatown Historic District.(see page 6-78 of the SEIS/SEIR). Other than the property proposed for demolition for the station, temporary construction-related vibration and visual impacts would not have significant adverse effects to historic properties or the Chinatown Historic District. (see pages 6-76 and 6-81 of the SEIS/SEIR).

The contractor would be responsible for hiring an acoustical consultant to prepare a Noise and Vibration Control Plan that would identify all potential impacts that may occur during construction and would provide adequate control measures to clearly demonstrate that the noise and vibration criteria and limits established by the San Francisco Noise Ordinance would be adhered to. (see page 6-117 of the SEIS/SEIR).

Long term traffic impacts would result from the project South of Market Street but not in Chinatown where the Central Subway would be in a deep tunnel. Mitigation measures for traffic impacts are described on pages 3-53 thru 3-56 of the SEIS/SEIR. Significant impacts to traffic at the intersections of King and Fourth Street and King and Third Streets cannot be mitigated to less-than-significant levels.

### **S-2**

Comment expresses opposition to the project and preference for Alternative 2 or Alternative 3A if the project does move forward.

## Letter T



舊金山中華文化基金會

CHINESE CULTURE FOUNDATION OF SAN FRANCISCO

750 Kearny Street, 3rd Floor  
San Francisco, CA 94108-1809

November 15, 2007

Bill Wycko  
Acting Environmental Review Officer  
San Francisco Planning Department  
Central Subway Draft SEIS/SEIR  
1650 Mission Street, Suite 400  
San Francisco, CA 94103.

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DEC 07 2007

CITY & COUNTY OF S.F.  
PLANNING DEPARTMENT  
ME 6

RE: Central Subway

Dear Mr. Wycko:

We note that in the Central Subway SEIR, losing one of the buildings that is set as a potential site (the Hogan and Vest or Ning Yuen building) does not necessarily adversely affect the eligibility of Chinatown to be a historic district.

T-1

We do have concerns, however, that the SEIR should address the design of a replacement building and the Central Subway station in Chinatown that would be **culturally appropriate to the Chinatown community**.

T-2

Two-percent of the construction costs of the Central Subway is designated for public art. It is essential that the Chinatown community have a voice in determining what art that will represent the community in the Central Subway project.

The Chinese Culture Center has been working with the San Francisco Arts Commission and Chinatown CDC to help facilitate a public arts selection process that is open and transparent to the Chinatown community.

The mission of the Chinese Culture Center is to preserve, promote, and influence Chinese and Chinese-American art and culture. We have been serving as an artistic voice for this community since 1973. The Chinese Culture Center is the obvious choice to serve as a cultural facilitator between the Arts Commission and the Chinatown community.

T-3

The Arts Commission has approached the Chinese Culture Center to assist in the following:

- to publicize and convene public meetings in Chinatown to announce planning and artist recruitment for Central Subway
- to publicize and convene artist workshops to help explain the Arts Commission's application process


- to publicize and convene artist workshops to provide information regarding the translation of 2 -dimensional artwork and designs into permanent media
- to organize meetings regarding the development of Public Art Master Plan for Central Subway
- to assist in publicizing Request for Qualifications to recruit local artists
- to serve on Artist Selection Panels and make recommendations of other community members to serve on Artist Selection Panels
- to serve as venue for exhibition of finalists proposals for public comment
- to serve as venue for workshops between selected artists and community
- to help match artists with experienced design professionals who can work as part of artist's team

T-3  
Cont.

In order to adequately assist the Arts Commission in connecting with the Chinatown community, the Chinese Culture Center will need more resources than our current capacity. In reviewing the SEIR, we ask that Planning Commission consider the funding of a Chinatown community liaison for the San Francisco Arts Commission with the Chinese Culture Center.

Thank you for your time and consideration.

Best regards,



Sabina Chen  
Executive Director

## **Responses to Letter T**

### **T-1**

Comment noted that loss of one building for a station would not necessarily adversely affect the eligibility of Chinatown as a potential Historic District. See Response to Comment N-1.

### **T-2**

The text under Mitigation Measure #2, page 6-76, has been revised as follows:

“2. Include expertise of an architectural historian in design development of station to develop a design culturally appropriate to the Chinatown community”.

### **T-3**

SFMTA has included coordination with the Arts Commission as part of the scope of services with the CCDC as follows:

CCDC will assist in the coordination and integration efforts of the Arts Commission and architects/engineers for development of a visual image for the Chinatown subway station that reflects community supported art. Work with the San Francisco Arts Commission and Chinatown community-based arts organizations to develop an inclusionary process for choosing artists and artwork that will be associated with the Chinatown station.

CCDC will coordinate with the Chinese Culture Foundation for input to this process.



## Letter U

**RENEWSF**REVITALIZE AND ENERGIZE THE NORTHEAST  
AND WATERFRONT OF SAN FRANCISCO

www.renewsf.org

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DEC 10 2007

CITY & COUNTY OF S.F.  
PLANNING DEPARTMENT  
M.E.A.

December 3, 2007

The Honorable Nancy Pelosi  
Speaker  
United States House of Representatives  
Washington D.C. 20515

Dear Madam Speaker,

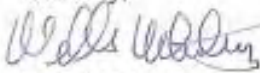
The Board of Directors of RENEW SF would like to express our strong support for the San Francisco Central Subway project and specifically Alternative 3B proposed in the Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report dated October 17, 2007. RENEW SF is a neighborhood nonprofit organization dedicated to improving the planning and qualities of life of the Northeast and waterfront of San Francisco through coordinated community planning efforts.

The vision of the Central Subway project is to provide a vital linkage between the Third Street corridor in the Southeastern part of the City and Chinatown in the Northeast. Upon completion, the subway would have effectively brought the city closer together, making it easier for residents as well as tourists to visit the many wonderful neighborhoods the city has to offer. This improved accessibility will undoubtedly also benefit the many retail and small businesses along the subway line.

Furthermore, San Francisco is proud of its Transit First policy and the Central Subway project exemplifies this priority. Especially at a time when the City should take every possible step to reduce the carbon footprint, the Central Subway is welcome by all.

RENEW SF applauds your leadership and support of the Central Subway project from its inception. We urge that funding be appropriated to ensure the successful completion of the project.

Sincerely,

Wells Whitney  
Chair of the BoardClaudine Cheng  
TreasurerCC: William Wycko  
Acting Environmental Review Officer  
San Francisco Planning DepartmentBoard of Directors:  
Claudine Cheng  
Rod Freebairn-Smith  
Marvin Kasoff  
Robert Mittelstadt  
Wells Whitney, Chair

U-1

## **Responses to Letter U**

### **U-1**

Letter expresses support for the Central Subway Project and specifically for Alternative 3B.

## Letter V

PETER HARTMAN  
300 THIRD STREET, NO. 310  
SAN FRANCISCO, CALIFORNIA 94107

RECEIVED  
DEC 10 2007  
CITY & COUNTY OF S.F.  
PLANNING DEPARTMENT  
M.E.A.

December 9, 2007

San Francisco Planning Department  
1650 Mission Street  
San Francisco, CA 94103

Re: Central Subway Draft SEIS/SEIR

As a member of the Central Subway Citizens Advisory Group and a South of Market resident homeowner, I have reviewed the Draft EIR. First, I believe that the document has adequately identified and addressed all of the potential impacts of the four project alternatives. The Draft EIR covers the construction, operational and cumulative impacts and associated mitigation measures on seven transportation conditions and twelve environmental conditions in the project area. The Draft EIR is adequate and complete.

V-1

Second, out of all the impacts identified there were only a handful of impacts that had significant unavoidable environmental effects. These include increased traffic congestion in several intersections during some commute times, displacement of up to 10 businesses and 17 residential units, demolishing of an historic Chinatown building and the possible impact on archeological resources. I believe that these few impacts are vastly outweighed by the project benefits identified in the Draft EIR which include increased mobility, decreased vehicle congestion and emissions, increased Muni operating efficiencies and compatibility with other city land use plans and policies by maximizing transit ridership, reducing auto trips and providing opportunities for transit-oriented development.

V-2

Finally, I suggest that high-density, transit-oriented developments be built above both the Moscone and Chinatown stations. This is particularly true at the Moscone station at the NW corner of Fourth and Folsom streets which is currently a gas station and but is zoned for an allowable 130 foot height. The Draft EIR shows the station entrance in a 40 ft. building. The project should take advantage of the all the allowable height and build a high-rise, mixed-use, transit-oriented development at the Moscone Station site.

V-3

Sincerely,



Peter Hartman

## **Responses to Letter V**

### **V-1**

Comment on the adequacy and completeness of the Draft SEIS/SEIR is noted.

### **V-2**

Comment that the project benefits outweigh the potentially significant environmental impacts is noted.

### **V-3**

Comment of support for transit-oriented development above the Moscone and Chinatown Stations is noted. SFMTA will issue RFPs for development of stations as the next phase of work after this SEIS/SEIR. Transit-oriented development proposals for the station sites will be evaluated as part of an independent environmental process if a firm proposal is submitted to the Planning Department.

## Letter W

Homer Teng  
Chinatown Families Economic  
Self-Sufficiency Coalition  
c/o Chinese Newcomers Service Center  
777 Stockton Street, Suite 104  
San Francisco, CA 94108

December 10, 2007

Mr. Bill Wycko  
San Francisco Planning Department  
1650 Mission Street, Suite 400  
San Francisco, CA 94103

Re: The Central Subway Project

Dear Mr. Wycko:

The Chinatown Families Economic Self-Sufficiency Coalition (CFESC) would like to comment on the Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report of the proposed Central Subway Project. The CFESC is a collaboration of 16 community agencies and the City College of San Francisco. Its mission is to support limited English speaking immigrant Chinese families to achieve economic self-sufficiency, by promoting and advocating for training and employment in fields that provide living wages, benefits, and advancement potential.

The CFESC supports any effort by the San Francisco Metropolitan Transportation Agency (SFMTA) to relieve traffic congestion and improve public transit throughout the City. The need for enhanced public transit is particularly acute for the residents of Chinatown who rely mostly on public transportation to get to and from work, and where current bus routes are inadequate and over capacity. However, the CFESC also realizes it is important that short-term and long-term impacts to the neighborhood be addressed thoroughly before the Central Subway Project is given the green light. Specifically, the CFESC would like the Planning Commission to make sure that it receives satisfactory answers to the following questions:

1. How will the SFMTA ensure that the noise level will be kept to a minimum during construction?
2. Will small businesses affected by the construction be offered relocation assistance or compensation for their loss during construction? Will displaced businesses have an opportunity to rent space at the subway station?
3. Will the SFMTA assure that any loss of affordable housing due to the construction of a subway station in Chinatown be replaced?
4. Will the SFMTA make sure that neighborhood residents be given preferences for jobs generated by the project?
5. Will the SFMTA partner with community agencies and the City College to help train community residents in the trades that will be needed for the project? Further, will it help

W-1

W-2

W-3

W-4

W-5

W-6

support Vocational English as a Second Language programs aimed at assisting limited English-speaking residents with those trade skills to become better prepared for those job opportunities?

W-6  
Cont.

6. Will the community be given ample opportunity to provide input on the project, regarding the design of the station and where it will be located?

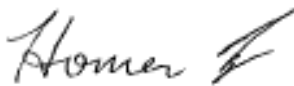
W-7

7. What will be the impact on current bus service — will there be service cutbacks?

W-8

We would like to conclude by reiterating that the CFESC acknowledges the need to relieve traffic congestion throughout the city, especially in Chinatown. We urge you to consider fully the above concerns while deciding whether the Central Subway Project is the best way to address it.

Sincerely,



Homer Teng  
Coordinator  
Chinatown Families Economic  
Self-Sufficiency Coalition

cc. Nathaniel Ford, SFMTA

Member agencies of the CFESC:

APA Family Support Services (APA)  
Asian Women Resource Center (AWRC)  
Charity Cultural Services Center (CCSC)  
Chinese for Affirmative Action (CAA)  
Chinese Newcomer Service Center (CNSC)  
Chinese Progressive Association (CPA)  
City College of San Francisco (CCSF)  
Community Youth Center (CYC)  
Donaldina Cameron House  
Goodwill Industries  
Jewish Vocational Service (JVS)  
Kai Ming Head Start  
Maintenance Training Corporation (Maintrain)  
NICOS Chinese Health Coalition  
Refugee Transitions  
Self-Help for the Elderly  
Wu Yee Children's Services



## **Responses to Letter W**

### **W-1**

The Chinatown Families Economic Self-Sufficiency Coalition (CFESC) supports any effort to relieve traffic congestion and improve public transit. Comment noted. The SEIS/SEIR analyzes both short-term construction impacts and long-term operational impacts of the Central Subway Project.

### **W-2**

Page 6-117 of the SEIS/SEIR describes that mitigation during construction will need to meet the San Francisco Noise Ordinance Limits, and that a detailed Noise and Vibration Control Plan will be prepared during the final engineering design for the project. This plan will identify all sources of noise during construction and will identify noise control measures that would be monitored during construction. The mitigation measures in the draft document describe typical noise control measures for construction activities. Appendix I, Mitigation Monitoring and Reporting Program, describes how construction noise and vibration would be monitored to ensure that Ordinance limits are met.

### **W-3**

See Response to Comment A-4. Small businesses displaced by the project will be offered relocation assistance and compensation for their loss of business during construction, as required by the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act and the State of California Relocation Act. Displaced businesses would also be given first rights to opportunities for renting commercial space in a new Chinatown station. Mitigation measures to minimize potential impacts to businesses in the Project Area are described for parking and truck access in Section 6.3 and for noise in Section 6.15 of the SEIS/SEIR.

### **W-4**

See Response to Comment A-4. Residents displaced by the project will be relocated during the period following the adoption of the Final SEIR/SEIS and Record of Decision scheduled for late 2008 and prior to the start of construction scheduled for 2010. Section 6.5.2 of the SEIS/SEIR describes the process to be used to comply with the Uniform Relocation Act for the 17 residential units displaced in Chinatown at the 933-949 Stockton Street station location. The potential for the replacement of housing on the Chinatown Station sites is identified as a mitigation measure on pages 6-52 to 6-84 of the SEIS/SEIR.

**W-5**

SFMTA will provide opportunities for Chinatown residents to seek jobs on the Central Subway Project through public notices (in English and Chinese) in Chinatown newspapers and project newsletters over the next two years and during construction. SFMTA has also retained the services of the CCDC to assist in communicating job opportunities to Chinatown residents.

**W-6**

Job training would be part of the construction contracting and procurement process, not part of the environmental review process for the project. SFMTA will explore all opportunities, consistent with City policies, to offer access to training for language and trades skills over the next several years leading to construction of the Central Subway.

**W-7**

Representatives from Chinatown are part of the Community Advisory Group (CAG) that has been actively involved in the Third Street Light Rail Project for over ten years. The screening process used to identify alternative station locations in Chinatown is described in Section 2.4 (pages 2-59 to 2-62) of the SEIS/SEIR that describes how the two station alternatives were selected for analysis. Chinatown representatives will continue to provide input to the station design and station art over the next several years and during final design/engineering for the project. SFMTA has retained the services of the CCDC to assist in the coordination with Chinatown businesses and residents and architectural historians to ensure that opportunities for input are part of the design and decision process leading to construction. Project presentations have been made to community organizations (Chinatown Families Economic Self-Sufficiency Coalition, Chinese Chamber of Commerce, Chinese Consolidated Benevolent Association, Chinatown Presbyterian Church) over the past year and a public meeting at the Gordon Lau Elementary School was held on November 8, 2007 to review the project and environmental findings.

**W-8**

See Response to Comment J-2. As noted on pages 3-36 and 3-37 of the SEIS/SEIR bus service on the 30-Stockton, 45-Union/Stockton, and 9X/9AX/BX-San Bruno would continue once the Central Subway is completed, though headways may be adjusted.



## Letter X

December 7, 2007

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CITY OF SAN FRANCISCO  
PLANNING DEPARTMENT  
M.E.A.  
COUNTY OF S.F.

Mr. Bill Wycko  
Acting Environmental Review Officer  
San Francisco Planning Department  
1650 Mission Street, Suite 400  
San Francisco, CA 94103-2479

Re: Central Subway Draft Supplemental Environmental Impact Statement/Report  
(DSEIS/R), October 2007

Dear Mr. Wycko:

Golden Gate Bridge, Highway and Transportation District (District) has reviewed the above-referenced document and offers the following comments pertaining to Golden Gate Transit (GGT) transit operations and facilities in the project Study Area.

#### GGT Bus Storage Facility Background

Since 1972, the District has actively sought a site for a permanent midday bus storage facility in San Francisco. Such a facility will secure the ability by this District to provide a viable public transit alternative between San Francisco and communities along the Golden Gate Corridor.

The Metropolitan Transportation Commission's 2001 Transbay Terminal Improvement Plan successfully concluded a nearly 35-year debate to determine the fate of the existing terminal. With the active participation and endorsement of this District, the City and County of San Francisco and other study panel members, this Plan successfully achieved regional consensus by recommending a replacement for the existing terminal.

The implementation of this Transbay Terminal Center (TTC) Plan will significantly benefit GGT by providing a long-sought GGT-exclusive and permanent bus storage facility beneath the I-80 freeway on the block bounded by 4<sup>th</sup>, Stillman, 3<sup>rd</sup> and Perry streets. The 2004 certified Final Environmental Impact Statement/Report (EIS/R) for the new Transbay Terminal project assumed GGT would access this facility via southbound 4<sup>th</sup> Street and eastbound Perry Street.

#### Comments on Central Subway Alignment Alternatives

- District appreciates the DSEIS/R acknowledgement of District's future bus storage facility at 4<sup>th</sup> and Perry streets throughout this document.
- District appreciates efforts by San Francisco Municipal Transportation Authority (MTA) in developing Alignment Alternatives that do not appear to restrict or compromise the access to this future bus storage facility at 4<sup>th</sup> and Perry streets. District acknowledges the assistance of Transbay Joint Powers Agreement (TJPA) staff and consultants in representing District interests and facilitating meetings between SFMTA and District staff to address District bus facility access issues affecting the Central Subway project.
- District appreciates recent design modifications for the portal location shown in the attached plan (labeled "Alternative 3B, Track Plan & Profile: Portal Exhibit," dated 10/10/07) prepared by SFMTA and transmitted to District by TJPA on 10/12/07. This recent

X-1

X-2

Mr. Wycko, SF Planning Department  
Comments to Central Subway DSEIS/R

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Page 2

Alternative 3B plan does not appear to restrict access by GGT buses to the bus storage facility on 4<sup>th</sup> and Perry streets. However, the Alternative 3B plan in the DSEIS/R, Pages 2-39 and 5-40, appears to illustrate a portal location that restricts access to the future bus storage facility by GGT buses. For example, Page 3-55 states "Because of the location of the portal on Fourth Street at Perry Street under the Interstate 80 freeway, the bus access from southbound Fourth Street to the GGT bus storage facility may be restricted due to the tight (bus) turning radius". Also, Page 7-11 states "the portal at Fourth Street under I-80 may restrict access to the future bus storage facility at Perry Street". Therefore, District requests that the FSEIS/R incorporate the attached 10/10/07 Alternative 3B, Track Plan & Profile: Portal Exhibit that mitigates this impact to GGT bus access to the future District bus storage facility. With this change to Alternative 3B portal location, District can support the Central Subway project.

X-2  
Cont.

- Neither Alternative 3B portal location shown on Pages 2-39 and 5-40 of the DSEIS/R nor the 10/10/07 plan includes design details for a portal impact attenuator. As previously discussed between District, SFMTA and TJPA staffs, please add the attenuator to the design plans for Alternative 3B portal in a manner that does not restrict the ability of GGT buses to access the future bus storage facility.

X-3

#### **Comments on Central Subway Construction Impacts**

Page 1-14 states one of the objectives of the Central Subway project is to "Minimize Adverse Construction Impacts". Page 7-5 defines a significant effect under CEQA for "Transit Services and Accessibility" to be an effect that may "cause a substantial increase in delays or operating costs such that significant adverse impacts in transit service levels could result". Pages 6-40 and 7-12 imply that close coordination with this District will be required to minimize impacts to GGT operations. District appreciates that construction impacts are temporary, and the full sequence of construction staging needs to be determined. Nevertheless, there appear to be several construction-related activities referenced in the DSEIS/R that potentially impact GGT's ability to either access or fully utilize the future bus storage facility. Since specific impacts to GGT operations are not identified, it is not possible to determine if these impacts are significant. Specific construction-related activities are discussed below.

X-4

#### **Impacts and Mitigation for Transit**

- Pages 6-34 through 6-36 (referring to all Alignment Alternatives) describe impacts and mitigating measures related to public transit services during project construction. The SDEIS/R does not adequately disclose if these impacts and mitigating measures will be applied to MUNI, GGT and/or all transit services in the Study Area. Given the high importance of GGT's future bus storage facility at 4<sup>th</sup> and Perry (as stated in the beginning of this letter), impacts to GGT operation and facilities along 4<sup>th</sup> Street are not known and may be potentially significant.

#### **Tunnel Excavation Shaft**

- Page 6-25 (referring to Alternatives 3A and 3B) states a "tunnel excavation shaft" will be located on 4<sup>th</sup> Street "beneath I-80 between Harrison and Bryant Streets," i.e., opposite the entrance of the future GGT bus storage facility. Pages 6-35 and 6-36 (referring to Alternatives 3A and 3B) state "At the tunnel construction shaft, buses will be rerouted to the west side of Fourth Street between Bryant and Harrison" and "buses would return to the east side of the street" and "two west lanes of Fourth Street between Bryant and Harrison Streets would remain closed for the duration of the construction of the guideway tunnels". This

X-5

Mr. Wycko, SF Planning Department  
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section of the DSEIS/R does not adequately disclose whether "buses" includes GGT and whether GGT will be able to access the future bus storage facility during construction of the tunnel excavation shaft.

Furthermore, Pages 6-34 and 6-35 (referring to Mitigation Measures common to all Alternatives) state "DPT would develop detour routes for non-transit traffic" and "DPT would try to limit traffic along construction routes to transit...". This suggests, although does not specifically state, that GGT will continue to operate on 4<sup>th</sup> Street during construction activities. District requests that DPT permit access to the future bus storage facility via 4<sup>th</sup> Street during project construction.

#### Utility Relocation and Curb Side Parking

- Page 6-32 (for Alternative 3B) states utility relocation and simultaneous elimination of curbside parking on 4<sup>th</sup> Street between Harrison and Bryant streets will be required during the first six months of project construction. The SDEIS/R does not disclose how (or if) GGT will be able to access the bus storage facility at 4<sup>th</sup> and Perry streets during this time. District requests that DPT permit access to the future bus storage facility via 4<sup>th</sup> Street during project construction.

#### Impacted Transit Services

- Page 6-32 (for Alternative 3B) states "The first 18 months of...pre-construction activities would include...impacted transit services". The SDEIS/R does not disclose if MUNI, GGT, or all transit services are expected to be impacted during this 18-month construction period.

#### Impacts and Mitigation for Traffic

- Page 6-38 (for Alternatives 3A and 3B) cites "Two traffic lanes on Fourth Street between Howard and Folsom Streets, would be closed for approximately four months...". The SDEIS/R does not disclose how (or if) GGT will be impacted by this lane closure.

The DSEIS/R does not appear to fully disclose how construction-related activities (i.e., tunnel excavation, shaft construction, utility relocation, elimination of curbside parking, street lane closures, and other activities) could potentially affect GGT's ability to access and fully utilize the future bus storage facility at 4<sup>th</sup> and Perry streets during construction of the Central Subway project. District requires access to the bus storage facility on a daily basis and expects to be consulted during the development of traffic diversion plans so access is assured.

District staff appreciates the opportunity to comment on the DEIS/R for this project. Please call our Principal Planner, Maurice Palumbo, at (415) 925-0160 if you have questions.

Very truly yours,

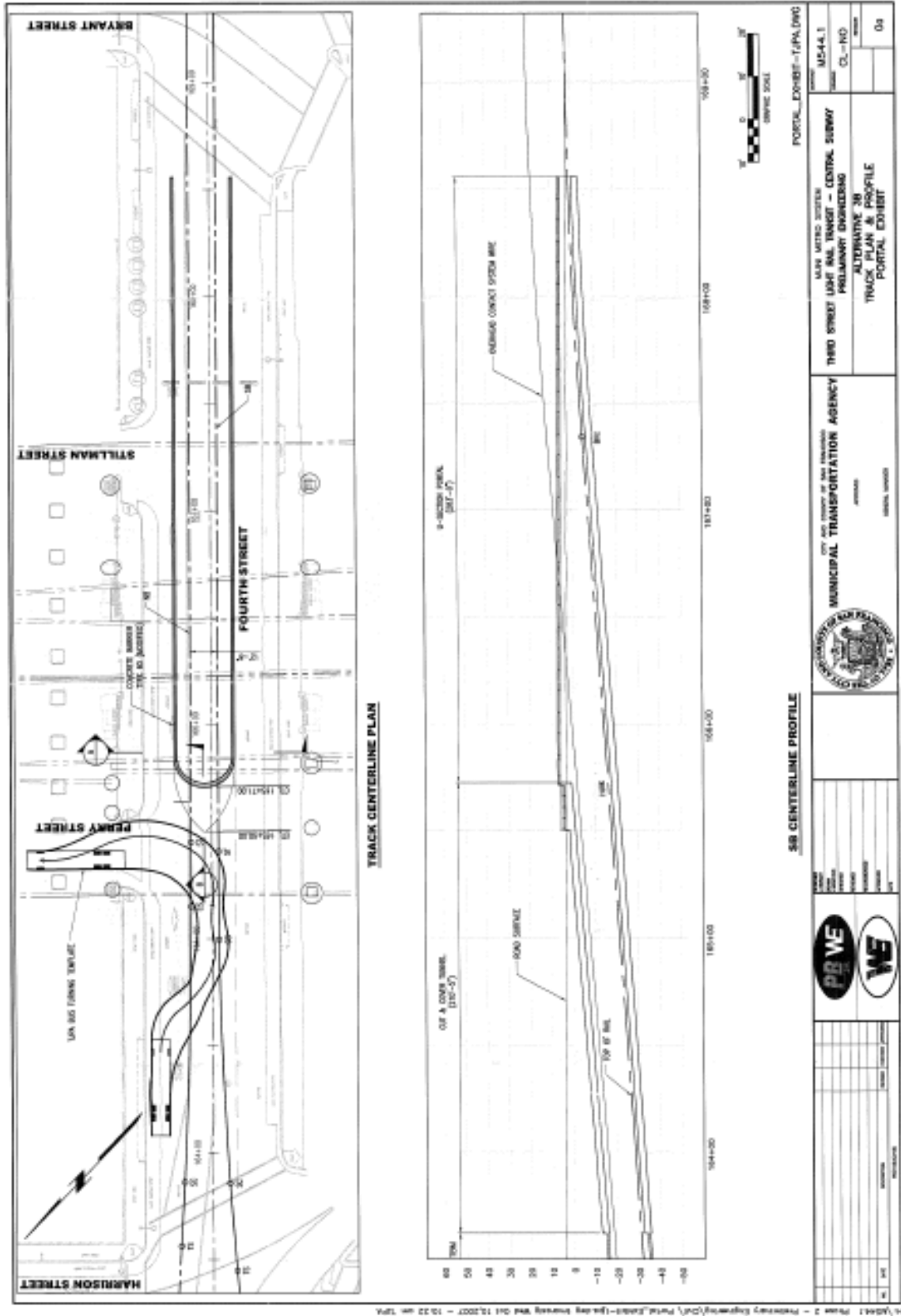


Alan R. Zahradnik  
Planning Director

Attachment

c: CG Kupersmith, SC Chiaroni, DJ Mulligan, M Palumbo  
Phil Sandri, TIPA

X-5  
Cont.



## **Responses to Letter X**

### **X-1**

Comment regarding the acknowledgement of the Golden Gate bus storage facility at the Fourth and Perry site is noted.

### **X-2**

See Response to Comment R-1. SFMTA is committed to continued close coordination with the TJPA and Golden Gate Transit for the interface between the Central Subway Project and the Transbay Transit Center Program, including the Bus Storage facility on Fourth Street. As noted on page 3-55, text changes have been incorporated into the SEIS/SEIR to reflect the revised location of the tunnel portal to accommodate bus access and the agreements reached.

### **X-3**

A crash barrier is planned for the portal to protect the entrance structure from turning buses. The current tunnel portal layout plans provide space for the tunnel crash barrier without interfering with the turning path of the bus as it enters the bus storage facility. Figure 2-18 on page 2-39, Figure 2-19 on page 2-41, and Figure 5-10 on page 5-40 have been revised to show the tunnel crash barrier. See Response to Comment R-1 for revised figures.

### **X-4**

The project construction would not impact any of the regular Golden Gate Transit bus routes as none of the Golden Gate Transit bus lines operate on Fourth or Stockton Streets in San Francisco. Construction on the segment of Fourth Street, between Bryant and Harrison Streets under Alternatives 3A and 3B, could temporarily affect access for empty Golden Gate buses entering the proposed Transbay Terminal bus storage facility at Fourth and Perry Streets. Under Alternative 2, the portal would be located to the south of the bus storage facility and would not have the same impacts.

Golden Gate buses would be entering the bus storage facility primarily after the morning peak period and would enter via Harrison, Fourth and Perry Streets. Generally, exiting from the site would occur prior to the start of the afternoon peak period via Perry and Third Streets. While a reduction in lanes is anticipated on Fourth Street between Bryant and Harrison Streets during the construction period for Alternative 3A or 3B, SFMTA plans to stage excavation shaft construction and utility relocation to maintain access to the bus storage facility by Golden Gate buses and will work with the Golden Gate Bridge Highway and Transit District (GGBHTD) to develop bus detour routing plans to ensure access. If access to the construction shaft is needed, it would be scheduled so as not to conflict with the periods



when buses are entering or exiting the bus storage site. The SFMTA is committed to continued coordination with the TJPA and GGBHTD to minimize construction impacts on Golden Gate Transit bus operations.

The impacts to the Golden Gate bus operations would be less-than-significant due to their temporary nature and the maintenance of access to the bus storage site during construction.

The following text changes and additions are proposed on pages 6-35 and 6-36 of the SEIS/SEIR to identify impacts to Golden Gate Transit buses and proposed mitigation measures.

The text of the second sentence, fourth paragraph, of page 6-35 is revised as follows.

“...At the tunnel construction shaft, Muni buses would be rerouted to the west side of Fourth Street between Bryant and Harrison Streets...

The following paragraph is added after the fourth paragraph, page 6-35:

“Excavation of the construction shaft under the I-80 Freeway between Bryant and Harrison Streets would also impact Golden Gate Transit bus operations under Alternative 3A. Buses will use Harrison, Fourth, and Perry Streets to enter the Transbay Terminal mid-day bus storage facility that is proposed for the site between Perry and Stillman Streets, east of Fourth Street. Generally buses would be entering the proposed Transbay Terminal bus layover facility after the morning peak commute period and exiting the site before the afternoon peak commute period (3 p.m.). The reduction in lanes on Fourth Street during the construction period would temporarily affect access to the bus storage facility.”

The text under Mitigation Measures for Alternative 3A on of page 6-36 is revised as follows.

“Mitigation measures would be same as those proposed under Alternative 2, except as described below. The MTA would continue to coordinate with the TJPA and Golden Gate Bridge, Highway and Transportation District (GGBHTD) to minimize construction impacts on Golden Gate Transit bus operations. MTA would stage excavation shaft construction and utility relocation to maintain access to the bus storage facility by Golden Gate buses and work with GGBHTD to develop bus detour routing plans to ensure continued access. If access to the construction shaft is needed, it would be scheduled so as not to conflict with the periods when buses are entering or exiting the bus storage site.”

The text revisions under Mitigation Measures for Alternative 3B on page 6-36 are revised as follows.

“Mitigation measures would be same as those proposed under Alternative ~~2~~3A.

The text of Less-Than-Significant-Impacts, Alternative 3A, Transit Construction, page 7-9 is revised as follows:

“5. Excavation of the construction shaft under the I-80 Freeway between Bryant and Harrison Streets would also impact Golden Gate Transit bus operations.”

The text of Improvement Measures, Alternative 3A, Transit Construction, page 7-9 is revised as follows:

“Same is Alternative 2, except SFMTA would coordinate with TJPA and GGBHTD to minimize construction impacts on Golden Gate Transit. SFMTA would stage excavation shaft construction and utility relocation to maintain access to the bus storage facility by Golden Gate buses and work with GGBHTD to develop bus detour routing plans for continued access. Access to the construction shaft would be scheduled to avoid conflict with the active bus periods.”

The text of Improvement Measures, Alternative 3B, Transit Construction, page 7-9 is revised as follows:

“Same as Alternative ~~2~~3A.”

## **X-5**

See Response to Comment X-4 and text revisions proposed in the Transit Impacts section. Access to the proposed bus storage facility would be maintained at all times, though rerouting of buses may occur for limited periods of time.

## Letter Y

December 8, 2007

Bill Wycko  
Acting Environmental Review Officer  
San Francisco Planning Department  
Central Subway Draft SEIS/SEIR  
1650 Mission Street, Suite 400  
San Francisco, CA 94103

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DEC 10 2007

CITY & COUNTY OF S.F.  
PLANNING DEPARTMENT  
M E A

Dear Mr. Wycko,

These are my comments on the Central Subway Draft SEIS/SEIR.

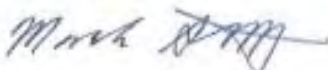
Among the design alternatives considered in this document, I strongly support **Alternative 3B** (Modified LPA) as the best and most cost-effective choice. I would like the following suggestions entered into the record:

**1. Union Square/Market Street Station—station entrances:** I support the proposed choice of the southeast corner of Union Square for the main entry, with a second set of stairs in the sidewalk on the north side of Geary Street east of Stockton. The latter will provide direct transfer access from the station to *outbound* buses on the 38 and 38L Geary lines. My suggestion is to include an additional set of stairs in a sidewalk bulb-out along the south side of O'Farrell Street just east of Stockton Street. This would provide direct transfer access into the station from *inbound* buses on the 38 and 38L Geary lines (which have a stop on that block). I think it would be a significant misjudgment to not maximize connectivity with these high-volume lines in both directions. Because the station is currently envisioned to have a full-length concourse, a stair entry at this corner should be a cost-effective means of facilitating these connectivity goals.

**2. Moscone Station—station entrances:** In addition to the proposed off-street, main entrance between Clementina and Folsom Streets, I'd suggest consideration be given to including the secondary entrances originally proposed in Alternative 3A: a stair entry in the west sidewalk of Fourth Street north of Howard Street and an escalator entry in the north sidewalk of Howard Street west of Fourth Street (Fig. 2-13). I think that this corner—with its wide sidewalks and being centrally located at the meeting of the 3 blocks of the Moscone Center—would represent a missed opportunity if not used for station access. The greatly increased station visibility would be a benefit that (I hope) would justify the added cost of extending a passageway northward from Alternative 3B's shortened concourse to provide access at this corner.

**3. Off-street entrances at Moscone and Chinatown stations:** I suggest that the designs of these 2 off-street entrances accommodate the option of locating the fare gates and ticket vending machines inside the street-level entry areas, near the top of the stairs, as an alternative to locating fare gates on the concourse levels. This would place more of each of these stations, including the main stairs and escalators, behind fare barriers, thus increasing system security and reducing opportunities for vandalism.

Sincerely,



Mark Scott  
358 Frederick St., Apt. 3  
San Francisco, CA 94117

Y-1

Y-2

Y-3

Y-4



## **Responses to Letter Y**

### **Y-1**

Comment expressing support for Alternative 3B is noted.

### **Y-2**

Comment supporting the access point in Union Square from Geary Street is noted. The number of access points at the subway stations was reduced to save costs for the project. The current design for Union Square Station Alternative 3B meets capacity and emergency access requirements for the project. Stair access would be provided on both the east and west sides of Geary Street and escalator and elevator access along the south side of Union Square along Geary Street. These entrances would be located near existing Geary 38 bus stops for ease of transfer. An additional stairway entry along O'Farrell Street would be cost-prohibitive at this time because available funding for the Central Subway Project is limited.

### **Y-3**

See Response to Comment Y-2. In early discussions with regarding the location of access points to the Moscone Station, representatives from the Moscone Center indicated that a station access directly connecting to the convention center at the northwest corner of Fourth and Howard Streets would present security issues. In addition, an existing sewer trunk line under Fourth Street between Howard and Mission Streets would interfere with station construction in this area. (See pages 2-59 through 2-61 of the SEIS/SEIR.)

### **Y-4**

The design team evaluated the potential for locating the fare gates and ticket vending machines at the street level and determined that the queuing requirements could not be accommodated in the limited surface area space at street level. In addition, MTA has a station agent at each station concourse level and fare gates are collocated with the station agent booth for security and passenger assistance purposes.

## Memo Z



Gavin Newsom | Mayor  
 Rav. Dr. James McCarty Jr. | Chairman  
 Tom Nolan | Vice-Chairman  
 Cameron Beach | Director  
 Shirley Broyer Black | Director  
 Will Din | Director  
 Peter Meney | Director  
 Leah Shuhm | Director  
 Nathaniel P. Ford, Sr. | Executive Director/CEO

**Date:** December 10, 2007  
**To:** Bill Wycko, City Planning  
**From:** Peter Straus, SFMTA Muni Service Planning  
**Subject:** Comments – Central Subway Draft Supplemental EIS/EIR, Oct 2007

### 1. Annual Operating Statistics

- a. **Tables S-2, 2-2, 2-4 and 2-6** – There is confusion in the column headings over use of "Systemwide." After talking with Dan Rosen, I suggest the following:

Alternative	Peak Headways 9-X Line <sup>2</sup>	Diesel/Trolley Peak Demand (fleet size) <sup>1</sup>	Total Annual Diesel/Trolley Bus Hours (Systemwide) <sup>1</sup>	Peak Headways T-Third <sup>2</sup>	LRV Fleet Peak Demand (Fleet Size) <sup>3</sup>	Total Annual LRV Car Hours T Line (Systemwide) <sup>3</sup>
-------------	-------------------------------------	--	---	------------------------------------	---	---

### 2. Abbreviations – In text need to explain what an abbreviation means, but also in tables need to spell out abbreviations

- a. **Executive Summary Table S-3 and page S-13** – Need to explain what "YOE" means  
 b. **Chapter 8 Table 8-1** – Need to explain what "YOE\$" means.

### 3. Appendix E

- a. **Tables E-1 & E-2** –  
 i. Three footnotes (1), (2), (3) are missing.  
 ii. There is no plausible explanation for the sharp drop in the 30 and 45 line patronage between the year 2000 and the 2030 No Project/TSM Alternatives. In the Central Subway January 2007 model run, as shown in Tables E-1 and E-2, the 2030 No Project/TSM 30/45 Line patronage is less than half that of the year 2000 patronage. In the No-Project/TSM Alternative, the T-Third Line runs along the Embarcadero and in the Market Street subway, and does not directly serve the 3rd/4th/Stockton/Columbus corridor between Townsend and Chinatown/North Beach/Russian Hill/Cow Hollow and the Marina. Consequently, there is no reason why there should be a drop in patronage or in service levels for the 30 and 45 Lines.  
 b. **Tables E-3 and E-4** – Are the estimated daily transit ridership trip origins and destinations for the existing or future conditions?

San Francisco Municipal Transportation Agency  
 San Francisco Municipal Railway | Department of Parking & Traffic  
 One South Van Ness Avenue, Seventh Fl. San Francisco, CA 94103 | Tel: 415.701.4500 | Fax: 415.701.4430 | [www.sfmta.com](http://www.sfmta.com)

Z-1

Z-2

Z-3

Z-4

Z-5

## Responses to Memo Z

### Z-1

The following text changes suggested by the Muni Service Planning Section are incorporated into the column headings for Table S-2, page S-12; Table 2-2, page 2-23; Table 2-4, page 2-35, and Table 2-6, page 2-48 of the SEIS/SEIR:

Alternative	Peak Headways 9-X Line <sup>2</sup>	Diesel/Trolley Peak Demand ( <del>Systemwide Fleet</del> size) <sup>1</sup>	Total Annual Diesel/Trolley Bus Hours (Systemwide) <sup>1</sup>	Peak Headways T-Third <sup>2</sup>	LRV Fleet Peak Demand <sup>3</sup> ( <del>Systemwide</del> Fleet size) <sup>1,3</sup>	Total Annual LRV Car Hours <del>T-</del> <u>Line</u> (Systemwide)
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### Z-2

The following changes suggested by the Muni Service Planning Section are incorporated into the text.

The text of the footnote in Table S-3, page S-13 is revised as follows.

“Costs for Alternatives 3A and 3B do not include the North Beach Construction Variant, which is estimated to costs \$54 million in Year of Expenditure (YOE) dollars.”

The text of the second paragraph of page S-13 is revised as follows.

“As indicated in the total capital cost for the Enhanced EIS/EIR Alignment, including the purchase of four additional LRVs (3 peak and 1 float vehicle) to accommodate 2030 demand is estimated at \$1.345 billion (\$1.685 billion in Year of Expenditure (YOE)). The total capital cost for the Central Subway Fourth/Stockton Alignment Option A is estimated at \$1.131 billion (\$1.407 billion in YOE) and the total capital cost for the Fourth/Stockton Alignment Option B is estimated at \$1.014 billion (\$1.235 billion in YOE).”

The text of the first sentence, first paragraph of page 8-7 is revised as follows.

“The projected incremental operating costs for both the T-Third line (IOS) and Central Subway Alternatives are summarized in Table 8-2 in year of expenditure dollars (YOE).”

The following footnote is added to Table 8-2, page 8-7.

“Note: YOE is Year of Expenditure.”

**Z-3**

The following changes suggested by the Muni Service Planning Section are incorporated into the text.

The following footnotes are added to Table E-1 and E-2 in Appendix E.

“Notes: <sup>1</sup> Central Subways T-Third long-line to Visitacion Valley and T-Third short-line to 18<sup>th</sup> and Third Streets.  
<sup>2</sup> 15-Third Line shifts to 9X-San Bruno or to the T-Third line.  
<sup>3</sup> 45 Union/Stockton extended into Mission Bay.”

**Z-4**

The ridership for the existing year and the future years has been revised based on new model runs from the updated SF model (see revisions incorporated into Tables E-1 and E-2 in the SEIS/SEIR). The updated results show that there would be an increase in ridership between 2000 and 2030 on the 30-Stockton and 45-Union/Stockton lines for the No Project/TSM Alternative as suggested by the commenter.

**Z-5**

The estimated transit ridership in Tables E-3 and E-4 is projected for the year 2030.

The text of the titles of Tables E-3 and E-4 are revised as follows.

**“ESTIMATED 2030 DAILY TRANSIT RIDERSHIP”**

## Letter AA

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DEC 13 2007

CITY & COUNTY OF S.F.  
PLANNING DEPARTMENT  
M.E.A.



December 10, 2007  
*Via facsimile 415/558-6409*

William Wycko  
Acting Environmental Review Officer  
San Francisco Planning Department  
1650 Mission Street #400  
San Francisco, CA 94103

**Re: Draft Supplemental Environmental Impact Statement / Environmental Impact Report ("SEIS/SEIR") and Section 4(f) Report ("4F Report")  
Central Subway Project (Phase 2) (State Clearinghouse No. 96102097)**

Dear Mr. Wycko:

This letter sets forth the comments of the Telegraph Hill Dwellers ("THD") on the Draft Supplemental Central Subway SEIS/SEIR prepared on behalf of the U.S. Department of Transportation and San Francisco Planning Department ("Lead Agencies") for the project sponsor, the San Francisco Municipal Transit Agency ("MTA"), to analyze the environmental impacts of the proposed Central Subway project. This letter does not express opposition to a Central Subway Project, but is intended to articulate our concerns with the adequacy of the SEIS/SEIR to address the environmental impacts of the proposed project on our community. By way of introduction, THD is a non-profit organization incorporated in 1956, currently representing over 800 residents from the Telegraph Hill, North Beach, and Chinatown neighborhoods. One of San Francisco's oldest community organizations, THD was founded to perpetuate the historic traditions of these areas and has been actively involved with land use issues affecting northeast San Francisco for over five decades.

### OVERVIEW

This is a brief overview of THD's concerns, followed by specific comments. Even within the constraints of the Supplemental analysis, given the scope and methods of the previous FEIS/FEIR, the Alternatives are overly narrow. They do not adequately address the broader needs set out by the document to serve northeast San Francisco and transit-dependent populations, even limited to the northeast segment of the Corridor.

The study of the Chinatown and North Beach neighborhoods is exceptionally limited, at odds with the purported purpose of the subway line, and the purpose of the SEIS/SEIR to disclose and mitigate project impacts and evaluate alternatives. Analysis of construction impacts and, most importantly, management of construction impacts is requisite for an undertaking of this magnitude; this is beyond a basic mitigation monitoring plan.

AA-1

AA-2

William Wycko  
December 10, 2007  
Page 2

The Federal requirements under Section 4(f) to avoid adverse impacts to historical resources are not addressed by the alternatives, which all include given impacts in Chinatown, and Alternative 3B to North Beach. While such impacts might be routinely the subject of CEQA overriding considerations in the City and County's jurisdiction, no such mechanism exists under 4(f) when reasonable options exist to avoid these impacts.

AA-3

## PURPOSE AND NEED

The underlying "Need" defines the objective criteria for development of alternatives. The findings supporting the Record of Decision must be based on the "Needs" as set out in the document. As stated in Section 1.3, the "Needs" for the project, to year 2030, include:

**"mobility and transit deficiencies in the northeastern part of San Francisco"** to be met with improved:

- **"connections to communities in the southeastern part of the City",** and
- **"reliability of transit service";**

**"congestion" and "mobility needs for new jobs",** throughout the **"Study Area"** to be met with:

- **"infrastructure improvement"** (Central Subway would be a key improvement to ease congestion);

**"the large transit-dependent population" of the "Corridor,"** to be met with improved

- **"transit service";** and

**"South of Market area"** residential growth accommodation.

The "Needs" Statement raises several questions:

- 1) **Affected Environment.** The SEIS/SEIR fails to meet the **Need** to address "northeastern," "southeastern," or "South of Market" by limiting the Study Area as "generally within a two block radius of the Corridor" (3.1).
- 2) **No methodology** is presented to explain how the affected environment of the Corridor represents the areas described in the needs statement, for purposes of study, let alone how the project improvements would actually serve the extent of the areas defined by the Needs Statement.
- 3) **Growth Accommodation.** Exactly what residential and/or commercial development is anticipated to be accommodated by the proposed Subway?

AA-4

AA-5

## ALTERNATIVES

The statement of underlying Needs should determine the range of alternatives in an EIS/EIR.

AA-6

William Wycko  
 December 10, 2007  
 Page 3

- |   |                       |
|---|-----------------------|
| <p>4) <b>Needs Statement.</b> The guiding parameter for creation and evaluation of alternatives is the Needs Statement. The SEIS/SEIR fails to link the material it presents back to the needs identified to improve service to northeast and southeast San Francisco and the South of Market area.</p> <p>5) <b>Area Extent.</b> Irrespective of how alternatives were developed, how were project improvements evaluated in the alternatives in terms of the extent of the areas defined by the needs statement?</p>  | <p>AA-6<br/>Cont.</p> |
| <p>6) <b>Avoidance of Impacts to Historic Resources.</b> The Alternatives fail to include options to avoid significant impacts on historical resources. What are the options for alternative station siting in Chinatown to avoid the demolition of historic structures? What are the options for alternative locations for the Tunnel Boring Machine to come out of the ground to avoid adverse temporary and/or permanent impacts to Washington Square Park (Landmark No. 226) or on other historic resources identified by the North Beach Survey and/or determined eligible for the National Register of Historic Places in North Beach? Were alternative locations to avoid these potential adverse impacts considered as required by Section 4(f), CEQA and NEPA?</p> | <p>AA-7</p>           |
| <p>7) <b>Transit-Dependent Persons.</b> The project would serve those already residing on an existing transit corridor. How were the actual needs of transit-dependent persons considered in the alternative analysis? Of people throughout the Study Area?</p>   | <p>AA-8</p>           |
| <p>8) <b>Equity.</b> Is accessibility equity, to address mobility needs, a consideration? How do the alternatives evaluate equity for transportation-dependent persons in the North Waterfront and North Beach, some of whom are within the Study Area? South of Market? Southeastern San Francisco?</p>  | <p>AA-9</p>           |
| <p>9) <b>Limitation of Service Area.</b> The tunnel alternatives excavate to North Beach without serving the Study area with a North Beach Station, or continuation to Fisherman's Wharf; given the investment in the tunnel, why were alternatives with linkages to North Beach and the North Waterfront, serving stated needs, residents, and tourists, not considered in favor of a dead-end to the southern half of Chinatown?</p>  | <p>AA-10</p>          |
| <p>10) <b>Street-level Alternative.</b> An alternative to the action would be using the critical Federal money to finance an above ground alternative as recommended by Regional Alliance For Transit (RAFT).</p>   | <p>AA-11</p>          |

## TRANSPORTATION

The impact analysis, disclosure, and construction management plan should dwarf the presentation of the project and existing affected environment. In this case, not even the whole of the affected environment, half of Chinatown and all of North Beach, has baseline information presented with which to perform the analysis, disclosure, and mitigation management required. The emphasis of the document is inverted from the purpose it serves.

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| <p>11) <b>Transit Preferential Streets.</b> "Transit Preferential Streets" (TPS) Improvements Areas noted include Stockton Street/Columbus Avenue and Market Street. Where are</p> | <p>AA-13</p> |
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the improvements for Stockton Street/Columbus Avenue? How is a connection gap at Market Street (to Union Square) an improvement?	AA-13 Cont.
12) <b>Transit Demand.</b> The project would make the pedestrian level of service of Stockton at Washington <u>worse</u> , not better. Although the demographics of Chinatown, as more dense and projected to grow, are used rationalize the limited service of the proposed Subway, Chinatown is not served well without relief to the north, which has worse existing LOS conditions than the area the Subway would serve. With the immense expense of the Subway, why does the project does not address the areas of greatest transit demand?	AA-14
13) <b>Existing Transit Corridor.</b> The Subway would serve a corridor already served by transit. How would the project be meeting an underserved need for mobility throughout the Study Area? Throughout the areas described in the needs statement?	AA-15
14) <b>Evidence.</b> The SEIS/SEIR does not show the existing bus stops, in all of the "Affected Environment" material presented, nor indicate where there would be specific relief with the Subway project, in the impact or alternative analysis. No methodology beyond boarding counts is presented; there is inadequate information presented to evaluate the SEIS/SEIR.	AA-16
15) <b>Pedestrian Level of Service.</b> The existing pedestrian level of service of Stockton to Washington is described as LOS A. At what time of day were counts made?	AA-17
16) <b>LOS</b> through the more congested stretch of Stockton between Columbus and Broadway/Washington is not addressed; as part of the Corridor, why not?	AA-18
17) <b>Chinatown, North Beach Corridor.</b> The SEIS/SEIR does not present or analyze <b>traffic or LOS</b> in Chinatown or North Beach areas, <u>within the Corridor</u> described as the Study Area, for <b>existing, projected, or construction conditions</b> of the affected environment, and thus the SEIS/SEIR is plainly inadequate. Stockton/Post is not in Chinatown. The SEIS/SEIR fails to present <u>any</u> analysis of traffic north of Union Square.	AA-19
18) <b>Vehicular Level of Service.</b> How will the subway affect existing conditions of Stockton to Columbus and Columbus Avenue?	
19) <b>Intersection LOS</b> is presented for "only for intersections" that would be projected to operate at E or F. However, Chinatown is not studied, so this SEIS/SEIR statement cannot be supported.	
20) <b>Loading.</b> The SEIS/SEIR does not present or analyze <b>loading</b> , within the in Chinatown or North Beach areas of the Corridor described as the Study Area, for <b>existing</b> conditions of the affected environment.	
21) <b>Projected loading conditions.</b> On-street parking spaces, counted on Stockton from Clay to Washington Street, do not describe loading spaces or loading conditions. <b>Projected</b> conditions are described in terms of "loss of existing" and attesting to "already nearby loading zones", but there is no information presented to substantiate that conclusion.	AA-20
22) <b>Construction conditions</b> include, under 3B, the Tunnel Boring Machine (TBM) retrieved "from a shaft in the middle of Columbus Avenue" and truck traffic for spoils will involve land closure for a period of "six months" to "the full duration of construction;" however, the impacts on loading and on business activity is not described; the SEIS/SEIR is plainly inadequate.	AA-21



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- 23) **Parking.** The SEIS/SEIR does not present or analyze parking conditions or impacts within the Corridor described as the Study Area, for **existing, projected, or construction conditions** on the affected environment and, therefore, the SEIS/SEIR is plainly inadequate. On-street parking spaces, counted on Stockton from Clay to Washington Street, do not describe conditions sufficiently to analyze the impacts of project construction.

AA-22

## AFFECTED ENVIRONMENT

The Needs Area is not matched by the Study Area, and little of either is captured in the Corridor. The Corridor cannot be used as a surrogate for describing benefits realized (or not) for the Needs or Study Areas.

- 24) **Study Area.** The SEIS/SEIR variously describes the **Study Area** as shown on Figures 1-1 (p. 1-3) and 1-2 (p. 1-7), as the MTC Travel Zones/Census tracts (locations not shown) (p. 1-6), as "generally within a two block radius of the Corridor"(3.1).
- 25) **Affected Environment.** The SEIS/SEIR does not address "northeastern", "southeastern", or "South of Market" although these areas are defined in the needs statement. Instead, it limits the **Study Area** as "generally within a two block radius of the Corridor"(3.1).
- 26) **Chinatown.** Stockton/Broadway is indicated as part of North Beach, and thus not served by the proposed subway (1-6). However, Chinatown straddles Broadway; thus, over half of Chinatown is not included in the service area definition required by the needs statement(s).
- 27) **CAG and Affected Area.** "The MTA established a Community Advisory Group (CAG) early in the planning process to provide input to the identification and selection of design options for the Third Street Light Rail Project and to help select the options to carry forward for environmental review. The CAG is composed of a broad cross-section of stakeholder groups from the six primary neighborhoods in the Third Street Corridor: Visitation Valley, Bayview Hunters Point, Potrero Hill, South of Market, and Chinatown/Downtown. The CAG has met six times since December of 2003 to discuss the Central Subway phase of the Project." The North Beach / Telegraph Hill neighborhood should have had representation on the CAG.

AA-23

AA-24

## PLAN CONSISTENCY

Plan consistency is a Federal requirement.

- 28) **Plans.** How is the project consistent with the SFCTA Strategic Plan's identification of "North Beach" as one of the Four Corridors for upgrades with "fixed guideway transit lines"? (4-13)

AA-25

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| 29) How is the project consistent with the Port's <b>Waterfront Land Plan's</b> overarching goal "to reunite the City with its [northern] waterfront? (4-14)  | AA-26 |
| 30) How is the project partially consistent with the <b>Northern Waterfront Land Use Plan</b> guidance to provide "maximum access" and "accommodate the movement of people," ...by "improving transit service between Fisherman's Wharf and China Basin"? (4-5) | AA-27 |
| 31) How is the project consistent with the San Francisco <b>General Plan, Transportation Element</b> , to provide fixed guideway transit to the North Beach corridor? (4-2)   | AA-28 |
| 32) How is the project consistent with the San Francisco <b>General Plan, Commerce &amp; Industry Element</b> , to support the tourist industry? (4-2)  | AA-29 |
| 33) How is the project consistent with the Chinatown Plan to meet Chinatown's need for better <b>East-West</b> transit links? (4-2)   | AA-30 |

### CONSTRUCTION IMPACTS

Although limited in duration, these are the most pronounced and widely disruptive of any impact of the project. Without a comprehensive construction management plan to address circulation, in concert with the transit, service, and utility infrastructure, this will bring chaos and serious impacts on local businesses. Standard dust control and noise ordinances are insufficient to address a project of this magnitude. There is no substantive discussion of the effects of noise, dust, or vibration on sensitive receptors, or mobility impedances for this same population. No discussion of the impact on or relief to affected businesses is discussed.

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| 34) <b>Economic impacts.</b> The SEIS/SEIR does not present or analyze area business patronage generally, and discussion regarding construction impacts on business is virtually absent.   | AA-32 |
| 35) What would the impact be on Chinatown and North Beach area businesses? There were enormous disruptions after the 1989 earthquake.  |       |
| 36) What protections are in place for the economic impacts, yet to be described in the SEIS/SEIR?  |       |
| 37) <b>Transit.</b> Where is the comprehensive construction management plan to address coordination of route changes, truck movements, public information, etc?  | AA-33 |
| 38) <b>Affected Area.</b> The extent of impacts, given the changes to transit routes and street closures, extends beyond the two-block buffer of the alignment. The SEIS/SEIR is not adequate for the limitation of the affected area (were it) addressed in this regard.  | AA-34 |
| 39) <b>Debris and street closures.</b> Dirt will be pushed out right by Washington Square; what portions of the street would be closed for how long, what that would do to traffic, how would the equipment be removed, how many people would be working there and what debris might be cast off by the construction in that area? What assurance is that that the construction equipment will not be stored in Washington Square or impact the public use of this Landmark public park? | AA-35 |
| 40) <b>Sensitive Receptors.</b> The SEIS/SEIR does not present or analyze the presence of <b>sensitive receptors</b> ; the SEIS/SEIR discussion is thus inadequate in discussion of  | AA-36 |

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| <p><b>noise, dust, recreational impacts</b>, and impact of travel impedances, as these affect a vulnerable population. The <b>environmental justice</b> discussion is also incomplete for this reason.</p>                             | <p>AA-36<br/>Cont.</p> |
| <p>41) <b>TBM impact concentrations.</b> Chemical contaminants possibly already in the soil are outlined but not the environmental consequences of the Tunnel Boring Machine being extracted at Washington Square.</p>                 | <p>AA-37</p>           |
| <p>42) Being that the Tunnel Boring Machine will come out of the ground at Washington Square Park wouldn't the noise level be higher?</p>  | <p>AA-38</p>           |
| <p>43) The truck trips are not enumerated for the TBM and Washington Square Park activities.</p>   | <p>AA-39</p>           |
| <p>44) <b>Emergency Access.</b> The SEIS/SEIR does not adequately describe impacts to police and fire response; even if there will be a plan developed in the future, there needs to be some characterization of impact presented.</p> | <p>AA-40</p>           |

#### SECTION 4(F)

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| <p>Avoidance alternatives are required under Section 4(f), however, the historic resources slated for demolition on Stockton Street are not considered "takes." The effects on Washington Square Park and historic district resources are not considered for appropriate protection.</p>   | <p>AA-41</p> |
| <p>45) <b>Construction impact avoidance.</b> No measures are identified for protection of resources, as part of avoidance, under 4(f).</p>   |              |
| <p>46) <b>Alternatives which avoid impacts are <u>required</u> under 4(f).</b></p>   |              |
| <p>47) <b>Washington Square Park</b> is City Landmark No. 226. "At the TBM retrieval shaft in Columbus Avenue at Washington Square, the roadway (originally Montgomery Avenue) was cut through between 1873 and 1875, bisecting Washington Square. Deposits related to the early years of Washington Square as a public space and park may be present." These are avoided, protected, preserved how? And how would the landscape of the Park and Columbus Avenue, including the street trees and trees in the park be protected and impacts avoided?</p> | <p>AA-42</p> |
| <p>48) An <b>Alternative</b> which makes use of the unimproved lot on Stockton at Clay Street for the station would not require the demolitions to historic resource buildings on Stockton Street. If the rationale is that the lot was not originally studied or included in the original APE, it is specious to assert one (1) lot cannot be evaluated for archeological/cultural resource concerns as an addition to this Supplemental document.</p>  | <p>AA-43</p> |
| <p>49) An <b>Alternative</b> which returns Stockton Street to a streetcar-only street, as it was when the Stockton Tunnel was constructed, and to allow loading and emergency access, would allow the investment of Federal monies to extend a surface streetcar all the way to Fisherman's Wharf, arguably serving San Francisco much better than the dead-end subway proposed. This would not require the demolitions to resource buildings on Stockton Street or impacts to Washington Square.</p>  | <p>AA-44</p> |

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## ADEQUACY

In light of the SEIS/SEIR omissions in the alternatives and analysis, the document does not meet the tests for legal adequacy, let alone fairness that our neighborhood deserves.

50) **Alternatives.** The SEIS/SEIR fails to demonstrate that it studied impacts or alternatives for the whole of the affected area described by the needs statement to support findings.

AA-45

51) **Existing Affected Area.** The SEIS/SEIR fails to present existing conditions, impact analysis, or alternative consideration for at least half of the area of Chinatown (north of Broadway), Chinatown being, ostensibly, a fundamental area of concern for expansion of the light rail.

AA-46

If our community is to consider the TBM being extracted in North Beach, let alone at Washington Square Park, without the benefit of service, no less than complete discussion of environmental consequences and comprehensive plan to manage impacts is acceptable.

AA-47

We believe feasible alternatives exist which should be considered, as they avoid impacts as required by 4(f).

We look forward to receiving the Comments and Responses prepared for the Draft SEIS/SEIR.

Sincerely,

Vedica Puri  
 President

CC: Nathaniel P. Ford, San Francisco Municipal Transportation Agency  
 Leslie T. Rogers, U.S. Dept. of Transportation, Federal Transit Administration  
 Ray Sukys, U.S. Dept. of Transportation, Federal Transit Administration  
 Joan A. Kugler, San Francisco Planning Department

## Responses to Letter AA

### AA-1

While Telegraph Hill and North Beach are located in the northeastern quadrant of San Francisco, they are identified in the 1995 *Four Corridor Plan* (San Francisco County Transportation Authority) as a future transit corridor, following development of the Third Street Light Rail and Central Subway. North Beach is shown as part of the Central Subway study area (Figure 1-2) to include evaluation of the option of an underground construction tunnel to Columbus Avenue in North Beach for purposes of extracting the Tunnel Boring Machine upon completion of the tunnel construction.

Consistent with the certified 1998 Third Street Light Rail Final EIS/EIR, and with the adopted *Four Corridor Plan*, the Central Subway revenue service would terminate at the station in Chinatown at Stockton and Jackson Streets. SFMTA's objective for the proposed Project is to complete the second phase of the Third Street Light Rail Project and provide Muni transit improvements in the Central Subway corridor (page 1-3 of the Purpose and Need). The Third Street Light Rail Project stated a "need" to address deficiencies in the transit system serving the communities in the southeastern part of San Francisco, including deficiencies that exist at present and those that are anticipated to exist during the 20-year planning horizon. Connections between Bayview Hunters Point and Visitacion Valley with Downtown and Chinatown and to regional transit services were an important part of the definition of "need" for the light rail project.

The reference to the use of transit deficiencies in the "northeastern part of San Francisco" on pages S-3 and 1-4 of the SEIS/SEIR has been revised to read "northeastern and southeastern" for consistency with the original need statement. This was the basis for defining alternatives in the original Third Street Light Rail Project EIS/EIR, including the Phase 2, Central Subway. This is also consistent with the definition of the terminus of the Central Subway Project in the vicinity of Stockton and Jackson Streets in Chinatown, as defined in the September 2006 Notice of Preparation (NOP), which was used to define the alternatives for the SEIS/SEIR.

The first sentence, first paragraph, page S-3 is revised as follows:

"The Central Subway Project would help to address mobility and transit deficiencies by improving connections to communities in the northeastern and southeastern parts of the City and improving reliability of transit services."

The first sentence, last paragraph, page 1-4 is revised as follows:

“The Central Subway Project would help to address mobility and transit deficiencies by improving connections to communities in the northeastern and southeastern parts of the City and improving reliability of transit services.”

#### **AA-2**

See Response to Comment AA-1 above. The impact analysis for the North Beach area is focused on potential impacts to traffic, transit, park land, cultural resources (archaeological resources and historic properties), noise and vibration and biology for the temporary construction tunnel that would extend to Columbus Avenue in North Beach for the purpose of extracting the Tunnel Boring Machine (TBM). The potential impacts from this underground tunneling activity and one-week extraction of the TBM were analyzed and were found to be less-than-significant and would be further minimized by mitigation measures defined in the SEIS/SEIR. Potential impacts to Chinatown are not limited, and are described in detail in the document in Chapters 5.0 and 6.0. The management of the mitigation monitoring program is described in the Mitigation Monitoring and Reporting Program (MMRP) attached to this Final EIS/EIR as Appendix I. SFMTA will have overall responsibility for ensuring that all mitigation measures are implemented and that compliance is reported to the Planning Department on a quarterly basis.

The Appendices of the SEIS/SEIR are revised to add the Mitigation Monitoring Reporting Program as Appendix I.

#### **AA-3**

The 2005 revision to the federal regulations that govern Section 4(f) reporting described on page 10-8 of the SEIS/SEIR allows a finding of de minimis impacts when the activities, features, and attributes of the 4(f) resource would not be adversely affected. Concurrence from the Department of Recreation and Parks for the minor impacts to Union Square and Washington Square parks is attached as Appendix J. FTA concurs with this finding (Appendix J).

The Appendices of the SEIS/SEIR, Volume I, are revised to add the Recreation and Park Commission de minimis finding as Appendix J.

#### **AA-4**

See Response to Comment AA-1. Reference to the mobility and transit deficiencies in the “northeastern” part of San Francisco has been added to a reference to “southeastern” part of the city for consistency with the need statement in the Final EIS/EIR for the Third Street Light Rail Project. The mobility and transit

deficiencies relate to the Bayview/Hunters Point residents in the southeastern neighborhoods of the City and the need for improved transit connections with Downtown, Chinatown and transit systems that serve the region (BART and Caltrain). The affected environment for the Central Subway analysis of potential impacts is consistent with the study area established for the subway segment of the Third Street Light Rail for the 1998 EIS/EIR. The alternatives in this SEIS/SEIR have been expanded to include the Fourth Street corridor (Alternative 3 A and B) added as a result of public scoping. Each of the evaluations performed for the environmental categories (as detailed in Chapters 3.0, 5.0, and 6.0) looked at an impact area that was appropriate for that environmental resource.

#### **AA-5**

The population and employment growth between the year 2000 and 2030 is shown on Table 1-1, page 1-6, and identifies the projected growth for the Central Subway Corridor. The greatest growth is projected in the Mission Bay development and in the South of Market area. The Central Subway Project traverses this growth area and would provide transit connections to regional transit (BART, Caltrain) and other Muni lines, however, other areas along the Third Street corridor will also benefit by being able to access Downtown and Chinatown.

#### **AA-6**

While the Central Subway Corridor is served by major bus lines, surface congestion, particularly along Stockton Street, results in unreliable service and delays for transit passengers. As stated on page 1-4 of the SEIS/SEIR, the Central Subway Project would help to address mobility and transit deficiencies by improving connections between the southeastern and northeastern part of the City and improving reliability of transit services. The goals of the Central Subway Project include: improving transit in the Central Subway Corridor to enhance the mobility of corridor residents, business people, and visitors; bringing transit service in the Central Subway Corridor to the level and quality of service available in other sections of the city; and to support economic development within the South of Market, Downtown, and Chinatown Study Area. By reducing transit travel times along the corridor and improving service reliability, all of the build alternatives of the Central Subway Project would meet the stated project goals and Purpose and Need as summarized above.

The alternatives analyzed in the SEIS/SEIR are consistent with those identified in the Notice of Preparation (NOP) dated September 20, 2006 (Appendix B) and presented to the public at scoping meeting and public information meetings. Alternative 2 was modified to meet current fire and safety codes, but otherwise is the same subway corridor as analyzed in the Final EIS/EIR for the Third Street Light Rail Project in 1998. Section 2.4 Project Development History, page 2-52 to page 2-62, describes

the full range of alternatives assessed during project development and the environmental review process. Transit reliability, connectivity with other transit lines, increases in traffic congestion, which relate to the overall goals of the Project and the Purpose and Need are addressed in Chapter 3.0, Transportation, for the No Project and for each of the subway alternatives.

**AA-7**

Measures to minimize harm to Section 4(f) resources (including the two buildings in Chinatown that are potentially eligible for the NRHP as contributors to the potentially eligible Chinatown Historic District, and Union Square Park, Washington Square Park and Willie “Woo Woo” Wong Playground) are described on pages 10-46 to 10-49 of the SEIS/SEIR. Implementation of these measures would reduce the potential impacts to resources to minor resulting in a de minimis finding for Section 4(f) and would not require analysis of avoidance alternatives. Impacts to historic properties are described in Sections 5.4.1 and 6.7.2 of the SEIS/SEIR. Demolition of either of the buildings in Chinatown for station development would constitute a significant adverse effect that will require a statement of overriding considerations at the time of project adoption.

**AA-8**

As stated in Chapter 1.0, Purpose and Need on page 1-5 of the SEIS/SEIR, the population along the Central Subway Corridor has a higher percentage of transit dependent population than the city average; 72 percent of households along the corridor are without a car compared to 29 percent citywide. The unemployment rates on the corridor at 9 percent are also higher than the citywide average of 4.6 percent. While the corridor is served by major bus lines, the surface congestion, particularly along Stockton Street, results in unreliable service and delays for transit passengers. The goals of the Central Subway Project, as they relate to the Purpose and Need, include: improving transit in the Central Subway Corridor to enhance the mobility of corridor residents, business people, and visitors; bringing transit service in the Central Subway Corridor to the level and quality of service available in other sections of the city; and to support economic development within the South of Market, Downtown, and Chinatown Study Area. By reducing transit travel times along the corridor and improving service reliability, the Central Subway Project is meeting the stated project goals and Purpose and Need as summarized above.

**AA-9**

See Response to Comment AA-8 for discussion of equity and mobility issues and Response to Comment AA-1 for background on city’s investment priorities for transit corridors in the city. The project is intended to enhance transit service in the Central Subway Corridor with improved connections from Visitacion Valley and the Bayview to South of Market and Chinatown and also improved access to jobs



in the South of Market and Downtown. Improving transit and providing enhanced mobility for the transit-dependent population along the corridor addresses environmental justice issues by bringing the service to the level of transit in other sections of the City. The improvement of service to the Northern Waterfront and North Beach are not stated objectives for the Central Subway Project.

**AA-10**

See Response to Comment AA-1 for discussion of why the northern boundary of the project was set at Jackson Street. The extension of the TBM extraction tunnel into North Beach would facilitate a possible future connection to North Beach, but would be subject to an independent study and environmental review as the rail extension project has not advanced to the design stage at this time, though it is identified as a future project in the San Francisco County Transportation Authority 1995 *Four Corridors Plan*.

**AA-11**

An above ground alternative was considered in the project development phase, but was rejected from further consideration in the SEIS/SEIR as it would not appreciably reduce travel times due to surface traffic congestion and traffic control devices intended to manage vehicle flows on surface streets (see page 2-52 of the SEIS/SEIR for Project development history).

**AA-12**

The study area for the Central Subway was set in consultation with the Planning Department and the FTA based on the potential impact area for the proposed project. As the rail project runs along and under existing city streets in a fully-developed urban area, the impacts area was defined within two-blocks of either side of the rail corridor. The impact area was expanded to include a broader area when warranted by a specific impact; for example, the potential impact of the project on population and employment or on the larger Chinatown Historic District and the construction impacts on North Beach were considered. The majority of the SEIS/SEIR in Chapters 3.0, 5.0, and 6.0 presents findings of the impact analysis and follows a standard format for preparation of an SEIS/SEIR as identified by the Planning Department and by FTA.

**AA-13**

See Response to Comment I-2. The diamond lane outlined in the Transit Preferential Streets (TPS) Program on Stockton Street, south of the tunnel, was implemented in 2004. Improvements on Columbus Avenue and Market Street as identified for TPS treatments in the Muni Short Range Transit Plan 2006-2025 (see page 3-9) are being incorporated into the SFMTA Transit Effectiveness Program. The Transit

Effectiveness Program Draft Proposals are under public review and will be presented to the SFMTA in summer 2008. Improvements proposed on Columbus Avenue include a Downtown Circulator Route (modified 19-Polk) and all articulated buses operating on the 30-Stockton. Increased service on the F-Market/Wharves is proposed for midday and p.m. peak hours.

#### **AA-14**

See Response to Comment AA-1 for discussion about project boundaries. Under the Central Subway Project Alternative 3B, pedestrian trips to the corner of Stockton and Washington Streets would increase as noted in Table 3-17, page 3-67. This would result in a degradation of Level of Service (LOS) from A to B. While LOS B, represents more crowded conditions than LOS A, it is still considered to be an acceptable level of service for city sidewalks. Level of Service E and F represent the most crowded conditions when pedestrian movement becomes difficult due to crowded conditions. The Central Subway would serve the transit dependent area within walking distance north of Washington Street along Stockton Street. The station is located in an area just to the south of the most congested commercial section of Stockton Street. This allows access to the important local shopping district north of Jackson Street without compounding the already crowded conditions. In addition, the 9X-San Bruno express lines, 20-Columbus, 30-Stockton, 39-Coit, 41-Union, and 45-Union/Stockton bus lines will continue to serve the Telegraph Hill and North Beach neighborhoods.

#### **AA-15**

See Response to Comment AA-8.

#### **AA-16**

The individual bus stops along the Central Subway corridor were not shown under the existing transit conditions as the ridership analysis is not done at that level of detail. In general, however, the bus stops along Stockton Street are located approximately every two blocks. The ridership on all of the surface bus lines along the Central Subway Corridor would decline with the implementation of the rail project as noted in Table 3-8, page 3-37. With the declining ridership, a decline in passenger activity would be expected at the surface bus stops, particularly on the 30-Stockton and 45-Union/Stockton lines, when compared to Alternative 1, No Project/TSM. Based on the expected reduction in passenger demand at the surface bus stations, a detailed impact analysis of each surface bus stop was not required.

**AA-17**

Pedestrian counts were taken in April and June 2007 during the P.M. peak period.

**AA-18**

The Central Subway Project, which is an underground rail operation, would not be expected to have an adverse impact on surface street operations along Stockton Street between Washington Street and Columbus Avenue. A level of service analysis was conducted only for the segment of the rail line where surface operations are proposed.

**AA-19**

See Response to Comment AA-18 regarding traffic level of service analysis for the subway corridor. Level of service analysis was not performed for the construction period along Stockton Street or Columbus Avenue because changes in traffic circulation and traffic delays that are likely to be experienced during the construction period are highly episodic in nature and are continually changing as the construction advances and therefore do not lend themselves to a standard level of service analysis. The construction traffic impacts associated with the build alternatives are described in Section 6.3.2 of the SEIS/SEIR.

**AA-20**

Text amendments are made in Chapter 3.0, Transportation Analysis and Chapter 6.0, Construction Methods, Impacts, and Mitigations to elaborate on the existing freight loading conditions along Stockton Street and Columbus Avenue.

The following addition of text pertaining to freight loading on Stockton Street in Union Square and Chinatown is added as new third and fourth paragraphs following the second paragraph, page 3-24.

“Stockton Street is a mix of on-street metered parking, on-street loading zones, and bus zones. In some blocks, between Market and Sutter Street, on-street parking and loading has been removed completely to accommodate the flow of traffic, access to the public parking garages, and bus stops. The on-street loading spaces in both Union Square and Chinatown are important to servicing the adjacent retailers as off-street loading docks are limited.

On Columbus Avenue, between Union and Powell Streets, there are no off-street loading spaces.”

The following text is added as a new fifth paragraph following the fourth paragraph, page 6-39:

“Construction of the Union Square/Market Street Station would impact loading and freight activities on Stockton Street between Sutter and Geary Streets. Loading and freight would also be affected on Geary Street between Market/Kearny and Stockton Streets due to the guideway tunnel construction. Curb parking would be eliminated along these streets during various stages of construction to accommodate traffic flow around the work area and trucks for equipment and materials delivery and spoils removal.

Freight and loading activities near the Chinatown Station would be impacted, although the direct impacts would only be limited to the east side of Stockton Street between Clay and Sacramento Streets. The demolition of the existing structures and construction of the new station head house at this location would require curb space on the east side of Stockton Street to accommodate trucks for equipment and materials delivery and spoils removal.”

The following text is added as new paragraphs following the second paragraph, page 6-40:

“Construction of the Union Square/Market Street Station would impact loading and freight activities on Stockton Street between Post and Market Streets and a portion of Ellis Street between Stockton and Powell Streets. Curb parking would be eliminated along these streets during various stages of construction to accommodate traffic flow around the work area and trucks for equipment and materials delivery and spoils removal.

Freight and loading activities near the Chinatown Station would be impacted, although the direct impacts would only be confined to the east side of Stockton Street between Clay and Sacramento Streets. The demolition of the existing structures and construction of the new station head house at this location would require curb space on the east side of Stockton Street to accommodate trucks for equipment and materials delivery and spoils removal.

If the North Beach Tunnel Construction Variant is adopted, construction of the extraction shaft on Columbus Avenue between Powell and Union Streets would have no effect on loading and freight activities as there are no loading zones on this block. However, access to loading and freight zones on Union Street between Stockton and Powell Streets and on Columbus Avenue between Union and Stockton Streets may be impacted due to

restrictions in traffic circulation and detours in the area for the duration of the shaft construction.”

The text of the first sentence, fifth paragraph (Mitigation Measures), page 6-40 is amended as follows:

“Mitigation measures would be the same as those described above under Alternative 23A, except ~~as noted below~~ Union Street and Columbus Avenue would also be directly impacted by construction and would require converting a portion of curb parking upstream or downstream from construction site to loading and unloading zones for temporary access to businesses. DPT will work with the property and business owners on Perry and Stillman Streets to develop temporary detour routes for traffic to maintain access to their properties throughout the construction period. ”

The following text is added as new paragraphs following the fifth paragraph, page 6-40:

“Construction of the Union Square/Market Street Station would impact loading and freight activities on Stockton Street between Geary and Ellis Streets and a portion of Ellis Street between Stockton and Powell Streets since the method of construction used would be cut-and-cover. As described in Section 6.2.3, the installation of shoring for the platform section of the station may require Stockton Street to be shut down to traffic completely for a period of six to eight months. In addition, the installation of shoring and decking would also require at least two traffic lanes on Stockton Street to be closed for about 10 to 12 months. During these stretches of construction activity, there would be no access to the loading and freight zones on Stockton Street. Ellis Street would experience similar impacts to loading and freight as it would be reduced to one traffic lane to accommodate the construction staging area.

Freight and loading activities near the Chinatown Station would be temporarily impacted, although the direct impacts would only be confined to the southwest corner of Stockton and Washington Streets. The demolition of the existing structures and construction of the new station head house at this corner would require curb space on the west side of Stockton Street and the south side of Washington Street to accommodate trucks.

If the North Beach Tunnel Construction Variant is adopted, construction of the extraction shaft on Columbus Avenue between Powell and Union Streets would have no effect on loading and freight activities as there are no loading zones on this block. However, access to loading and freight zones on Union Street between Stockton and Powell Streets

and on Columbus Avenue between Union and Stockton Streets may be impacted due to restrictions in traffic circulation and detours in the area for the duration of the shaft construction.”

**AA-21**

Lane closures for six months in the middle two lanes of Columbus Avenue between Union Street and Filbert Street would not affect any loading areas for businesses. This block of Columbus Avenue is currently used as bus stops for the 15-Third, 45-Union and 30-Stockton and does not include on-street parking or loading. Construction of the TBM retrieval shaft near Washington Square Park for the tunnel variant would require the temporary (five months) relocation of bus stops for the 30-Stockton and 45-Union lines. Once the shaft is constructed it would be covered and travel lanes would reopen.

**AA-22**

Parking conditions were presented for the blocks in which the project had the potential for impacting parking conditions. The loss of parking for each alternative is described in Chapter 2.0. The permanent parking loss associated with the project is summarized on Table 3-16, page 3-60 and described on pages 3-58 to 3-64. The construction-related parking impacts are described in Section 6.3.4, pages 6-41 through 6-44 of the SEIS/SEIR. Text additions are recommended as part of the staff initiated text changes (see Chapter 5.0, Volume II), to add additional parking information for the block of Stockton Street, between Washington and Jackson Streets, in Chinatown. This block would lose two parking spaces under Alternative 3B, to accommodate the provision of emergency stairs as described at the bottom of page 2-45.

**AA-23**

See Responses AA-1, AA-4, and AA-12. The Study Area, Affected Environment, and project boundary at Stockton and Jackson Street is consistent with the study area in the Third Street Light Rail Project Final EIS/EIR, which includes the Phase 2, Central Subway. Population and employment in the broader service area for the subway project has been considered in the analysis on pages 4-25 to 4-27 of the SEIS/SEIR.

**AA-24**

See Response to Comment I-3. The CAG has recommended the addition of a representative from the North Beach area and SFMTA is in the process of soliciting that representation.

**AA-25**

See Response to Comment AA-1 for history of the project and the 1995 *Four Corridor Plan*. Page 4-13 clearly points out that the Bayshore Corridor (Third Street) had the highest priority for implementation and use of Proposition B revenues. The Van Ness and Geary corridors were to follow the Third Street LRT project for funding and implementation. The North Beach corridor would follow the Van Ness Avenue and Geary Street corridor in terms of priority, according to the *Four Corridor Plan*. The Central Subway is the second phase of the Third Street Light Rail Project, and is therefore consistent with the funding priorities.

**AA-26**

See Response to comment I-5. The purpose and need of the Central Subway Project is not specifically relevant to the Port's *Waterfront Land Use Plan* goal of reuniting the city with the waterfront. Reference to the *Waterfront Land Use Plan* was included because it covers The Embarcadero Corridor (Alternative 1, No Project/TSM) and extends to Third and King Streets, which is relevant to the general study area. The fact that the Central Subway Project does not actively promote access to the waterfront does not invalidate it as an important or viable project for the city. The transportation goals of the *Waterfront Land Use Plan* are being achieved through other projects such as the F-line, which was implemented as part of the improvements to The Embarcadero Corridor.

**AA-27**

See Response to Comments I-5 and AA-26. The *Northeastern Waterfront Plan* boundaries, like those of the *Waterfront Land Use Plan*, cover The Embarcadero Corridor (Alternative 1, No Project/TSM) and extend west to Third and King Streets, which is within the project study area. The purpose and need of the Central Subway Project is not directly related to enhancing access to the city's waterfront; however, this does not invalidate the importance or viability of the project.

**AA-28**

The extension of the TBM extraction tunnel into North Beach could facilitate a possible future connection to North Beach. As noted in Responses to Comments AA-10 and AA-25, rail service in the North Beach corridor would be subject to an independent study and environmental review as the project has not advanced to the design stage at this time. The 1995 *Four Corridor Plan* calls for improvements in the North Beach Corridor after improvements in the Van Ness Avenue and Geary Street corridors.

**AA-29**

The Central Subway Project would provide direct transit connections between the AT&T Ballpark, Moscone Convention Center, Union Square, and Chinatown. These destinations are among the most popular tourist attractions in the city. In addition, the project would provide a direct connection to the Powell Street BART/Muni Metro station, which would expand the potential connections to other parts of the city and the region. By enhancing these connections, the project would promote ease of access to popular tourist destinations. See Section 4.1.1, page 4-1 for a description of *General Plan* Elements. It is up to decision-makers to decide if the project is consistent with the *General Plan*.

**AA-30**

The Central Subway Project does not directly address transit improvements to east-west links. It is focused more on improving the transit connections between the northeastern and southeast parts of the city, particularly between Visitacion Valley and Chinatown and the Bayview/Hunters Point and the South of Market and Downtown employment centers. The Central Subway Project is consistent with Objective 7, Transportation, of the Area Plan for Chinatown and, specifically, Policy 7.2 to make Muni routes reflective of, and responsive to, Chinatown ridership, evidenced by the over crowding of the 45 and 30 buses along Stockton Street.

**AA-31**

A substantive analysis of potential impacts from both construction and operation of the Central Subway Project is included in the SEIS/SEIR, Section 5.0 Environmental Consequences and Section 6.0 Construction Methods, Impacts, and Mitigation. Both FTA and San Francisco noise limits for construction are described on page 4-124. Dust during construction is discussed on page 6-110 and noise impacts are discussed on page 6-115. Significant impacts and mitigation measures are summarized in the Executive Summary and also in Section 7.0 CEQA Considerations. Standard mitigation measures are typical for an environmental document at this level of project design and engineering. A Mitigation Monitoring and Reporting Program has been included in the Final SEIS/SEIR as Appendix I and includes daily monitoring of air quality, noise, and vibration to make sure that FTA and City thresholds are met. Detailed dust and noise/vibration control measures would be developed during the next phase of design and engineering and would be reflected in construction documents.

**AA-32**

Pedestrian and vehicle access to businesses will be maintained during construction of the Central Subway Project. Temporary disruption during station excavation to traffic and parking and loading areas in the Downtown (Union Square area along Stockton Street) and in Chinatown along Stockton Street between



Clay and Jackson Streets has been described in the SEIS/SEIR (Section 6.3.2). Measures to minimize transportation impacts are described on pages 6-39 and 6-41. The economic impacts of such disruption on businesses during the construction period have not been specifically quantified as business activity is related to a number of factors including general economic conditions and evolving consumer demand that are not related to the implementation of the Central Subway Project and are difficult to project at an individual business level.

Spoils from tunneling for the subway will be trucked out at the southern portal to the tunnel (along Fourth Street, south of the I-80 Freeway) to minimize impacts to the Downtown, Chinatown and North Beach commercial businesses. SFMTA will provide advance notices to businesses and neighborhoods on the schedule for construction activities, and will be responsive to any complaints regarding business disruption.

#### **AA-33**

A detailed construction management plan addressing street closures, transit route changes, truck haul routes, and a public outreach component are generally developed as part of the final design phase of a project and are included in the construction documents. Construction management plans are not developed as part of the environmental impact assessment prior to actual selection of a project. Sections 6.3.1 and 6.3.2 of the SEIS/SEIR do, however, provide a general description of the expected transit and traffic construction-related impacts. Mitigation for expected impacts are described in Section 6.3, Construction Impacts and Mitigation Measures for Transportation.

#### **AA-34**

The potential transit detour routes have not yet been identified, however, the intent would be to minimize the out of direction travel from the existing bus corridor if a detour is required, therefore such detours are likely to fall within the study area boundaries. The potential traffic detour routes are identified in Appendix E of the SEIS/SEIR. If traffic is temporarily diverted to other streets, then the traffic level on the detour routes would temporarily increase. As noted on page 6-37 of the Draft SEIS/SEIR, the SFMTA would develop temporary transportation system management measures, such as addition of turn lanes at key intersections, conversion of parking lanes to peak period travel lanes, and traffic control officers, for these detour routes to minimize the adverse impacts.

**AA-35**

The Columbus Avenue Tunnel Boring Machine (TBM) excavation shaft would not be used for general tunnel and station excavation materials removal. The TBM tunnel excavated materials removal would occur at the south end of the tunnel, under the I-80 Freeway. As stated on page 6-25 of the SEIS/SEIR, the shaft on Columbus Avenue would only be used for removal of soils related to the excavation of the shaft itself, which is anticipated to result in about 5 truck trips a day over a six-month period. Removal of the TBM(s), which is expected to take up to one week, would also occur at this location. The removal would require cranes to lift the TBM and trucks to haul the parts away. There are no plans to stage any construction materials in Washington Square. One lane of traffic would be closed for six months during excavation along Columbus Avenue. Mitigation measures, as outlined on page 6-58 of the SEIS/SEIR, would be put in place to minimize disruption to the park during the construction period.

The following text is added to the end of the second paragraph, page 6-25 and the end of the third paragraph on page 6-32.

“An estimated 3,200 cubic yards of spoils would be removed at the retrieval shaft on Columbus Avenue resulting in an estimated five truck trips per day during the six-month long excavation period. Approximately 20 truck trips would be required to remove the tunnel boring machines.”

**AA-36**

Several of the SEIS/SEIR sections clearly define the sensitive receptors along the corridor that could be affected by proposed project activities for impacts related to noise and vibration, air quality, and park land. Public and community facilities, including churches, parks, schools and museums are identified in Table 4-7, page 4-37. Each of these is considered a potential sensitive receptor. For example, ambient air quality standards are designed to protect segments of the population most susceptible to the pollutants' adverse effects, or sensitive receptors that include the very young, the elderly, people weak from disease or illness, or persons doing heavy work or exercise. Sensitive receptors for air quality analysis include: Yerba Buena Center, Union Square, Gordon Lau Elementary School playground, Willie “Woo Woo” Wong Playground, and Washington Square Park. (page 4-112 and page 4-120, Air Quality Section 4.11). In addition, residential areas are considered to be sensitive receptors.

For noise, sensitive land uses are grouped into three categories, with associated impact criteria. (page 4-127). Section 4.12.3 on page 4-130 defines the sensitive receptors along the corridor where monitoring was performed to establish a baseline for impact analysis. Measures to minimize or mitigate dust

emissions and noise and vibration impacts are described on pages 6-111 for air quality, and 6-117 for noise.

Information for socioeconomic characteristics is presented in Section 4.2 of the SEIS/SEIR. In terms of Environmental Justice and potential impacts to minority and/or low-income populations refer to Tables 4-1, Population, Race, Hispanic Origin and Age: 2000; Table 4-2, Housing Characteristics: 2000, and Table 4-3, Resident Employment Characteristics by Segment: 2000. These tables compare the characteristics of the Central Subway and the North Beach Construction Variant corridors against the City as a whole. For example, the population along the North Beach Construction Variant corridor is 73 percent Asian, compared to 40 percent for the overall Central Subway Corridor, and 31 percent citywide. The population also tends to be older, 26 percent over the age of 65, compared to 17 percent in the Central Subway Corridor and 14 percent citywide. Ninety-three percent of the 30,910 housing units along the Central Subway corridor are in buildings with more than 5 units, compared with 72 percent along the North Beach Construction Variant Corridor and 44 percent citywide.

Table 4-4 shows the economic characteristics for the Central Subway, with 23 percent of the households below the poverty level, compared with 19 percent along the North Beach Construction Variant, and 11 percent citywide. The same table shows that 72 percent of the households in the Central Subway Corridor did not own an automobile in 2000, compared with 34 percent in the North Beach Construction Variant Corridor, and 29 percent citywide. These statistics define the demographics for the analysis of impacts to populations along the Central Subway Project Corridor for the project alternatives and for the analysis of temporary construction-related impacts for the North Beach Construction Variant associated with removing the Tunnel Boring Machine.

Section 5.2.3 Environmental Justice Findings for the implementation of the Central Subway Project states that the project would provide direct mobility benefits to all of the neighborhoods traversed by the project. These benefits would be equitably shared across communities and various demographic groups. The project is intended to provide a long-term improvement in transit mobility and accessibility in the Study Area, and adverse impacts do not unduly impact any one neighborhood or socioeconomic group, except for residential and business displacement in the predominantly minority and low-income Chinatown, where mitigation through relocation assistance would be required. Section 6.5.3 on page 6-54 describes the Environmental Justice Findings for construction of the project, and states that “construction impacts, including traffic disruption, loss of on-street parking, noise, and dust would occur along the entire alignment, primarily in the areas around the tunnel portals and stations. These temporary impacts would not disproportionately impact low-income populations or neighborhoods.”

**AA-37**

Measures to avoid adverse effects caused by the presence of hazardous materials during construction are required by Article 20 of the San Francisco Municipal Code, administered by the Department of Public Health. Mitigation measures include: preparation of a Site History Report; collection and analysis of soil samples in accordance with an approved work plan; preparation of a Soils Analysis Report; and preparation of a Site Mitigation Report (page 6-101 of the SEIS/SEIR).

Mitigation measures for construction of the North Beach Construction Variant, including removal of soils and groundwater for the shaft in the middle of Columbus Avenue and the removal of the TBM, are described on page 6-108 of the SEIS/SEIR and would comply with Article 20 to avoid adverse effects caused by the presence of hazardous materials.

**AA-38**

Based on recent transit tunneling projects, such as the Metro Red line Project in Los Angeles, the removal of the TBM at the extraction shaft in the middle of Columbus Avenue would be less-than-significant because the tunneling machine would be turned off and partially dismantled underground prior to being lifted out of the shaft by a crane to load onto a truck. The process of extraction of the TBM would take a week and would result in less-than-significant impacts due to the limited, temporary duration.

**AA-39**

An estimated 3,200 cubic yards of spoils would be generated from construction of the TBM retrieval shaft in the middle two lanes of Columbus Avenue. Spoils would be hauled off-site for permanent disposal in an estimated five truck trips per day over the six month excavation period for the construction shaft. Spoils from the tunneling of the construction tunnel would be transported in mine trucks back through the tunnel to the portal south of Market Street near Perry Street for disposal (pages 6-25 and 6-32 of the SEIS/SEIR).

See Response to Comment AA-35 for proposed new text for the SEIS/SEIR regarding the North Beach Construction Variant.

**AA-40**

Emergency vehicle access during construction is described on page 6-45 and 6-46 (Section 6.3.7 of the SEIS/SEIR). Contractors would be required to submit a site specific emergency access response plan as part of compliance with bid specifications. The plan would include fire department and emergency services access to construction areas, maintainability of emergency services such as fire hydrants, and

demobilization of plant and equipment impacting access to adjacent properties and buildings (see page 6-46 of the SEIS/SEIR).

**AA-41**

See Responses AA-3 and AA-7 for clarification of de minimis findings for impacts to Section 4(f) resources. On August 10, 2005, Section 6009(a) of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Pub. L. 109-59 amended existing Section 4(f) legislation in Section 138 of Title 23 and Section 303 of Title 49, US Code. Under the new provisions, once the US DOT determines that a transportation use of Section 4(f) property results in a de minimis impact, analysis of avoidance alternatives are not required and the Section 4(f) evaluation process is complete. The Recreation and Park Commission concurred with the de minimis finding for Union Square and Washington Square Park on February 21, 2008.

**AA-42**

Mitigation measures for historical archaeological resources are detailed on pages 6-61 to 6-67 of the SEIS/SEIR. As stated on page 6-69, “the TMB Retrieval Pit is moderately sensitive for the presence of historical archaeological park remains (1840s-1873).” The mitigation measures outlined in the SEIS/SEIR will also be part of an updated Programmatic Agreement among the California State Historic Preservation Officer, the Federal Transit Administration, and the Advisory Council on Historic Preservation. The Programmatic Agreement details the requirements for supplemental archival research, field methods and procedures to be followed if archaeological resources are encountered during construction, archaeological monitoring during construction, and the treatment of discovered resources (see Appendix C of the SEIS/SEIR). Pre-testing by a qualified archaeologist at the TMB extraction shaft prior to construction would be part of the Programmatic Agreement, and curation of any artifacts discovered during the pre-testing or monitored excavation activities would be documented in the Final Archaeological Resources Report (FARR), which would be distributed to the Northwest Information Center and to the San Francisco Planning Department.

Small street trees in the median of Columbus Avenue would be removed for construction of the TMB retrieval shaft and would be replaced at a 1:1 ratio. These trees do not meet the Department of Public Works definition of “Significant Trees” protected under Department of Public Works Code Section 8.02-8.11. No trees within Washington Square Park would be removed or impacted. A Certified arborist would be present during construction of the retrieval shaft to monitor protection of tree roots during excavation (see Section 6.12 Biological and Wetland Resources, page 6-99).

**AA-43**

SFMTA is unaware of any ‘unimproved’ lot at Stockton and Clay Streets in Chinatown. Willie “Woo Woo” Wong Playground, a park under the jurisdiction of the Recreation and Parks Department located to the east of Stockton Street on Clay Street along with park access routes on Hang Ah Alley (dedicated park land) and Pagoda Place, would not be a viable location for a subway station.

**AA-44**

Returning Stockton Street, the busiest commercial street in Chinatown, to a streetcar-only street is not a feasible option, as parking, loading, emergency access, and Muni bus operations are already dominant uses of the street. See Response to Comment I-1 for discussion of surface operations. See also Project Development History, Section 2.4, page 2-52, for a detailed description of alternatives considered and screened from further analysis in the SEIS/SEIR. The extension of the light rail line to Fisherman’s Wharf is beyond the scope of this project as outlined in Response to Comment AA-1.

Chinatown has been very supportive of the subway project from the beginning of the Third Street Light Rail Project EIS/EIR over ten years ago. The majority of representatives of the Chinatown community spoke in support of the project at the Public Hearing before the Planning Commission on November 15, 2007.

No significant impacts to Washington Square have been identified in the SEIS/SEIR.

**AA-45**

The affected environment and alternatives analyzed in the SEIS/SEIR are consistent with the certified Final EIS/EIR (1998) for the Third Street Light Rail Project, which includes the Phase 2, Central Subway. Improving mobility and transit deficiencies connecting the southeastern part of the City (Bayview, Visitacion Valley and Mission Bay) with Downtown and Chinatown, and with regional transit systems (BART, Caltrain) has been an objective of the Third Street Light Rail project since the 1993 original Bayshore Transit Study and the 1995 *Four Corridor Plan* were completed. The project goals of improved transit service and reliability for transit-dependant populations along the Third Street Light Rail (T-Line) and the Central Subway Corridor have not changed. This SEIS/SEIR updates the information for the affected environment to meet the 2030 planning horizon. The analysis of impacts is consistent with the needs statement and study area affected by the alternatives for the Central Subway Project.

The alternatives analyzed in this SEIS/SEIR resulted from changes to the subway portion of the light rail project (Phase 2) since 1998. These changes respond to input from the CAG and revisions by SFMTA to incorporate updated design standards, design features responding to new policies, and project cost

savings. The changes include: a closed barrier fare system; updated fire and safety requirements requiring relocation of the vent shafts from within the streets to above ground adjacent buildings; development of a more direct route under Fourth Street facilitated by a deeper crossing under the BART tube; use of off-street/sidewalk access to stations; and use of a tunnel boring machine for construction (with a possible extension of the tunnel for purposes of extracting the TBM at Columbus Avenue). For the SEIS/SEIR the planning horizon year was also extended from 2015 to 2030. The history of the alternatives considered and the changes to the original subway portion of the project is documented in Section 2.4 Project Development History, page 2-52 to 2-62. This section addresses the range of reasonable alternatives and provides rationale for eliminating some alternatives from further analysis.

The alternatives included in the SEIS/SEIR were endorsed by FTA, the federal lead agency with authority for NEPA compliance, and the Planning Department's Major Environmental Analysis (MEA) section has concurred with the range of alternatives for CEQA purposes.

#### **AA-46**

The terminus of the Third Street Light Rail Project (which included the Phase 2 Central Subway Project) was established at Jackson Street in Chinatown in the 1998 EIS/EIR. The Notice of Preparation for the Central Subway Project, dated September 20, 2006 defined the "terminus of the subway project in the vicinity of Stockton and Jackson Streets in Chinatown". And public scoping for the SEIS/SEIR defined the terminus for the alternatives as Jackson Street in Chinatown.

The SEIS/SEIR includes relevant affected environment information and impact analysis for the project along Stockton Street, north of Jackson Street, to Columbus Avenue, the area potentially affected by the construction of the North Beach Construction Variant for retrieval of the TBM. Information for the affected environment is included in Section 4.0 Affected Environment for each of the environmental disciplines and impacts and mitigation measures for the North Beach Construction Variant are included in Section 6.0 Construction Methods, Impacts and Mitigation Measures as noted below: socioeconomic impacts related to the easement under a parcel at 1455 Stockton Street (pages 6-53 and 6-54); community facility impacts related to Washington Square Park (page 6-58); archaeological impacts (pages 6-68 to 6-70); historic property impacts (pages 6-77 and 6-81); visual impacts (page 6-84); biological impacts on street trees (page 6-99); and air quality impacts (page 6-113).

#### **AA-47**

A Draft Mitigation Monitoring and Reporting Program (MMRP) is included in Appendix I of the Final SEIS/SEIR. The MMRP provides details on how impacts would be monitored and mitigation measures

would be implemented. The MMRP will become part of the Conditions of Approval for the project and it will be the responsibility of SFMTA to provide progress reports to the Planning Department during the construction of the project.

A representative from North Beach is being sought for the CAG. The Telegraph Hill Dwellers is part of the list of community organizations that routinely receives project newsletters and updates on the project and will continue to do so.



## Letter AB



## SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

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2007

December 10, 2007

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**RE: Central Subway Draft Supplemental Environmental Impact Statement/  
Supplemental Environmental Impact Report**

Dear Mr. Wycko:

This letter provides the comments of the San Francisco Bay Area Rapid Transit District ("BART") on the October 2007 Draft Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report ("DSEIS/SEIR") for the Central Subway Project ("the Project") proposed by the San Francisco Municipal Transit Authority ("MTA").

BART appreciates the opportunity to provide these comments on the Central Subway DSEIS/SEIR and looks forward to collaborating with MTA to develop a successful Project with substantial benefits for the public and both transit systems. We believe that many of the potential impacts discussed in our comments below may be addressed and avoided or mitigated through close consultation between MTA and BART, if not during the environmental review process, then during the design and construction phase of the Project. Further analysis and discussions between the agencies may well demonstrate that some of the potential impacts raised in these comments would, in fact, be less than significant. Nevertheless, where available information indicates potentially significant impacts, any issues that are not resolved during the environmental review process and remain potentially significant should be acknowledged and appropriately addressed in the Final SEIS/SEIR.

In addition, with this information included in the Final SEIS/SEIR, BART and MTA will be better positioned to enter into informed discussions concerning the extensive coordination and agreements that will allow the Powell Street Station to be utilized as an integral part of the Project. Under Alternative 3, Options A and B, which are respectively designated as the Locally Preferred Alternative ("LPA") and the Modified LPA (DSEIS/SEIR, p. 2-1),<sup>1</sup> MTA proposes to modify the previously approved Central Subway component of the Third Street Light Rail Project by constructing one station, rather than two, to serve the Union Square/Market Street area. (p. 2-26). Passengers accessing the single new station "would connect to the BART/MTA Metro Market Street Subway at the Powell Street Station using existing pedestrian entrances on Market Street and at the northwest corner entrance on Stockton and Ellis Streets." (p. 2-31). Utilizing the existing Powell Street Station portals to provide access for the Project's riders will require close coordination and agreements between MTA and BART on improvements and modifications to BART structures, property and operations, in order to accommodate both construction and operation of the Project. It is critical that the

<sup>1</sup> Unless otherwise indicated, all page references are to the DSEIS/SEIR.

AB-1

AB-2

proposed interconnection between our systems work effectively for both agencies and for the public.

AB-2  
Cont.

In this light, we note that BART previously requested to be designated as a “responsible agency” under the California Environmental Quality Act (“CEQA”) and a “cooperating agency” under the National Environmental Policy Act (“NEPA”). In MTA’s August 24, 2007 letter to BART, it suggested that BART should not be designated as a responsible agency because “the action that MTA needs from BART is akin to an encroachment permit such as CalTrans grants when work is performed on their property.” Given the integrated function of the Powell Street Station for both systems, and the need for an agreement for intensified joint use of the station to be approved by the BART Board of Directors, we believe it is inaccurate to consider BART’s role in the Project as limited to a ministerial action, equivalent to issuing an encroachment permit.

AB-3

**Comment 1 – Project Description.** The DSEIS/SEIR does not acknowledge that the Project will necessitate physical changes to the existing environment at the Powell Street Station, resulting in potentially significant environmental impacts. As noted above, the current design for Alternative 3 relies upon the existing portals at the Powell Street Station to provide primary surface-to-subway pedestrian access to the new Union Square/Market Street Station. (p. 2-31). The Estimated Weekday Ridership projections in the DSEIS/SEIR predict that between 32,000 and 38,000 passengers will use the Central Subway Union Square/Market Street Station by 2030. (p. 3-38 (Table 3-9)).<sup>2</sup> The proposed addition of these additional passengers requires physical modifications to the existing Powell Street Station in order to increase its capacity, with reasonably foreseeable environmental consequences both during construction and long term. If these modifications are not incorporated in the Project Description, they will not be “cleared” in the DSEIS/SEIR process and would have to be addressed in a supplemental environmental document.

AB-4

MTA’s project team appears to recognize this issue, although it is not addressed in the DSEIS/SEIR. For example, in a November 29, 2007 meeting at the Central Subway Project Office, MTA staff noted that the elevator closest to the Project (near the Apple Store entrance) would likely have to be replaced to accommodate the additional patrons, as well as to address potential Americans with Disabilities Act (“ADA”) compliance issues. Similarly, at a December 5, 2007 meeting at the Central Subway Project Office, MTA staff presented a design concept for widening the Apple Store entrance as a way to solve capacity problems, as the existing entrance stairs might not be adequate for Project needs. At the December 5 meeting, the project team also indicated that MTA would likely need access to the existing street-to-concourse elevator closest to the Apple Store entrance, and that this elevator might have to be moved for ADA purposes because, in the event the BART Station is closed but the Central Subway is open, passengers would need to access the Central Subway Station from the south end. The project team also noted it may be necessary to close the Apple Store entrance for an extended period of time to help facilitate the construction of the Central Subway Station box.

<sup>2</sup> As a comparison, on an average weekday in October 2007 there were about 54,000 trips (entries and exits) on BART at Powell Street Station.

BART supports MTA's efforts to identify and resolve station capacity issues. However, the proposed solutions could change the "environmental footprint" of the Project – in particular, the potential transportation impacts of protracted closure of the Apple Store entrance during construction. Their absence from the DSEIS/SEIR leaves the Project Description and, accordingly, the impact analysis and proposed mitigation measures, incomplete. Nor are these concerns regarding station capacity and infrastructure limited to the effects at the Apple Store entrance as proposed by MTA staff. The DSEIS/SEIR contains no analysis concerning the current capacity of the existing Powell Street Station portals, passageways and concourses, or whether the Powell Street Station can accommodate the proposed additional capacity without physical modifications. Without this information, it is unclear what physical modifications to the Station will be required, which could result in potentially significant environmental impacts and requiring mitigation. Nevertheless, solutions to the capacity issues must be found for the Project to proceed and it is reasonably foreseeable those solutions would result in an expanded "environmental footprint" compared to that of the current Project Description, including but not limited to the redesign of the entrances; additional escalators and stairwells; improved elevator access; additional and/or relocated ticket machines and fare gates; redesign of the general layout of the concourse area to properly accommodate the increased and altered passenger flow; ADA compliance requirements; and improvements to the station ventilation system.<sup>3</sup>

AB-4  
Cont.

If analysis of these issues is deferred until after the Final SEIS/SEIR is completed, and that analysis results in physical modifications to the Powell Street Station that are not incorporated in the Project Description, then a supplemental environmental document would be needed to evaluate any impacts associated with those modifications.

AB-5

**Comment 2 – Impacts on Transit.** The DSEIS/SEIR analysis of public transit impacts does not include analysis of the Project's potential impacts on BART service. Section 3.1.1 describes the "affected environment" as including existing public transit and recognizes the interconnectivity between MTA and BART. (p. 3-13). However, in Section 3.2.1, the DSEIS/SEIR analyzes only the Project's impacts to existing MTA services and does not mention BART. This omission is of concern to BART. Based on the projected ridership numbers BART has been provided, the Project will result in an estimated 17,000 additional daily transfers to BART from MTA by 2030 at Powell Street Station. The potential impact of this additional ridership on BART service must be analyzed.

AB-6

It appears that the omission of BART from the transit impact analysis contravenes the City's own CEQA Significance Criteria. For the Impact Category "Transit Service and Accessibility":

The project would have effect on the environment if it would cause substantial increase in transit demand that could not be accommodated by adjacent transit capacity, resulting in unacceptable levels of transit service; or cause a substantial increase in delays or operating costs such

<sup>3</sup> We note that there is precedent including potential impacts on existing station capacity and crowding in environmental review of transit projects. For example, in the 2004 Final EIS for New York's Second Avenue Subway Project, Chapter 5B, pp. 5B-13 – 5B-18, impacts of the project on station crowding were extensively reviewed, including analysis of entrances and exits and necessary improvements (including ADA improvements) that would result. See <http://www.mta.info/capconstr/sas/feis.htm>.

that significant adverse impacts in transit service levels could result. (p. 7-4 (Table 7-1)).

For the Impact Category "Pedestrians":

The project would have a significant effect on the environment if it would result in substantial overcrowding on public sidewalks, create potentially hazardous conditions for pedestrians, or otherwise interfere with pedestrian accessibility to the site and adjoining areas. (*Id.*)

AB-6  
Cont.

Based on the information currently available, it appears that the Project could meet or exceed these significance criteria. In the absence of analysis demonstrating otherwise, it appears likely that the proposed 17,000-plus increase in riders in and around the Powell Street Station cannot be accommodated by the existing station capacity without significant station improvements, and may well result in a substantial increase in operating costs, as well as creating potentially hazardous conditions for pedestrians resulting from overcrowding and/or insufficient provision for emergencies. Accommodating 17,000 additional transfers from MTA to BART at the Powell Street station could also have a significant adverse impact on transit service levels. Under the City's own guidelines, these analyses and significance determinations, and if necessary mitigation measures, are required for transit impacts in general – not just for those on MTA.

**Comment 3 – Construction-Period Impacts on Transit Service.** Service interruption during construction, as well as in the long term, is a potentially significant impact that must be analyzed. As noted above, the Project could require protracted closure of at least one Powell Street Station entrance and rerouting of passenger access during construction. DSEIS/SEIR does not analyze any impacts, including potential entrance closures, resulting from necessary modifications to the Powell Street Station. (§§ 6.3.1, 6.3.5). Moreover, the Project requires MTA to bore new tunnels on BART property beneath BART's active Market Street trackway. However, the DSEIS/SEIR does not analyze whether the proposed tunneling would require BART to interrupt service, or require the Powell Street Station to be closed for a period of time, or (if conducted late at night) would disrupt BART maintenance activities. In a letter dated October 3, 2007, Central Subway Program Manager John Funghi stated that MTA "will mitigate construction-related impacts to BART riders. During design, [MTA] will work with BART to develop public outreach and other programs to mitigate the impact to riders." We appreciate this proposal and request that it be included in the discussion of mitigation measures for construction-related transit impacts, which currently provides mitigation only for impacts on MTA service. (§ 6.3.1, pp. 6-34 – 6-35).

AB-7

**Comment 4 – Impacts on Safety.** As indicated in Appendix G, Section VII(g) of the CEQA Guidelines (14 Cal. Code Regs. § 15000 *et seq.*), a potentially significant impact may occur if a project would "impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan." BART and MTA have an adopted Emergency Plan for the Powell Street Station, last updated in June 2006, but the DSEIS/SEIR does not take this agreement into account. The addition and connection of the Central Subway station box to the existing Powell Street Station could impede evacuation and likely increase the overall evacuation time from the Powell Street Station in event of emergency. Since this issue has not

AB-8

yet been analyzed, it is not clear how evacuated passengers from the Central Subway Station area will be accommodated within the existing Powell Street Station complex in the event of an emergency. The impact on safety from increasing the number of passengers within the station complex, particularly during peak periods, must be analyzed in order to determine whether any significant impacts will result from the Project and whether mitigation measures such as improvements to the Powell Street Station's vertical circulation, platform widths, lighting, ventilation systems, fire suppression systems and wayfinding might be necessary to ensure safety during emergency situations.<sup>4</sup>

AB-8  
Cont.

**Comment 5 – Impacts on Services.** While the DSEIS/SEIR analyzes the Project's potential impacts on Police, Fire and Emergency Services (§ 5.3.3), it again focuses solely on impacts to MTA facilities and does not consider the Project's impacts on the BART station or joint use areas of the Powell Street Station. In particular, the DSEIS/SEIR (p. 5-15) states that "Muni provides its own security officers, who would respond to safety incidents in the transit system." However, BART's own security officers are responsible for responding to incidents in the BART system. To the extent that the Project results in increased passenger traffic as discussed above, beyond areas patrolled by MTA security, the impact is not limited as the DSEIS/SEIR implies.

AB-9

**Comment 6 – Hydrology Impacts.** As the DSEIS/SEIR recognizes, existing inflow of groundwater at the Powell Street Station is a significant environmental problem, and treatment of this issue will require special design considerations. (§ 6.11.2, p. 6-96). BART currently pumps hundreds of thousands of gallons of water out of the Powell Street Station on a daily basis. If the Project interferes with this water flow, flooding could result. In addition, water accumulating beneath BART's station box could cause scouring and sagging of the BART box. New piping or drainage facilities may be required to address this issue. The installation of such facilities is not included in the Project Description and may itself cause impacts (see comment 2 above). Mr. Funghi's October 3, 2007 letter states that MTA will design the Central Subway station "to not increase the height of the existing Powell Street Station groundwater table" and "will develop measures, such as horizontal wells, to allow lateral groundwater flow" past the station. Again, we appreciate this proposal and request that it be included in the DSEIS/SEIR to avoid or mitigate the hydrology impact.

AB-10

**Comment 7 – Hazardous Materials Impacts.** The DSEIS/SEIR (pp. 4-105 – 4-110) surveys environmental contamination in soil and groundwater, but does not make mention of hazardous materials present in the Powell Street Station structures. The construction impact analysis focuses mainly on potential exposure of site workers to contamination in soils and groundwater (§ 6.13) and only briefly acknowledges the possibility of encountering "unanticipated subsurface structures containing hazardous materials such as underground pipelines" (*id.*, p. 6-100). The Powell Street Station was part of the original BART construction. Given the age of the facility, to the extent the Project requires modification to the existing station walls and structures (including construction of the connection to the new Project station), it can be anticipated that construction workers will encounter, and need to be appropriately protected

AB-11

<sup>4</sup> Again, the Second Avenue Subway FEIS, pp. 5B-32 – 5B-38, provides an example of appropriate analysis of such issues in an EIS, which are disregarded in the DSEIS/SEIR for the Central Subway Project.

from, hazardous materials. In particular, it is likely that an asbestos abatement program would need to be implemented. In addition, the significant increase in the number of patrons using the Powell Street Station will increase the ambient station temperature, potentially to a degree that would require BART to activate its mechanically driven, station-cooling, ventilation system, since the Project does not include an additional ventilation system to address the temperature increase. The BART ventilation system was also part of the original BART construction and, again, asbestos abatement may be required.

AB-11  
Cont.

Thank you for considering BART's comments. Please feel free to contact Marianne Payne at 510-464-6140 if you require further information or have any question or concerns.

Sincerely,



Dorothy Dugger  
General Manager

Cc:

BART Executive Managers  
Nathaniel P. Ford, Sr., SFMTA, General Manager  
Leslie Rogers, FTA, Regional Administrator  
Steve Heminger, MTC, Executive Director  
Jose Luis Moscovich, SFCTA, Executive Director  
Marianne Payne, BART, Department Manager of Planning  
John Funghi, SFMTA, Project Manager





**SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT**

300 Lakeside Drive, P.O. Box 12688  
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**2008**

May 1, 2008

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**Thomas M. Blalock, P.E.**  
VICE PRESIDENT

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7TH DISTRICT

**James Fang**  
8TH DISTRICT

**Tom Radulovich**  
9TH DISTRICT

Mr. William Neilson, PE  
Principal Engineer  
Central Subway Project Office  
821 Howard Street, 2<sup>nd</sup> Floor  
San Francisco, CA 94103

Re: Central Subway Draft Supplemental Environmental Impact  
Statement/Supplemental Environmental Impact Report

Dear Mr. Neilson:

On December 10, 2007, BART provided written comments to San Francisco Municipal Transit Authority ("MTA") concerning the Central Subway Draft Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report ("DSEIS/SEIR"). In its comment letter, BART noted that, based on the available information in the DSEIS/SEIR, several potentially significant impacts could result from the project, in particular related to impacts on transit (both operational and construction related), public safety, public services (police, fire and emergency), hydrology and hazardous materials. Since submitting its comment letter, BART has undertaken a capacity study for the Powell Street Station and a study of construction impacts of the MTA Central Subway structures on existing BART facilities in order to gather additional information regarding BART's stated concerns and the identified potentially significant environmental impacts. As part of BART's ongoing effort to cooperate with MTA in order to resolve these issues, BART submits this letter sharing and discussing some of the initial findings from the construction impact study based on the Draft Market Street Crossing Modeling Work Plan, dated March 13, 2008, and various PowerPoint presentations given to BART staff by MTA between March 2007 and March 2008.

- 1 In general the assessment methodology and analyses methods used by MTA are in-line with accepted industry practice. A ground loss of 0.5% should be achievable with an EPB TBM, and we note that MTA has also undertaken a sensitivity analysis up to 1%.
- 2 The method used to assess settlements was initially developed specifically for calculating settlements at the ground surface. An extension of that theory has been developed that allows the trough width factors, etc. to be adjusted to take into account the assessment of settlement for an underground structure



such as BART's tunnels. However, where the object causing settlement (MTA's tunnels) is very close to the structure being assessed (BART's tunnels), the equations used in the empirical calculations tend to lose some accuracy. As there is only 5 feet between the MTA and BART tunnels, has MTA considered this effect at all in its assessment methodology?

- 3 Whilst the previous experience of building the MTA tunnels above the BART tunnels (MTA Metro Turnback) is useful, we note that in that instance the MTA tunnels were above the BART facilities. We would expect this current situation with the MTA tunnels being below the BART tunnels to have potentially greater impact and ground movements.
- 4 MTA's report outlining the assessment of impact on the BART tunnels, dated February 4, 2005, seems to be based on a vertical separation of 10 feet. The more recent presentation to BART indicated that it could be as low as 5 feet. Will MTA please clarify?
- 5 MTA proposes grouting as a means of mitigating settlements. Given that there is only a 5-foot clearance between MTA and BART tunnels, how will MTA ensure that the grouting process itself does not impact the BART tunnels?
- 6 Will MTA provide relevant extracts (i.e. at the location in question) from its geotech report so that we can make our own assessment of the validity of trough width factors and other parameters used in the MTA assessment? Without geotechnical information it is very difficult for BART to provide informed comment.
- 7 Will MTA provide details of the proposed depth/excavation dimensions, and construction method for the new station/station entrance close to Powell Street Station? Without this it is difficult to comment on the impact of the construction on the BART facility.
- 8 Figure 4.1 of the MTA report indicates future analyses that they propose to undertake. What future analyses does MTA propose for the BART tunnels, and when will that be undertaken?
- 9 MTA's settlement assessment looked at the impact of various combinations for MTA tunnel spacing, and vertical separation between the MTA and BART tunnels. How much latitude will MTA's alignment criteria actually give MTA to move the alignment, i.e. is this sensitivity analysis just a "theoretical" exercise, or is there actually a possibility that the MTA alignment could be lowered a little, or the tunnels separated further, in order to reduce settlements? Also, will MTA confirm the current spacing of its tunnels and vertical separation to BART tunnels based on its most up-to-date alignment?
- 10 Actual field measurements and not as-builts must be used for Monitoring Program of BART tunnels at the MTA crossing.
- 11 A high-resolution "point cloud" cross-sectional clearance measurements will need to be made, well in advance of any construction, to determine existing clearance conditions and



again after the completion of construction. This can be used to determine what tunnel correctional variances are acceptable. Extentionometer measurements can then be used to monitor during construction. This survey should extend at-least 200' on each side of the areas being crossed.

- 12 An actual site survey of top of rail and alignment, on both rails of both tracks, at 15.5' intervals will need to be performed. Two base line measurements, taken at least one week apart should be done ahead of construction. Monitoring at least weekly beginning when tunnel excavation activities are within 100' of the BART tunnel, if movement exceeding 1/4" is detected then the inspections shall be daily, until the movement within a 1-week period is less than 1/4". This survey should extend at-least 200' on each side of the areas being crossed. If the 62' chord mid-ordinate deflection for alignment or surface exceeds 1/2" then construction activities shall be halted until such time as a mitigation plan can be developed. The cord mid-ordinate can be determined for the survey data. For example if the 15.5' stations are identified as:

A - 0'  
B - 15.5'  
C - 31'  
D - 46.5  
E - 62'

The 62' Mid Ordinate can be determined by the following: The 62;' Chord Mid Ordinate at  $C = ((A+B)/2)-C$ .

- The survey system can be local, a tie in to bench marks is not required.
- The results of these surveys should be made available to BART within 24 hours of the measurements being taken. Construction should be halted if the surveys are not performed.

- 13 A thorough photo or video survey should be performed by an independent, mutually agreed upon consultant to document current BART tunnel conditions. This can be later referred to in case of possible damage or water leaks. The survey report should detail all water leakage and other conditions, keyed to BART's Engineering Station System. Note: BART's engineering stations are painted on the rails at 100' intervals. Two surveys should be performed, one before and one after construction. BART will combine this survey information, with the inspections performed by our Structural Inspectors to have a good record of pre-existing Conditions.
- 14 MTA should have a water leak mitigation plan in place, for water leaks in BART's tunnels, prior to performing any work. This would include approved work plans for correcting water leaks and methods, including how they intend to access BART's tracks (i.e., all insurance and indemnifications should be in-place in advance). BART will have a plan in place for supervision of the repairs, if they are required.

Mr. William Neilson, PE  
Re: Central Subway Draft SEIS/SEIR  
May 1, 2008  
Page 4

- 15 All surveys should to be performed by an independent PLS, in the employ of MTA (not the contractor performing the construction). The initial baseline surveys should not be performed too far in advance of construction, so as to avoid possible unrelated changes.

BART looks forward to continuing to collaborate with MTA to develop a successful project with substantial benefits for the public and both transit systems. To this end, and based on the above discussion and the information available to date, BART continues to be concerned that the Central Subway project will have a potentially significant impact on transit, public safety and services, hydrology, and hazardous materials, and that such impact should be acknowledged and appropriately analyzed in the Final SEIS/SEIR so that the possible impacts are "cleared" and not subject to supplemental environmental review.

Please feel free to contact me at 510-464-6140 if you require further information or have any questions or concerns.

Sincerely,

Marianne A. Payne  
BART Department Manager of Planning

CS Letter No. 0041 (0148)

May 19, 2008

San Francisco Bay Area Rapid Transit District  
300 Lakeside Drive, P.O. Box 12688  
Oakland, CA 94604-2688

Attn: Marianne A. Payne, BART Department Manager of Planning

Subject: T-Third Phase 2, BART Powell Station Capacity Study

Dear: Ms. Payne,

We apologize for the two day delay in returning comments on draft 2 of the Powell Station Capacity Study transmitted in Thomas Tumola's May 8, 2008 email. However, this delay was caused by a discrepancy in the assumptions within the draft report and the ridership projections that SFMTA provided to BART in November 2007. We have resolved the discrepancy with the information provided below. Please let us know when this information can be incorporated into your report.

## Section 2.1.1 Data Sources

### Table 2: 2008 Total Daily Passenger Volumes

Table 2 shows the same exact number of riders transferring from Metro to BART as transferring from BART to Metro. The SFCTA model provides different numbers for transfers from Metro to BART and BART to Metro. Please correct.

## Section 2.1.2 Assumptions

The PM Peak hour for Exits from the T-Third is expected to be 5:30PM to 6:30PM due to high reverse commute ridership from Caltrain. For the T-Third, the PM Peak hour percentage for exits of the 3-hour PM peak period should be the average of BART PM Peak hour percentage of the 3-hour PM peak period and the percentage per hour for the remaining PM peak period to account for the difference between BART (5:00PM-6:00PM) and T-Third (5:30PM-6:30PM) PM Peak hour for exits.

Table 3a: T-Third Peak Hour Percentage of 3-Hour Peak Period

AM Peak Hour % of Peak Period		PM Peak Hour % of Peak Period	
Entries	Exits	Entries	Exits
43%	50%	39%	35%

## Section 2.1.3 Resulting Peak Hour Passenger Volumes

We don't believe the information in this section is necessary to the analysis and question the information given our concern with Table 2.

### Section 3.1.1 Data Sources

Table 6: Data Sources for 2030 without T-Third

Common data should be used for both BART and SFMTA, i.e. 11/2007 SFCTA data provided to BART in November 2007.

Section 3.1.1 states that the BART estimates projected for the SFCTA CHAMP model should be factored upwards by 10% to account for SVRT. BART's 2004 Capacity Analysis for Powell Street Station projected that BART ridership would increase 2.3% as a result of SVRT with 30 trains per hour in each direction at Embarcadero in 2025. Please provide the supporting documentation that would verify the current 10% projection.

Table 7: Powell Station 2030 without T-Third

Table 7 shows the same exact number of riders transferring from Metro to BART as transferring from BART to Metro. The SFCTA model provides different numbers for transfers from Metro to BART and BART to Metro. Tables 7 & 8 are revised below based on the 11/2007 SFCTA data.

		To			Total
		BART	Metro	Surface	
From	BART			41,990	41,990
	Metro	1,878		23,215	25,093
	Surface	33,702	20,139		53,841
	Total	35,580	20,139	65,205	

Table 8: Powell Station 2030 Peak Hour Passengers without T-Third  
AM Peak Hour

		To			Total
		BART	Metro	Surface	
From	BART		0	11,937	11,937
	Metro	75		3,929	4,004
	Surface	674	1,045		1,719
	Total	749	1,045	15,866	

PM Peak Hour

		To			Total
		BART	Metro	Surface	
From	BART		0	1,746	1,746
	Metro	256		1,826	2,081
	Surface	6,414	2,710		9,124
	Total	6,670	2,710	3,571	

### 3.2.3 Resulting Passenger Distribution

Table 9: Pedestrian Distribution without T-Third  
Revise per Table 8.

### 4.1.1 Data Sources

Table 11: 2030 Powell and UMS Stations

Table 11 shows the same exact number of riders transferring from Metro to BART as transferring from BART to Metro. The SFCTA model provides different numbers for transfers from Metro to BART and BART to Metro. Additionally, Table 11 shows exactly the same

number of BART riders walking into and out of the station as the "No Project" condition shown in Table 7. The project will change the number of BART riders walking into and out of the station as shown below in Table 11 revised based on the results of SFCTA's 11/2007 modeling.

		To				Total
		BART	Metro	T-Third	Surface	
From	BART			14,584	31,637	46,221
	Metro	73		8,229	17,287	25,589
	T-Third	15,315	8,488		8,296	32,099
	Surface	33,226	15,231	5,692		54,149
	Total	48,614	23,719	28,505	57,220	

#### 4.1.2 Assumptions

It is just as likely by 2030 that Caltrain will be extended to TransBay Terminal as it is that SVRT will be operation. The largest source of T-Third users of the UMS station is Caltrain (67% of the 17,400 at 4<sup>th</sup> & King). If either the Caltrain extension or SVRT is placed in operation, T-Third ridership will be reduced. Because both SVRT and Caltrain Extension will reduce T-Third ridership, our approach at this time is to use SFCTA's (11/07) 2030 projections for BART and the T-Third without SVRT and Caltrain Extension to identify potential impacts if both SVRT and Caltrain Extension do not occur prior to 2030.

Traffic analysis zones (TAZ) south of Mission Street were incorrectly included in the analysis. Traffic analysis zones south of Mission Street are closer to the Moscone station (between Folsom & Howard) than they are to the UMS station (deep station centered on O'Farrell) and are part of the contributory area for the Moscone station. The analysis, Figure 6, and subsequent calculations should be revised accordingly.

#### 4.1.3 Resulting Peak Hour Passenger Volumes

Table 12: 2030 Peak Hour Passenger Volumes, with T-Third

The below forecasts of 2030 Peak Hour Passenger Volumes uses Table 11 as revised above. Please allocate the forecasted T-Third passenger flows between the ends of the UMS station based on the revised TAZ analysis discussed in 4.1.2 above.

#### AM Peak

		To				Total
		BART	Metro	T-Third	Surface	
From	BART		0	4,613	8,809	13,422
	Metro	2		1,076	2,992	4,071
	T-Third	941	1,540		1,914	4,395
	Surface	683	790	538		2,012
	Total	1,626	2,330	6,228	13,715	

**PM Peak**

		To				Total
		BART	Metro	T-Third	Surface	
From	BART		0	828	1,269	2,097
	Metro	11		982	1,255	2,248
	T-Third	3,970	833		816	5,619
	Surface	6,390	1,980	847		9,218
	Total	10,371	2,813	2,658	3,340	

**4.2.3 Resulting Passenger Distribution**

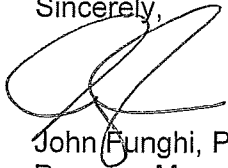
Table 13: Pedestrian Volumes in AM and PM Peak for 2030 with T-Third  
Revise based on the requested revision to Table 12.

**5.1 Passenger Volumes**

Table 14: Comparison of No-project and With-project Volumes in the PM Peak Hour  
Revise to reflect the requested revisions to Tables 9 & 13.

As a result of the work that ARUP has done, it is clear that potential impacts to Powell Street Station will depend upon if either SVRT or Caltrain Extension is implemented. Since SVRT and Caltrain Extension will reduce T-Third ridership, the SFCTA data provided in November 2007 is a conservative estimate of the ridership impact for the T-Third Phase 2 project. Therefore, BART/SFMTA will continue to monitor SVRT, Caltrain Extension, and T-Third ridership to determine actual impacts and responsibility for mitigation.

Sincerely,



John Funghi, P.E.  
Program Manager

cc: File No. 2.30.02  
William Neilson  
Thomas Tumola, BART  
William Baumgardner, ARUP



CS Letter No. 0179

May 30, 2008

San Francisco Bay Area Rapid Transit District  
300 Lakeside Drive, P.O. Box 12688  
Oakland, CA 94604-2688

Attn: Marianne A. Payne, BART Department Manager of Planning

Dear Ms. Payne,

Subject: T-Third Phase 2, May 5, 2008 BART Tunnel Crossing Comments

Thank you for your email of May 5, 2008, transmitting BART comments (dated May 1, 2008) on SFMTA's April 7, 2008 presentation and other information provided to BART on the T-Third Phase 2 project's crossing under the Market Street tunnels. This is SFMTA's fourth response to BART's SEIS/SEIR concerns. BART's concerns are addressed in the SEIS/SEIR along with proposed mitigations. We will continue to address BART's concerns in accordance with the current revision of the BART/SFMTA Coordination Plan for the T-Third project. If new significant impacts are identified, we will address them as required. Below is a point-by-point response to the May 5, 2008 comments.

1. SFMTA concurs that a ground loss of 0.5% is achievable with a properly operated Earth Pressure Balance Tunnel Boring Machine (TBM). SFMTA is analyzing the sensitivity of the BART tunnels to variations in ground loss.
2. Empirical calculations were performed to obtain a preliminary order of magnitude estimate of the potential free-field settlements with the understanding that a sophisticated analysis would be required to properly evaluate the soil-structure interaction between the four existing tunnels and the new T-Third tunnels. SFMTA is performing rigorous soil-structure Fast Lagrangian Analysis of Continua in 3 Dimensions using FLAC3D version 3.10 to verify the stability and safety of the BART tunnels during and following T-Third tunneling and expects to complete the analysis and provide the result to BART within two months.
3. SFMTA concurs that the Muni Metro Turnback (MMT) tunnels serves as a useful starting point for the T-Third analyses. As discussed previously, SFMTA believes the T-Third tunneling will have less effect on the BART tunnels than the successful MMT tunneling. The MMT tunneling was parallel to and above the BART tunnels. The T-Third tunnels will be perpendicular and below the BART tunnels. As a result, the effect on the BART tunnels will be limited. The BART tunnels, with their bolted steel linings, stiffen the ground, which will reduce the potential for T-Third tunneling to affect the BART tunnels. SFMTA is working with BART to verify that the deflection of the BART tunnels as a result of the T-Third tunneling will not adversely affect the BART tunnels or exceed the agreed limits for MMT tunneling using FLAC3D soil-structure analysis.

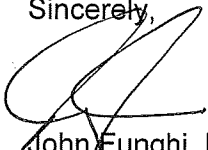
4. When the Fourth-Stockton Alignment was first introduced in late 2004, a vertical separation of 10 ft was assumed, prior to review of case histories of similar tunnels and significant analysis. The Board of Consultants during their April 2005 technical review workshop suggested a minimum vertical clearance from 1 ft. to 5 ft. After review of case histories of the construction of similar tunnels, including tunnels crossing under other tunnels and structures, and records from the construction of the BART tunnels, and empirical calculations the criteria for vertical clearance to BART tunnels was approved at 5ft. Revision 0 of the approved T-Third Phase 2 Design Criteria dated September 30, 2005 states "A minimum vertical separation of 5 feet (or less if confirmed by detailed analyses) shall be maintained between the extrados of new bored tunnels and the existing BART tunnels."
5. Compensation grouting is an accepted and proven method for controlling settlements above tunnels. Grout mix design, injection pressure limits, injection volume and port spacing will be tailored to the existing soil conditions and the separation between tunnels. As required by BART, compensation grouting will be performed and tested prior to tunneling reaching Market Street to check the process, procedures, crew, and equipment.
6. SFMTA will provide BART with copies of all additional geotechnical information pertinent to the tunnel crossings as it becomes available. Enclosed are draft geotechnical drill logs and profile for the additional drilling completed in April 2008 and a CD of the May 2006 Phase 1B Geotechnical Data Report.
7. Question 7 asks for detailed information on the design of the connection of the T-Third Union Square/Market Street (UMS) Station to the Powell Street Station. The connection is shown in Drawing AR-306, attached. The current plan is to use 42-inch diameter cased vertical secant piles to create structurally stiff and watertight walls on the side of the Apple store entrance/exit. BART/ARUP/SFMTA are working together to study if the Apple store entrance/exit can be reconfigured without effecting the emergency exiting capacity of the Powell Street Station. SFMTA will continue to work with and obtain BART's concurrence on the design of the connection to Powell Street Station.
8. As Bill Neilson discussed with you, he could not identify the SFMTA report that shows Figure 4.1 referred to in comment 8. I will respond to comment 8 once the report is containing Figure 4.1 is identified.
9. The present alignment of the T-Third tunnels takes into account the presence of the existing BART tunnels and is the result of thorough analyses to optimize the T-Third alignment with respect to project criteria and operational constraints. The minimum centerline distance between the T-Third tunnels is 27 ft where they cross under the BART tunnels. The extrados of the tunnels is 19.75 ft. The minimum vertical spacing is discussed in the response to comment 4. SFMTA will continue to work with BART to verify that the T-Third tunneling will not adversely affect the BART tunnels.
10. Yes. Actual field measurements will be used to monitor the BART tunnels at the crossings during construction.



11. Yes. A high-resolution laser scan (point cloud) will be made during tunnel final design to determine existing tunnel dimensions and clearance conditions and used to determine allowable tunnel deformation and movement.
12. Yes. Actual site surveys will be performed as described in comment 12.
13. Yes. Photo surveys to document the condition (including leaks) of the BART tunnels will be performed before and after construction as recommended by BART. In addition, SFMTA requests the opportunity to perform a structural inspection of the BART tunnels in early 2009. We understand that BART is in the process of investigating and mapping water intrusions into the existing tunnels and station. We request that BART include SFMTA in all investigations and discussions and share with SFMTA all information that is pertinent to the Powell Street Station and adjoining tunnels.
14. Yes. SFMTA will have a plan in place prior to crossing under the BART tunnels for repairing any new leaks that develop as a result of T-Third tunneling, including insurance, access, and clearance provisions. SFMTA requests that BART staff identify and allow SFMTA staff to inspect known leaks within the next ten days and provide us the results of on-going water intrusion surveys.
15. Yes. All surveys will be performed by a Professional Land Surveyor employed by SFMTA or its consultants. We request that BART provide access during non-revenue hours for the surveys. The collected survey measurements in conjunction with the collected field notes, leak surveys and photographs will constitute a reliable representation of the existing condition of the BART tunnels.

Please contact me at 415 701-4299 should you have any questions.

Sincerely,



John Funghi, P.E.  
Program Manager

Enc: Draft 4/08 Drill Logs  
Draft 4/08 Geologic Profile  
CD containing Phase 1B Geotechnical Data Report prepared in May 2006 and above  
logs & profile  
Drawing AR-306

cc: File No. 2.30.02  
William Neilson  
Albert Hoe  
David Greenaway

FIRST SUPPLEMENTAL MUNI/BART JOINT STATION MAINTENANCE AGREEMENT

THIS AGREEMENT, made and entered into this 1st day of JULY, 1986, by and between the CITY AND COUNTY OF SAN FRANCISCO (hereinafter called "City") and the SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT (hereinafter called "BART").

W I T N E S S E T H:

WHEREAS, City is a municipal corporation chartered under the Constitution of the State of California and is governed pursuant to the provisions of its Charter; and

WHEREAS, BART is a rapid transit district established pursuant to Public Utilities Code Sections 28500 et seq.; and

WHEREAS, Public Utilities Code Section 29037 provides that:

The district shall not interfere with or exercise any control over any transit facilities now or hereafter owned and operated wholly or partly within the district by any city or public agency, unless by consent of such city or public agency and upon such terms as are mutually agreed upon between the board and such city or public agency.

and

WHEREAS, on May 14, 1976, City and BART entered into an Agreement establishing respective duties relative to maintenance and repair of subway and other rapid transit facilities within the City and County of San Francisco; and

WHEREAS, said Agreement was entered into prior to the time MUNI commenced revenue service underground; and

WHEREAS, the parties hereto now desire to re-examine and redefine their respective responsibilities with regard to maintenance and upkeep of BART's subways and other facilities to be used and occupied by City's Municipal Railway either separately or jointly with BART:

NOW, THEREFORE, in consideration of mutual promises and the foregoing considerations, the parties hereto do mutually agree as follows:

1. Definitions:

As used through this Agreement, the following terms shall have the following meanings:

BART

"BART" shall mean the San Francisco Bay Area Rapid Transit District.

City

"City" shall mean the City and County of San Francisco.

MUNI

"MUNI" shall mean the San Francisco Municipal Railway.

Maintenance

"Maintenance" shall mean the provision of: janitorial services; wall surface repairs; repair other than structural repairs required to remedy water seepage; repair of drain inlets and cleaning of sewers; landscaping and grounds care; relamping; repairs/removal of surface vandalism; inspection, cleaning, lubrication, rehabilitation and replacement of mechanical and electrical equipment and utilities; the removal and disposal of trash and debris; and the care of

the propulsion power system, train control and/or signal systems, communications, and the trackway excluding Structural Repairs.

#### Surface Repairs

"Surface Repairs" shall mean surface repairs and sealing of cracks to remedy water seepage or for any other reason and shall include tunnel ring bolt tightening, replacement of caulking and broken bolts, grouting including chemical grouting, rust removal, painting and any other work required to stop seepage and seal the cracks in tunnels and station areas.

#### Structural Repairs

"Structural Repairs" shall mean repair of the basic structure necessitated by structural failure, but not including surface repairs.

#### Station

"Station" shall mean a facility which includes all necessary utilities, equipment and appurtenances necessary to handle passengers who board and alight from transit vehicles with the exception of the track, propulsion power system, train control, communications and/or signal systems which may be contained in the station structure.

#### Portal

"Portal" shall mean that structure used to provide a transition from subway to surface operation or from surface to subway operations.



#### Joint Use Stations

Powell Street, Montgomery Street, Civic Center and Embarcadero Stations (including mezzanine extensions) are designated as Joint Use Stations.

#### Joint Use Areas

"Joint Use Areas" shall mean those areas within Joint Use Stations which are used by BART and its patrons and MUNI and its patrons. It does not include BART or MUNI controlled areas.

#### MUNI Controlled Stations

Van Ness Avenue, Church Street, Castro Street and West Portal Stations are designated as MUNI Controlled Stations.

#### MUNI Controlled Areas

Areas within BART facilities that are occupied or used solely by MUNI are designated MUNI controlled areas.

#### MUNI Paid Areas

Those portions of MUNI controlled areas to which MUNI patrons have access after paying a "fare" shall be designated as MUNI Paid Areas, as well as the MUNI station agent booth(s).

#### Trackway

"Trackway" shall mean the ties, ballast, and support slabs which support the rails and switches.

#### Line

"Line" shall mean any trackway along with its enclosing structure, exclusive of trackway within stations.

### Utilities

"Utilities" shall mean water (fire and domestic), electricity and the required conducting systems.

### 2. Ownership of Stations, Lines and Appurtenances

It is agreed that BART owns, except as hereinafter qualified, the West Portal Station and a structure and portal on Duboce Avenue and that portion of BART facilities in Market Street from the Embarcadero to the Twin Peaks Tunnel. It is further agreed that the City owns the Twin Peaks Tunnel, Civic Center MUNI Electrical Substation and Church Street MUNI Electrical Substation and Hallidie Plaza, its equipment and appurtenances. BART is the sole owner of all stations (including mezzanine extensions), line structures and appurtenant equipment constructed by BART. City owns any appurtenances that City constructed, or may cause to be constructed. City also owns the track, rail fasteners, propulsion power system equipment, signal equipment and communication equipment constructed by BART for use exclusively by MUNI.

### 3. MUNI Appurtenances

Subject to prior written notice to and approval of BART, MUNI may install or cause to be installed and shall be responsible for maintenance and repair of such equipment or additional appurtenances as MUNI may desire. However, if written disapproval has not been received within 60 days of written submission by MUNI, the submission shall be deemed to have been approved by BART. This equipment and appurtenances include but are not limited to the following:

- a. Passenger information and guidance systems in addition to those installed by BART.
- b. Closed circuit T.V.
- c. Communications systems.
- d. Signal system.
- e. Public address system equipment.
- f. Wayside equipment.
- g. Fare collection equipment.
- h. Propulsion power system.
- i. Telephone systems and equipment.

4. Use and Control of BART Structures

MUNI may use those areas in BART's subway structures as hereinafter defined for the operation of MUNI's Metro system. Said areas shall include those which are necessary for MUNI operations.

- a. Areas to be used and controlled by MUNI for its operations are:
  - (1) Areas necessary for MUNI fare collection, signal system, communications, ventilation and other transit related operations.
  - (2) All lines, stations, portals, ventilation and pump structures constructed by BART from the west end of Civic Center Station to West Portal Avenue.
  - (3) Line sections designated in Contracts 1S0011, 1S0021, and 1S0051A as "MUNI Line" or "MUNI Tunnel".
  - (4) At Joint Use Stations, the MUNI Paid Area of the mezzanine, the vertical circulation areas (exclusive

of elevators) between the MUNI level and the MUNI Paid Area of the mezzanine, MUNI operations rooms, MUNI dispatcher and crew facilities, the trackway at the MUNI level and the Paid Area (platform) at the MUNI level, MUNI electrical substations and electrical rooms and all areas used for MUNI equipment, as shown on Exhibit "A" attached hereto.

- b. BART shall control all other areas in stations and subways including Joint Use Areas.
- c. In the Joint Use Stations, MUNI and its patrons shall have access at all times to MUNI controlled areas through Joint Use Areas subject to BART control, such as mezzanines, street entrances, escalators, elevators and passageways. MUNI patrons shall be permitted to use jointly with BART and its patrons public facilities in Joint Use Areas.

5. Utility Costs

- a. BART shall pay all the costs of utilities for BART lines and BART controlled stations including propulsion power.
- b. MUNI shall pay all the cost of utilities for MUNI lines and MUNI controlled stations including propulsion power.
- c. In MUNI controlled stations and MUNI controlled tunnels and lines, electricity will be metered separately from BART's electricity.
- d. In Joint Use Stations costs of all utilities excluding propulsion power will be shared by MUNI and BART. BART



shall pay 60% of the costs and MUNI shall pay 40% of the cost. BART will pay the cost of the utilities except for electricity and will bill MUNI for its share monthly, itemizing each separate utility charge on every bill. BART and MUNI will continue to have Pacific Gas & Electric bill them separately for electricity in the proportion of 60%/40% of the total usage.

6. Repairs

a. Responsibility for Repairs

- (1) Structural Repairs will be made by MUNI in all MUNI controlled stations and areas. MUNI shall notify BART in writing in advance of making any structural repairs, provide detailed plans and specifications of any such repairs, and BART may make an inspection prior to the commencement of any structural repairs by MUNI. Structural repairs by MUNI shall not be commenced without BART's prior written approval. However, if written disapproval has not been received within 60 days of written submission by MUNI, the submission shall be deemed to have been approved by BART. Under emergency conditions, MUNI may make temporary emergency repairs notwithstanding the foregoing but BART shall be notified immediately that repairs are underway.
- (2) BART shall notify MUNI in writing in advance of making any structural repairs, provide detailed

plans and specifications of any such repairs, and MUNI may make an inspection prior to the commencement of any such repairs to MUNI controlled stations and areas. BART's performance of this work will not interfere with MUNI transit operations without the approval of MUNI. However, if written disapproval has not been received within 60 days of written submission by BART, the submission shall be deemed to have been approved by MUNI.

- (3) Repair of materials and appurtenances and surface repairs in MUNI controlled stations and areas, including but not limited to fans, escalators, wall finishes, floors and sealings of cracks shall be made by MUNI. BART personnel or equipment shall not be used unless BART in its sole discretion agrees otherwise.

b. Payment for Costs.

- (1) MUNI shall pay for the cost of all Structural Repairs caused by MUNI's use of facilities, and also repairs necessitated by fires, accidents, sabotage and vandalism occurring in MUNI controlled stations and areas. All other Structural Repair costs will be paid by BART.
- (2) MUNI shall pay for the costs of all repairs specified in Subsection a(3) above.

7. Maintenance

- a. MUNI shall provide full maintenance of all stations and areas controlled by MUNI except as provided in Paragraph 7b hereof.
- b. Joint Use Stations
  - (1) BART shall be solely responsible for maintenance in all areas with the exclusion of those areas under MUNI control and Joint Use Areas.
  - (2) BART will perform all janitorial services in MUNI Paid Areas on the mezzanine level of Joint Use Stations and bill MUNI for the costs thereof.
  - (3) In Joint Use Areas BART will perform necessary maintenance, bill MUNI 50 percent of the costs thereof and MUNI shall pay same to BART.
  - (4) BART will record all Joint Use Area Maintenance charges and all charges for janitorial services in MUNI Paid Areas on the mezzanine level of Joint Use Stations. To determine the actual amount of such costs the following formulae shall be used as the basis by which BART will bill MUNI for costs in the foregoing areas:
    - (a) Labor charges + current year fringe benefits + 5% administrative overhead.\*
    - (b) Material at actual costs + 5% handling costs.
    - (c) Contract costs + 5% handling costs.

\* For purposes of this formula:

Fringe benefits are at a percentage rate:

-- annually determined by BART

-- charged to Federal, State, and Local grants

-- periodically reviewed by Federal, State, and  
BART's external auditors.

(5) MUNI shall be solely responsible for maintenance of all MUNI controlled stations and areas with the exception of those which are BART's responsibility pursuant to Paragraph 7b(2) above and shall conduct said maintenance at its sole cost and expense.

c. Except as otherwise expressly stated herein, BART shall keep, operate and maintain all Joint Use Areas at all times in good order, condition and repair, and shall not call upon City or MUNI to maintain or repair, any structure or facilities over which BART exercises control. BART's performance of this work shall be coordinated with MUNI and shall not interfere with MUNI transit operations, except with the prior approval of MUNI. BART shall notify MUNI in writing in advance of performing any work in Joint Use Areas which will interfere with MUNI transit operations. However, if written disapproval has not been received within 60 days of written submission by BART, the submission shall be deemed to have been approved by MUNI.

d. BART and MUNI shall perform all maintenance in accordance with their annual work schedules submitted pursuant to Paragraphs 9 and 10 of this Agreement.

8. Inspection

BART shall have the right to inspect all areas covered by this Agreement. Copies of BART's inspection reports will be sent to MUNI. MUNI shall be apprised of such inspections 24 hours in advance and shall have the right to be present during any such inspection. Such inspections shall be conducted in such a manner not to unduly interfere with MUNI operations. The foregoing shall not relieve MUNI of the responsibility for making safety inspections of its own facilities and equipment.

9. Payment of MUNI Costs

BART shall prepare by February 1 of each year an estimate of the costs which MUNI will incur during the following fiscal year (July 1 to June 30) that are chargeable to MUNI hereunder. MUNI shall cause a work authorization to be prepared in such amount prior to the beginning of said fiscal year. Should BART revise this estimate during the year, BART shall so notify MUNI in writing as soon as practicable in advance of the quarter for which additional funds will be required. Subject to required MUNI and City approvals, City shall issue a supplemental work authorization as soon as practicable for the amount so required. Billing will be made monthly. MUNI shall make payment to BART, pursuant to Paragraphs 5 and 7 hereof, within 30 days of receipt of a bill.

10. Payment of BART Costs

MUNI shall prepare by February 1 of each year an estimate of the costs which MUNI will incur during the following fiscal year (July 1 to June 30) that are chargeable to BART hereunder; BART shall cause a work authorization to be prepared in such amount prior to the beginning of said fiscal year. Should MUNI revise this estimate during the fiscal year, MUNI shall so notify BART in writing as soon as practicable in advance of the quarter for which additional funds will be required. Subject to required BART approvals, BART shall issue a supplemental work authorization as soon as practicable for the amount so required. Billing will be made monthly. BART shall make payment to MUNI, pursuant to Paragraph 17 hereof, within 30 days of receipt of a bill for charges due hereunder.

11. Third-Party Liability Claims

a. Shared Obligations

BART Insurance Division and MUNI Claims shall share equally the investigation and processing of all third party liability claims resulting from accidents or injuries occurring in Joint Use Areas, the escalators at Hallidie Plaza, and the ventilation facilities (including surface grates) described in Exhibit "B" attached hereto, which is hereby incorporated in and made a part of this agreement. The settlement or payment of any claim or judgment arising from such accidents or injuries shall be shared equally, after mutual agreement by BART and MUNI as to the amount.

and/or conditions of each such settlement or payment. This obligation shall not be reduced or eliminated where only BART or City is named in the claim or action.

b. Legal and Administrative Fees and Costs

In specific cases, BART and City may agree to joint legal representation and the sharing of all costs and expenses related thereto, including legal fees of outside counsel. In the absence of such agreement, all such costs, expenses, and legal fees shall be paid by the party incurring them. Costs assessed by the court shall be shared equally. All staff and administrative costs incurred in connection with the processing of claims or litigation, including BART or City staff attorney costs, shall be the responsibility of the party incurring such costs.

c. BART and MUNI Controlled Areas and Stations

Except as provided in 11a above in regard to the escalators at Hallidie Plaza, and the ventilation facilities described in Exhibit "B", the settlement or payment of all claims and judgments, including all costs and expenses related thereto, arising from accidents or injuries in areas exclusively used and controlled by either party, shall be the responsibility of the party in control, either MUNI, on behalf of City, or BART. The party in control of the area shall bear the full amount of such settlements or payments and related costs and expenses.

12. Fire Services

BART, MUNI and City Fire Department shall maintain a program of procedures to be used during emergencies. MUNI shall provide fire fighting equipment and a fire fighting program mutually acceptable to BART and to the City Fire Department.

13. Termination

Any termination of MUNI occupancy will be resolved at a future date.

14. Interruption of Service.

In the event that service is interrupted by either party for a period in excess of 30 consecutive days, due to natural disaster, malfunction, work stoppage, acts of violence, or for any other cause, the parties agree to make every effort to cooperate to maintain services in the subway. The parties reserve the right to re-assess their respective responsibilities regarding maintenance and repair during the period of the terminated service.

15. Concessions and Advertising

BART will contract for and administer the sale of all advertising in all stations including MUNI controlled areas and stations, and be responsible for the distribution of all revenue therefrom. BART is not responsible in the event the franchisee should ever default on payment of revenue. Such advertising shall not include advertising in MUNI vehicles or on destination signs.

- a. Both MUNI AND BART will provide access to existing facilities and provide services necessary to place advertising as required by advertising agreements.



- b. BART shall distribute monthly to MUNI a portion of the revenues received from advertising franchise contracts calculated by multiplying the revenues received from advertising franchisee(s) by 16.4%, less 5% of the result for BART's administrative costs. The calculations for Fiscal Year 1986-87 are set out in Exhibit "C" attached hereto.
- c. MUNI will place all concessions in MUNI controlled stations and will retain all revenue therefrom. BART will place all concessions in all stations other than MUNI controlled stations. The sharing of revenue from concessions in Joint Use Areas shall be determined at a later date by MUNI and BART.

16. Protection of BART & MUNI Facilities

- a. MUNI and BART shall maintain adequate stray current protection to minimize current leakage. Such stray current protection shall be subject to BART approval, as to design and installation.
- b. MUNI shall make every effort to effect sufficient procedures for avoidance of communications interference. The design and installation of equipment to insure avoidance of such interference shall be subject to BART's approval. Any changes made subsequent to installation of equipment shall be coordinated with BART.
- c. BART shall make every effort to effect sufficient procedures for avoidance of communications interference.

The design and installation of equipment to insure avoidance of such interference shall be subject to MUNI's approval. Any changes made subsequent to installation of equipment shall be coordinated with MUNI.

- d. MUNI and BART shall exercise maximum effort to eliminate any interference of any kind with the operations of the other. Upon notification of such a condition by either party, the other party will take immediate action to rectify the cause.

17. Areas Outside of BART-Owned Facilities

Maintenance of the escalators at Hallidie Plaza shall be a MUNI responsibility but BART shall pay 50% of the cost of the maintenance of said escalators in Hallidie Plaza. MUNI shall add to each bill a 5% charge for administrative costs. Except as otherwise provided here and in Paragraph 11 above, BART shall not be responsible financially or otherwise for repair and maintenance at Hallidie Plaza or any other area outside of BART ownership.

18. Operations

a. MUNI Controlled Stations

MUNI shall have the right to operate its transit vehicles in its sole discretion. Installation of facilities which will change the architectural appearance of the station or be physically attached to the station shall be subject to BART approval. However, if written disapproval has not been received within 60 days of written submission by MUNI, the submission shall be deemed to have been approved by BART.

b. Joint Use Stations

MUNI shall have the right to operate its transit vehicles in any manner that MUNI deems necessary within the area shown on attached Exhibit "A". Installation of facilities which will change the architectural appearance of the station, be physically attached to the station, or which may adversely affect BART in any manner, shall be subject to BART approval. However, if written disapproval has not been received within 60 days of written submission by MUNI, the submission shall be deemed to have been approved by BART.

19. Indemnification

Except as otherwise provided for in Paragraph 11, BART agrees to indemnify, save harmless and defend City, its officers, agents and employees from legal liability of any nature or kind on account of any claim for damages to property or personal injuries to or death of person or persons arising out of or resulting from maintenance or repair work to be performed by BART hereunder, unless such claims arise out of the sole negligence of City, MUNI, their officers, agents or employees.

Except as otherwise provided for in Paragraph 11, City and MUNI agree to indemnify, save harmless and defend BART, its officers, agents and employees from legal liability of any nature or kind on account of any claim for damages to property or personal injuries or death of a person or persons arising out of or resulting from any repair or maintenance work to be performed by City and/or MUNI

hereunder unless such claim arises out of the sole negligence of BART, its officers, agents or employees.

In the event a claim for damages to property or personal injuries or death of person or persons arises out of or results from any maintenance or repair work to be performed jointly hereunder by City and/or MUNI and BART, liability will be shared equally by parties performing such work.

The foregoing provisions regarding indemnification are included pursuant to the provisions of Section 895.4 of the Government Code, and are intended by the parties to modify and supersede the otherwise applicable provisions of Chapter 21, Part 2, Division 3.6, Title I of the Government Code.

20. MUNI Acceptance of Control of BART Structures

- a. Upon execution of this agreement, MUNI shall accept control of BART structures on which construction has been completed and accepted by BART prior to the execution of this agreement.
- b. On BART construction contracts not completed at the time of execution of this agreement, MUNI will participate in the final inspections and indicate approval that the contract has been completed in accordance with BART contract documents prior to presentation to BART's Board of Directors for acceptance. Upon acceptance of said construction contracts by BART's Board of Directors, MUNI shall accept control of BART's structures.

c. Guaranty work by the contractor shall be the only work required of BART or BART's contractor after acceptance of the contract by BART's Board of Directors. BART will continue to administer the guaranty provisions of BART contract documents but inspections shall be made jointly by MUNI and BART.

21. Effective Date

This agreement becomes effective on July 1, 1986.

22. Correspondence

All correspondence including requests for approval shall be sent to the following addresses:

BART

General Manager (or whomever he may designate)  
800 Madison Street  
P.O. Box 12688  
Oakland, California 94604-2688

MUNI

General Manager (or whomever he may designate)  
949 Presidio Avenue  
San Francisco, California 94115

23. Modification of Agreement

a. If both BART and City agree that any terms of this agreement should be modified, an Amendment to this Agreement setting forth the agreed modification shall be executed.

However, every three years from the date of execution of this Agreement any dispute or controversy then existing between BART and City with respect to any

amendment proposed by either party involving only the cost sharing provisions of Paragraphs 5d, 7b(3), 7b(4), 11, 17 and the cost and revenue sharing provisions of Paragraphs 15a, 15b, 15c of this agreement shall be submitted to arbitration pursuant to the rules of the American Arbitration Association: provided however the basic obligation of MUNI and BART to share the costs associated with liability claims in Joint Use Areas, maintenance, advertising and concessions shall not be subject to arbitration.

Pending an arbitration decision, the terms of the agreement in dispute shall remain in full force and effect. The decision of the arbitrator shall be final and conclusive on the parties and shall be deemed as a duly executed amendment to this agreement with prospective effect only. Each party shall bear its own costs of arbitration and shall share equally the costs of the neutral arbitrator.

- b. With respect to Paragraph 7b(2) MUNI may elect, after giving BART at least 90 days notice, to perform all janitorial services in MUNI Paid Areas on the mezzanine level of the Joint Use Stations at MUNI's sole cost and expense.
- c. For purposes of limiting those issues which shall be subject to binding arbitration, the following definitions shall apply:

1. Cost Sharing - Paragraph 5d -- Cost sharing as applicable to Paragraph 5d shall mean the percentage of utility and electricity costs to be paid by BART and MUNI in Joint Use Stations.
2. Cost Sharing - Paragraph 7b(3) -- Cost sharing as applicable to Paragraph 7b3 shall mean the percentage of necessary maintenance costs in Joint Use Areas to be paid by MUNI to BART.
3. Cost Sharing - Paragraph 7b(4) -- Cost sharing as applicable to Paragraph 7b(4) shall mean the formula calculated to determine the direct, administrative overhead, and the employee's fringe benefit costs chargeable to MUNI.
4. Cost Sharing - Paragraph 11 -- Cost sharing as applicable to Paragraph 11 shall mean the percentage of liability claim costs to be paid by BART and MUNI in connection with all claims of accidents or injuries sustained in the Joint Use Areas.

Proposed amendments to the agreement altering the percentage to be paid by City and BART in connection with settlement of claims of accidents or injuries sustained to Joint Use Areas through normal operations shall be subject to binding arbitration only where the proposed amendment is based upon patronage figures which show that more than 50% of the patrons using Joint Use Areas are BART patrons



or more than 50% are MUNI patrons. Any decision by an arbitrator altering the cost sharing percentage in connection with Paragraph 11 shall consider patronage forecasts for the next succeeding three year period.

5. Cost and Revenue Sharing - Paragraphs 15a and 15b -- Cost and revenue sharing as applicable to Paragraphs 15a and 15b shall mean the percentage to be shared and the methods of calculating net proceeds of all advertising.
6. Cost and Revenue Sharing - Paragraph 15c -- Cost and revenue sharing applicable to Paragraph 15c shall mean the percentage to be shared and the methods of calculating net proceeds from concessions in Joint Use Areas: provided however, proposed amendments to the agreement altering the rights and obligations of BART and City with respect to the placement and control of advertising and concessions as defined in Paragraph 15 shall require the mutual agreement of BART and City and shall not be subject to binding arbitration.
7. Cost Sharing - Paragraph 17 -- Cost sharing as applicable to Paragraph 17 shall mean the percentage of escalator maintenance costs at Hallidie Plaza to be paid by BART to MUNI.



24. Clarification and Resolution of Disputes

Whenever areas of responsibility, authority or lines of communication between BART staff and City and County of San Francisco staff require clarification, or whenever disputes regarding performance or practice under this agreement arise which cannot be settled in the normal course of events, the General Manager of BART and the General Manager of the Public Utilities Commission shall make diligent efforts to resolve the issue by any means within their authority, including joint memoranda of understanding, which shall be binding upon the parties.

25. Records and Audit

- a. BART shall maintain full and complete accounts and supporting records showing actual time devoted, other direct costs incurred, and revenue generated under this agreement in accordance with generally accepted accounting principles and practices and to a standard no less than BART uses for its own accounting.

BART shall make available to the City its work papers and supporting source documents relevant to this agreement at mutually agreed upon time(s) for purpose of auditing and verifying statements, invoices, or bills. The following BART staff will be available, as their time permits, to provide assistance and answer questions:

- (1) Department Manager of Power and Way
- (2) Department Manager of Operating Budgets and  
Capital Program Control
- (3) General Accounting Supervisor

- b. MUNI shall maintain full and complete accounts and supporting records showing actual time devoted, other direct costs incurred, and revenue generated under this agreement in accordance with generally accepted accounting principles and practices and to a standard no less than MUNI uses for its own accounting.

MUNI shall make available to BART its work papers and supporting source documents relevant to this agreement at mutually agreed upon time(s) for purpose of auditing and verifying statements, invoices, or bills. The following PUC/MUNI staff will be available, as their time permits, to provide assistance and answer questions:

- (1) Deputy General Manager/MUNI Facilities  
Maintenance
- (2) Superintendent/MUNI Ways and Structures
- (3) Assistant PUC General Manager/Finance

26. Governing Law

This Agreement shall be construed in accordance with and governed by the laws of the State of California and the Charter of the City and County of San Francisco. It constitutes the complete and exclusive statement of the agreement between the parties which supersedes all proposals, oral or written, and all other communications between the parties relating to the subject matter of this Agreement and supersedes the Agreement entered into between City and BART on May 14, 1976.

27. Severability

If any term, provision, covenant, or condition of this Agreement is held by a court of competent jurisdiction to be invalid, void, or unenforceable, the rest of this Agreement shall remain in full force and effect and in no way shall be affected, impaired, or invalidated.

28. Third Party Beneficiary Rights

Nothing in this agreement is intended by the parties to confer beneficial rights in third parties.

29. Approvals

Whenever this agreement specifically provides for an approval by either BART, MUNI, or City, such approval shall not be unreasonably withheld by the respective entity.

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed, in triplicate, by their duly authorized officers, on the day and year first hereinabove written.

CITY AND COUNTY OF SAN FRANCISCO

Authorized by Resolution  
No. 495-86 dated 6-20-86

By John L. Taylor  
Clerk of the Board of Supervisors

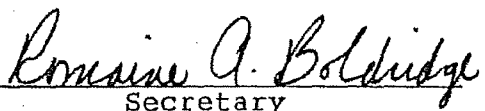
APPROVED AS TO FORM:

By Robert Dugan  
Utilities General Counsel

SAN FRANCISCO PUBLIC UTILITIES COMMISSION

By   
General Manager

Authorized by Resolution  
No. 86-0149 dated April 22, 1986

  
Secretary  
Public Utilities Commission

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

By   
President, Board of Directors

By \_\_\_\_\_  
District Secretary

APPROVED AS TO FORM:

By   
For BART General Counsel

## **Responses to Letter AB**

### **AB-1**

Over the past three years during the development of the conceptual designs for the subway alignment alternatives and connections to the Powell Street and Montgomery Street stations, the Central Subway design team has met with BART environmental, planning, and technical staff over a dozen times. Most of the issues raised in BART's December 10, 2007 comment letter (ADA compliance, safety and emergency evacuation, police, fire and emergency services, groundwater intrusion, ventilation) were previously raised with the SFMTA design team and represent technical issues that are being resolved through ongoing coordination with BART staff during the conceptual and preliminary engineering and design phases.

With mitigation measures as described in the Final SEIS/SEIR, no significant, unmitigable environmental impacts to BART facilities or service have been identified resulting from the Central Subway, however, SFMTA continues to work cooperatively to plan and design the Central Subway connection at the Powell Street Station to meet BART's requirements for expanded joint-use of the station. Technical coordination meetings are continuing between BART and SFMTA to address issues raised in the December 10 comment letter concerning the Powell Street Station and to respond to BART's concerns. BART has identified a number of improvements to the existing station that the SFMTA has included in the project design. Design modifications to the project are being incorporated, where appropriate, to ensure that the Central Subway Project would not result in significant environmental impacts to the BART system. Copies of written communications between BART and SFMTA are included as Exhibit A at the end of the Responses to Letter AB.

The procedure for addressing the safety, emergency services, groundwater intrusion, and utilities (ventilation) issues raised by BART is outlined in the 1986 Muni/BART Joint Station Maintenance Agreement, First Supplement, dated July 1, 1986. This Agreement establishes a broad range of responsibilities for all Joint-Use BART stations within the City and County of San Francisco, including the Joint-Use Station at Powell Street (see Exhibit B attached at the end of the Responses to Letter AB). In this Agreement a "station" is defined as a "facility which includes all necessary utilities, equipment and appurtenances necessary to handle passengers who board and alight from transit vehicles, with the exception of track, propulsion power system, train control, communication and/or signal systems which may be contained in the station structure." "Joint Use Areas" are defined as "those areas within Joint Use Stations which are used by BART and its patrons and MUNI and its patrons." The Agreement states that controlled areas are defined as areas occupied solely by BART or MUNI. In the Joint Use Stations,

“MUNI and its patrons shall have access at all times to MUNI controlled areas through Joint Use Areas subject to BART control, such as mezzanines (i.e.concourses), street entrances, escalators, elevators and passageways.”

BART has requested separate agreements with SFMTA to address hydrology/ ground water impacts, public safety impacts, exposure to hazardous materials during construction, and future station capacity impacts. SFMTA has proposed a single Station Improvement Coordination Plan to address construction and operation impacts, design treatments, and mitigation or station improvements for each of the issues raised in the BART letter that would result from the addition of the UMS Station.

The SFMTA/BART Draft *Station Improvement Coordination Plan [for Design and Development of Shared Use of the Powell Street Station,]* June 9, 2008 will establish the protocol and procedure for the two agencies to work together to resolve any remaining issues as the Final SEIS/SEIR is completed, a Record of Decision is issued by FTA, and the engineering moves forward into the final design phase. The Station Improvement Coordination Plan establishes technical working groups to address: 1) transit system connectivity and station capacity; 2) groundwater, structural stability, fire, life safety, and emergency systems; 3) construction impacts; and 4) funding. The majority of technical design and coordination issues fall within these categories. The Station Improvement Coordination Plan calls for development of a list of actions, key milestones, work products, and monitoring program to maintain a predictable schedule for the T-Third/Central Subway Project. This Station Improvement Coordination Plan would also be used to negotiate responsibilities and costs for structural changes to the Powell Street Station, such as the station equipment and appurtenances necessary to handle passengers who board and alight from the T-Third/Central Subway area of the Powell Street Station to be constructed and controlled by SFMTA. The next step will be for the two agencies to finalize the Station Improvement Coordination Plan.

No new significant environmental impacts resulting from the implementation of the Central Subway Project have been identified since the publication of the Draft SEIS/SEIR. All potentially significant impacts to the existing joint-use BART/Muni Metro Powell Street Station from the construction or operation of the Central Subway Project or significant effects on BART ridership and to passenger access to the Powell Street Station, potential settlement during construction of the subway tunnel under BART at Market Street, changes to the groundwater table at the Powell Street Station were identified in the Draft SEIS/SEIR and would be mitigated or minimized to less-than-significant levels.

**AB-2**

Commenter states that Alternatives 3A and 3B would modify the “previously approved Central Subway component of the Third Street Light Rail Project.” The 1999 Record of Decision for the Third Street Light Rail project approved the Initial Operating Segment of the project, but did not approve the subway segment of the project. The original Third Street alignment and Market Street Station (located on Third Street between Mission and Market Streets with a pedestrian connection to the BART Montgomery station) is analyzed in the SEIS/SEIR as Alternative 2 (See Figure 2-8 on page 2-16 of the SEIS/SEIR). The Fourth/Stockton Alignment (Alternatives 3A and 3B) of the Central Subway provides a direct connection to the BART/Muni Metro Market Street Subway at the Powell Street Station. This Fourth/Stockton Alignment is the result of extensive input from the public and other stakeholder groups. Although potentially feasible, SFMTA considers the Third Street Alignment (Alternative 2) less practical than Alternatives 3A and 3B and Alternative 3B was selected as the Locally Preferred Alternative by SFMTA Board on February 19, 2008. In addition to the existing Market Street entries and the Ellis Street entry to the existing joint-use Powell Street Station, this LPA Alternative 3B would add a northern entry to the subway station at Union Square on the west side of Stockton Street, along Geary Street, and potentially also on the north side of Geary Street, east of Stockton Street, in a sidewalk bulb-out. This northern entry to the station would offer additional access to Central Subway patrons beyond the existing BART station entries along Ellis or Market Streets. In particular, Muni riders transferring from the Central Subway to the 38-Geary lines would use these new station entries. A Draft May 2008 Powell Station Central Subway Impacts Study prepared by Arup Americas, Inc. for BART projects that 77 percent of Central Subway riders walking to the station will use the Geary Street entry (see next page for more detail on this study).

BART has requested physical separation of the egress from the existing Powell Street Station and the future Union Square/Market Street (UMS) Station so that in the event of an emergency situation, isolation of the two stations and emergency evacuation can be provided. This would go beyond the fire life safety standards required by the San Francisco Fire Department, but has been requested by BART to permit expanded joint-use of the Powell Street Station. To meet BART’s objective, the capacity of the Ellis Street egress, located at the Apple Store at One Stockton Street, may need to be expanded into the sidewalk area to accommodate an additional escalator or widened stairways. To maintain pedestrian circulation space and to potentially accommodate a new elevator, a bulb-out of the sidewalk into the parking lane on the north side of Ellis Street, immediately adjacent to the existing access may be required. The bulb-out would result in the loss of up to three parking spaces and one street tree, which would not be considered a significant impact.

SFMTA will continue to coordinate with BART on the joint use of the Powell Street Station, as has historically been the practice under the existing 1986 Muni/BART Joint Station Maintenance Agreement, First Supplement dated July 1986. To facilitate this coordination, BART has provided SFMTA with copies of two station capacity studies: a 2004 Powell Street BART Station Capacity Analysis Technical Memorandum prepared by BART Planning in cooperation with Robin Chiang and Company (capacity studies) and M. Lee Corporation (costs) and a May 2008 Powell Station Central Subway Impacts Study: Technical Memo 1: Data and Assumptions prepared for BART by Arup Americas Inc. A third study, conducted by Arup Americas Inc. for BART, the *Draft BART Powell Station Central Subway Impacts Phase I Study* was transmitted to SFMTA on June 23, 2008. This study is still under review by SFMTA and will be the subject of ongoing coordination between BART and SFMTA on internal station capacity enhancements.

The 2004 Technical Memoranda assessed station capacity improvements necessary to meet projected BART systemwide ridership increases by 2025. The 2004 Technical Memorandum addressed projected growth on the BART system, including the planned Central Subway Project. In terms of capacity increases for BART and Muni, the 2004 Technical Memorandum proposed to shift Muni's paid area barriers closer to the escalator and stair well, freeing up space for circulation of additional passengers in the non-paid concourse or concourse area.

The May 2008 Technical Memorandum prepared by Arup evaluated passenger activity at the Powell Street Station, with and without the implementation of the Central Subway Project. A more detailed ridership and capacity analysis was conducted in the June 2008 draft Arup passenger simulation study. SFMTA will work with BART to validate the assumptions and analysis of this study, which will be used to establish an allocation of costs for station improvements as part of the Station Improvement Coordination Plan.

SFMTA and BART have been meeting over the past year to develop the design for the connection between the Union Square/Market Street Station and the existing Powell Street Station. Although no significant impacts associated with emergency access have been identified in the Final SEIS/SEIR, BART has requested that SFMTA develop a vertical egress plan for the Union Square/Market Street Station at the existing Powell Street Station exit at One Stockton Street (the Apple Store) that would physically separate Central Subway egress from the Powell Street Station in the event of an emergency or station closure. Increasing the capacity of this egress would require physical changes to the One Stockton Street exit. The physical improvements requested by BART include:



- Expanding the existing enclosure at One Stockton Street to accommodate a widened escalator and stairway. This may require expansion beyond the existing building footprint into the sidewalk area.
- If the station entrance is expanded beyond the building footprint, a bulb-out of the sidewalk would be required to maintain pedestrian circulation on the north side of Ellis Street. This would result in the loss of up to three parking spaces and relocation of one small existing street tree. The bulb-out may also be used to accommodate a new elevator enclosure to connect the surface to the concourse level.
- Below grade and internal to the station, the existing intermediate landing at the base of the first stairway and escalator may need to be expanded to the south to accommodate additional vertical circulation width.

Text changes have been incorporated into the Final SEIS/SEIR document to reflect new less-than-significant impacts resulting from the potential station access/egress expansion.

The last sentence, third paragraph, page S-17 is revised as follows:

“In addition, this alternative would potentially eliminate 3 parking spaces on the north side of Ellis Street to accommodate an expansion of the station access/egress at One Stockton Street (the Apple Store) and a total of 59 off-street parking spaces from the Ellis/O’Farrell and Union Square parking garages.”

The following text is added after the seventh sentence, first paragraph, page 2-45:

“Widening of the existing station access/egress on the north side of Ellis Street at One Stockton Street (the Apple Store) may require a bulb-out of the sidewalk, which would result in the elimination of three parking spaces and relocation/replacement of an existing street tree.”

The following text is added to the end of the fourth paragraph on page 3-36:

“By 2030, it is projected that 4,200 additional daily riders would exit and 13,000 would enter BART at the Powell Street Station.<sup>1</sup> Additional passengers would use the concourse level of the station, however, passengers entries/exits from/to the street level is expected to decline. The 2008 study also shows fewer patrons using the station stairways and escalators between the street and concourse levels, because transfers to and from

BART/Muni Metro and the Central Subway on the concourse level would replace transfers to and from the systems at the street surface level.

<sup>1</sup> SFMTA analysis of SFCTA's 11/07 ridership projections as cited in Arup Americas, Inc. Powell Station Central Subway Impacts Study, May 2008."

The following text is added after the sixth sentence, fifth paragraph, page 6-53:

"The BART entry (escalator and stairs) at One Stockton Street (in the Apple Store) at Ellis Street would need to be closed temporarily during construction and may be expanded to meet BART's request."

### **AB-3**

See Response to Comment AB-2 regarding the existing 1986 Muni/BART Joint Station Maintenance Agreement, First Supplement dated July 1986 that governs all joint use stations, and the Powell Street Station Capacity Analysis Technical Memorandum (2004) and the Powell Station Central Subway Impacts Study (May 2008). These documents, plus the SFMTA/BART Station Improvement Coordination Plan (2008) provide the necessary procedures and agreements for BART and SFMTA to resolve each of the technical issues raised in the comment letter related to the Central Subway Project's potential impacts at the Powell Street Station. The Station Improvement Coordination Plan stipulates the process and critical milestones for resolving the issues that would require further definition and design of project facilities beyond the preliminary design phase.

The text in the BART "Approval or Permit" column on Table S-10, page S-41 and Table 2-9, page 2-64 of the SEIS/SEIR have been revised as follows

~~"Amendment of Consistency with the 1986 Muni/BART Joint use Station Maintenance Agreement, First Supplement for Powell Street station entries, and execution of the 2008 Station Improvement Coordination Plan."~~

### **AB-4**

As indicated in Responses to Comments AB-2 and AB-3 above, the 2004 Powell Street BART Station Capacity Analysis Technical Memorandum and the Powell Station Central Subway Impacts Study (Arup America, Inc. 2008) have addressed increases in projected use of the Powell Street Station. The 2004 Technical Memorandum describes a number of station improvements necessary to minimize future capacity issues, including: dedicating the existing elevator from the concourse to the platforms to BART and installing a new Muni-only elevator at the southwestern end of the platform; shifting Muni's paid area barriers toward the far side of the Muni escalator and stairwell thereby providing more space for

circulation in the concourse unpaid area; and capitalizing on Central Subway excavation along the Stockton alignment for BART to develop a police facility in the Hallidie Plaza area.

The general analysis done for the Draft SEIS/SEIR identified no significant impacts at the Powell Street Station, however, the Draft June 2008 Arup studies conducted for BART identified potential cumulative capacity/passenger flow and emergency vertical egress impacts in the joint-use areas at the underground Powell Street Station. While the assumptions used and the results of the study have not been fully reviewed and evaluated, the SFMTA agrees to address these issues as part of the Station Improvement Coordination Plan through monitoring of station activity levels and by incorporating project design features that will ensure the implementation of the Central Subway Project does not result in significant safety or pedestrian circulation impacts. To minimize potential station capacity impacts at the eastern end of the Powell Street Station concourse level, SFMTA and BART will explore design options to provide increased capacity for passenger flow between the Powell Street and UMS Stations. BART has identified potential for removal of the existing physical barrier on the south side of the fare gate and for relocation of the fare gates and adding up to five new fare gates to improve passenger flow in the BART non-paid area of the station. SFMTA has identified the potential for reopening a closed entrance (former CALFED entrance) to create additional capacity for pedestrian flow between the Powell Street and the UMS station. If the new pedestrian corridor is opened up under Market Street, then SFMTA will explore the possibility of adding a new elevator. SFMTA will continue to work with BART to address future potential capacity issues for station entries that may be necessary for the expansion of capacity of the joint-use station area.

A discussion of the potential for Powell Street Station impacts and an improvement measure are added as noted below to the Final SEIS/SEIR to ensure that the internal station circulation flows at the Powell Street Station meet BART's requirements for station circulation and that no new significant environmental impacts would occur as a result of the project implementation.

The sentence is added to the end of the first paragraph, page 3-44 is revised as follows to call out the potential capacity issues at Powell Street Station:

“The Powell Street Station may also experience capacity issues at the concourse level due to increased passenger activity at the northeast end of the station.”

The text of the second paragraph, page 3-44 is revised as follows:

“Mitigation measures would be the same as those outlined under Alternative 2, except as noted below.

SFMTA and BART will prepare and enter into a Station Improvement Coordination Plan for the Powell Street Station that will provide for, at a minimum, implementation of and allocation of cost for any station infrastructure improvements necessary to maintain pedestrian safety and a pedestrian level of service of D or better at the Powell Street Station as a result of the Central Subway Project.”

The second paragraph of page 3-45 is revised as follows:

“Mitigation measures would be the same as those outlined under Alternative-~~2~~ 3A.”

Any new physical changes to the Powell Street joint-use station footprint that are identified during final design after the Final SEIS/SEIR has been certified could be analyzed separately in an Environmental Assessment to determine whether the impacts would be less-than-significant. If potentially significant environmental impacts are identified then, further environmental review as required by CEQA and NEPA would be necessary.

#### **AB-5**

Commentor correctly notes that if the need for further physical changes arises during final design for the Central Subway Project and the potential for additional impacts occurs, further environmental analysis may be required. What is described for the project and analyzed in this SEIS/SEIR document is what would be approved by the SFMTA for final design.

#### **AB-6**

The discussion on page 3-36 of the SEIS/SEIR, under Ridership Projections, states that “[at] the Powell Street Station on Market Street, the passenger activity is associated with the high level of transfers that would occur between the BART system and the Muni Metro system. It is estimated that approximately 49 percent of the passengers boarding the Central Subway system at Powell Street would be transfers from BART. Most of this transfer activity is presently occurring as passengers use Powell Street Station as a point of transfer to/from other above ground Muni routes and services, some of which would be replaced by the Central Subway light rail line.” SFMTA will continue to work with BART to identify potential capacity impacts and measures to reduce potential impacts will be identified in any future capacity studies. SFMTA will also monitor passenger flow data for the Powell Street Station prior to, and after, implementation of the Central Subway Project, and SFMTA will work with BART to monitor passenger activity levels in future years (2030) as cumulative conditions may change. A pedestrian level of service of D or better will be considered a less-than-significant impact.

See also Responses AB-2, AB-4, and AB-5 above regarding Powell Street Station capacity impacts from projected BART ridership growth.

#### **AB-7**

Section 6.3.1 (page 6-43) of the SEIS/SEIR describes the potential temporary construction impacts for pedestrian access to BART at the Powell Street Station from potential closure of the station access at One Stockton Street (the Apple Store) and pedestrian circulation at Market Street BART station entries. No significant impacts were identified. Section 6.10-2 on page 6-92 describes how “the new bored Central Subway tunnels would pass approximately five to ten feet beneath the BART tunnels resulting in a slight downward deformation of the overlying BART and Muni tunnels. As noted in the SEIS/SEIR (page 6-90 to 6-92) the potential deformation was identified as a significant impact and mitigation measures were identified. See also BART letter in Exhibit A following Responses to Letter AB.

Tunneling would be done using state-of-the-art pressurized face TBM’s that, in combination with proper operation and jet grouting, as needed, will minimize ground loss and consequent settlement effects. While no significant unmitigable impacts were identified in the SEIS/SEIR, additional studies to further ensure that potential settlement will not be significant are being completed and the information is being shared with BART. Tunneling under the tubes will be performed continually on a 24-hour basis including on weekends to prevent ground loss and significant impacts to BART service. Rigorous continuous automated monitoring of potential distortions and uplift/settlement movements experienced by the Market Street tunnels as the new tunnel construction approaches will be compared with pre-established action thresholds and prior placement of compensation grouting pipes between the Market Street tunnels and the new bored tunnels to allow immediate injection of cement grout to replace ground lost (see page 6-92 Mitigation Measures of the SEIS/SEIR). Field measurements will be conducted to monitor any movement of the BART tunnel. High resolution “point cloud” cross sectional clearance measurements will be made in advance of any construction to determine existing clearance conditions and again after the completion of construction to determine acceptable tunnel correctional variances. An actual site survey of top of rail and alignment will also be performed ahead of construction and monitored weekly once tunnel excavation is within 100 feet of the BART tunnel. If any movement in excess of ¼ inch is detected, then daily inspections will occur until detected movement falls below the ¼ inch limit.

BART would not be required to close the entire Powell Street Station or interrupt BART service at any time during construction, but temporary closure of the station entrance at One Stockton Street would be required. SFMTA will coordinate with BART to minimize disruption to transit riders due to any

temporary closures of individual station entrances (the Apple Store entry at One Stockton Street) during construction. Temporary entry closures would have less-than-significant impacts.

Although impacts to transit riders due to temporary closure of station access would be considered less-than-significant, the SFMTA has agreed to add the following improvement measure for Alternative 3B.

The following text is added to the seventh paragraph, page 6-35:

“Temporary disruption to BART service could occur during construction.”

The following text is added as a new paragraph following the second paragraph, page 6-36:

“MTA and BART will prepare and enter into a Station Improvement Coordination Plan to include construction management procedures and processes to address any and all construction and operational impacts resulting from the tunnel boring. MTA will also coordinate with BART to develop bus bridges if needed, public outreach, and other programs to minimize impacts to transit riders during construction.”

The following text is added to the last sentence, last paragraph page 6-92 and third paragraph, page 6-93:

“Tunnel construction could also result in the potential displacement of BART structures.”

## **AB-8**

As noted in Response to Comment AB-2, although no significant impacts associated with emergency egress were identified in the SEIS/SEIR, SFMTA and BART are evaluating improvements to the existing One Stockton Street emergency egress from the combined stations at BART’s request. SFMTA will comply with the existing adopted 2006 Emergency Plan for the Powell Street Station. SFMTA will continue to coordinate with BART on the design details and will jointly revise the existing Emergency Plan for the Powell Street Station as outlined under the proposed Station Improvement Coordination Plan for the Central Subway Project, which addresses issues to be resolved during the preliminary engineering and final design stages of project development.

The San Francisco Police and Fire departments have reviewed the security and emergency response systems for the Central Subway and the SFMTA design team has incorporated suggested changes into the plans for the project to ensure there are no significant safety impacts. The subway design team will also meet with BART police to review plans during final design.

Page 5-15 of the SEIS/SEIR describes that Muni, in concert with the San Francisco Fire Department and the Department of Public Health, holds two to three emergency drills per year and emergency orientation sessions to ensure a coordinated response effort to emergencies occurring in the subway system. SFMTA has designed the emergency ventilation system for the Project such that it will not adversely effect the Powell Street BART station emergency ventilation.

The following text is added to address the additional use of the station due to the Central Subway following the fourth paragraph, page 5-15:

“Improvements to the existing Powell Street Station as needed for the connection to the UMS Station will be addressed in cooperation with BART during final design of the station connections. This will include assessment and, if necessary, implementation of improvements to the existing vertical circulation, platform capacity, lighting, ventilation system, fire suppression system and way-finding. The emergency ventilation system for the UMS shall be designed and operating procedures written/revised and tested to ensure that the UMS and Powell Street station emergency ventilation systems do not adversely affect each other during an emergency event or system test.”

No significant impacts are identified for the BART Emergency Plan or services at the Powell Street Station.

#### **AB-9**

Muni and BART currently provide security officers and would continue to provide security services at the Powell Street joint-use station for Central Subway passengers. Also, Muni “proof of payment” inspectors patrol the concourse. No significant impacts are identified for the BART security services based on increases to ridership from the Central Subway transfers, and no mitigation measures are described. Monitoring the need for added security services at the Powell Street Station would be the responsibility of both SFMTA and BART following start-up of the Central Subway operation. Resolution of issues would take place as provided for in the Station Improvement Coordination Plan and existing 1986 Muni/BART Joint Station Maintenance Agreement, First Supplement.

SFMTA will install security systems at the interface between the Powell Street Station and the UMS station and will perform a Threat and Vulnerability analysis. The San Francisco Police Department (SFPD) and SFMTA Security and Enforcement Division will provide security for the Union Square/Market Street Station (UMS). The 1986 BART/Muni Joint Station Maintenance Agreement, First Supplement includes an agreed-to process to re-apportion cost between BART and Muni based upon

actual use. SFPD and Muni “proof of payment” inspectors routinely patrol the concourse to supplement BART police provided under the Maintenance Agreement.

#### **AB-10**

The potential for construction activity to disrupt the flow of ground water to the Powell Street Station has been identified as a potentially significant impact in the SEIS/SEIR if design measures intended to maintain the existing water level at the Powell Street Station are not incorporated into the project design (see pages 5-59, 6-95, and 6-96). SFMTA is performing hydrogeologic studies and will design the UMS Station to ensure there is no increase in the height of the existing Powell Street Station groundwater table. Depending on the results of hydrogeologic modeling to be completed during the next stage of design development, measures will be developed, such as horizontal wells, to allow lateral groundwater flow past the UMS station. SFMTA will monitor and report ground water table elevations during the five to six year construction period and will work cooperatively with BART to share information, prevent or minimize increases in the height of the groundwater table, and mitigate additional water infiltration as a result of the Project. With the proposed design measures incorporated into the Central Subway Project, potential impacts would be less-than-significant.

SFMTA will have a water leak mitigation plan in place prior to tunneling under BART. This plan will include approved work plans and methods for correcting water leaks, including how BART tracks will be accessed. BART, along with SFMTA, will supervise any repairs that are required. With these measures incorporated into the project design, no significant impacts to ground water would result from the project.

#### **AB-11**

Preparation and implementation of a Health and Safety Plan that includes protection and training of site workers and worker medical surveillance is described on page 6-105 of the SEIS/SEIR as part of the mitigation measures for hazardous materials. An asbestos abatement program would be implemented as part of this plan. In addition, SFMTA and BART will prepare and enter into a Station Improvement Coordination Plan to include construction management procedures and processes for alterations to the Powell Street Station, that includes, but is not limited to, a hazardous materials abatement program, as defined by the Health and Safety Plan.



## Letter AC



### SAINTS PETER AND PAUL SALESIAN SCHOOL

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December 10, 2007

Joan A. Kugler  
San Francisco Planning Department  
1650 Mission Street, 4<sup>th</sup> Floor  
San Francisco, CA 94103

Re: 96.281E - Central Subway SEIS/SEIR

Dear Ms. Kugler,

Saints Peter and Paul Salesian School, established in 1925, and the Salesian Boys' and Girls' Club, established in 1918, are located across from Washington Square Park in North Beach.

The outer yard for children's recreation these organizations share is open, exposed through a chainlink fence, facing the southwest - facing the location of the proposed Central Subway's debris removal over the course of two years, should the North Beach Tunnel Construction Variant be selected.

Saints Peter and Paul Salesian School provides extended care for grades K through 2, starting before 8am. The School uses the yard throughout the day for recess, gym, and after lunch play for grades K-8. The Club actively uses the yard until 7pm, with a break at 5pm.

Aside from the disruption and hazard of truck traffic for parishioners and parents, we are most concerned about the health effects on our youth of idling trucks and the enormous amounts of dust that will be generated by this construction.

Construction noise could be disruptive to the conduct of Mass and classroom teaching.

We wish to register our concern and request the serious effects of the project on our children, those playing at the playground across the street at Washington Square Park, and senior citizens using the Park, walking to our site to pick up grandchildren or attend Mass, all be addressed in your study.

Lisa Harris, Principal  
Saints Peter and Paul Salesian School  
660 Filbert Street, San Francisco 94133

Russ Gumina, Director  
Salesian Boys' and Girls' Club  
680 Filbert Street, San Francisco 94133

Father John Itzaina, Pastor  
Saints Peter and Paul Church  
666 Filbert Street, San Francisco 94133

AC-1

## **Responses to Letter AC**

### **AC-1**

See Response to Comment AA-35. The temporary construction shaft in the middle two lanes of Columbus Avenue would be about 35 to 60 feet wide by 30 feet long, located between Union and Filbert Streets. The construction of the shaft (excavation, retaining walls, and cover) would take an estimated six months. Following excavation, the shaft would be partially decked over with a temporary cover for the future removal of the Tunnel Boring Machine at the end of the tunneling work and for periodic delivery of materials to the tunnel. The TBM extraction would take about a week. At the conclusion of the TBM extraction the shaft opening would be permanently decked over with pavement. (page 2-34 of the SEIS/SEIR).

Measures to control dust and emissions are described on page 6-110 to 6-112 of the SEIS/SEIR and include limiting idling time for construction equipment to five minutes per hour. Particulate matter filters would be installed on all diesel powered equipment. Emission limits will be established to protect the school children and mechanical air monitors will be installed at the playground to record particulates (PM 10) in the air and report emissions to the City. Measures to control dust will include watering the construction area at least twice daily, covering haul trucks with tarpaulins and terminating excavation activities when winds exceed 25 miles per hour. An on-site environmental compliance monitor and traffic control officer will be assigned to the excavation area to make sure that environmental conditions are met by the contractor. Noise levels will also be monitored for compliance with the San Francisco Noise Ordinance Limits, and a Noise Control Plan will be developed by an acoustical consultant prior to construction. Mitigation measures for noise are described in the SEIS/SEIR on page 6-117.

## Letter AD (two letters)



900 Paramount Road  
Oakland Ca 94610  
December 7, 2007

Ms. Joan A. Kuglar  
Planning Department  
City and County of San Francisco  
1650 Mission Street, Suite 400  
San Francisco CA 94103

Subject: Central Subway Draft Supplemental EIR/S Dated October 2007

Dear Ms. Kuglar:

Following are comments, presented in the order of the EIR/S. Mostly they relate to the sections dealing with socioeconomic impacts per NEPA requirements and to transit operational questions:

Table S-1 Central Subway Alternatives:

In Table S-1 the 2030 ridership of Alternative 3B, (defined as T-Third Line routed to Chinatown), is projected to be 99,230 riders per weekday, 39,200 riders a day more than that of the No Project/TSM Alternative, (defined as T-Third Line merged into the existing Market Street Subway operation). This may be an interesting set of numbers, but it does not constitute an appropriate basis for evaluating the Central Subway Project.

Perhaps because of using inappropriately-defined alternatives, the difference in ridership between Alternative 3B and the No Project/TSM Alternative shown in Table S-1 appears to be excessive, particularly given Muni's 1997 projected difference of only 7,050 riders a day, the short length of the Central Subway and the very modest improvement in Clay-to-Market trip times (according to data released previously by Muni, only two minutes shorter than that of today's bus ride). **The ridership figures shown in Table S-1 should be deleted. Instead the comparison of Corridor patronages shown in Table S-5 should be used, as it more appropriately reflects the true difference between the Central Subway alternatives and the No Project/TSM alternative. The results of this Corridor comparison should be set forth and prominently displayed in Table S-1 as well as in Table S-5 and elsewhere in the EIR/S. (See additional discussion about Table S-5 below).**

The Alternative 3B one-way "in-vehicle" travel time from Fourth & King to Chinatown is shown in Table S-1 as 6.3 minutes, 10.7 minutes faster than that of the No Project/TSM Alternative. However, no similar trip time comparisons are provided of the much more significant travel connections between Market Street and Chinatown, and between Union Square and Chinatown. **The correct Market Street/Chinatown and**

AD-1

AD-2

**Union Square/Chinatown projected trip times, including access times, should be prominently displayed in Table S-1 as well as elsewhere in the EIR/S.**

AD-2  
Cont.

Table S-2 Annual Operating Statistics:

Muni's 2030 diesel/trolley bus hours per year with Central Subway Alternative 3B is projected to be 2,545,630 hours, 76,400 hours less than with the No Project/TSM Alternative. Because the Central Subway will not serve those who currently travel on Muni Trolley Bus Lines #30 and #45 to and from points north and west of Chinatown, it will not be possible to remove or significantly cut service on these important lines. Yet without significant cuts to Lines #30 and #45 it is not clear how the Central Subway Project could allow Muni to slash so many bus hours out of its operation. **The EIR/S should include a breakdown showing the effect of the Central Subway Project on each affected Muni line and how these effects add up to the Muni service reduction figure used to calculate the Cost Effectiveness Index.**

AD-3

The 2030 total annual Muni LRV hours with Central Subway Alternative 3B is projected to be 590,100 hours, 19,400 hours less than with the No Project/TSM Alternative. It appears that this large reduction in LRV hours would be possible only if the Central Subway hours were being compared with an *inefficient* use of LRV's in the Market Street Subway. Yet with six lines currently feeding into the Market Street subway from the West it should be possible to combine the Third Street Line with one or more of these lines in a manner that would minimize redundant service. When compared with an *optimal* Market Street subway operation it is doubtful that Alternative 3B could achieve so large a savings in LRV hours over the No Project/TSM Alternative. **Additional information should be provided in the EIR/S to show the basis of this large reduction in Muni LRV hours.**

AD-4

Table S-3 Capital Cost Summary:

The ROW, Land and Existing Improvements cost is estimated to be \$20 million. In view of scores the old buildings along the route to be projected and preserved throughout the construction period, or perhaps acquired and demolished, this figure seems remarkably low. **A breakdown identifying each affected existing structure, together with the estimated cost of underpinning and otherwise protecting it during construction, or acquiring it through eminent domain, should be added to the EIR/S. Equivalent information about the cost category entitled "Site Work & Special Conditions" should also be provided and set forth in the EIR/S.**

AD-5

Table S-4 Operating and Maintenance Cost Summary:

In recent years Muni has had chronic budget problems. Indeed, because of budgetary constraints it has become increasingly difficult for Muni to provide essential transit

AD-6

services. Central Subway Alternative 3B represents an enormous capital investment, which, according to its sponsors, will result in a very large reduction in Muni operating and maintenance costs. This seems highly unlikely. As now conceived the Central Subway will create 1.7 miles of new light rail line including four new light rail vehicles, one new surface station, three new subway stations, a subway rail signaling system, a tunnel ventilation system, security and fire suppression facilities, a power distribution and overhead contact system, a fare collection system, electronic signing, handicapped and emergency egress facilities, bathrooms, closed circuit television, emergency lighting and an assortment of communication systems, all of which will require operation and maintenance and therefore generate additional operating and maintenance costs. Moreover the new line will create a substantial amount of new public space to be monitored, secured, cleaned and maintained. These new facilities will undoubtedly add significantly to Muni's operating and maintenance (O&M) budget. Yet Table S-4 shows Muni's 2030 operating and maintenance costs as being \$23.8 million a year *lower* under Alternative 3B than under the No Project/TSM Alternative.

AD-6  
Cont.

**The very large projected reduction in Muni O&M costs warrants a detailed explanation. The EIR/S should include a breakdown of these cost savings, including a clear delineation of the related Muni service reductions proposed for each other line in the Corridor and/or elsewhere in the Muni system. This is particularly important in view of the important effect that Table S-4's rosy projections of Muni's O&M costs would have on the Cost Effectiveness Index as set forth in Table S-9, "Summary of Mobility Improvements Evaluation".**

Table S-5 Estimated Weekday Transit Ridership:

As indicated above, Table S-1, the Summary Table, shows that by 2030 Alternative 3B, apparently including the riders of the existing Third Street Line, would attract 39,200 more LRV riders per weekday than the No Project/TSM Alternative. Table S-5 shows the much more relevant ridership effect of the Central Subway Alternatives on the Third/Fourth/Stockton Corridor as a whole. According to Table S-5, Alternative 3B would attract only 14,840 more corridor transit riders per weekday than the No Project/TSM Alternative. **The financial feasibility of the \$1.4 billion Central Subway Project should be established based upon a comparison of the Corridor transit ridership of Alternative 3B versus that of the No Project/TSM Alternative as set forth in Table S-5. The results of this comparison should be set forth and prominently displayed in Table S-1.**

AD-7

Table S-1 expresses ridership as "ridership". Table S-5 expresses the same variable as "corridor boardings". **A single appropriately-defined term for this variable should be used in the EIR/S.**

AD-8

Table S-9 Summary of Mobility Improvements Evaluation:

The Cost Effectiveness Index (CEI) is one of the key parameters used by the Federal Transit Administration to evaluate proposed capital projects seeking federal financial support. The CEI is calculated using a specific formula which takes into account capital costs, transit vehicle hours saved, maintenance costs and other factors. The lower the CEI, the more cost-effective the project. In 2002 the Central Subway Project carried a CEI of over \$30.00. EIR/S Table S-9 shows the CEI of Central Subway Alternative 3B as now being only \$18.36, a remarkable reduction. **The variables used to calculate the CEI as well as the CEI formula itself should be shown in the EIR/S.**

AD-9

Table 3-11 In-Vehicle Travel Times for Selected Transit Trips:

As indicated above, a 1997 Muni report showed that the Central Subway would cut the all important trip time between Market Street and Chinatown by a mere two minutes. Yet in EIR/S Table 3-11 this trip time saving has more than doubled...to 4.7 minutes. This significant change can be at least partially explained by the fact that Table 3-11 shows *in-vehicle* trip times instead of total trip times. In other words the access time it would take prospective patrons to walk to a station, descend five stories or more to the station platform and later ascend from the subway is not included. In calculating access times consideration should also be given to the fact that Muni Bus Lines 9, 30 and 45 currently provide heavy bus service in the corridor (every three minutes during peak periods) compared to the 5 minute headways proposed for the Central Subway operation. **The EIR/S should be revised to eliminate the false impression created by the trip time figures set forth in Table 3-11.**

AD-10

Sincerely yours,



Gerald Cauthen  
510 208 5441  
cautn1@aol.com

900 Paramount Road  
Oakland Ca 94610  
December 9, 2007

Joan Kugler  
Planning Department  
City and County of San Francisco  
1650 Mission Street, Suite 400  
San Francisco CA 94103

Subject: Central Subway Draft Supplemental EIR/S dated October 2007  
Supplemental Comments

Dear Ms. Kugler,

On Friday, December 7, 2007 I Fed Ex'd you a letter containing comments on the Draft EIR/S. Here are four alternatives deserving of consideration that were apparently not evaluated in the EIR/S:

- 1.) Surface solutions were considered earlier in the EIR/S process and then discarded on grounds of their being impractical. But they weren't evaluated in the context of a San Francisco congestion pricing system similar to the ones already in effect in London and other cities, and already under serious consideration by the SFCTA. With congestion pricing, surface public transit travel in downtown San Francisco could be improved in ways that would never be possible without it. If congestion pricing were applied effectively in San Francisco, it would create an opportunity to resolve the Chinatown access problem at a vastly reduced price. **Surface solutions viewed in this light should be further evaluated.**
- 2.) The Third/Kearny/Columbus alignment was apparently considered earlier in the EIR/S process and then rejected, presumably because it did not adequately serve Chinatown. This disadvantage could be overcome by installing public escalators on Washington Street and Pacific Avenue extending from the Kearny Street subway stations to Grant Avenue and then to Stockton Street. A Third/Kearny/Columbus Alignment, altered in this way, would be cheaper, more centrally located and much less disruptive than the alternatives included in the current EIR/S draft. **An altered Third/Kearny alignment deserves consideration.**
- 3.) One of the biggest flaws in the subway alternatives described in the EIR/S is that they provide no benefits to anyone living north or west of Chinatown. Because of this they saddle Muni with a very expensive subway operation without allowing significant related cuts to the existing surface bus lines operating in the corridor. This serious disadvantage could be overcome by letting electric buses as well as light rail vehicles use the subway. **An alternative featuring a bus-only or rail/bus subway deserves consideration.**

AD-11

4.) Configuring a bus-only or rail/bus subway that is shallow and without mezzanines would make it possible to also:

- o add a station at Market Street,
- o provide an efficient connection between the Central Subway and the Market Street subway systems
- o construct a second subway station in Chinatown, near or perhaps under Broadway

AD-11  
Cont.

**An alternative featuring a shallow bus-only or rail/bus subway without mezzanines deserves consideration.**

Final Comment: CEQA guidelines require that an EIR "so fundamentally and basically inadequate and conclusory in nature that meaningful public review and comment were precluded" be revised as appropriate and recirculated (CEQA Guidelines § 15088.5 (a) (4)). **In view of the issues unresolved in the current draft, it appears that such action is warranted in this case.**

AD-12

When your responses to the above comments, and those outlined in my letter of December 7, 2007, become available, please advise us immediately. Thank you.

Sincerely yours,

  
Gerald Cauthen

510 208 5441  
cautn1@aol.com



## Responses to Letter AD (two letters)

### AD-1

The ridership estimates for the Central Subway have been updated since the publication of the SEIS/SEIR as a result of updates to the operational plan and the San Francisco Model over the past year. See Chapter 5.0, Staff Initiated Changes, page 5-36 (Volume II) and Chapter 3.0, Transportation, beginning on page 3-37 of the SEIS/SEIR (Vol. I) for the new ridership projections and recommended text changes to reflect the revised projections. The ridership numbers included in the Executive Summary tables S-1 and S-5 relate to total corridor ridership for the T-Third line. To more clearly identify the net increase in transit ridership associated with the Central Subway segment of the T-Third line, additional text is recommended for Table S-1.

Based on the currently proposed operational plan, the projected travel time savings between Fourth and King and the Chinatown Station, ranges from 10 to 12.4 minutes depending on the Alternative. See Table 3-11, page 3-39 Chapter 3.0 of the SEIS/SEIR for the amended travel times and associated recommended text changes.

The following text is added to Table S-1, immediately following the 2030 Weekday Ridership T-Third Line row, page S-5:

<u>Central Subway Net New Transit Riders</u>	==	<u>21,000</u>	<u>19,000</u>	<u>18,400</u>
--	----	---------------	---------------	---------------

The second to the last row of Table S-5 “Increase Over No Project/TSM” will also be highlighted to emphasize the net ridership increase associated with the Central Subway Project.

### AD-2

The Executive Summary is intended to be a brief summary of the key findings of the SEIS/SEIR and includes in-vehicle travel times from the south (Fourth and King) to the north (Chinatown Station) end of the Central Subway Project. These travel times are repeated in Chapter 3.0 Transportation in Table 3-11, on page 3-39, where the travel times for the segment between Fourth and King and Market Street (the Market Street or Union Square/Market Street stations) are also presented. The travel times between the Market Street or Union Square/Market Street Stations and the Chinatown Station can be deduced from these travel times, however, the following text change is added to provide a quicker reference of travel times along the line.

The following text is added to Table 3-11, immediately following the Fourth/King – Market Street row, page 3-39:

<u>Market Street to Chinatown Station</u> <sup>2</sup>	<u>3.7</u>	<u>6.5</u>	<u>2.3</u>	<u>1.1</u>	<u>1.4</u>
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The following footnote is added to Table 3-11, page 3-39:

<sup>2</sup> Market Street is the Market Street Station under Alternative 2 and the Union Square/Market Street Station under Alternatives 3A and 3B.

### AD-3

Table 3-8, page 3-37 of the SEIS/SEIR identifies the projected average weekday ridership of not only the T-Third line, but also the 30-Stockton, 45-Union/Stockton, and 9X-San Bruno lines serving the Central Subway Corridor. The projected p.m. peak period ridership for these lines, as well as the Central Subway, are presented in Table 3-10. These bus lines would continue to operate on the surface of Stockton and Third/Fourth Streets to serve local transit trips. The headways of this service, would however, be reduced to reflect the anticipated shift of transit patrons from the surface bus lines to the subway rail line. The operational analysis for the SEIS/SEIR for the 30-Stockton assumed a reduction of 4 to 5 minutes in the peak period and two to three minutes in the off-peak periods once the Central Subway is implemented. The assumptions for the 45-Union/Stockton were a reduction of one minute in the peak periods and three to five minutes in the off-peak period.

### AD-4

The analysis for the Draft SEIS/SEIR was based on operation of the T-Third as an extension of the K-Ingleside to Visitacion Valley for the No Project/TSM Alternative. With the operation of a short-line service to Mission Bay and very short line service to Fourth and Berry Streets, as proposed for the Build Alternatives, additional savings in LRV hours are achieved when compared to the No Project/TSM Alternative, where service to Mission Bay is provided by the N-Judah line. The changes to service with the implementation of the Central Subway Alternative account for the savings in LRV hours for operation of the T-Third line between Alternatives 3A and 3B and the No Project/TSM Alternative.

### AD-5

The “ROW, Land, Existing Improvements” cost estimate in Table S-3 represents only the costs associated with right-of-way acquisition, including easements and out right purchases. The implementation of the project would require acquisition of one parcel for the Moscone Station (Alternatives 3A and 3B only)

and one parcel for the Chinatown Station (all Build Alternatives). An estimate of the costs associated with the protection of buildings along the corridor that could be impacted by construction has also been made (\$12 million for all Build Alternatives) and is included as part of the Site Work and Special Conditions cost estimate and is significantly higher for each of the Build Alternatives.

#### **AD-6**

The cost estimates are based on assumptions regarding service hours and miles associated with each of the project alternatives, with station costs being a variable in the estimate.

Based on the provision of more direct rail service to the Moscone Center, Union Square, and Chinatown that would be provided by the Central Subway and reduced headways on the surface trolley coach operations, a savings in system hours and miles would be realized. This cost savings translates as a savings in cost based on the cost per hour/mile formula that was used.

Subsequent to the publication of the Draft SEIS/SEIR, a more detailed Operation and Maintenance cost estimate has been developed. This new estimate takes into account additional required infrastructure, which reduces the cost savings between the No Project/TSM Alternative and the Build Alternatives. See Chapter 8.0, Financial Feasibility, for the updated costs estimates that are incorporated into the SEIS/SEIR.

#### **AD-7**

See Response to Comment AD-6 regarding revisions to the Financial Analysis. The detailed financial assessment of the Central Subway Project is included in Chapter 8.0, Financial Feasibility. The adoption of the Central Subway Project will be based on all of the information presented in the SEIS/SEIR, not just highlights included in the Executive Summary. A comparative discussion of each alternative is included in Table 8-1 on page 8-5 of the SEIS/SEIR. Incremental operating costs compared with the No Project are shown on Table 8-2 on page 8-7.

#### **AD-8**

The corridor ridership is defined as the number of boardings to the system. Text amendments are recommended to clarify the ridership information presented.

The following footnote is added to Table S-1, page S-5; Table S-5, page S-15; Table 3-8, page 3-37; Table 3-9, page 3-38; and Table 3-10, page 3-39:

“Ridership is defined as the number of passenger boardings.”

**AD-9**

As defined by the FTA for the New Starts process, the cost effectiveness is the change in the annualized capital and operating cost per hour of user benefits for the forecast year (2030). The formula is designed to capture the additional costs of the New Start project compared to the transportation benefits to the transit riders. The formula for this calculation is noted below:

$$\frac{(\text{Change in Annualized Capital Costs}) + (\text{Change in Annual Operating Cost})}{\text{Change in Transportation System User Benefits}}$$

The calculation is based on a comparison to the New Starts baseline or the No Project/TSM Alternative.

The Transportation System User Benefits represent the travel time savings of all transit riders in the forecast year with the implementation of the project compared to the No Project Alternative. They include reductions in walk times, wait times, transfers, and in-vehicle travel times. The Transit System User Benefit is produced by the FTA Summit software using outputs from the travel demand model.

The background for the Transportation System User Benefits is contained in the most recent New Starts report. Appendix H of the SEIS/SEIR summarizes the fiscal year 2009 revised cost effectiveness for the Central Subway Project. The cost-effectiveness index was updated in April 2008 and is \$21.12 for Alternative 3B.

The following text is added following the first sentence, first paragraph, page H-2, Appendix H:

“The formula for calculating the project cost-effectiveness is based on annualized capital and operating cost per hour of user benefits and is captured in the following formula:

$$\frac{(\text{Change in Annualized Capital Costs}) + (\text{Change in Annual Operating Cost})}{\text{Change in Transportation System User Benefit}}”$$

**AD-10**

As noted by the commenter, the last paragraph of page 3-38 of the SEIS/SEIR indicates that total travel times for transit patrons include walk and wait times as well as in-vehicle travel times. These out-of-vehicle travel times are accounted for in the forecast model, but can not be easily summarized given the multitude of trip origins. The language will be amended as noted below to further clarify this distinction.

The text in the last paragraph, page 3-38 is amended as follows:

“Table 3-11 presents in-vehicle travel time comparisons for selected trips using the 15-Third bus service (from 2000 before operation of the T-Third began) and travel times for selected trips under each of the alternatives. The total travel times include walk, wait, and ride (in-vehicle and out-of-vehicle) times. Out-of-vehicle travel times are influenced by such factors as service headways, location of station access points, and depth of station. These out-of-vehicle travel times are accounted for in the model and the projected transit ridership.”

#### **AD-11**

Section 2.4 of the SEIS/SEIR summarizes the development history of the Central Subway Project and identifies alternatives that were evaluated but rejected. The SEIS/SEIR evaluates not only a modified version of the Central Subway Alternative that was included in the 1998 Final EIS/EIR, but it also included alternatives that were developed and vetted during an extensive public process between 2003 and 2006. The alternatives included in the SEIS/SEIR were ultimately endorsed by the SFMTA Board at a public hearing. The majority of comments on the SEIS/SEIR have supported the implementation of a Central Subway Project, rather than requested continued evaluation of alternatives.

A brief response to the commenter’s suggested alternatives is, however, provided below:

- **Surface Solutions with Congestion Pricing** – A study of congestion pricing for San Francisco was recently undertaken by the San Francisco County Transportation Authority. The purpose of the study is to look at establishing a fee for autos to travel into downtown San Francisco. Implementation of such a program would not be intended to take the place of a well-developed and efficient transit system for the city. While reductions in surface congestion could occur with congestion pricing, they would not eliminate the need for improved transit service between the southeastern part of San Francisco and Chinatown as stated in the Central Subway purpose and need. For example, as described on page 1-8 of the SEIS/SEIR, daily transit trips in the Central Subway corridor are expected to grow by 20 percent by 2030, further adding to an already over capacity bus system. The Central Subway Project is part of the adopted sales tax measure, which funds transportation investments in the city.
- **Third/Kearny/Columbus Alignment** – The purpose and need of the Central Subway Project is specifically to improve transit connections between the southeastern part of the city and Chinatown. Alternative 2, carried forward from the 1998 EIS/EIR has a Third Street Alignment to Market Street, but provides a connection on Stockton Street, immediately north of Market Street to serve the heart of the retail district and Chinatown. Providing escalators and

underground walkways that extend two blocks from a Kearny Street corridor to the heart of Chinatown would not be a reasonable alternative for providing improved transit service to Chinatown due to distance from the major activity centers along the corridor and the associated cost of making underground connections to the Stockton Street corridor. Further, the Chinatown community has been actively involved with the Central Subway planning for the past several years and has supported the corridor along Stockton Street, with a station between Clay and Washington Streets.

Any subway alignment in the Chinatown/Financial District area would result in some surface disruption during construction. There is no evidence presented by the commenter that the Third/Kearny/Columbus Alignment would result in cost-savings or reduced impacts when compared to Build Alternatives presented in the SEIS/SEIR.

- Limited benefits to residents north or west of Chinatown – The Central Subway Project evolved from the *Four Corridor Plan* (see Response to Comment AA-1). The intent of this project has always been to enhance transit service to Chinatown through improved travel times and transit reliability. Extending transit service to North Beach could be the subject of future studies and is not included as part of the Central Subway Project. The Central Subway Project does nothing to preclude this service extension in the future. The Financial District, to the west of the corridor, is already well-served by transit.

Alternative 2 evaluated in the SEIS/SEIR is a shallow subway alternative as advocated by the commenter, but it did not result in cost savings or more efficient transit operation. It is not clear how accommodating electric buses in addition to, or instead of, light rail vehicles in the proposed subway tunnel would enhance bus service to areas north or west of Chinatown or result in cost-savings to the project. Buses operating in the tunnel would be subject to the same limited number of stops as would the LRVs and would not have a means of exiting the tunnel unless an additional portal was added in the north or an underground turnaround facility is provided to allow buses to reverse direction. Accommodating dual modes in the tunnel and adding stations or portals would be expected to increase rather than reduce the cost of the Central Subway Project.

**AD-12**

Comment regarding inadequacy of the SEIS/SEIR is noted. The alternatives were developed as part of a process involving extensive community participation and the potential environmental impacts of the alternatives have been fully disclosed in the SEIS/SEIR. No new information has been presented that would result in previously undisclosed significant impacts requiring recirculation of the document.

## Letter AE


**SOUTH OF MARKET  
NEIGHBORHOOD BUILDERS**

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**TODCO Services Company**  
319 Clementina Street  
San Francisco, CA 94103

**Castro Police Apartments**  
321 Clementina Street  
San Francisco, CA 94103

**Mendelsohn House**  
737 Folsom Street  
San Francisco, CA 94107

**Woolf House**  
891 Howard Street  
San Francisco, CA 94103

**Knox SRO**  
241 Sixth Street  
San Francisco, CA 94103

**Leland Apartments**  
880 Howard Street  
San Francisco, CA 94103

**Hotel Interiel**  
1095 Mission Street  
San Francisco, CA 94103

**Bayanhan House**  
181 Sixth Street  
San Francisco, CA 94103

[www.todco.org](http://www.todco.org)

## CENTRAL SUBWAY DSEIR 96.281E: COMMENTS December 10, 2007

BY: Tenants and Owners Development Corp. &  
Affiliates - Owners of:  
801 Howard St. (200-240 Fourth St.)  
321 Clementina Street (317-325 Clementina St.)  
328 Tehama Street (823-825 Howard Street)  
By: John Elberling, President/CEO

All Comments address issues of the DSEIR alternatives proposed for Fourth Street, which all include a Moscone Station between Howard/Folsom Streets.

### 2.0 Alternatives

The DSEIR in all cases fails to study an alternative location for the Moscone Center Station between Howard and Mission Streets as previously requested by Commenter. The only cursory rationale stated (page 2-61) for this omission is "conflict with a major sewer line" and "station spacing concerns."

However, diagrams in the DSEIR depict the sewer line as being located at what would be the mezzanine level with the subway beneath it anyway. There is no analytical basis provided for an assumption that a station mezzanine layout workaround is not possible. Furthermore, sewer lines are being relocated at other locations. There is no analytical basis provided for a conclusion that is not possible here.

Station spacing concerns are one of many factors in locating stations and not necessarily the principal consideration. In terms of transit service connections, it is **INDISPUTABLE** that locating the station closer to Mission Street would be superior environmentally. Mission Street is a principal regional mass transit corridor, heavily utilized by Golden Gate Transit and SamTrans bus lines. It is also a major MUNI bus route. As

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AE-2



a practical matter, it will be approximately a 1,000 foot walk from a where a southbound car would stop in a Central Subway Station between Howard and Folsom Street and Mission Street, and an also equal distance from the Union Square/Market Street Station. An alternate Mission/Howard Station would cut that distance in half southbound, and minimize it northbound. The DSEIR does not provide estimate of the number of riders who would be making these transfers.

AE-2  
Cont.

Moreover, the DSEIR totally ignores – fails to discuss – the distribution of travel demand in the Yerba Buena District. It is INDISPUTABLE that the principal sources of demand are all located on or north of Howard Street, including all the major retail complexes, Downtown Community College, Moscone Center, entrances to Yerba Buena Gardens, and large employers such as hotels. It is INDISPUTABLE that current MUNI ridership on the 30 Stockton and parallel routes drops off dramatically south of Mission Street. Most riders going/coming further south are destined for CalTrain or the Ballpark; very few get on or off at Folsom Street. Yet Folsom Street is proposed as the main station entrance for the Howard/Folsom Moscone Station! And those limited number of neighborhood residents now boarding/getting off at Folsom Street will continue to prefer the surface 30 Stockton route because it will offer many more convenient stops north of Market Street, especially close to their scattered Chinatown and North Beach destinations, rather than just the one station planned in Chinatown.

AE-3

For the above reasons is INDISPUTABLE that a Moscone Station between Mission/Howard Streets would provide superior service, both for regional and local demand, compared to a station one block further south. This is impossible to rationally deny.

AE-4

**Therefore, the DESEIR's failure to include for full analysis a alternate Mission/Howard Moscone Station location is arbitrary and capricious, and fails to meet the minimum legal requirements of CEQA.**

But aside from the question of transportation planning, the alternative is even more significant for full EIR analysis because of the impacts of project construction resulting from the proposed Howard/Folsom Moscone Station location, as described below.

## 6.0 Construction Impacts

The DSEIR utterly fails to discuss the special vulnerabilities of our senior housing and its frail elderly residents.

AE-5

TODCO's Woolf House low-income senior housing is located at the southwest corner of Fourth and Howard Street, directly adjacent to the proposed Moscone Center Station. Its front door is on Howard Street but its garage and service entrances are located on Fourth Street. All its utility service connections are to Fourth Street. The building cannot be closed to facilitate construction disruptions along Fourth Street for several years.

Many of the 280 elderly/disabled residents of its 212 living units are very frail, mobility impaired, or wheelchair users. At least 30 suffer from respiratory illnesses. And a significant number are homebound.

The DSEIR provides no analysis of the impacts of the proposed cut-and-cover construction of Moscone Station on this especially vulnerable population. There is no discussion of noise impacts, especially on the homebound. All building windows are single pane. There is no discussion of air quality impacts, especially on apartments along Fourth Street. Open windows provide the only fresh air to these apartments. The DSEIR authors are well aware the property is senior housing, but have failed to make an inquiry to determine the status of its residents or the vulnerability of the building systems to construction impacts.

**Therefore, the DESEIR's failure to include a full analysis of the public health impacts of construction on known vulnerable populations adjacent to cut-and-cover construction location is arbitrary and capricious, failing to meet the minimum legal requirements of CEQA.**

TODCO's Ceatrice Polite Apartments senior housing is located on Clementina Street, approximately 100 feet west of Fourth Street. The adjacent lot (now the Union 76 gas station) and Clementina Street are proposed to be the staging and access areas for construction of the Moscone Station.

The status of its 120 residents living in 91 units, and the building itself, are essentially the same as Woolf House, with the same issues of noise and air quality impacts.

Additionally, a permanent vent shaft is proposed to be located directly adjacent to the Ceatrice Polite Apartments. The details of this shaft are not clear in the DESEIR – its function and its operations. So full comments are not even possible. Sound and air quality impacts would again be the key issues that must be fully analyzed by the EIR.

AE-5  
Cont.

AE-6

AE-7

During construction, Clementina Street is proposed to be closed to provide access to the Moscone Station worksite. Details are not clear in the DSEIR, so full comments are not possible. But presumably access to the Ceatrice Polite Apartments parking lot about 150 feet west of Fourth Street would be maintained; if not the property becomes dysfunctional. This must be discussed. Moreover, the number of construction vehicles that would use Clementina Street to get to this access point must be discussed. The potential noise, air quality, and pedestrian safety impacts of these vehicles may be significant, given that the main entry to Ceatrice Polite Apartments and Clementina Towers public housing is located there.

AE-8

Moreover, use of Clementina Street for construction access to the Moscone Station may block its pedestrian use. This would be a serious impact for the elderly and disabled residents of Ceatrice Polite Apartments and Clementina Towers since this is their only route to Fourth Street and destinations south and east. Any detour is much longer, either north to Howard Street or west to Fifth Street, such that many residents will simply not attempt it. This also is not addressed at all in the DEIR.

AE-9

All these major construction impacts on Woolf House, Ceatrice Polite Apartments, and Clementina Towers disappear if the Moscone Station is instead located in the alternate Howard / Mission location. That block is bordered by Moscone West, the Yerba Buena Garage (which could provide a station entrance inside it) and the Metreon, thus construction impacts would be much less given there are no residents.

AE-10


### Conclusion

We cannot allow this gravely defective document to become the determining environmental basis for the Central Subway project. If the analyses described above are not done, and an alternate Moscone Station location between Mission and Howard Streets is not evaluated, we will certainly appeal the EIR's Certification and then if necessary proceed with litigation.

AE-11

Our residents deserve no less. Obviously the Central Subway team thinks they do not matter.

Sincerely,

  
John Elberling  
President/CEO

## Responses to Letter AE

### AE-1

The alternative station site recommended by the commenter was evaluated as part of a comprehensive reconsideration of the Moscone Station location in 2005. As stated in the SEIS/SEIR on page 2-60, a Moscone Station located on Fourth Street between Mission and Howard was also recommended by a cost reduction panel convened by SFMTA. Further evaluation of this alternative, however, revealed conflicts with the major crosstown sewer transport that is located under Fourth Street between Mission and Howard Streets. While minor sewer lines are routinely relocated, relocation of a major transport line, such as this one, is a major and costly undertaking. The sewer transport is an eight-foot diameter line that collects and carries waste to the North Beach treatment facility. It runs along Mission Street, turning south at Fourth Street, and continues west on Howard Street. The sewer line was relocated to this segment of Fourth Street to provide a connection to the Moscone Center when it was constructed. The top of the transport line is located 20-feet below the surface of Fourth Street and would extend through the potential station site. The Central Subway deep tunnel would run below the sewer line. Relocation of the sewer transport line is not feasible as it was specifically located to serve Moscone Center and the diameter of the sewer transport line would preclude a simple design solution.

SFMTA reviewed issues associated with spacing of the stations south of Market Street in consultation with the San Francisco Planning Department. The station location between Folsom and Howard Streets was preferred as this site would serve approximately 2,210 housing units (existing and proposed) within a one-quarter mile radius of the station with the potential for an additional 615 units on soft-sites in the market capture area. The station would also serve approximately 9,350 jobs (existing and proposed) in the area, the highest of any station on the corridor. Based on station spacing studies, it was determined that the Union Square/Market Street Station would overlap the Moscone Center service area and that greater consideration should be given to serving jobs and housing rather than the special event center. The service gap in the South of Market area was addressed by the addition of a surface station on Fourth Street between Brannan and Bryant in Alternative 3B.

The combination of these two issues resulted in selection of the Moscone Station site between Folsom and Howard Streets. The station access points were located closer to the residential units on Folsom Street because of the limited space for off-site station access at Fourth and Howard Streets and security concerns related to a direct connection to their site raised by Moscone Center representatives.

The basis for these decisions is further discussed in the “Working Paper Task 1.6-11 Additional Station Location and Access Studies, Revision May 24, 2005” background document cited on page 2-61 of the SEIS/SEIR and available for review at the Planning Department.

The following text changes are recommended for the end of the first paragraph, page 2-61 to further document this analysis:

“The fourth option between Mission and Howard Streets was eliminated due to the conflict with an major eight-foot diameter sewer transport line on Fourth Street in this area between Howard and Mission Streets, and station spacing concerns given the proximity of the Moscone Station between Mission and Howard Streets and a Union Square/Market Street Station between Market and Geary Streets. The sewer transport line was recently relocated to this block of Fourth Street specifically to provide a connection to Moscone Center, so moving the major sewer line is not feasible due to its size and service connection to Moscone Center. The eight-foot diameter of the sewer line, which would penetrate a station at this location, would preclude simple design solutions. In addition, shifting the station north to Mission Street would cause greater overlap of the Union Square/Market Street Station service areas and would create a service gap between the Fourth and King Station and Mission Street, thereby serving a smaller population and employment base in South of Market.”

## **AE-2**

See Response to Comment AD-1 for discussion of station spacing. The commenter contends that a Moscone Station located at Mission Street would be the environmentally superior alternative; but that is not the conclusion reached by the design or environmental technical teams. Not only would there be otherwise avoidable significant impacts to utilities (main sewer line) with the Mission Street Station, but there would also be a smaller population and employment base served by the Central Subway. Mission Street is a major transit corridor in the City, however, Market Street is the single most heavily traveled transit corridor in the City. The service area of the Union Square/Market Street Station already overlaps with the service area of a Moscone Station located between Folsom and Howard Streets (both of which already include Mission and Market Streets). By moving the station further north to Mission Street, a service gap is created in the South of Market District. Given the substantial environmental and design issues associated with the move of the Moscone Station to Mission Street, further analysis of the transfer patterns between the Central Subway Project was not warranted.

**AE-3**

Travel demand in the Yerba Buena area was assessed as part of the background studies that were conducted to select the station sites that were evaluated in the SEIS/SEIR as noted in Response to Comment AE-1. Ridership on most north/south lines drop off south of Market and Mission Streets as noted by the commenter. While there may be lower bus ridership today, the number of transit patrons is projected to increase in the future in this area due to growth and improved travel times to Union Square and Chinatown by subway. The station access at Folsom Street provides a greater degree of rail service access to those residing and doing business south of Folsom Street than would occur if the station location was shifted north. Mission Street already falls within the one quarter mile service radius of the Union Square/Market Street Station.

**AE-4**

The commenter's statement that "a Moscone Station located at Mission Street would provide superior transit service is indisputable" is not supported by the background analysis that was done to determine station locations. The decision to reject the Mission Street station location from further analysis in the SEIS/SEIR was based on an evaluation of the facts in a process that was consistent with the reasonable standards outlined in the CEQA requirements. See Response to Comments AE-1 through AE-3.

**AE-5**

Station access along Fourth Street between Clementina and Folsom Streets provides accessibility to the senior population that resides in the Woolf House; it is within one block of Clementina Street along Fourth Street where the station escalator and elevator are shown on Figure 2-20 on page 2-45. Bus service on the 30 and 45 lines would also be available, thereby providing numerous travel choices. There would, however, be impacts to the business and resident populations in the vicinity of the stations during the construction period. These are summarized in Sections 6.3 through 6.15 of the SEIS/SEIR.

Access to the businesses and residences along Fourth Street would be maintained during construction of the project, though special provisions may be required to provide access during the construction period. Business access to the Woolf House is also provided along Howard Street which would not be impacted by construction. Air Quality and Noise impacts and mitigation measures are described in Sections 6.14 and 6.15. The dust and exhaust emissions control measures that would be required to minimize construction-related air quality impacts are described on pages 6-110 to 6-113 of the SEIS/SEIR. The SFMTA would be required to meet the San Francisco Noise Ordinance limits during the construction phase and the contractor would be required to hire an acoustical consultant to prepare a Noise and Vibration Control Plan that would identify all potential impacts during construction and would provide

adequate control measures to clearly demonstrate that the noise and vibration criteria and limits presented in the SEIS/SEIR would be maintained (see pages 6-117 and 6-118 of the SEIS/SEIR). In addition, a Mitigation Monitoring and Reporting Program, designed to ensure implementation of adopted mitigation measures, has been developed and is attached as Appendix I of the SEIS/SEIR.

Once a project is selected and the final design phase is initiated, a detailed construction management plan would be prepared. Outreach to the affected communities and notification of construction schedules and potential disruptions would occur. Construction complaint lines would be established to promptly resolve construction-related issues that arise.

The SEIS/SEIR adequately analyzes environmental impacts and proposes mitigation measures that will minimize most impacts to a level of insignificant. More detailed studies to further clarify and refine mitigation will supplement the analysis as the project moves forward. The analysis meets reasonable standards set forth by CEQA was not conducted in an arbitrary and capricious manner as stated by the commenter.

#### **AE-6**

See Response to Comment AE-5.

#### **AE-7**

See Responses to Comment K-1 and AA-36. As noted on page 2-9 of the SEIS/SEIR, above ground emergency ventilation shafts have been incorporated into the project since adoption of the 1998 Final EIS/EIR, to replace in-street ventilation in order to meet current fire codes. These vent shafts would operate only during a system emergency or during periodic testing of the emergency response system. Regulations governing the placement of the ventilation shafts are intended to keep them elevated above any directly adjacent structures. The Moscone Station for Alternative 3 is described on page 2-28. The vent shaft would be 26 feet above the station building. See page 5-79 for a description of the noise impacts associated with the vent shafts. No adverse noise impacts are anticipated in conjunction with the operation of the ventilation shafts since they must meet requirements of the San Francisco Noise Ordinance.

The vent shafts are a life/safety feature intended to ventilate the stations in the event of an emergency, such as a fire, in which case the fans would be turned on and smoke would escape through the vent shafts to protect the safety of the patrons in the station. There would be no exhaust coming out of the vents unless there was an emergency incident.

Ambient air quality standards are designed to protect segments of the population most susceptible to the adverse effects of pollutants or sensitive receptors that include the very young, the elderly, people weak from disease or illness, or persons doing heavy work or exercise. Sensitive receptors for air quality analysis include: Yerba Buena Center, Union Square, Gordon Lau Elementary School playground, Willie “Woo Woo” Wong Playground, and Washington Square Park. (page 4-112 and page 4-120, Air Quality Section 4.11). In addition, residential areas are considered to be sensitive receptors, thus the senior housing located on Clementina Street is included as a sensitive receptor.

#### **AE-8**

Vehicular and pedestrian access to Clementina Street and local properties along the street would be maintained during the Central Subway construction. As noted on page 6-26, construction of the Moscone Station would require temporary lanes closures of Fourth Street for a period of 10 to 12 months between Folsom and Howard for installation of the shoring systems for station construction. Once the street is fully decked over, the station construction would continue underground and spoils or materials would be delivered via Clementina Street. Truck traffic for the hauling away of spoils or the delivery of construction materials would last the duration of the construction period. It is estimated that an average of 25 daily truck trips would be generated over a one-year period at the Moscone Station during construction (Alternative 3B). Temporary noise, air quality, and circulation impacts would occur adjacent to these construction sites as documented in Sections 6.3, 6.14, and 6.15 along the corridor. These temporary construction impacts were determined to be less-than-significant when appropriate mitigation measures are implemented. These mitigation measures are described for each technical topic in Chapter 6.0 of the SEIS/SEIR.

#### **AE-9**

City regulations require that pedestrian access to adjacent businesses and residences be maintained during construction activities. Some rerouting of pedestrian traffic may however be required. Construction management plans would take into account the access needs of adjacent properties as they are developed and monitoring of construction activities would ensure a prompt response if problems develop.

The text of the third sentence, third paragraph of page 6-26 is amended as follows to clarify pedestrian impacts:

“During installation of the secant piles used for shoring, the sidewalks would be either closed to pedestrians (only on segments that do not provide direct access to adjacent



buildings) or protective barriers erected to separate the public from the construction activities.”

**AE-10**

The commenter is correct that the impacts at Folsom Street would be eliminated if the station moved north to Mission Street, however, a new set of impacts would occur at Mission Street. The impacts associated with the main sewer transport line and the reduced service area are described in responses AE-1 and AE-2. While the construction impacts outlined for a Moscone Station located between Folsom and Howard Streets are considered less-than-significant, the disruption of a major (eight-foot diameter) sewer transport line if the station were moved north to Mission Street would be considered a significant impact because of disruption to a major utility system.

**AE-11**

Comment regarding the adequacy of the environmental document is noted. The analysis requested by the commenter has been completed and is included in background documents and the amended text of the SEIS/SEIR as noted above. The SEIS/SEIR has been prepared in accordance with CEQA and NEPA guidelines and the planning process for the Central Subway Project has been comprehensive and included numerous public hearings and meetings as documented in Chapter 11.0 Coordination and Consultation.

## Letter AF



會老長教督基華中市藩三  
PRESBYTERIAN CHURCH IN CHINATOWN  
925 Stockton Street  
San Francisco, California 94108  
Telephone: (415) 392-1500

RECEIVED

DEC 11 2007

CITY & COUNTY OF S.F.  
PLANNING DEPARTMENT  
13 E 13

December 10, 2007

Bill Wycko  
Acting Environmental Review Officer  
San Francisco Planning Department  
1650 Mission Street, Suite 400  
San Francisco, CA 94103

Re: Central Subway Draft SEIS/SEIR

Dear Mr. Wycko,

Members of our church have reviewed the environmental document and have the following comments and questions:

1. Our church supports the enhancement of transit service to Chinatown created by the subway. AF-1
2. Placement of subway stations is a critical decision; the impacts of station placement and development should be thoroughly evaluated. AF-2
3. Though the local preferred alternative would place the Chinatown station at 814 Stockton St., we are aware that the Municipal Transportation Agency could select Alternative 3B, which could place the station next to our church. [There is an error on p. 5-39; this location is between Washington and Clay, not Washington and Jackson.] We are gratified that under Kwan Henmi's preliminary design for this station, the height of the development steps down from the corner of Washington and Stockton to the portion of Stockton Street next to our church. Because the remodeling of our church placed windows on the north-facing side of the building, we are still concerned about the possible impact of the station on light and air. We would also like a study of how the new construction would affect the wind. Since the construction of Mandarin Towers, the wind tunnel that was created by this building makes it very difficult for many of our community's senior citizens to walk safely. We want assurance that the wind situation will not get any worse. We are concerned also about the location of the vent shafts and any noise that may be associated with the venting. Our church requests to be actively involved in any design review of the station, especially if the MTA selects 939 Stockton St. as the site. AF-3
4. To that end, we want to be sure about the nature of the reviews the subway stations require. At what point will MTA choose its alternative? Is Table 2-9 in the EIR complete? Will the subway stations be subject to further environmental review? Will the stations and their designs be approved as part of the total subway project or under separate actions? AF-4


AF-5

AF-6

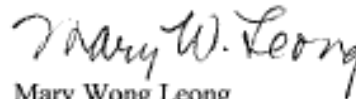
- |   |       |
|---|-------|
| 5. As part of the Chinatown community, our church is concerned about the residents and small businesses that would be affected by the project. We would like to see a more detailed description of the mitigations proposed by MTA to address the displacement impacts.   | AF-7  |
| 6. We especially would urge that there be no construction activity on Sundays.  | AF-8  |
| 7. The Affected Environment-Land Use chapter of the EIR emphasizes the commercial and residential uses in Chinatown, but seems to suggest that schools and other institutions are “exceptions” to the normal pattern of land uses on Stockton Street. When the Planning Department updated the General Plan for Chinatown in the 1980s, it emphasized Chinatown’s three roles—as a residential/commercial neighborhood, visitor center and “capital city.” The paragraph on Chinatown should be rewritten to recognize that institutions are an integral part of Chinatown, the historic heart of the Chinese-American community. | AF-9  |
| 8. Related to this point, Table 4-7 (PUBLIC AND COMMUNITY FACILITIES WITHIN THE CORRIDOR) omitted several community facilities on or near the subway, including the Chinese Historical Society, at 965 Clay St.; Donaldina Cameron House, at 920 Sacramento St.; the Chinatown YMCA, at 855 Sacramento St.; the First Chinese Baptist Church, at 15 Waverly Pl.; and, finally, our church, the Presbyterian Church in Chinatown, at 925 Stockton St.  | AF-10 |

We look forward to your responses to our comments and questions.

Adopted by action of Session [the church’s governing body] at its December 9 meeting. Signed on behalf of the Session.



David Mote  
Moderator



Mary Wong Leong  
Clerk

## Responses to Letter AF

### AF-1

Comment noted regarding support by the Church for the enhancement of transit service to Chinatown provided by the subway project.

### AF-2

Impacts of the Chinatown Station alternatives are described in Section 3.0 for traffic, parking and transit pedestrian access, Section 5.0 for operation of the subway project, and Section 6.0 for construction-related impacts. The impacts of the Chinatown Station alternatives are evaluated for all environmental topics.

### AF-3

The description on page 5-39 for the Chinatown Station under Alternative 3B is revised to note that the underground station extends to Jackson Street, but the access point is at Clay Street.

The Presbyterian Church in Chinatown, and other adjacent properties to the 933-949 Washington Street station location, will be included in community outreach meetings during development of the architectural design for the above-ground station that will occur following certification of the SEIS/SEIR. Transit-oriented development could be proposed as part of an independent project for the station in the future and would be subject to independent environmental review once a specific proposal is defined. The SFMTA station entry would require only a one-story building, however, for purposes of the worst-case environmental analysis it is assumed that a 65-foot high building could be permitted under existing zoning. A conceptual station design was developed for this SEIS/SEIR to show the extent of the build-out area that would meet City codes and zoning. A shadow analysis of the conceptual building profile has been added to the SEIS/SEIR (Appendix K). No shadows from the Chinatown Station would be cast onto the Presbyterian Church because the station would be north of the church

The text of the first sentence, last paragraph on page 5-39 is revised as follows:

“The access to the Chinatown Station for Fourth/Stockton Alignment Option B would be located on the west side of Stockton Street between Washington and ~~Jackson~~ Clay Streets (see Figures 5-12 and 5-13). The underground station platform would extend to Jackson Street.”

**AF-4**

The station designs for the SEIS/SEIR are conceptual only and provide a building envelop for analysis. Wind studies are generally done for buildings over 85 feet in height. In addition, wind impacts from new construction are site and design specific. Without the benefit of a specific design and given the potential maximum height of the building at 65 feet, a wind study was not warranted at this time.

**AF-5**

Noise from vent shafts would be less-than-significant from the passage of underground trains and the testing and operation of the emergency ventilation fans. This noise would not be audible over background noise. The vent shafts would be designed to meet the noise level limits of the San Francisco Noise Ordinance. No adverse impacts are anticipated since these facilities would be designed to comply with the San Francisco Noise Ordinance. (page 5-79 of the SEIS/SEIR) Sound attenuation will be provided on all ventilation openings. Specific measures for the abatement of noise levels from the vent shafts will be determined during preliminary and final design. MTA will continue to involve the church and Chinatown representatives during project design.

**AF-6**

SFMTA selected a Locally Preferred Alternative at the February 19, 2008 meeting of the Board, however, the Project is not scheduled to be adopted by SFMTA until fall of 2008, following certification of the Final SEIS/SEIR. The LPA was revised from 3A to 3B, with the station entry at 933-949 Washington Street. Table 2-9 for Agency Approvals for the proposed project is complete and identifies the project approval by SFMTA. This SEIS/SEIR studies a generalized conceptual design for an above-ground station that would meet the City zoning guidelines. A specific transit-oriented development proposal for the Chinatown Station would be subject to independent environmental review, design review, and project approval by the Planning Department prior to approval by the SFMTA.

**AF-7**

Acquisition and Displacement impacts and mitigation measures are described in Section 6.5.2 on pages 6-48 to 6-54 of the SEIS/SEIR, and elaborated in Response to Comment A-4.

**AF-8**

Limiting above-ground construction activities on Sundays could be a part of the Conditions of Approval by the SFMTA Board, if determined feasible.

**AF-9**

Text revisions as noted below will be incorporated to further define the role of Chinatown.

The following text is added to the end of the fourth paragraph, page 4-6:

“Chinatown’s role as a residential and commercial neighborhood, visitor center and “capital city” is highlighted in the Chinatown Plan.”

The text in the sixth sentence, second paragraph, page 4-23 is revised as follows:

~~“Other exceptions to the primary land uses include a~~ A Post Office and several schools, including the Chinese Central High School and Gordon Lau Elementary School are located between Clay and Washington Streets. The St. Mary's Chinese Catholic Center is located on the northeast corner of Stockton and Clay Streets and the Sun Yat-Sen Memorial Hall is on the east side of Stockton Street. The Willie “Woo Woo” Wong Playground (formerly Chinese Playground), on Sacramento Street just east of Stockton Street, is the only open space along the Corridor north of Union Square. These institutions are an integral part of Chinatown, the historic heart of the Chinese-American community.”

**AF-10**

Comment regarding the omission of several community facilities is noted.

Table 4-7, page 4-37 is amended as follows to include the community facilities that were previously omitted.

**TABLE 4-7****PUBLIC AND COMMUNITY FACILITIES WITHIN THE CORRIDOR**

<b>FACILITY</b>	<b>ADDRESS</b>	<b>JURISDICTION</b>	<b>ACTIVITY</b>
<b>South of Market/ Downtown</b>			
Caltrain Terminal	Fourth/Townsend	Joint Powers Board	Caltrain San Francisco terminal station
Station 8	38 Bluxome	City	Fire house
Station 35	676 Howard	City	Fire house
Moscone Convention Center West	Fourth between Howard and Mission	City	Exhibit halls and meeting rooms
Moscone Convention Center	Howard between Third and Fourth	City	Exhibit halls and meeting rooms
Museum of Modern Art	Third between Howard and Mission	Private	Art museum and retail store
Yerba Buena Center for the Arts	Third/Mission	City	Theater and art center
San Francisco Community College	800 Mission	City	Business school and City College

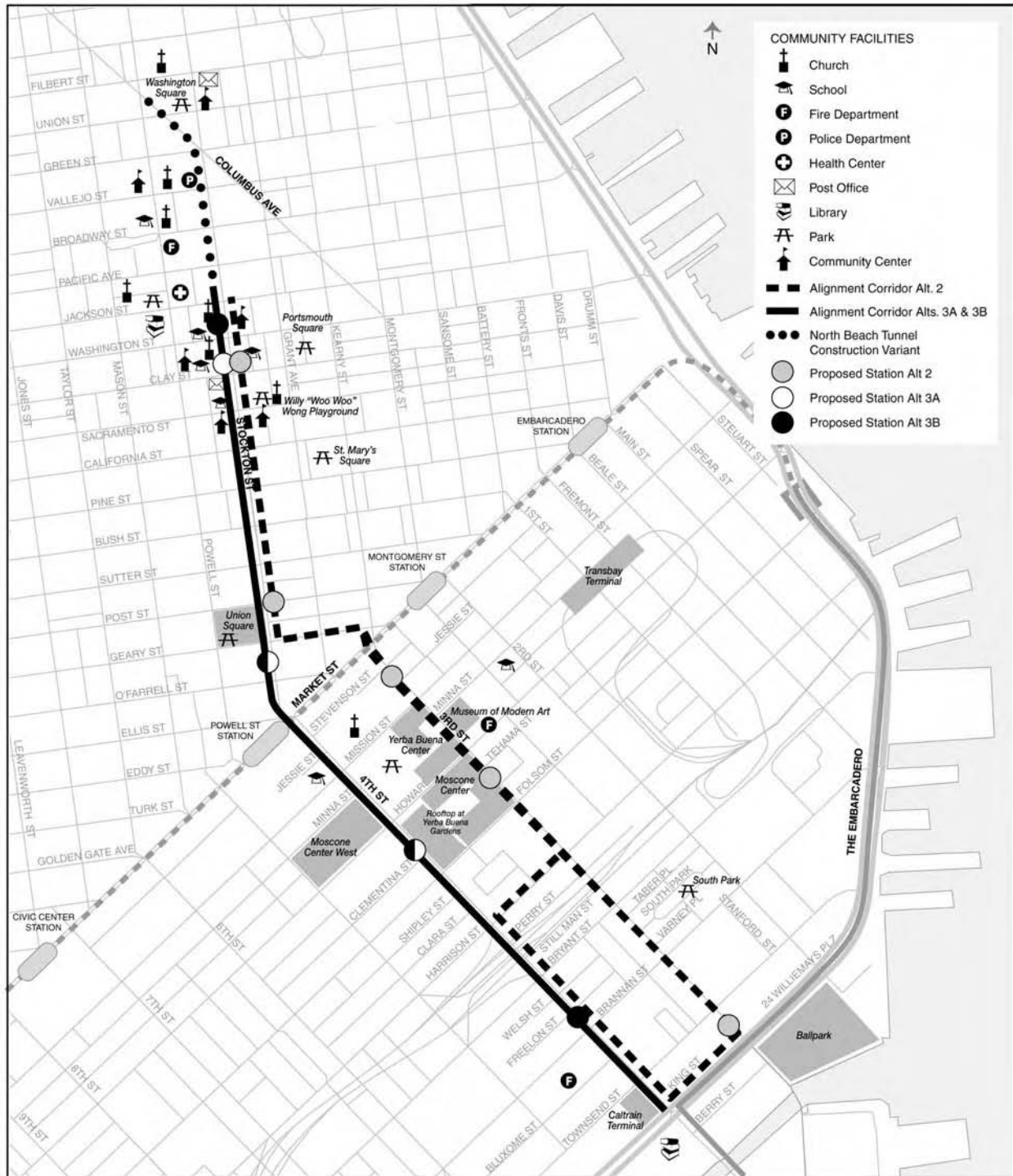
**TABLE 4-7**  
**PUBLIC AND COMMUNITY FACILITIES WITHIN THE CORRIDOR**

FACILITY	ADDRESS	JURISDICTION	ACTIVITY
Academy of Art	79 New Montgomery	Private	Fine arts college
Yerba Buena Community Center	Fourth between Folsom and Harrison	Private	Community Center
St. Patrick's Church	756 Mission	Private	Catholic church
Mission Bay Branch Library	960 Fourth	City	Public library

<b>Chinatown</b>			
<u>Chinatown YMCA</u>	<u>855 Sacramento</u>	<u>Private</u>	<u>Residential, and community center/events</u>
<u>Donaldina Cameron House</u>	<u>920 Sacramento</u>	<u>Private</u>	<u>Community Center</u>
<u>First Chinese Baptist Church</u>	<u>15 Waverly Place</u>	<u>Private</u>	<u>Baptist Church</u>
Chinese Central School	829/843 Stockton	Private	High school
Post Office	867 Stockton	Federal	Postal services
St. Mary's Chinese Day School	902 Stockton	Private	Catholic school and mission
<u>Presbyterian Church in Chinatown</u>	<u>925 Stockton</u>	<u>Private</u>	<u>Presbyterian Church</u>
Commodore Stockton School	950 Clay	SF Unified School District	Elementary school
<u>Chinese Historical Society</u>	<u>965 Clay</u>	<u>Private</u>	<u>Historical Society meetings and events</u>
Commodore Stockton Annex II	949 Washington	SF Unified School District	Child care center
Chinese Education Center	657 Merchant	SF Unified School District	Elementary school
Chinese Hospital	845 Jackson	Private	Medical services
Cumberland Presbyterian Chinese Church	865 Jackson	Private	Presbyterian church
Station 2	1340 Powell	City	Fire house
Gordon Lau Elementary School	950 Clay	SF Unified School District	Elementary School
Salvation Army Chinatown Corps	1450 Powell	Private	Sunday school, senior center, community center
Central Police Station	766 Vallejo	City	Police station
Cathay Post #384 American Legion	1524 Powell	Private	Veterans association
Pin Yuen Senior Recreation Center	799 Pacific	Private	Senior center
San Francisco Chinese Baptist Church	1524 Powell	Private	Baptist church
Chinese United Methodist Church	1009 Stockton	Private	Methodist church

Figure 4-4 on page 4-36 is amended to include the Chinese Historical Society, Donaldina Cameron House, Chinatown YMCA, First Chinese Baptist Church, and Presbyterian Church in Chinatown.

Figure 4-4



Source: PB/Wong  
 Not to scale  
 Revised 1/08



## Comment Form AG


**SAN FRANCISCO 三藩市規劃局**  
**PLANNING DEPARTMENT**

2007 11 8

November 8, 2007 二零零七年十一月八日

 CITY & COUNTY OF SF  
 PLANNING DEPARTMENT

**PUBLIC COMMENTS 公眾意見: NO TO 3B!**

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

 Reception:  
 415.558.6378

 Fax:  
 415.558.6488

 Planning  
 Information:  
 415.558.6377

I SUPPORT ALTERNATIVE 3A, WITH THE CHINATOWN STATION LOCATED AT  
 814-818 STOCKTON STREET, ASSESSORS PARCEL # 0225-014. THIS OPTION IS  
 THE LEAST INVASIVE TO THE COMMUNITY AND HAS A SHARP FOOTPRINT

~~I STRONGLY~~ OBJECT TO THE 3B ALTERNATIVE THAT PLACES THE CHINATOWN  
 STATION ON THE WEST SIDE OF STOCKTON STREET <sup>(438-435 STOCKTON)</sup> BETWEEN CLAY & WASHINGTON  
 — THAT DISPLACES MORE BUSINESSES AND RESIDENTS. THE PROSPECT OF A 65-FT  
 BUILDING THREATENS THE NEIGHBORHOOD CHARACTER AND QUALITY OF LIFE.

AS A RESIDENT OF HAWAIIAN TOWNE, LIVING ACROSS FROM THIS INVASIVE STRUCTURE  
 POSES A THREAT OF NOISE, INCREASED FOOT TRAFFIC AND POLLUTION DEASITY.  
~~THE 65-FT~~ A 65- FT BUILDING IS NOTHING LESS THAN AN IN-TOWN-FACE INTERUSION!!

ADD! TO 3B!!!

請把我加入/保留在你的郵寄名單內。

PLEASE ADD/KEEP ME ON YOUR MAILING LIST:

MORAYA KHAN

NAME 姓名

946 STOCKTON STREET, 17F SAN FRANCISCO CA 94108

MAILING ADDRESS 郵寄地址

morakhan@comcast.net

PHONE NUMBER 電話號碼

EMAIL ADDRESS 電郵地址

A public hearing on this Draft SEIR and other matters has been scheduled by the City Planning Commission for Thursday  
 November 15, 2007, in Room 400, City Hall, 1 Dr. Carlton B. Goodlett Place, beginning at 1:30 p.m. or later. (Call 558-6422 the  
 week of the hearing for a recorded message giving a more specific time.)

關於這報告之公聽會將在本年十一月十五日的下午一時半舉行，地點為市政廳 400 號室（請於週內致  
 電 415-558-6422 查詢準確時間）。

Public comments will be accepted from October 17, 2007, to 5:00 p.m. on December 10, 2007. Written comments should be  
 addressed to Bill Wycko, Acting Environmental Review Officer, San Francisco Planning Department, Central Subway Draft  
 SEIS/SEIR, 1650 Mission Street, Suite 400, San Francisco, CA 94103. Comments received at the public hearing and in  
 writing will be responded to in a Comments and Responses document. If you have any questions about the environmental  
 review of the proposed project, please call Joan A. Kugler at 575-6925.

書面意見請郵寄到 Bill Wycko, Acting Environmental Review Officer, San Francisco Planning Department,  
 Central Subway Draft SEIS/SEIR, 1650 Mission Street, Suite 400, San Francisco, CA 94103. 截止日期 十  
 二月十五日下午五時。書面意見及公聽會內發表的意見將在一個'意見及回應'的文件內作答。對補充  
 報告有任何問題，請與規劃局 Joan A. Kugler 接洽，電話 415-575-6925。

## **Responses to Comment Form AG**

### **AG-1**

Comments in support of Alternative 3A as the least invasive to Chinatown and objecting to Alternative 3B with a potential height of 65-feet are noted. A 65-foot high building at the Chinatown Station proposed for 933-949 Stockton Street was evaluated in the SEIS/SEIR for visual and Historic District impacts as a worst-case scenario based on the maximum height that would be allowed under the existing zoning regulations. A specific proposal for transit-oriented development of the site has not yet been made and would be subject to an independent public review process that included community input. Displacement of businesses and residents and relocation under the Uniform Relocation Act are described on page 6-54 of the SEIS/SEIR.

### **AG-2**

Commenter notes that a 65-foot height building would generate noise, foot traffic, and increased population density in the neighborhood. A specific proposal for the development of the station site has not yet been made. When a proposal is received by the Planning Department, an independent environmental analysis will be undertaken to evaluate the potential adverse impacts associated with the project. Relocation of the existing businesses in the building at 933-949 Stockton Street and the 17 residential units would be part of station development at this location (page 6-53). Existing pedestrian use of this active commercial section of Chinatown and population density is described in the Purpose and Need, Chapter 1.0.

## Letter AH



### LANDMARKS PRESERVATION ADVISORY BOARD

1650 Mission Street, Suite 400 | San Francisco, CA 94103-2479

TEL: 415.575.6918 | FAX: 415.550.6409

December 10, 2007

Mr. Bill Wycko  
Acting Environmental Review Officer  
San Francisco Planning Department  
1650 Mission Street, Suite 400  
San Francisco, CA 94103

Dear Mr. Wycko,

On Wednesday, October 17, 2007, November 7, 2007 and December 5, 2007, the Landmarks Preservation Advisory Board (Board) held public hearing and took public comment on the Draft Environmental Impact Report (DEIR) for the Historic Architectural Evaluation Report for the Central Subway, Phase 2 of the Third Street Light Rail Project dated October 16, 2007. After discussion the Board arrived at the following comments:

- The Board asked for clarification regarding the appendices to the historic resources report and the DEIR.
- The Board asked if any studies were performed on the feasibility of locating the Chinatown station underground or within an existing building.
- The Board had concerns with the proposed mitigation measures for impacts to historic resources. The Board felt that if the Stockton Street building was demolished or altered then documentation of the building should be stipulated as a mitigation measure.
- The Board suggested that there should be a mitigation measure that addresses the vibration monitoring and the depth of the tunnels. Furthermore, the DEIR should evaluate what the impacts to the historic districts will be and it should provide alternatives and mitigation measures that address this issue.
- The Board encourages as a mitigation measure an educational/training program for workers and consultants about potential damage to historic resources as a result of construction and vibration. Further, the Board felt that the MTA should fund and sponsor the actual designation of the potential historic districts that could be impacted by the project.

AH-1

AH-2

AH-3

AH-4

AH-5

AH-6

- |   |       |
|---|-------|
| • The Board requested clarification regarding the vent shafts and their potential to impact historic structures.  | AH-7  |
| • The Board believes that it would be helpful if maps were included in the background studies and DEIR identifying the location of historic resources.  | AH-8  |
| • The Board believes that the loss of historic buildings needs to be assessed in terms of the economic and cultural impact to the historic districts and neighborhoods.   | AH-9  |
| • The Board recommended that the Programmatic Agreement included a thorough evaluation of a Preservation Alternative to demolishing the buildings on Stockton Street.   | AH-10 |
| • The Board recommended that the Preservation Alternatives be prepared by Preservation Architect that meets the qualifications of the Secretary of the Interior. The Board suggested including a list of unreinforced masonry buildings in the project boundary so that there could be some evaluation for the potential for damages prior to excavation. | AH-11 |
| • The Board recommended that a Preservation Architect, not the contractor, monitor the character-defining features of historic buildings on the exterior during construction.   | AH-12 |
| • The Board feels that it would be helpful to include specific dates when reviews are scheduled to take place for the stations.   | AH-13 |
| • The Board request that any major changes to the project be brought back before the Landmarks Preservation Advisory Board for review.  | AH-14 |
| • The Board was pleased to see the protection of the street lights and generally supports the Central Subway Station Project.   | AH-15 |

The Landmarks Preservation Advisory Board appreciates the opportunity to participate in the review of this environmental document.

Sincerely,

  
 Bridget Maley, President  
Landmarks Preservation Advisory Board

N:\LPA\LETTERS\Central Subway.doc

## **Responses to Letter AH**

### **AH-1**

The Area of Potential Effect maps for all alternatives have been added as Appendix A to the Historic Architectural Evaluation Report for the Central Subway, Phase 2 of the Third Street Light Rail Project provided to the SHPO, to the Landmarks Board and to City Planning MEA.

### **AH-2**

The Chinatown Station platform and tracks are located underground in the subway under Stockton Street. The passenger entry to the station was originally located within the sidewalk on both sides of Stockton Street. Public concerns about pedestrian access and space constraints during the review of the original Third Street Light Rail Draft EIS/EIR in 1998, and subsequent community meetings resulted in locating station entries off congested sidewalks to private or public property. The Project Development History is described in Section 2.4, pages 2-52 to 2-62 and included consideration of four potential station entries in Chinatown (see page 2-61 and 2-62 of the SEIS/SEIR). A primary entry through the basement of the Mandarin Towers was considered and eliminated from further review because the limited amount of space available for passenger access within the existing entry to the building, for vent shafts, and access for construction. The Chinese Newcomer's Service Center parking structure at 901 Sacramento Street was considered and eliminated because it is too far from the core business/shopping area. The Ping Yuen Housing site was considered and eliminated because it is outside the study area and would disrupt residents.

### **AH-3**

Mitigation measures for a station entry and transit-oriented development for a station in Chinatown are described on page 6-76 of the SEIS/SEIR and include: 1) partial preservation through rehabilitation, in compliance with the Secretary of the Interior's Standards, and reuse of the building as the Chinatown Station; 2) using the expertise of an architectural historian in design development of the station; 3) salvage of the significant architectural features to be used as an education exhibit inside the new station or utilized for the repair and rehabilitation of other historic buildings in the area; and 4) development of a permanent interpretive display for public use on the entire route that would include details about the demolished buildings as well and historic information about the buildings, historic district, neighborhoods, important individuals and businesses surrounding the alignments. Standard Historic American Building survey/Historic American Engineering Record documentation would also be completed. These mitigation measures described for Alternative 2 would also apply to Alternative 3A

and 3B. Rehabilitation and re-use of existing buildings for the Chinatown Station may not be practical or feasible to meet current building codes.

#### **AH-4**

Mitigation measures for vibration during construction in historic districts are described on page 6-75 of the SEIS/SEIR, and include monitoring at the closest structure to ground disturbing construction activities. Though Ground-borne vibration levels are generally not expected to impact historic buildings structural integrity, some buildings may be susceptible to minor architectural damage to trim, window casings, brick chimneys during construction. If at any time the construction activity exceeds 0.12 inches/second, that activity will immediately be halted until such time as an alternative construction method can be identified that would result in lower vibration levels. For example, pre-drilling for pile installation in areas that would employ secant piles with ground-supporting walls in the cut-and-cover construction of stations and tunnels would greatly reduce vibration levels to adjacent buildings. Text changes will be incorporated to note the need for an independent environmental compliance monitor.

The text in bullet #1 under Mitigation Measures, page 6-75, is revised as follows:

“The contractor will be responsible for the protection of vibration-sensitive historic building structures that are within 200 feet of any construction activity, including unreinforced masonry buildings.”

The text in bullet #3 under Mitigation Measures, page 6-75 is revised as follows:

~~“The contractor~~ An independent Environmental Compliance Monitor (ECM) will be retained by SFMTA to monitor construction to make sure that environmental conditions are met. The ECM will be required to perform periodic vibration monitoring at the closest structure to ground disturbing construction activities, such as tunneling and station excavation, using approved seismographs.”

The impacts to the historic districts are discussed in the SEIS/SEIR on pages 6-72 to 6-82. As noted on page 6-72, the demolition of a contributing element to an NHRP-eligible district constitutes an adverse effect under Section 106 of the National Historic Preservation Act. The removal of an historic building for construction of the Chinatown station would adversely affect the potentially eligible Chinatown Historic District. The mitigation measures for the removal of an historic contributory building in Chinatown are described on page 6-76 and 6-82. The mitigation measures would not reduce the impacts to a less-than-significant level.

**AH-5**

A new mitigation measure has been added to the mitigation measures on page 6-75 for vibration effects to historic building structures:

“5. The ECM will conduct a training program at the start of construction to educate the Contractor and consultants about the sensitivity of historic structures to construction related vibration.”

**AH-6**

As part of the environmental consulting work to prepare the original 1998 EIS/EIR Cultural Resources section, the Section 106 Historic Architectural Survey Report, and the 2007 Supplemental EIS/EIR and technical report, SFMTA has funded the work of historic architectural specialists to inventory, record and submit to the Landmarks Board, the Planning Department and the SHPO the detailed information (25 buildings along Stockton Street) necessary for the City and the SHPO to designate historic districts along the Central Subway alternative alignments. SFMTA is a transportation agency that has provided funding for the research and documentation of the potential Chinatown Historic District that is described on pages 4-65 to 4-69 on the SEIS/SEIR. A National Register of Historic Places Inventory Nomination Form for a Chinatown Historic District has been submitted in 1979 and in 1994 to the State Historic Preservation Office. Any further work on designation of a new Historic Districts is not required of SFMTA as part of the environmental process.

**AH-7**

The proposed vent shafts are discussed in both the Visual Resources Sections and the Cultural Resources Sections of the SEIS/SEIR. None of the proposed vent shafts would impact historic properties or districts. The vent shafts for Alternative 3A would be along the eastern end of the Union Square plaza, designed to be part of the existing plaza terraced planters. The 11 foot high vents would be positioned below the plaza level and below the café and would not constitute substantial adverse impacts to the historic character of the KMMS Conservation District or to the dominant landscape features of the historic open space (page 5-30 and page 6-77 of the SEIS/SEIR). Under Alternative 3B the vent shafts for the Union Square/Market Street subway station would be located inside of the air-well of the Ellis/O’Farrell Garage rather than in Union Square Plaza or garage.

**AH-8**



Area of Potential Effect (APE) Maps have been added to the Historic Architectural Evaluation Report for the Central Subway, dated November 16, 2007, and provided to the Landmark's Board. The APE maps show parcel and building numbers that correspond to the historic description and color photograph of each property surveyed.

#### **AH-9**

The impact discussion in Section 6.7.2, starting on page 6-72 of the SEIS/SEIR describes the potential impact to the historic district and historic character of the potential Chinatown Historic District and to the area adjacent to the two buildings on Stockton Street (814-828 Stockton St. and 933-949 Stockton Street) considered for demolition for the transit-oriented station development for the Central Subway Project. The removal of either of these buildings that contribute to the NRHP-eligible historic district constitutes an adverse cultural effect on the district under Section 106 of the National Historic Preservation Act of 1966. Mitigation measures to minimize impacts are described on page 6-76. Potentially adverse economic impacts to low income residents and to businesses displaced by the demolition of the buildings in Chinatown is discussed on page 6-51 to 6-54. Relocation assistance and compliance with the Uniform Relocation Act is described as mitigation for the residential and business displacement.

#### **AH-10**

SFMTA does not consider that a "full preservation alternative" is feasible for the station development at either of the two buildings in Chinatown because of the condition of the existing structures and requirements to upgrade the unreinforced masonry buildings to meet building codes and because the transit-oriented development would be necessary to replace the displaced businesses and residential units required by the Chinatown Area Plan (Policy 3.1) last amended in 1995 (Resolution 13907). A partial preservation alternative is described for the building at 814-828 Stockton Street on page 6-76 of the SEIS/SEIR that would also apply to the building at 933-949 Stockton Street under Alternative 3B.

#### **AH-11**

A revised Programmatic Agreement will be prepared as part of the Final SEIS/SEIR and submitted to the Planning Department and to the SHPO for review and comment before finalizing as part of the Record of Decision for the Central Subway project. This revised PA includes the requirement for "retaining the professional services of a City-approved architectural historian and preservation specialist, with experience in Chinatown, to work with SFMTA and Central Subway project architects to develop the design for the Chinatown station."



The San Francisco Planning Department has an inventory of all unreinforced masonry buildings in the City that will be consulted during the next phase of project design to identify buildings adjacent to the station sites and tunnel alignment where potential construction related settlement could affect structures along the corridor. (See Section 6.10.2 Settlement or Instability of Subsurface Materials, on page 6-91 to 6-93 of the SEIS/SEIR)

#### **AH-12**

See Responses to Comments AH-4 and AH-5. The text on page 6-75 has been revised to state that an independent environmental compliance monitor would be retained to monitor construction. The ECM would retain the services of a City-approved preservation architect or architectural historian to monitor construction effects to historic structures in the APE.

#### **AH-13**

SFMTA selected a Locally Preferred Alternative at their February 2008 Board meeting (Alternative 3B). The Planning Commission is scheduled to certify the Final SEIR and complete the Master Plan Referral in July of 2008. A 30-day appeal period will follow the certification of the Final SEIR. SFMTA will hold a Public Hearing to adopt the project, along with the environmental Findings, the Mitigation Monitoring and Reporting Program, and the Overriding Considerations in Summer 2008. The Federal Transit Administration (FTA) will then prepare and issue a Record of Decision to complete the federal environmental review process and approve the project in August of 2008.

#### **AH-14**

SFMTA will keep the Landmarks Preservation Advisory Board apprised of any substantial changes to the project, and would plan to return to the Board if changes involve historic properties. The Chinatown Station designs in the SEIS/SEIR are conceptual only, to provide building height and bulk concepts for shadow and visual impact analysis. The transit-oriented development above the Chinatown Station entry will be designed during the next phase of project development and will be subject to independent environmental review and approvals. Review of the exterior treatment of the building would occur in consultation with the Planning Department, the City Historic Preservation Officer, the Landmarks Preservation Advisory Board, and the Chinatown community during preliminary and final design (page 5-34).

#### **AH-15**

Comment noted on the protection of the street lights and the support for the Central Subway Project.

## LETTER AI



City and County of San Francisco  
Recreation and Park Department

McLaren Lodge in Golden Gate Park

501 Stryan Street, San Francisco, CA 94117

TEL: 415.831.2700 FAX: 415.831.2096 WEB: <http://parks.sfgov.org>

December 5, 2007

Joan Kugler  
Planning Department  
City and County of San Francisco  
1650 Mission Street, Suite 400  
San Francisco, CA 94105

Re: Central Subway SEIS/SEIR

Dear Ms. Kugler:

Thank you for attending the Recreation and Park Commission hearing on August 16, 2007. I know that the Commissioners were pleased by the quality of MTA's presentation on the Central Subway Project. I would like to reiterate our outstanding concerns brought up at the meeting and changes to the SEIS/SEIR we are proposing during the CEQA/NEPA review process.

Under CEQ regulation 1508.14 "when an environmental impact statement (EIS) is prepared and economic or social and natural or physical environment effects are interrelated, then the EIS will discuss all of this effect on the human environment." Since the proposed Union Square station, as described in the SEIS/SEIR, would displace a number parking spaces in the Union Square Garage, then the economic effects of this displacement or reduction of usable parking during construction or after project completion should be analyzed in the SEIS/SEIR. The Recreation and Park Department believes that the loss of parking could potentially impact the City's ability to repay its debt service on the bond for the Union Square Renovation Project and would also significantly impact Department revenue. The original \$22 million cost for the project was paid with revenue bonds that were to be serviced by revenues from the Union Square Garage. In addition to debt service, the garage generates revenue used to support the Department's budget.

Therefore, the SEIS/SEIR should analyze these potential impacts for the Department both to repay the bond debt service and impacts on the Department's revenue pursuant to CEQ regulation 1508.14. If the analysis finds that the project would have a significant effect to the Department's ability to repay the bond service debt or impact the department's revenue, then the project should include mitigations to reduce or avoid this effect on the park.

The Recreation and Park Department is also concerned with the use of Hang-Ah Alley for a secondary Chinatown station entrance as proposed under Alternatives 2 and 3A. Not only would it limit the use of the alley for access to the park and disrupt passive recreation uses in the alley, it would also impact the Department's ability to program that space. In addition, the Department would incur higher maintenance and operations costs as a result of intensive commuter use of the Alley. The SEIS/SEIR should provide analysis of the possible impacts of additional costs incurred to the Department associated with the secondary entrance.



Mayor Gavin Newsom  
General Manager Yoni Agumliade

AI-1

AI-2

As my staff conveyed in a comment letter on the SEIS/SEIR dated April 9, 2007, relative to the proposed Union Square station design, the Department supports the design proposal for the combined Union Square station, Alternative 3B, to locate the vent shafts in the Ellis/O'Farrell Garage and locate the MUNI entrance on the southeast corner of the park (North Geary). The Department believes that locating the vent shafts on Union Square, as described in Alternatives 2 and 3A, would have a significant visual impact on the park. The vent massing and design do not conform to the park design or architecture. The Department is looking forward to working with MTA on the final design for this alternative.

Thank you for bringing this project to the attention of the Recreation & Park Department. Please do not hesitate to contact us with any questions or concerns.

Very Truly Yours,



Yomi Aguabiade  
General Manager

cc: Dawn Kamalanathan, Recreation and Park  
Karen Mauney-Brodek, Recreation and Park  
Daniel LaForte, Recreation and Park  
Dean Macris, Planning Department  
Marilyn Duffy, The Duffy Company  
John Funghi, MTA

## Responses to Letter AI

### AI-1

The reduction in the number of parking spaces at the Union Square Garage would result in an estimated \$3,250 per space loss in the annual revenue generated at the garage, based on recent figures provided by the Recreation and Parks Department. As noted on page 6-51 of the SEIS/SEIR, the Parking Authority, which is part of the SFMTA, has authority over the Union Square Garage. The Parking Authority has indicated that revenues from the garage currently exceed the payments made against the bond debt service, therefore the potential impact would be on the general operating budgets for the departments. As part of the amendments to the management and operator agreements, fair and just compensation for the loss of parking spaces would need to be determined and made to the Parking Authority.

The following language is added before the last sentence of the first paragraph, page 6-51; following the second sentence, third paragraph, page 6-52; and following the second sentence, fifth paragraph, page 6-53:

“Compensation for the loss of parking spaces would be required in accord with the Uniform Relocation Act.”

### AI-2

Page 5-17 of the SEIS/SEIR describes that there would be no reduction in the alley or playground physical space from the secondary entrance to the Chinatown station under Alternatives 2 or 3A. Additional pedestrian use of the Hang Ah and Pagoda alley would result from the secondary entry. Station and station entry maintenance would be the responsibility of SFMTA. The mitigation measure described in the SEIS/SEIR is to eliminate the secondary entry from the alley. This could be made a condition of approval for the project, however, the Locally Preferred Alternative selected by SFMTA in February 2008 is Alternative 3B that would have the station entry at 933-949 Stockton Street, on the west side of the street. This station entry would have no impacts to Hang Ah Alley.

### AI-3

Comment noted. The Locally Preferred Alternative selected by the SFMTA in February of 2008 is Alternative 3B with the vent shafts located in the Ellis/O’Farrell garage.

The Visual Resources Section of the SEIS/SEIR, on Page 5-30, describe the eleven-foot high vent shafts as being integrated into the terraced planters on the east side of the plaza, and below the existing terraced plaza features. The vent shafts would not significantly distract from the landscape character in the foreground as viewed from Maiden Lane on the east side of Stockton Street. The final design of the vent

shafts for Alternative 2 or 3A would be developed in consultation with the Recreation and Park Department and Union Square Merchants Association.

## Letter AJ



December 10, 2007

## CENTRAL SUBWAY DRAFT SEIS/ SEIR COMMENTS: DILIGENT THOROUGHNESS & CREDIBILITY

TO: Bill Wycko, Acting Environmental Review Officer, San Francisco Planning Department

**BACKGROUND**

I am a lifelong Muni rider, with the Stockton Street corridor being my primary transit route. I know this particular public transit system extremely well. I have been active in transportation issues, transportation committees and transportation architecture. With knowledge of the history, political context and funding forces of the Central Subway Program, I would like to raise necessary topics for the SEIS/ SEIR---in order to achieve professional thoroughness, credibility and future feedback markers.

**ACCURATE ASSESSMENT OF EXISTING TRANSIT PROBLEMS**

In terms of moving from North Beach/ Chinatown to Downtown and transfer points, the Stockton Street Corridor has a fairly high level of service. Wait time for the #9X, 30 and 45 bus lines is short. From North Beach, additional options include cable cars, #20 (limited hours only) and previously, the popular but now defunct #15. In comparison to other U.S. and international cities, the Stockton Corridor is a transit-rich environment. The bus system has also been contributory to a sense of urban vibrancy. Problem areas have been crowded buses, double parking and peak-hour traffic congestion. Accurate statistics are necessary to assess existing conditions in a nonpartisan manner.

AJ-1

**DESIGN ALTERNATIVE: STREAMLINE THE EXISTING SYSTEM**

- Initiate a Test Program to assess near-term dramatic improvements to levels of service.
- "Pay for Fare" entry onto buses, i.e. passengers can enter through front/ back doors with prepaid passes or valid transfers. Already instituted in many cities, some S.F. bus drivers practice this here.
- Many buses are half empty because passengers will not move to the back. "Pay for Fare" would help distribute passengers. In some cities, drivers will park until passengers move, allowing more passengers on board. In Japan and Asia, jamming riders onto transportation is an art---because the alternative is late and disgruntled customers.
- Efficient management of bus intervals. Currently, buses are not three minutes apart, as advertised.
- Reallocate more buses to the Stockton Corridor during peak hours.
- Increase service for the #20/ #41 buses, or resurrect the #15 bus.
- Invest in larger articulated buses, perhaps with three doors.
- Effective car/ traffic management on Stockton St. More time-restricted green/ white and yellow parking zones. Better enforcement of double parking and meters (will pay for itself). Better coordination of truck delivery times (Manhattan emphasizes early morning deliveries). Plan for a nearby automated robotic parking structure.

AJ-2

**SIDE-BY-SIDE COMPARISON OF TYPICAL PASSENGER IN CURRENT/ FUTURE TRANSIT MODES**

- There has been lacking an accurate portrayal of the differences between the existing transportation options and the future Central Subway. Thus, no opportunity for improvements.
- Provide charts of side-by-side comparisons of typical passenger travel experiences---in the current transportation system and in the future Central Subway System. For instance, follow a little old lady, with three bags of groceries, trace her steps from say Stockton/ Clay Sts. and Stockton/ Jackson Sts. and Stockton/ Pacific Sts. and Stockton/ Vallejo Sts.
- The charts would show what a reasonable person would do: the walking/ bus route, time elapsed, distance traveled etc. In a perfect world, this should be in the form of an animated video.
- For example, from Stockton/ Vallejo, a reasonable route would be to wait for the #9X, 20, 30, 41 or 45 at Stockton/ Columbus. So, walk 100 feet, in 3 minutes, wait 3 minutes for a bus for a 15 minute ride to Market St. to Muni Metro etc. From Stockton/ Washington St., a reasonable route could be the Central Subway. So walk 100 feet, in 3 minutes, down escalators in 3 minutes, wait 5 minutes for subway to Market St., up escalator in 3 minutes, walk 150 feet in 5 minutes to Muni Metro etc.

AJ-3

Howard Wong, AIA    128 Varennes St.    San Francisco, CA 94133    (415)-982-5055    wongaia@aol.com

**DISCUSS CURRENT PASSENGER PATTERNS AND DESIGN ASSUMPTIONS**

- Since the 1950's to the present, from North Beach/ Chinatown, most riders will have departed the bus at or before Market St. During rush hours, some passengers get off at Sutter St. Otherwise, popular stops are Geary Blvd. and Market St. The #38 Geary Bus and Muni Metro are common transfers.
- From Downtown, most passengers get on buses at Market/ 3<sup>rd</sup> Sts. or Market/ Kearny Sts. or Stockton/ Sutter Sts. Half the passengers get off buses at Stockton/ Sacramento Sts., Sacramento/ Pacific Ave.
- For most passengers, the Stockton Corridor serves as a ½ mile to 1 mile connector. One might study the number of people who walk these distances, particularly during missed bus runs and delays.

AJ-4

**ASSUME FUTURE DECREASE SERVICE OF EXISTING BUS LINES**

- Like the recent introduction of the T-Line Light Rail, which led to the elimination of the #15 bus, one needs to anticipate possible reduction in existing bus services—to offset operating costs of the new Central Subway. These possibilities need to be evaluated, along with potential impacts, **particularly on the above side-by-side above comparisons.**
- It would be professionally prudent and offer transparency in the total transit framework, since transportation budgets have always been constrained and in dire budgetary circumstances, have been subject to reductions.

AJ-5

**EVALUATE IMPACTS ON CHINATOWN LAND VALUES, LAND USES AND HISTORIC RESOURCES**

- Throughout history, vested interests have much to gain in land transactions. The new Chinatown Station and transit node will benefit some and perhaps damage others. To shed light on potential land speculation and political/ economic maneuverings, these peripheral issues should be considered.
- Particularly in one of America's most unique historic resources, Chinatown needs to preserve affordability in order to protect immigration, housing and its vibrant cultural identity.

AJ-6

■ ■ ■ ■ ■ ■

## **Responses to Letter AJ**

### **AJ-1**

Comment noted. A frequency guide to Muni service is provided in Table 3-2, page 3-3. Characteristics of and ridership data for the existing bus and light rail system serving the study area are summarized on pages 3-5 through 3-9 of the SEIS/SEIR. Buses will continue to operate on the surface of Fourth and Stockton Streets to serve the numerous destinations of local trips that occur along the corridor. The frequency of these buses would be reduced as many riders are projected to shift from surface bus to subway rail for the longer trips and shorter travel time.

### **AJ-2**

The commenter is describing a low-cost approach to improving the efficiency of bus service along the Fourth and Stockton Street corridor. The No Project/TSM Alternative (Alternative 1) is the low cost alternative that is evaluated in the SEIS/SEIR. Alternative 1 assumes operational improvements as outlined in the Regional Transportation Plan (RTP) to improve system operations. These improvements would be put in place under any alternative.

All alternatives assume a closed barrier system for the MTA's bus and light rail system. A "Proof of Payment" system was part of the Central Subway when the project was initially analyzed in the 1998 EIS/EIR. A change in MTA policy required that the light rail be designed as a closed-barrier fare system.

The objectives and goals for the Central Subway Project include improving transit service and mobility in the project corridor and bringing the quality of service (including service reliability) to a level available to other sections of the city. A surface alternative was evaluated as part of the screening process prior to the preparation of the Draft SEIS/SEIR. This alternative was rejected because it would increase surface congestion, particularly along Stockton Street, and would not improve transit service reliability and travel times, as set forward in the project Purpose and Need. Stockton Street is a heavily used commercial street in Chinatown that requires truck access for deliveries, which often effects Stockton Street congestion. See Response to Comment I-1 for proposed new language in the SEIS/SEIR documenting the previous evaluation of the surface alternative.

### **AJ-3**

Comment regarding the potential trip patterns is noted. The methodology used to evaluate the Central Subway Alternatives in the SEIS/SEIR meets industry and agency accepted standards for environmental analysis. Average travel times are presented in Table 3-11 on page 3-39 (see Response to Comment AD-2 for proposed amendments to the table to provide additional information). As noted in the table, travel



times of surface bus operations that require numerous stops and are subject to surface congestion are longer than travel times would be on the Central Subway System. While access times to bus stops may be shorter than that required for access to a rail station, the waiting time for buses would be subject to delays associated with surface congestion. The additional estimated walk times for rail station access would not negate the benefits associated with reduced in-vehicle travel time for the subway alternatives (see Response to Comment AD-10 for estimated walk and wait times). Patrons would also still have the option of making their trip on local buses.

**AJ-4**

Station entrances for both the Union Square/Market Street Station (five entry locations) and Chinatown Station (one entry) will provide good access and egress for passengers traveling along the Stockton Street Corridor. Passengers can access other Muni streetcar lines and BART at the Powell Street Station via a two-block subsurface connection from the Union Square/Market Street Station, and can access the 2-Clement, 3-Jackson, 4-Sutter, and 38-Geary lines within one block at the surface. The Chinatown Station provides access to 1-California within one to two blocks of the station depending on the alternative. The Chinatown Station, under Alternatives 2 and 3A, is within one block of the California Street cable car line and the Alternative 3B Chinatown Station is located within one block of the Hyde Street cable car line.. In addition, surface buses would remain to serve other destinations not directly served by the Central Subway stations.

**AJ-5**

The operational analysis and cost estimates that were conducted for the Central Subway financial feasibility take into account cost savings associated with the reduction in frequency of service on the surface lines operating in the Central Subway Corridor.

**AJ-6**

Construction of a Chinatown Station would require the acquisition of one parcel of land in Chinatown. Station sites at 814-828 and 933-949 Stockton Street have been evaluated in the SEIS/SEIR. The acquisition of properties would be subject to the Uniform Relocation Act and potential transit-oriented development of the sites, while evaluated for general visual impacts is not fully evaluated in this SEIS/SEIR. Any specific proposal for development of these parcels would be independently evaluated through a public environmental and approval process that would be subject to community input. One of the recommended mitigation measures for transit-oriented development of the Chinatown Station for Alternative 3B is to include the replacement of affordable housing impacted by the building demolitions and to provide opportunities for small ground floor retail businesses as well. Demolition of the existing

building and the impact to the historic character of Chinatown is discussed on pages 6-78 to 6-82 of the SEIS/SEIR.

## Letter AK



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street  
San Francisco, CA 94105-3901

December 10, 2007

RECEIVED

DEC 13 2007

CITY & COUNTY OF S.F.  
PLANNING DEPARTMENT  
415-6

Ray Sukys  
U.S. Department of Transportation  
Federal Transit Administration, Region IX  
201 Mission Street, Suite 1650  
San Francisco, CA 94105

Subject: Draft Supplemental Environmental Impact Statement for the Central  
Subway, Third Street Light Rail Phase 2 Project (CEQ #20070443)

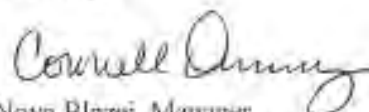
Dear Mr. Sukys:

The Environmental Protection Agency (EPA) has reviewed the above-referenced document pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and Section 309 of the Clean Air Act. Our detailed comments are enclosed.

EPA supports several of the project's goals, including goals to reduce environmental impacts, maximize transit use, and reflect the needs and desires of the community. EPA commends the extensive community outreach and efforts to incorporate community and business concerns into the project. We look forward to the successful implementation of this project. While we have not identified environmental impacts requiring substantive changes to the document, we have identified areas where more information is requested to clarify environmental impacts and ensure project impacts are minimized. EPA has rated this document LO, *Lack of Objections*. Please see the attached *Rating Factors* for a description of our rating system.

We appreciate the opportunity to review this Draft Supplemental Environmental Impact Statement (SEIS). When the Final SEIS is released for public review, please send one copy to the address above (mail code: CED-2). If you have any questions, please contact Connell Dunning, Transportation Team Lead ([dunning.connell@epa.gov](mailto:dunning.connell@epa.gov); 415-947-4161) or Susan Sturges, lead reviewer for this project ([sturges.susan@epa.gov](mailto:sturges.susan@epa.gov); 415-947-4188).

Sincerely,

  
For Nova Blazej, Manager  
Environmental Review Office

AK-1

Enclosures: EPA's Detailed Comments  
Summary of Rating Definitions

cc: Joan Kugler, City and County of San Francisco Planning Department  
John Funghi, San Francisco Municipal Transportation Authority

EPA DETAILED COMMENTS ON THE DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT FOR THE CENTRAL SUBWAY-THIRD STREET LIGHT RAIL PHASE 2 PROJECT, SAN FRANCISCO COUNTY, CALIFORNIA, DECEMBER 10, 2007

### Spoil Disposal

The Draft Supplemental Environmental Impact Statement (SEIS) discloses that approximately 489,000 cubic yards (Alternative 3A) to 637,000 cubic yards (Alternative 3B) of excavated material will be generated by the project and require disposal. In addition, approximately 13,000 cubic yards of spoils (Alternative 3B) to 35,000 cubic yards of spoils (Alternative 2) would need disposal at a Class I facility. The Draft SEIS states that spoils will be transported by trucks for off-site disposal at landfills, but does not include information on the environmental effects associated with off-site spoil disposal.

AK-2

#### *Recommendation:*

- Include in the Final SEIS a discussion of the environmental impacts associated with the disposal of excavated material at each potential off-site disposal site. Clarify the timeline for any additional environmental approvals required for disposal (Section 106 consultation, Clean Water Act Section 404 permit, Endangered Species Act Section 7 consultation, etc.).

### Air Quality

The control measures for dust and exhaust emissions detailed in Section 6.14 are commendable and we encourage Federal Transit Administration (FTA) to commit to these measures as mitigation in the Final SEIS and Record of Decision (ROD). Given the serious health effects that diesel particulate and other fine particulates can cause, the proposed large number of trucks and construction equipment, and the large number of sensitive receptors in the project corridor, we recommend that FTA avoid and minimize human exposure to particulate matter and diesel exhaust from the project to the greatest extent possible. In addition to these measures, we recommend additional mitigation measures for the Final SEIS and ROD below:

AK-3

#### *Recommendations:*

- Install wind fencing and phase grading operations where appropriate, and operate water trucks for stabilization of surfaces under windy conditions.
- When hauling material and operating non-earthmoving equipment onsite, prevent spillage and limit speeds to 15 miles per hour (mph). Limit speed of earth-moving equipment to 10 mph.
- Reduce use, trips, and unnecessary idling from heavy equipment.
- Maintain and tune engines per manufacturer's specifications to perform at EPA certification levels and to perform at verified standards applicable to retrofit technologies. Employ periodic, unscheduled inspections to limit unnecessary idling and to ensure that construction equipment is properly maintained, tuned, and modified consistent with established specifications.

- Utilize EPA-registered particulate traps and other appropriate controls where suitable to reduce emissions of diesel particulate matter and other pollutants at the construction site.
- To the extent feasible, locate construction equipment and staging zones away from sensitive receptors and fresh air intakes to buildings and air conditioners.

AK-3  
Cont.

### Environmental Justice

EPA commends the project's extensive outreach to communities and efforts to incorporate community feedback into the project in an area with a significant number of low income and minority residents. The Draft SEIS identifies that 72 percent of households residing in the Central Subway corridor do not have vehicles and that 9 percent are unemployed compared to county average of 25 percent without vehicles and 5 percent unemployed. The project corridor includes: 1) the Chinatown neighborhood which is 92 percent minority (largely Asian) with a large elderly population, and 2) the Downtown and South of Market areas with a larger concentration of African Americans with 76 percent of the community minority.

AK-4

Project build alternatives will result in the relocation of 8 to 10 businesses and from 1 or 2 residential units up to 17 residential units in a predominantly minority and low income neighborhood for the construction of the Chinatown Station. The Draft SEIS identifies redeveloping the Chinatown Station site with affordable housing units above the station and ground floor retail where possible as a recommendation to minimize effects of the project. To ensure that impacts associated with relocation are minimized to the greatest degree possible, EPA provides the following recommendation:

*Recommendation:*

- In Final SEIS and ROD, commit to the redevelopment of affordable housing and ground retail on station sites as recommended in the Draft SEIS. Identify in the Final SEIS: 1) the timing and location of the redevelopment strategies, 2) the responsible party for the redevelopment, and 3) how the redevelopment can be incorporated into the Central Subway construction schedule.

### Project Funding Shortfall

Section 8.1.4 of the Draft SEIS estimates that \$424 of local capital funding is still unidentified for the project.

*Recommendation:*

- In the Final SEIS, ensure that strategies identified in the Draft SEIS to accommodate the funding shortfall (or other strategies identified in the future ) will not result in adverse impacts to the community, such as fare increases or reductions in existing transit service or maintenance.

AK-5

## Responses to Letter AK

### AK-1

Comment noted that EPA has not identified environmental impacts requiring substantive changes to the SEIS/SEIR, but rather has identified areas for further clarification of environmental impacts and measures to minimize impacts. EPA has rated the SEIS/SEIR as *Lack of Objections*. SFMTA will continue the ongoing community outreach to incorporate community and business concerns in the planning process as the project moves forward.

### AK-2

Construction of the Central Subway Project is estimated to begin in mid-to late 2010, following completion of the environmental review process in the summer of 2008, and final design and acquisition of right-of-way over the following two years. At present it is likely that the Altamont Land Disposal site would be use for disposal of spoils. The Contractor would be responsible for obtaining the necessary permits and approvals for the disposal of spoils over the three year excavation period.

The SEIS/SEIR Section 6.13 for Hazardous Materials describes the potential for hazardous materials to be present in soils that would be excavated. The preparation of a Site History Report, collection and analysis of soils samples, preparation of a Soils Analysis Report, and the development of a Site Mitigation Report would be required to comply with Article 20 of the San Francisco Municipal Code to protect workers, the public, and the environment. The Guidelines for the Management and Disposal of Excavated Soils is described on page 6-105 of the SEIS/SEIR, and includes soil stockpile sample collection and analytical requirement to meet landfill acceptance criteria.

If water generated from dewatering activities is to be discharged directly into the bay, a permit from the Regional Water Quality Control Board is required. If the water is to be discharged into the city's combined storm and sanitary sewer system, a Batch Industrial Wastewater Discharge Permit would be required from the San Francisco Public Utilities Commission, Bureau of Environmental Regulation and Management.

### AK-3

Comment noted. Measures described in the SEIS/SEIR (pages 6-111 and 6-112) to control dust emissions during construction, and to reduce exhaust emissions from construction equipment will be part of the Mitigation Monitoring and Reporting Program and construction specifications. Because most of the Central Subway Project will be below surface streets and not in exposed areas of earth-disturbance,

the recommended mitigation measures for wind fencing and grading would not be applicable to this project.

The existing control measures on page 6-112 of the SEIS/SEIR have been modified to include EPA Air Quality measures.

The text in the third bullet on page 6-112 is revised as follows:

“The idling time of all construction equipment used at the site shall not exceed five minutes per hour. All equipment shall be properly tuned and maintained in accordance with the manufacturer’s specifications to perform at EPA certification levels at the manufacturer’s recommended frequency. Employ periodic, unscheduled inspections to limit unnecessary idling.”

The following measures are added following the final bullet, page 6-112:

- “Reduce use, trips, unnecessary idling from heavy equipment.
- Use EPA-registered particulate traps and other appropriate controls where suitable to reduce emissions of diesel particulate matter at construction sites.
- When hauling material and operating non-earthmoving equipment onsite, prevent spillage and limit speeds to 15 mph. Limit speed of earthmoving equipment to 10 mph.”

#### **AK-4**

SFMTA would act in accordance with the provisions of the Uniform Relocation Act and existing federal and state relocation and acquisition laws to minimize the impact on affected property owners, businesses and residents. In addition to these agency requirements, SFMTA is committed to working closely with the Chinatown community, and has retained the services of the Chinatown Community Development Center to assist in coordination and communication with residents and businesses along Stockton Street to ease disruption during relocation, where possible and maintain the historic neighborhood character and activities. SFMTA has identified the potential for transit-oriented development space at the proposed station sites to facilitate the inclusion of affordable housing and retail space in the structures to be designed and developed. SFMTA would be responsible for development of the stations to maintain the schedule for the Central Subway Project. The conditions of project approval by SFMTA, the Planning Commission, and the ROD by FTA will also include transit-oriented development for low income



housing and retail space. The RFP for station design will be issued in the Fall of 2009 during the next phase of project design development and would include independent environmental review, public review, and approval for any transit-oriented development above the station.

**AK-5**

The text in Section 8.1.4 has been revised to reflect the fact that the Locally Preferred Alternative, Alternative 3B, is fully funded.

## Letter AL

December 7, 2007

Mr. Dwight S. Alexander, President  
San Francisco Planning Commission  
1650 Mission Street 4<sup>th</sup> Floor  
San Francisco, CA 94103

Mr. Nathaniel Ford  
Executive Director  
San Francisco Municipal Transportation Agency  
# 1 South Van Ness Avenue, 7th Floor  
San Francisco, CA 94103

12/12  
CARTER  
PYI  
NAT

Dear Mr. Alexander and Mr. Ford:

We the undersigned, representing the interests of various service agencies and organizations in the Chinese community have had an opportunity to review the Draft SEIR/SEIS (Report) on the Central Subway Project, and appreciate the opportunity to share with you our observations, comments and recommendations.

First of all, we would like to reiterate our strong support of the project, and see it as essential to the future social and economic vitality of the Chinatown Community. At the same time, we want to reiterate the absolute necessity for our continued inclusion and involvement in the decision making process, in light of the very serious project impacts, as well as the residential and commercial dislocation that may occur.

We concur wholeheartedly with the findings of the report in terms of the need for the project. We can anticipate that the engineering and construction challenges will be great, and that the overwhelming proportion of resources will be committed to addressing the "bricks and mortar" aspects of the project, but we believe that it is *equally important* for adequate resources to be allocated to address the social and economic impacts of this massive project.

We believe that the Report touches on most of the important issues or areas of concern that stem from the project, but we would like to take this opportunity to either expand on the areas of concern or point out where the Report is inadequate or lacking. The references to the Report and our comments follow:

### **Chapter 5 Environmental Consequences and Mitigation**

Page 5-11 *"While the greatest impact on residents and businesses would occur in Chinatown, the number of relocations is not substantial and the community has expressed strong support for the project. The impact of these acquisitions would be mitigated through existing relocation assistance programs and through opportunities for developing replacement housing"*

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AL-1

We strongly support the project, but we do NOT concur with this statement and take issue with its faulty assumptions. The scarcity of affordable housing in San Francisco would render any residential relocation difficult at best, and when there may be as many as 17 households impacted, finding relocation housing that each household can afford will be extremely challenging. In addition, the relocation of businesses will not include any rent assistance for those businesses relocated, so each business will be faced with the challenge of re-building a business in unfamiliar surroundings while facing the double demands of increased rent and loss of cash flow from its former clientele. Furthermore, when all the businesses from half of a block face are eliminated, the relocation will have a rippling affect and will impact businesses for several blocks around the project site.

AL-2

For these reasons we strongly urge the project sponsor to do the following:

1. Ensure that adequate resources are made available for residential relocation;
2. Ensure that funding is acquired to build the appropriate number of units of replacement housing;
3. Provide rental or property leasing assistance to impacted businesses in addition to the relocation costs;
4. Conduct an economic analysis to determine the impact of the lost businesses and to develop the strategies for new economic development on the project site and in the project area, including the possible use of concourse retail space as well as multi-story commercial development.

Page 5-63 Discussion of the potential exposure of workers to hazardous materials.

We believe that this section is inadequate because it does not address the possible exposure to hazardous materials of those who live and work in the Chinatown Community. Report should detail the hazardous materials that may be used, emitted, or produced (solvents, emissions, corrosive and toxic materials, etc.) as well as the mitigation measures that will be employed to contain their impacts.

AL-3

Page 5-68 Discussion of air quality analysis.

We believe that this section is inadequate because there are no provisions for air quality analysis in the Chinatown area.

AL-4

Page 5-77 to 5-87 Discussion of noise and vibration issues along with standards and measures.

We believe that this section is inadequate because it merely assumes that noise and vibration levels will fall within acceptable standards, and does not provide any indication of how these standards will be monitored or enforced, and by whom, nor what measures would be taken if the standards are exceeded.

AL-5

### **Chapter 6 Construction Impacts and Mitigation**

There are far too many areas where we have questions regarding the construction impacts of the project, so rather than cite each concern and repeat ourselves *ad nauseam*, we would like to just state some of the points that we believe should be included in the final Report. These include the following:

1. The discussion of construction methodology and impacts should include the anticipated truck routes that will be used for hauling away debris for each of the options;
2. The Report states that DPT will develop the detour routes for non-transit traffic, but it should include the requirement that DPT work in concert with the community businesses and organizations to develop this plan;
3. The detour maps contained in the appendix are difficult to read and in need of additional explanation; revised maps should be easily understood by the public;
4. The Report suggests that parking spaces lost as a result of construction will only be *temporary*; in fact, some of the parking spaces lost as a result of construction may be *permanently* lost;
5. The issue of settlement due to vibration or tunneling was discussed in a number of sections; this is an extremely important matter in our view, and must contain more specifics, especially in terms of creating a system or mechanism that has the ability to:
  - a. Monitor ground settlement;
  - b. Provide a channel for accepting and responding to complaints;
  - c. Perform timely inspections;
  - d. Schedule compensation grouting or other mitigation measures;
  - e. Accept, process, and adjudicate claims.
6. Specifics on who is responsible for enforcing the work practices (keeping equipment tuned, limiting idling times, limiting use of equipment, etc.) aimed at reducing noise, emissions and pollution should also be included.

### **General Comments on the Draft SEIR/SEIS**

#### **Property Acquisition**

The Report identifies two locations as potential sites for the Chinatown Station – the Ning Yeung Association site (814-828 Stockton), and the Hogan and Vest site (933-949 Stockton).

Of these two sites, we feel that the Hogan and Vest site is more central, located closer to the heart of Chinatown, and in that respect, a superior location; this site may also lend

itself to the addition of a second entry portal since it is a corner site; additionally, its size will allow greater flexibility for possible future development of replacement housing and commercial space, especially when cost feasibility is considered. On the other hand, it could contribute to more adverse construction impacts, especially on the Gordon J. Lau elementary school that borders the site, and it would also result in the displacement of 8 businesses and 17 affordable housing units, while the Ning Yeung site would result in less residential (2 units) and business (10 units) displacement.

While the Ning Yeung site will result in less displacement, it also has some limitations; because it is a mid-block site, the development of a second portal would require an entry on Hang Ah Alley, necessitating entry off of the main streets. Development on this site may also be more constrained due to its smaller footprint, as well as to provisions of the local ordinance that governs the shadowing impacts of this project on the Willie “Woo Woo” Wong Playground. Perhaps the biggest drawback of this site, however, is its location, which is further from the Chinatown core than the Hogan and Vest site.

Both sites, however, can present another whole set of challenges. The acquisition of private property in Chinatown can be very unpredictable, and since there aren’t any clear provisions for communicating with either property owner at this time, we cannot ascertain their willingness or unwillingness to sell.

In either case, without a willing seller, the SFMTA and the City and County of San Francisco may encounter major delays in the development process, even if eminent domain is exercised. This could adversely affect project costs in a very substantial way.

In light of the very tight project schedule that FTA expects SFMTA to adhere to, and with consideration that a contested acquisition may delay or even derail the project, it may make good sense for SFMTA to consider numerous alternative sites instead of locking on to one site.

It is our understanding that the key decision-makers and project staff had toured the community earlier, and had in fact looked at other sites. We strongly recommend that you continue to give consideration to evaluating these other sites as well.

Among these alternate sites, the North Ping Yuen site (880 Pacific) and the Central Ping Yuen site (795 Pacific), are sites that would avoid some of the potential pitfalls involved with private property acquisition; we therefore recommend that you look seriously at these two sites, especially the North Ping Yuen site.

The North Ping Yuen site includes an open area on the NW corner of Pacific Avenue and Cordelia Place that might lend itself to development of an entrance to the northern end of the proposed station, and may be the superior location within the entire Ping Yuen housing complex.

Since both sites are public property, the ability to negotiate the use of air rights, easements, or other rights of access and use may be more predictable. In addition, it

AL-12  
Cont.

appears that little displacement of residents or businesses would be required. Locating the station in close proximity to the Ping Yuen housing developments may also have an added benefit of making transit use most convenient to those who are most transit-dependent. However, since there has been little discussion about the possibility of development on these sites with Ping Yuen residents, it is difficult to gauge their receptivity at this time. In short, we feel that avoiding a protracted acquisition process may ultimately enable better adherence to a demanding project schedule.

AL-12  
Cont.

Regardless of the site that is ultimately selected, we believe that it is essential to fully explore the possibility of adding multiple entry portals to the selected site during the final design phase of the project in order to maximize the utility of the selected site.

AL-13

### Environmental Justice Issues

The Report touched on the environmental justice issues that stem from this project, but it does not adequately address that issue. It is precisely because Chinatown is a community of many low-income residents and small businesses without the capital and financial support of a corporate structure that the impacts will be far greater than in a more affluent community.

For those reasons, we firmly believe that a comprehensive program of community mitigation measures and benefits should be an integral part of this project. We anticipate that at a minimum, this program must include the following elements or components:

1. Full relocation benefits for any residents and businesses displaced by the project, including rent assistance for displaced businesses;
2. The construction of 1 for 1 affordable replacement housing for any affordable housing stock eliminated because of the project;
3. The development of replacement retail space comparable or superior to that lost due to construction, the development of additional commercial space to promote economic vitality in the impacted area;
4. Employing the maximum level of community residents in all project and project-related employment opportunities;
5. The maximum use of community businesses and Chinese-American vendors and contractors in all project and project-related contracts;
6. Strong commitment to use and support community artists in the Public Arts program of the project;
7. A proactive program to address potential public health impacts associated with vermin infestation and migration;

AL-14

AL-15

AL-16

AL-17

AL-18

AL-19

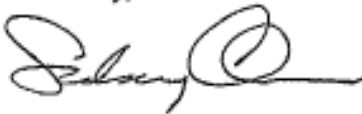
AL-20

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|---|-------|
| 8. Development of creative approaches to mitigate impacts, such as expanding the Park and Ride Shuttle, using area restaurants to feed workers, developing contingency measures to address loss of power, noise, dust, congestion, etc. | AL-21 |
| 9. A comprehensive bilingual public information and problem-solving program aimed at addressing the entire spectrum of concerns that may arise during the construction phase of the project.  | AL-22 |
| 10. A well planned transition to new revenue service including the provision of adequate levels of surface transit along the corridor.  | AL-23 |

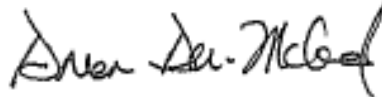
We would like to conclude our comments by once again voicing our strong support for the Central Subway project. At the same time, we believe that giving serious consideration to alternative sites, as well as developing a comprehensive plan to address project impacts will enhance the project's likelihood of success.

We look forward to working with you and your project staff on this very important project. Should you need to contact any of us at any time, our point of contact should be Mr. Gordon Chin, Director of the Chinatown Community Development Center (CCDC).

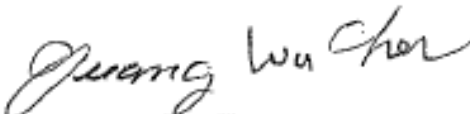
Sincerely,



Mr. Sidney Chan  
President  
Chinese Chamber of Commerce



Ms. Doreen Der-McCloud  
Executive Director  
Donaldina Cameron House



Mr. Guang Wu Chen  
President  
Ping Yuen Residents Improvement  
Association



Mr. Yek Gu Zhong  
Vice President  
Community Tenants Association



Mr. Gordon Chin  
Executive Director  
Chinatown Community Development Center

## Responses to Letter AL

### AL-1

Comment of support for the project as essential to the future social and economic vitality of the Chinatown Community is noted. SFMTA is committed to continued inclusion and involvement of the Chinatown community in the design development and decision making process for the project. SFMTA has contracted with the Chinatown Community Development Community (CCDC) for assistance in public outreach to the Chinatown community during the environmental review process, and for assistance during project development to minimize impacts to property owners and tenants that would be impacted during construction or would be relocated for the transit-oriented station development.

### AL-2

The statement from page 5-11 of the SEIS/SEIR is incorrect. Revised text is provided below to correct the statement.

As described on page 6-49 of the SEIS/SEIR, SFMTA would be required to develop a detailed Relocation Plan designed to minimize impacts to the businesses displaced by the project, including relocation assistance and payments. Each residential household and each business displaced by the Chinatown station will be relocated. Minimum relocation payments are set by law, and include moving expenses and search expense payments for businesses and referrals to comparable location for displaces. Mitigation measures described on page 6-53 state that redevelopment of affordable housing units on the Chinatown Station site above the station and ground floor retail, where it is compatible with station access, could further reduce the adverse impacts of displacement of existing residential units and small businesses in Chinatown. Relocation activities associated with the Locally Preferred Alternative (Alternative 3B) will begin as soon as the Final SEIS/SEIR is approved by the City and the Record of Decision is issued by FTA and the project is approved by SFMTA Board. The schedule shows over a year between project approval and the beginning of construction. The services of CCDC, as described in Response to Comment AL-1 above, will assist in communicating with neighborhood businesses and residents and in identifying potential properties within Chinatown for relocation opportunities for both residents and businesses. SFMTA real estate would be responsible for relocation.

The last two sentences, paragraph third paragraph, page 5-11 is revised as follows:

“While the greatest impact on businesses and residences would occur in Chinatown, ~~the number of relocations is not substantial and~~ the community has expressed strong support of the Project. The impact of these acquisitions would be mitigated through existing



relocation assistance programs and through opportunities for developing affordable housing on the Chinatown Station site.”

The following text is added to end of the fourth paragraph, page 6-54:

“MTA will provide rental or property leasing assistance to impacted businesses in addition to the relocation costs.”

### **AL-3**

Section 5.10 of the SEIS/SEIR addresses hazardous materials from operation of the Central Subway Project and Section 6.13 address hazardous materials during construction of the project. Hazardous materials during operation would include the typical use, handling and storage of hazardous materials such as degreasers, lubricants, cleaning solutions, solvents, paints, and miscellaneous petroleum products used for maintenance activities. Use of these materials is heavily regulated by the State and by the City and will be included in routine inspections by SFMTA and the City Department of Public Health.

Section 6.13 (page 6-100 to 6-109) details the potential for encountering hazardous materials during construction and the required measures to minimize exposure by workers or the public. The Site Mitigation Report required by Article 20 of the San Francisco Municipal Code would include specific measures to be undertaken during construction to protect site workers, the public and the environment.

### **AL-4**

The air quality analysis focused on the portion of the Central Subway Corridor that would be at the surface level and could affect traffic circulation and localized emissions on City streets. The Central Subway through Chinatown would be below ground where surface traffic and therefore air quality would not be affected. Measures to minimize dust during construction are described on page 6-111 and measures to minimize exhaust from construction equipment are described on page 6-112 of the SEIS/SEIR. These measures would apply to the Chinatown Station area.

### **AL-5**

Similar to air quality impacts, impacts from noise and vibration are primarily related to the surface segments of the proposed project, not to the segment in deep tunnel (Chinatown). The majority of potential noise and vibration impacts in Chinatown would result from construction activities at the station location. Noise and vibration levels will need to meet the San Francisco Noise Ordinance Limits. Mitigation measure to minimize impacts are described on pages 6-117 and 6-118 of the SEIS/SEIR and include hiring an acoustical consultant to prepare a Noise and Vibration Control Plan that would identify

all potential impacts and would provide adequate control measures to demonstrate that the noise and vibration criteria and limits would be achieved. The Plan would include a noise monitoring plan that would specify monitoring locations, equipment, procedures and schedule of measurement, and reporting methods to be used. Monitoring Reports will be summarized and reported by SFMTA to the Citizens Advisory Group (CAG) for the Central Subway that includes Chinatown representatives. Monitoring reports will also be provided to the CCDC at project meetings.

In addition, construction noise and vibration mitigation is also part of the Mitigation Monitoring and Reporting Program, Appendix I.

#### **AL-6**

Page 6-11 states that Stockton Street would be used to access the station construction site for hauling materials, equipment, and spoils for the Chinatown Station. Preliminary truck routes for the hauling of debris have been developed since the publication of the Draft SEIS/SEIR. Text additions that describe the truck haul routes have been added to the SEIS/SEIR, page 6-16. These routes may be refined during the final design phase. During refinement of the construction detour routes, SFMTA will work with the Chinatown community and business organizations to ensure that neighborhood disruption is minimized.

The last paragraph, page 6-16 is revised as follows:

“Guideway excavation would proceed in a northerly direction from the portals south of Bryant Street towards Union Square. As guideway excavation proceeded, muck would be transported through the constructed portions of the guideway to each portal before being hauled off-site for permanent disposal. The south portal on Fourth Street would be the primary truck loading site. Trucks carrying materials from the portal site would be routed directly to the I-80 freeway for disposal sites to be determined by the contractor. Truck travelling east on I-80 would travel south on Fourth Street, west on Brannan Street, and north on Fifth Street to the I-80 eastbound on-ramp. Trucks travelling westbound on I-80 (southbound) would travel south on Fourth Street, east on Brannan Street, north on Third Street, and west on Harrison Street to the I-80 westbound on-ramp. The southbound trucks from the Third Street portal would follow this same route. The trucks from the Third Street portal going east on I-80 would continue west on Harrison Street, turning south on Fifth Street to the I-80 eastbound on-ramp.

Spoils from excavation of the Chinatown Station, the crossover cavern and the tail track tunnels would be removed by way of the Chinatown Station access shaft and hauled off-

site for disposal. Trucks from Chinatown would travel on Stockton Street to eastbound Broadway, south on Battery Street, and continuing south on First Street to the I-80 eastbound freeway-ramp or continuing west on Harrison Street to the I-80 westbound on ramp.

Spoils generated from excavation of the Union Square Station and the guideway tunnels north of Union Square would be hauled to the surface at Union Square and hauled off-site for disposal. Trucks from the Union Square Station construction site would travel south on Stockton Street continuing on Fourth Street to the I-80 eastbound on-ramp or turning west on Harrison Street and south on Fifth Street to the I-80 eastbound on-ramp.

Spoils generated from excavation of Market Street Station and Moscone Station would be hauled to the surface at Stevenson and Clementina Streets, respectively, before being hauled off-site for permanent disposal. An estimated 524,000 cubic yards of spoils would be disposed of for Alternative 2, resulting in approximately 8 truck trips per day during the 4.5 year construction for the guideway and 8 to 10 daily truck trips from each station during the station excavation periods. Trucks from the Moscone and Market Street Stations construction sites would travel south on Fourth Street to the I-80 eastbound on-ramp or take Fourth Street, west on Harrison, and south on Fifth Street to the I-80 westbound on-ramp.

The following text is added as a new paragraph following the first paragraph, page 6-25:

“The south portal on Fourth Street would be the primary truck loading site. Trucks carrying materials from the portal site would be routed directly to the I-80 freeway for disposal sites to be determined by the contractor. Trucks travelling east on I-80 would travel south on Fourth Street, west on Brannan Street, and north on Fifth Street to the I-80 eastbound on-ramp. Trucks travelling westbound on I-80 (southbound) would travel south on Fourth Street, east on Brannan Street, north on Third Street, and west on Harrison Street to the I-80 westbound on-ramp. Trucks from the from the Moscone Street Station construction site would travel south on Fourth Street to the I-80 eastbound on-ramp or continue west on Harrison Street and south on Fifth Street to the I-80 westbound on-ramp. Trucks from the Union Square/Market Street Station construction site would travel south on Fourth Street then follow the same route south as the trucks from the Moscone Station. Trucks from Chinatown would travel on Stockton Street to eastbound Broadway, south on Battery Street, and continuing south on First Street to the

I-80 eastbound freeway-ramp or continuing west on Harrison Street to the I-80 westbound on ramp.

The following text is added as a new paragraph following the second paragraph, page 6-25:

“Eastbound trucks hauling debris from the TBM extraction pit would go southeast on Columbus Avenue, east on Washington Street, south on Battery Street, and continue south on First Street to the I-80 eastbound on-ramp. Southbound trucks would follow the same route continuing west on Harrison Street to the I-80 westbound on-ramp.”

The following text is added as a new paragraph following the third paragraph, page 6-32:

“The haul routes for the portal and the station construction sites would be the same as described for Alternative 3A.”

#### **AL-7**

DPT and SFMTA will work with the Chinatown community to develop the final detour routes for surface traffic. Page 6-37 describes that the detour routes in the appendix are potential detours. Prior to final design, the SFMTA would select the most appropriate detour routes and develop temporary Transportation System Management (TSM) measures along these routes. Detour routes would be advertised prior to construction in the local media. Traffic control police would monitor critical locations along the detours and would report traffic issues to DPT and SFMTA for corrective action.

The second sentence, paragraph six, page 6-37 is revised as follows:

“Prior to final design, the MTA would select the most appropriate detour routes, working in cooperation with community and business organizations, and develop temporary transportation system management measures along these routes, e.g. additions of turn lanes at key intersections, conversion of parking lanes into peak period travel lanes, etc.”

#### **AL-8**

The Temporary Construction Detours in the Chinatown station area show traffic being detoured from Stockton Street between Clay and Washington Streets, to Kearny Street with access via Clay or Washington Streets.

**AL-9**

The loss of parking spaces associated with the operation of the Central Subway is documented in Section 3.2.4, pages 3-58 through 3-64. Text is added in Section 6.3.4 to clarify where the permanent loss of parking is discussed. Of the 44 spaces along Stockton Street between Clay and Jackson Streets, 38 spaces would be retained and 6 spaces would be lost over the long term for Alternative 3B to provide space for the station emergency hatch. All parking spaces would be lost during construction because of truck access during the 54 months of station construction.

The following text is added following the second sentence, first paragraph, page 6-41:

“Therefore, substantial curb parking areas would be temporarily removed during construction, placing higher parking demands upstream and downstream of the construction zone, and on nearby streets. Parking spaces that would be permanently lost as a result of the Central Subway Project are discussed in Section 3.2.4.”

**AL-10**

Site-specific designs to limit potential construction related settlements will be addressed during the next phase of project development for the adopted alternative and will include: detailed evaluations of the site-specific geotechnical properties of the subsurface materials; building-by-building evaluations of foundations that may be affected by excavation; special excavation shoring designs; and other measures designed to avoid or minimize the potential adverse effects of settlement. The geotechnical design of the excavations will consider site preparation and excavation and support using concrete diaphragm walls, or similar technology designed to minimize potential construction related settlements resulting from unstable soft sediments. With a rigorous geomechanical instrumentation program accompanying the excavation, ground movement will be monitored before settlement propagates to the surface. If advance settlement trends are observed, grouting or underpinning can be employed to arrest the ground movement before surface structures are affected. (pages 6-91 and 6-92 of the SEIS/SEIR)

Construction activities and monitoring results will be shared with the Citizens Advisory Group (CAG) and with the businesses and residents along the Central Subway corridor via newsletters and the Central Subway website. An active Public Outreach Program and coordinated project information with CCDC in Chinatown during construction will provide a channel of accepting and responding to issues from businesses or residents affected by construction.

**AL-11**

A Mitigation Monitoring and Reporting Program (MMRP) has been added to the Final SEIS/SEIR as Appendix I that places the responsibility for monitoring and reporting conditions during construction on an independent construction monitor who will report directly to the City (both SFMTA and MEA). The conditions of project approvals and thresholds of significance described in the environmental documents establish the limits for construction operations and will be strictly enforced. Construction work can be halted if violations are reported. The MMRP specifies impact thresholds, mitigation measures, and compliance responsibilities for each environmental topic addressed in the SEIS/SEIR.

**AL-12**

The station selection process is described in Section 2.4.4 Screening of Design Options/Alternatives Not Carried Forward, on page 2-58 to 2-62 of the SEIS/SEIR. Consideration of station locations outside the project study area (Jackson Street is the northern project limit established as part of the Third Street Light Rail planning process) would reopen the environmental process to allow public input and consideration of all feasible alternatives beyond Jackson Street for a station in Chinatown. Further, the Ping Yuen site has been turned over from HUD to the Redevelopment Agency, and would require approval by residents of the housing units to be considered for station development. Development of the Ping Yuen site would impact the existing residents and would present substantial construction access challenges for equipment and haul trucks. Historic buildings surrounding this site would require evaluation. Delays resulting from recirculating the environmental document to further evaluate a station at this location would also be substantial (estimated to be 12-16 months). SFMTA would begin the notification to property owners and the property acquisition process immediately after the project approval and Record of Decision in the fall of 2008.

**AL-13**

Additional entries to the Chinatown Station may be considered during the next phase of design development. A station entry on the east side of Stockton Street may also be considered. Independent environmental review of an additional entry to the Chinatown Station would be required as an Addendum or second Supplement to this SEIS/SEIR.

**AL-14**

See Response to Comment AL-2 for discussion related to relocation of businesses and residents in Chinatown.

Section 5.2.3 Environmental Justice Findings describes that almost the entire Central Subway Corridor traverses low-income and minority neighborhoods, and that implementation of the project would include direct mobility benefits to all of these neighborhoods that are expected to be equitably shared across communities by various demographic groups.

**AL-15**

The transit-oriented development above either of the proposed Chinatown Station sites could include development of low-income housing units that would increase the number of housing units in Chinatown.

**AL-16**

The Uniform Relocation Act and State of California Relocation Act contain specific requirements that govern the manner in which a government entity can acquire property for public use and the relocation of displaced businesses or residential units. The Central Subway would follow these official procedures for the displaced businesses and residential units. Relocation of displaced businesses to comparable space in the Chinatown neighborhood will be the objective of SFMTA, working closely with the CCDC and Chinatown community. Development of retail space and commercial space in the transit-oriented Chinatown station will be part of final design and will also be developed in close cooperation with the Chinatown community.

**AL-17**

SFMTA will make every effort to offer employment opportunities to Chinatown residents through an aggressive public outreach program in both English and Chinese languages. CCDC will assist in this outreach and communication with Chinatown residents and businesses.

**AL-18**

Similar to the Response to Comment AL-17 above, SFMTA will make information regarding contracting and vending opportunities directly related to the Central Subway construction readily available to businesses in Chinatown. Indirect benefits may result during the 5 to 6 year construction process with workers using neighborhood restaurants and businesses. Alternative 3B is expected to cost an estimated \$188 million for professional services and labor and approximately \$1,026 million for material/facilities.

**AL-19**

SFMTA has been coordinating with the San Francisco Public Arts Program since mid-2007 during the conceptual design development of the Central Subway Project. Opportunities for local artists will be made available through the Public Arts Program. The capital costs for the project (Section 8.0 Financial

Feasibility, page 8-3) identifies that 2 percent of the station construction costs is included for the provision of public art at each of the stations, as required by the San Francisco public arts policy.

**AL-20**

Vermin infestation and migration from construction of the Central Subway Project was not assessed as part of the SEIS/SEIR, but would be coordinated with the Department of Public Health as part of the construction permit using standard City practices.

**AL-21**

The Mitigation Monitoring and Reporting Program addresses the full range of impacts identified for construction and operation of the Central Subway Project described in the SEIS/SEIR.

**AL-22**

The Public Outreach Program established by SFMTA early in the development of the Central Subway Project in 2005 has included bilingual information and communication to enhance communication with the Chinatown community. CCDC services were retained by the project in 2007 to assist SFMTA in the communication and outreach with Chinatown businesses and residents. Newsletters and informational flyers are in both English and Chinese. Representatives from Chinatown sit on the Citizens Advisory Group (CAG) and receive timely updates on the project.

**AL-23**

A well-planned transition to new revenue service at the time the Central Subway opens will be a vital part of project planning. Existing transit (Muni 30, 45, and 9X lines) along Stockton Street will continue for local trips even after the Central Subway service is initiated.



## Letter AM



METROPOLITAN  
TRANSPORTATION  
COMMISSION

Joseph P. Boer MetroCenter  
101 Eighth Street  
Oakland, CA 94607-4700  
TEL 510.817.5700  
TTY/TEO 510.817.5769  
FAX 510.817.5848  
E-MAIL info@mtc.ca.gov  
WEB www.mtc.ca.gov

December 6, 2007

*BW Bush, Chair  
Napa County and Cities*

*Scott Haggerty, Vice Chair  
Alameda County*

*Tina Antonione  
City and County of San Francisco*

*Tina Antonione  
U.S. Department of Housing  
and Urban Development*

*Tina Bates  
Cities of Sonoma County*

*Rob Wenzel  
Sonoma County and Cities*

*Dana J. Cho  
Cities of Santa Clara County*

*Doree Carter  
Association of Bay Area Governments*

*Doree M. Gillingham  
U.S. Department of Transportation*

*Fidelis D. Gibson  
County of Contra Costa*

*Arne W. Hahnel  
San Francisco Bay Conservation  
and Development Commission*

*Steve Kinney  
Cities of Sonoma County*

*Steve Livingston  
Cities of San Mateo County*

*Jon Rubin  
San Francisco Mayor's Office*

*Ryan Sarrigi  
State Business, Transportation  
and Housing Agency*

*James P. Spring  
Sonoma County and Cities*

*Ardenne J. Thaler  
San Mateo County*

*Andy Warth  
Cities of Contra Costa County*

*Kris Wagner  
Santa Clara County*

*Steve Heminger  
Executive Director*

*Ann Elmer  
Deputy Executive Director, Operations*

*Andrew B. Pomeroy  
Deputy Executive Director,  
Bay Area Toll Authority*

*Theresa W. McMahon  
Deputy Executive Director, Policy*

Nathaniel Ford  
Executive Director  
San Francisco Municipal Transportation Agency  
1 South Van Ness Avenue, Floor 3  
San Francisco, CA 94103-1267

Dear Mr. Ford,

Thank you for the opportunity to comment on the Draft Supplemental Environmental Impact Statement/Supplemental Environmental Report (SEIS/SEIR) for the Central Subway project (Phase 2 of the Third Street Light Rail project). MTC recognizes the importance of the Central Subway project in providing congestion relief and improved transit service in the heavily traveled Chinatown to South of Market corridor.

MTC Resolution 3434, the Regional Transit Expansion Program, identified the Central Subway project as a regional priority for federal New Starts funding. MTC is currently developing a strategic plan for Resolution 3434 and looks forward to working with SFMTA and sponsors throughout the region on delivering projects in the program.

Additionally, in June of 2007, MTC approved a framework to distribute some \$347 million in state transit capital bond funds that come to MTC for distribution in the Bay Area. Included in this policy framework — set forth in MTC Resolution 3814 — was a commitment to provide \$100 million to the Central Subway project. Further bolstering the project, SFMTA agreed to match this amount with \$100 million in state funds that are awarded directly to it. This \$200 million infusion is a critical element toward full funding for the Central Subway project.

We look forward to working with you to complete the Central Subway project for the benefit of San Franciscans as well as visitors from throughout the region and around the world.

Sincerely,

Steve Heminger  
Executive Director

cc: Commissioner Tom Ammiano  
Commissioner Jon Rubin

J:\PROJECT\Resolution 3434\2008 Strategic Plan\Central subway SEIS-EIS letter.doc

AM-1

## **Responses to Letter AM**

### **AM-1**

Comments recognizing the importance of the Central Subway Project in providing congestion relief and improved transit service in the Chinatown to South of Market Corridor and the recent allocation of funds by Metropolitan Transportation Commission (MTC) are noted.

## Letter AN



"Miller, Jr., J. Gregg "  
<gregg.miller@pillsburylaw.com>

12/19/2007 02:04 PM

To bill.wycko@sfgov.org

cc

bcc

Subject Central Subway DEIR Comments

Bill: attached are comments to the Central Subway DEIR. I understand that the public comment period close December 10, 2007, and therefore, these comments are late. However, I hope that MEA will nevertheless consider the comments and address them in the comments and responses to the DEIR. Thanks,

Gregg

J. Gregg Miller, Jr. | Pillsbury Winthrop Shaw Pittman LLP

-----  
Direct Dial: 415.983.1557 | Fax: 415.983.1200  
50 Fremont Street | San Francisco, CA 94105-2228

Email: gregg.miller@pillsburylaw.com  
www.pillsburylaw.com

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December 19, 2007

J. Gregg Miller, Jr.  
Phone: 415.983.1557  
gregg.miller@pillsburylaw.com

Mr. Bill Wycko  
Central Subway EIR Coordinator  
Acting Environmental Review Office  
San Francisco Planning Department  
1650 Mission Street, 4<sup>th</sup> Floor  
San Francisco, CA 94103

Re: Central Subway – Draft Environmental Impact Report, (the “DEIR”)

Dear Mr. Wycko:

Pursuant to the CEQA Guidelines and Chapter 31 of the San Francisco Administrative Code, we provide the following comments to the DEIR.

The below comments refer to Option 3B:

**I. Request that the Portal Extents Be Moved South –**

The portal extents (including vehicle attenuators) should be moved south to approximately 50'-0" from the north side of the overhead freeway (I-80) at Fourth Street under the I-80 freeway between Stillman and Perry Streets.

AN-1

**II. Request Additional Acoustic Mitigation –**

The exterior acoustic attenuator panels, at the inside walls of the concrete portal walls and inner ceiling, where the proposed light-rail train heads under ground (under I-80 at Fourth Street) should include additional acoustic mitigation. The acoustic mitigation should be implemented at the entrance, exit, and surrounding area of the proposed portal to mitigate noise created from use of the portal entrance and exit.

AN-2

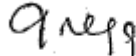
700915608v1

Mr. Bill Wycko  
December 19, 2007  
Page 2

In summary, we respectfully request the Central Subway EIR address the above comments regarding the southward movement of the 4<sup>th</sup> Street at Stillman portal and additional acoustic mitigation.

Thank you for your consideration.

Very truly yours,



J. Gregg Miller Jr.

700915606V1

Pillsbury Winthrop Shaw Pittman LLP

## **Responses to Letter AN**

### **AN-1**

The north end of the portal has been moved to south of Perry Street to accommodate the turn movements of Golden Gate buses into Perry Street. The location is approximately 50 feet south of the north edge of the I-80 freeway. The crash barrier would be positioned to the north, about 25 feet south of the north edge of the freeway, but bus access to Perry Street would still be possible without interfering with the turning radius of the bus.

### **AN-2**

The portal would be designed to meet the requirements of the San Francisco Noise Ordinance. The impact of the project in the vicinity of the portal would be affected by the ambient traffic noise levels, which are higher than other locations along the corridor due to the freeway noise. It is projected that traffic noise levels in the vicinity of the portal (measured at the Avalon Yerba Buena Apartments at Fourth and Harrison Streets) would be about 78 dBA, which is less than one decibel level higher than the current level. The potential LRT operation along Fourth Street would be 61 to 62 dBA (day/night noise level) and approximately 4 to 6 dBA higher at the tunnel portal. Existing noise levels at this location are currently higher than the projected noise level associated with the operation of the transit project.

**COMMENTS RECEIVED AFTER THE CLOSE OF COMMENT PERIOD**

駐美台山寧陽總會館  
**HOY - SUN NING YUNG BENEVOLENT ASSOCIATION  
IN AMERICA**

41 WAVERLY PLACE  
SAN FRANCISCO, CALIFORNIA 94108 U.S.A.  
TEL: (415) 288-0605, 288-0603 FAX: (415) 982-3808

May 15, 2008

Municipal Transportation Agency (MTA)  
Attn: Mr. John O. Funghi, P.E.  
Project Manager  
One South Van Ness Ave., Third Floor  
San Francisco, CA 94108

Re: Central Subway Project SEIS/SEIR Draft  
October 2007

Dear Mr. Funghi,

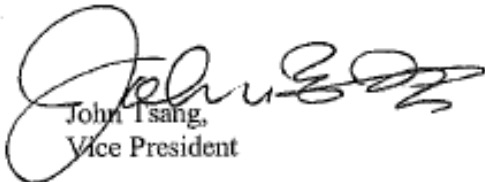
My name is John Tsang, vice president of the Hoy-Sun Ning Yung Benevolent Association (HSNYBA), owner of Assessor's Parcel #0225-014 (814 – 828 Stockton Street).

As vice president and member of the board of directors of HSNYBA, I have comprehensive knowledge of the above Assessor Parcel property. The aforementioned property's tenants composed entirely of retail/commercial usage, with no residential tenants in contradiction to the SEIS/SEIR Draft report.

Please be advised of the above information and revise your SEIS/SEIR Draft accordingly.

Sincerely,

HOY-SUN NING YUNG BENEVOLENT ASSOCIATION

  
John Tsang,  
Vice President

cc: Arnold Lee, President  
Board of Directors

AO-1



## Responses to Letter AO

### AO-1

Comment Noted. The language in the SEIS/SEIR is amended to reflect that 814-828 Stockton Street is a solely commercial property with no residential units as noted below.

The Socioeconomic (Population and Housing) Impacts and Mitigation Measures identified for Alternatives 2 and 3B in Table S-7, page S-21 and in Table 7-2, page 7-19 are revised as follows:

Environmental Area/Impacts	Alternative 2 – EIS/EIR Enhanced Alignment	Alternative 3A – Fourth/Stockton Alignment Option A	Alternative 3B – Fourth/Stockton Alignment Option B
<b>SOCIOECONOMIC (Population and Housing)</b> Operation/Cumulative	<p><u>Significant Impacts:</u></p> <p>Acquisition of one parcel for the Chinatown Station would cause the displacement of 10 small businesses <del>and one or two residential units</del> in a predominantly minority and low income neighborhood.</p> <p><u>Mitigation Measures:</u></p> <p>Redevelop the Chinatown Station site with affordable housing units above the station and ground floor retail where possible.</p> <p><u>Significant environmental effects which can not be avoided:</u></p> <p>The construction of new <del>affordable housing units</del> ground floor retail would not mitigate to a less-than-significant level the disruption to existing <del>residents</del> and small businesses associated with the temporary dislocation as new units are constructed.</p>	<p><u>Significant Impacts:</u></p> <p>Same as Alternative 2.</p> <p><u>Mitigation Measures:</u></p> <p>Same as Alternative 2.</p> <p><u>Significant environmental effects which can not be avoided:</u></p> <p>Same as Alternative 2.</p>	<p><u>Significant Impacts:</u></p> <p>Acquisition of one parcel for the Chinatown Station would cause the displacement of 8 small businesses and 17 residential units in a predominantly minority and low income neighborhood.</p> <p><u>Mitigation Measures:</u></p> <p>Same as Alternative 2.</p> <p><u>Significant environmental effects which can not be avoided:</u></p> <p>Same as Alternative 2, <u>except the loss of affordable housing would not mitigate to a less-than significant level the disruption to existing residents as well as businesses.</u></p>

The first sentence, third paragraph, page 2-19 is revised as follows:

“Construction of the station entrance would require acquisition of the parcel and relocation of ten businesses ~~and one to two residential units over the businesses.~~”

The sixth sentence, third paragraph, page 2-31 is revised as follows:

“Construction of the station entrance would require acquisition of the parcel and relocation of 10 businesses ~~and one to two residential units above the businesses.~~”

The third and fourth sentences, second paragraph, page 5-11 are revised as follows:

“Each of the Build Alternatives would displace ~~residential dwellings and small businesses~~ and Alternative 3B would displace residential units in the predominantly minority and low-income Chinatown District. To mitigate these impacts, it is recommended that redevelopment on the station sites incorporate affordable housing and ground floor retail where possible.”

The fourth sentence, third paragraph, page 6-51 is revised as follows:

“This displacement would require the relocation of five small businesses along Stockton Street and five small businesses along Hang Ah Alley with an estimated fewer than 10 employees each ~~and one to two residential units in the second floor of the building.~~”

The second paragraph, page 6-52 is revised as follows:

“No mitigation measures would be required beyond compliance with the Uniform Relocation Act and eminent domain law; however, development of affordable housing units on the Chinatown Station site above the station and ground floor retail where it is compatible with station access could further reduce the adverse impacts of displacement of existing ~~residential units and~~ small businesses in Chinatown.”

The last two sentences, fourth paragraph, page 6-52 is revised as follows:

“The Stockton Street parcel acquisition would require the relocation of 10 small Chinatown businesses ~~and one to two residential uses above the businesses. The residential displacement would likely displace affordable housing units and would result in adverse impacts to low income residents.~~”

The first sentence, fourth paragraph, page 7-47 is revised as follows:

“Alternatives 2 and 3A would result in the displacement of 10 small businesses (10 or fewer employees per business) ~~and 1 or 2 residential units~~ in the Chinatown neighborhood at 814-828 Stockton Street for construction of the proposed Chinatown Station.”

The sixth sentence, first paragraph, page 9-7 is revised as follows:

“The Enhanced EIS/EIR Alignment would require the displacement of 10 small businesses ~~and one to two residential units~~ in Chinatown for the station construction.

The second sentence, third paragraph, page 9-8 is revised as follows:

This Alternative would displace one business to accommodate the Moscone Station construction and 10 small businesses ~~and one to two residential units~~ to accommodate the Chinatown station.

### **4.0 PUBLIC HEARING COMMENTS AND RESPONSES**

This chapter includes a copy of the public transcript taken at the November 15, 2007 Planning Commission hearing on the Draft SEIS/SEIR for the Central Subway. Each person providing testimony is identified by name and a number has been assigned to each substantive comment. The transcript of the public hearing is followed by the response section; which identifies each speaker and the response to each of the speaker's comments immediately follows.

SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

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5 PUBLIC HEARING ON THE DRAFT SUPPLEMENTAL

6 ENVIRONMENTAL IMPACT REPORT FOR THE

7 CENTRAL SUBWAY PROJECT (PHASE 2-THIRD STREET LIGHT RAIL)

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9

10

11 THURSDAY, NOVEMBER 15, 2007

12

13

14 SAN FRANCISCO PLANNING COMMISSION

15 SAN FRANCISCO CITY HALL

16 ONE DOCTOR CARLTON B. GOODLETT PLACE

17 COMMISSION CHAMBERS, ROOM 400

18 SAN FRANCISCO, CALIFORNIA

19

20

21

22

Reported by: Valerie E. Jensen, CSR No. 4401

23 -----

Page 1

SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

JAN BROWN & ASSOCIATES

24 CERTIFIED SHORTHAND REPORTERS

701 Battery Street, 3rd Floor

25 San Francisco, California 94111

(415) 981-3498

1

1 APPEARANCES

2

3 SAN FRANCISCO PLANNING COMMISSION:

4 President Dwight S. Alexander

5 Vice-President Christina R. Olague

6 Commissioners Michael J. Antonini, M. Sue Lee,  
William L. Lee and Hisashi Sugaya

7

Commission Secretary Linda D. Avery

8

9

10 ALSO PRESENT:

11 Delvin Washington, Senior Planner

12 Lawrence B. Badiner, Zoning Administrator

13 Joan A. Kugler, San Francisco Planning Department

14

15

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Page 2

SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

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1 NOVEMBER 15, 2007

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3 PROCEEDINGS

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5 COMMISSION SECRETARY AVERY: Commissioners,

6 you are now on Item Number 15, Case Number 1996.28IE,

7 Central Subway Project (Phase Two - Third Street Light

8 Rail).

9 MS. KUGLER: Good afternoon, President

10 Alexander, members of the Commission. Joan Kugler,

11 Planning Department environmental staff.

12 This item is a hearing to receive

13 comments from the public and the Commission on the

14 Draft Supplemental EIS/Supplemental EIR for the Central

15 Subway, which is the second phase of the Third Street

16 Light Rail Project. The original EIS/EIR for both

Page 3

## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

17 phases of the Third Street Light Rail Project was

18 certified in 1998.

19 On November 1 the project director for

20 San Francisco MTA, John Funghi, gave an informational

21 presentation on the Central Subway Project to your

22 Commission which -- in which he detailed the three

23 alternatives.

24 Staff is not here to answer any questions

25 that are raised today. All comments received today

3

□

1 will be transcribed by our court reporter, and these

2 comments, as well as those that are received in writing,

3 will be responded to in a Comments and Responses chapter

4 in the final document.

5 Comments today should be focused on the

6 accuracy and adequacy of the information provided in

7 the Draft SEIS/SEIR. There will be no decision today

8 to approve or disapprove of the project. That decision

9 would not occur until after the environmental document

10 is certified.

11 The Landmarks Preservation Board held a

12 hearing on the document on November 7 and will be

13 submitting a letter of comment to the environmental

Page 4



SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

14 review officer.

15 The draft document was advertised and  
16 released for public comments on October 17, and the  
17 comment period will end on Monday, December 10. The  
18 ERO must receive all written comments by the close of  
19 business on December 10.

20 As all comments today will be transcribed,  
21 we ask that commenters speak slowly and clearly, so  
22 that an accurate transcript of your comments may be  
23 produced. Also, we ask that you state your name  
24 and fill out a speaker card, so a copy of the Comments  
25 and Responses can be mailed to you once it's completed.

4

1 This concludes my presentation. And unless  
2 any of the commission members have questions, I would  
3 respectfully request that the public hearing on the  
4 Draft Supplemental SEIS/SEIR be opened.

5 Thank you.

6 PRESIDENT ALEXANDER: Thank you.

7 We'll now open the public hearing for the  
8 Draft EIR on the Central Subway Project.

9 Can I have speaker cards?

10 Wells Whitney, followed by Marve Kasoff and

Page 5

## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

11 Claudine Cheng.

12 MR. WHITNEY: Thank you, Commissioners. I'm

13 Wells Whitney.

14 COMMISSION SECRETARY AVERY: Excuse me,

15 Mr. Whitney.

16 The President has indicated that each speaker

17 would have two minutes. There's a lot of speaker cards.

18 So everybody gets two minutes to speak.

19 Thank you.

20 MR. WHITNEY: Wells Whitney, 1308 Montgomery

21 Street in North Beach on Telegraph Hill. I'm chair of

22 Renew SF, and I'm also representing Claudine Cheng and

23 Marve Kasoff and Rod Filar (ph) and Smith, who are also

24 on our board.

25 We're a neighborhood association in North

5

1 Beach, and we have a study going on now, funded by

2 Caltrans, studying all of Columbus Avenue in terms of

3 a planning effort. So, we've met several times with

4 the MTA team that's doing the subway, and we're quite

5 familiar with the work and the EIR. And I'd like to

6 speak, on behalf of myself as a citizen and of Renew SF,

7 in support of the EIR.

Page 6

PH-1

## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

8 Thank you.

9 PRESIDENT ALEXANDER: Thank you.

10 Tony Gantner?

11 MR. GANTNER: Commissioners, Tony Gantner,

12 North Beach Merchants Association.

13 We support the Central Subway Project.

14 Currently, there are four stations planned, the last

15 in Chinatown, with the removal of the boring equipment

16 as I understand it, at Washington Square. Given the

17 major impact such equipment removal will create, we

18 would like to suggest that, as part of such removal,

19 that site be configured as much as possible so as to

20 provide a fifth station, either at Union and Columbus or

21 Columbus and Stockton, constructed as soon as possible

22 after completion of this next phase through Chinatown.

23 We also ask that, in removing the underground

24 equipment, that the use and enjoyment of Washington

25 Square Park not be disrupted nor allow any damage to

6

1 the park itself. We look forward to the further

2 integration of Chinatown, North Beach and Fisherman's

3 Wharf through redesign of our major corridors --

4 Broadway, Columbus and Stockton. The Central Subway

Page 7

PH-2

PH-3

## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

5 will further that goal.

6 Thank you very much.

7 PRESIDENT ALEXANDER: Thank you.

8 Diana Pang, followed by Stephen Taber and

9 David Chiu.

10 Diana Pang?

11 Stephen Taber?

12 MR. TABER: My name is Stephen Taber. I

13 live at 1805 Page Street, and I'm on the Board of

14 Directors of San Francisco Planning and Urban Research

15 Association, and I am representing SPUR here today.

16 SPUR is very favorable towards this project and is a

17 big supporter of it.

18 This is a legacy project for San Francisco.

19 And I mean by that that it will benefit this city

20 city-wide as part of a transportation network for

21 generations to come. If you've been to London and

22 ridden on the underground there, you know that there

23 are stations and tunnels built in the 1860's that are

24 still in active operation.

25 We hope that this, as part of our Central

7

1 Subway system in San Francisco, will provide a similar

Page 8

PH-3  
Cont.

PH-4

## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

2 legacy, but in order to do that, it has to be planned  
3 correctly and diligently. We believe that this  
4 Environmental Impact Report is a very good step in the  
5 way towards solving some of the problems, refining the  
6 design and making this a much better system.

PH-4  
Cont.

7 We emphasize that there are two or three  
8 things that should be taken into account and, perhaps,  
9 as the project progresses, studied in greater detail.  
10 One is the transferability between transit lines --  
11 both underground and surface transit lines. And  
12 particularly at the Powell Street, slash, Union Square  
13 station and at the Chinatown station there needs to be  
14 very quick and easy transfer between the Number 1 line  
15 and the Central Subway at Chinatown and the Market  
16 Street Subway and the Central Subway. This is a problem  
17 that still exists and needs to continue to be worked on.

PH-5

18 Secondly, we have to make sure that this  
19 system has adequate capacity. And we are concerned  
20 about the length of stations, making sure that the  
21 length of trains that would be served will be adequate  
22 in the future.

PH-6

23 PRESIDENT ALEXANDER: Thank you.

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24 MR. GANTNER: Thank you.

25 PRESIDENT ALEXANDER: David Chiu, followed  
8

1 by Chris Durazon and Marlene Tran.

2 MR. CHIU: Good afternoon, Commissioners.

3 My name is David Chiu. I'm a member of the Small

4 Business Commission. I also sit on the Community

5 Advisory Group of the Central Subway.

6 First of all, I'm here to really applaud

7 staff for doing an outstanding job with the Draft

8 SEIS/SEIR. Obviously, that's a huge document. It

9 really translates and captures the complexity of this

10 very important project.

11 I'm here to comment on a couple aspects of

12 this document with regards to the small business and

13 merchant community. First of all, I want to state

14 that the small business community and merchant community

15 is really looking forward to this project. After the

16 1989 earthquake, when the freeway came down, obviously,

17 transit was affected into Chinatown. This project will

18 really assist in moving that forward.

19 That being said, there are two aspects

20 of the document that I would like to suggest some

PH-7

PH-8

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21 additions around the construction impact on the  
 22 merchant community. First is on those businesses that  
 23 are potentially displaced. Fortunately, there are not a  
 24 lot of them, but it would be helpful to have a little  
 25 more detail in the report to talk about what relocation

9

□

1 might entail, given that, with many small businesses,  
 2 location is everything and it's not that easy, when  
 3 you have a business with a multi-year lease, to consider  
 4 how long that relocation may take. So, adding some  
 5 additional plans with regard to that, I think, would be  
 6 helpful in Section 6.0 of the report.

7 Secondly, again in the same section, 6.3,  
 8 there are details around mitigation impact on transit  
 9 and traffic. In other words, what is going to happen  
 10 during the six-year construction period of this project.  
 11 And I think we need to have more detail about how  
 12 transit routes will be affected, what's going to happen  
 13 with traffic in that area.

14 With that, thank you very much.

15 PRESIDENT ALEXANDER: Thank you.

16 Chris Durazon?

17 Marlene Tran?

PH-8  
Cont.

PH-9

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18 MS. TRAN: Good afternoon, Commissioners.

19 I'm Marlene Tran, a resident of Visitacion Valley,

20 spokesperson for Visitacion Valley Agents Alliance.

21 I'm here to give support to the Central Subway

22 connection to Chinatown because of its crucial link

23 for many residents between Visitacion Valley and our

24 neighboring communities. I am familiar with this need

25 because I've been a Muni rider for 40-plus years and

10

1 have advocated for the transportation needs of

2 thousands of my English-as-a-second-language students

3 throughout my 35 years of teaching immigrant students at

4 San Francisco City College. I want to emphasize that,

5 while we support this vital connection, our Visitacion

6 Valley residents want to maintain our current 9X Express

7 lines and buses that we have fought for for more than 13

8 years.

9 So, at a later date, I would like to

10 address the issue of passenger safety and language

11 access. This is one -- these are the issues I've been

12 talking for many, many years.

13 And in consideration of the many speakers

14 who are here, I just want to say that we certainly want

PH-10



SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project  
 15 to support the Central Subway, but we want to maintain  
 16 the bus lines that we currently have in Visitacion  
 17 Valley.

PH-10  
 Cont.

18 Thank you.

19 PRESIDENT ALEXANDER: Thank you.

20 Bonnie Shiu?

21 MS. SHIU: Good afternoon, Commissioners.

22 I'm Bonnie Shiu, a community organizer with Visitacion  
 23 Valley Parent Association. I work with over 200 parents  
 24 and their families residing in the southeast part of  
 25 San Francisco. These families count on reliable public

11

1 transportation to bring them to downtown and Chinatown  
 2 on a daily basis. These working-class families often  
 3 include three generations within a household, and Muni  
 4 is the only means for parents to bring their children to  
 5 and from childcare, for youth to get to schools and for  
 6 seniors to get out to their doctor's office and receive  
 7 basic social services.

PH-11

8 The families in Visitacion Valley need all  
 9 existing Muni services, such as bus lines 9X, 30 and 45,  
 10 to remain undisrupted during and after construction of  
 11 the Central Subway. We ask for careful planning to

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12 avoid the problems that occurred during the construction

13 of the T-Third. We ask that there be no elimination of

14 the Muni lines or the lifelines connecting Visitacion

15 Valley to downtown and Chinatown.

16 Thank you.

17 PRESIDENT ALEXANDER: Thank you.

18 Ken Nim, followed by Wayne Hu and Sabina.

19 MR. NIM: Good afternoon, Commissioners.

20 My name is Ken Nim. I'm the board president for the

21 Visitacion Valley Community Development Corporation,

22 and I share the same view as my Visitacion Valley

23 partners. And we do support the Central Subway,

24 with two precautions, particularly related to economic

25 development. And based on my experience formerly

12

1 working in Visitacion Valley, doing construction jobs

2 providing training, we learned, too, from that

3 experience.

4 First is job opportunities. Even though the

5 Third Street Light Rail did provide great opportunities

6 for jobs for the community, some of those jobs were more

7 focused on unskilled laborers and a lot of carpentry.

8 But we've got other opportunities, especially with

PH-11  
Cont.

PH-12

PH-13

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9 the amount of work that's going to be going on in this  
10 project, to provide early planning for more additional  
11 higher-paying, longer-lasting type of jobs for our  
12 community and, too, for our local contractors. The  
13 outreach in Third Street Light Rail was pretty good, but  
14 we did not see as much impact for the local contractors  
15 to really get the benefit of getting the contracts to  
16 work in the Third Street Light Rail.

17 So, with those two experiences we've  
18 learned that we don't want to make the same mistakes  
19 and to really look at how we can do a better outreach  
20 in preparing our community, particularly the Chinese  
21 community in the Chinatown area, contractors who might  
22 have opportunities to actually work on this project, to  
23 figure out how we can help them, assist them in bidding  
24 on these contracts and, also, to look at a job forecast,  
25 to really look at what kind of jobs really will be

13

1 available so we can work with community-based  
2 organizations, work with other city programs, to really  
3 provide training and get the people ready for this job.

4 We have a lot of time to come. Let's start  
5 now and really move forward and create a plan so we can

PH-13  
Cont.

SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project  
 6 provide better economic opportunities for our community.

7 Thank you, Commissioners.

8 PRESIDENT ALEXANDER: Thank you.

9 Wayne Hu?

10 MR. HU: President Alexander, Commissioners,  
 11 my name is Wayne Hu. I am a director of the Chinese  
 12 Chamber of Commerce, and today I speak on behalf of the  
 13 Chinese Chamber of Commerce.

14 The Chinese Chamber of Commerce is in  
 15 support of this project. It is vital to our community.  
 16 It will create significant benefits for us. But we are  
 17 concerned about small businesses.

18 Almost all the Chinatown businesses are small  
 19 business operations owned by families who work very long  
 20 hours, and although there are other -- the project will  
 21 impact businesses in the Union Square and the downtown  
 22 area, the Chinatown small businesses don't have the  
 23 support of a national corporation.

24 And so one of the former speakers spoke of  
 25 what happened in the 1989 earthquake and the taking

14

1 down of the freeway. That impacted all the businesses.

2 Because small businesses are much more fragile, some of

PH-13  
Cont.

PH-14

PH-15

SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

3 them didn't survive. This project is going to last --

4 is projected to last five and a half years, six years.

5 But even if it lasts one year, small businesses will be

6 impacted, and a lot of them need a lot more support.

7 Our concern is that the SEIR and the SEIS

8 does not adequately address these issues nor adequately

9 address mitigations to support these businesses. You

10 talk about the residential tenants that are along the

11 corridor, but we need to make sure that we also take

12 care of those businesses, too.

13 Thank you.

14 PRESIDENT ALEXANDER: Thank you.

15 Sabina, followed by Eddie Zheng and Ronnie

16 Rhoe.

17 MS. CHEN: Good afternoon, Commissioners.

18 My name is Sabina Chen. I'm the executive director of

19 the Chinese Culture Center of San Francisco.

20 We would like to note that the SEIR for the

21 Central Subway losing one of the buildings that is set

22 for the potential site of the Chinatown station, the

23 Hogen & Vest or the Ny Yuen (ph) building, does

24 not necessarily adversely affect the eligibility of

25 Chinatown to be a historic district. We do have

Page 17

PH-15  
Cont.

PH-16

## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

15

]

1 concerns, however, that the SEIR should address the  
 2 design of a replacement building and that the Central  
 3 Subway in Chinatown -- that would be culturally  
 4 appropriate to the Chinatown community.

PH-16  
 Cont.

5 Two percent of the construction cost for the  
 6 Central Subway is designated for public art, and it is  
 7 essential that the Chinatown community have a voice in  
 8 determining what art will represent the community in the  
 9 Central Subway project.

10 The Chinese Culture Center has been working  
 11 with the San Francisco Arts Commission and the Chinatown  
 12 CDC to help facilitate a public arts selection process  
 13 that is open and transparent to the Chinatown community.  
 14 The mission of the Chinese Culture Center is to  
 15 preserve, promote and influence Chinese-American art  
 16 and culture. We have been serving as an artistic voice  
 17 for this community since 1973.

PH-17

18 The Chinese Culture Center is the obvious  
 19 choice to serve as a cultural facilitator between the  
 20 Arts Commission and the Chinatown community. We have  
 21 been -- the Arts Commission approached the Chinese  
 22 Culture Center to assist in a number of ways. I won't

Page 18

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23 go through the list, in the interests of time, but  
24 in order to adequately assist the Arts Commission in  
25 connecting the Chinatown community, the Chinese Culture  
16

1 Center will need more resources than our current  
2 capacity.

3 In reviewing the SEIR, we ask that the  
4 Planning Commission consider the funding of a Chinatown  
5 community liaison for the San Francisco Arts Commission  
6 with the Chinese Culture Center.

7 Thank you for your time.

8 PRESIDENT ALEXANDER: Thank you.

9 Eddie Zheng?

10 Ronnie Rhoe?

11 MR. RHOE: Good afternoon, Commissioners. My  
12 name is Ronnie Rhoe, Director of Community Development  
13 with Chinese Affirmative Action.

14 The SEIR report references the critical need  
15 for improved transit accessibility along the Central  
16 Subway corridor, given the high employment rate for  
17 folks who live in that part of town. In that context,  
18 I'd like to talk about the importance of job creation  
19 for both -- for community residents during both the

Page 19

PH-17  
Cont.

PH-18

## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

20 construction and operational phase of the project.  
 21 Construction continues to be a growth sector in San  
 22 Francisco, providing sustainable wages and a clear  
 23 career path. Unfortunately, many limited English  
 24 proficient residents of the neighborhoods that will  
 25 be impacted by the project have little to no access to

17

1 the apprenticeship programs and contractors that will  
 2 ultimately be working to build this project.

3 The trades made improvements over the years  
 4 in terms of its accessibility to English learners and  
 5 immigrant communities, but there is still tremendous  
 6 progress to be made. Further augmenting these  
 7 challenges, the city's flagship pre-apprenticeship  
 8 training program, City Build, has yet to implement a  
 9 language access component that would allow English  
 10 learner job seekers to fully participate in this current  
 11 construction boom.

12 The Central Subway Project offers great a  
 13 opportunity to coordinate efforts between the MTA,  
 14 the local building trades, City Build and neighborhood  
 15 residents to ensure career opportunities for immigrant  
 16 job seekers. We ask -- through that coordination, we

Page 20

PH-18  
Cont.



## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

17 ask that the MTA create tailored programs for English  
 18 learner residents in the impacted neighborhoods, both in  
 19 preparation for construction and for MTA jobs, once the  
 20 project is operational. Only through this front-end  
 21 commitment to the trade can we ensure that hires are  
 22 made to kick-start a career-long commitment to the  
 23 trades and the MTA jobs and not simply a temporary hire  
 24 to fulfill the particular goals of this project.

25 We ask that this project be an investment  
 18

1 in a more-economically-self-sufficient family and  
 2 neighborhood based in Chinatown, south of Market and  
 3 surrounding neighborhoods.

4 Thank you for your time.

5 PRESIDENT ALEXANDER: Thank you.

6 Larry Yee, followed by Go Chen Gon Wu, Deng  
 7 Zhi Hing, Anna Chang.

8 (Woman and man approach the bar. The woman  
 9 begins translating for the gentleman)

10 COMMISSION SECRETARY AVERY: Excuse me.  
 11 Before you start -- before you start, the court reporter  
 12 is asking the speakers to speak slower, so that she can  
 13 get an accurate transcription of your comments.

Page 21

PH-18  
 Cont.

## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

14 Thank you.

15 MR. CHEN: (Through the translator) My name  
16 is Guang Wu Chen, and I'm the president of the Ping Yuen  
17 Resident Improvement Association. I'm going to give a  
18 short introduction of Ping Yuen.

19 There are about 400 low-income families  
20 living in Ping Yuen, and they using the transit to go  
21 to work and school. We support the Central Subway, and  
22 we wish to start the project as soon as possible.

23 Before the construction begins, we hope  
24 that you guys can work on the preparation of notifying  
25 our community that -- what kinds of activity will be  
19

1 affected on the ground due to the construction and  
2 the type of work that could reduce the impact in our  
3 community, especially like the noise problems and the  
4 pedestrian safety, et cetera.

5 Thank you.

6 PRESIDENT ALEXANDER: Thank you.

7 MS. CHANG: Good afternoon, Commissioner.  
8 My name is Anna Chang, and I'm on behalf of Mr. Deng  
9 Hing Zhi for Community Tenants Association, the  
10 vice-president, because he has a afternoon doctor

Page 22

PH-19

PH-20

## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

11 appointment, so he wanted to make sure that I read to  
12 the Commissioner.

13 Overall, CTA -- Community Tenants  
14 Association -- is a nonprofit, grass-roots agencies,  
15 and we have, like, city-wide members. Many are  
16 seniors. We've been in the city almost -- over 20  
17 years.

18 We really -- on behalf of our residents,  
19 I really support and also feel that this is very  
20 important, Central Subway to Chinatown. And I feel  
21 that we've been waiting for this plan for 20 years.  
22 And not only for our seniors' sake, but it's for our  
23 mixed generations. It's really convenient. And, also,  
24 a lot of our seniors' families are riding -- use public  
25 transportation as their transport to different places.

20

1 So, therefore, we feel that it's very important.

2 And there's a couple points that we feel  
3 that we want to address Commissioner; that, you know, we  
4 want MTA to have enough notice to the community when it  
5 start and also the -- for the projects. And then you  
6 guys should utilize far media notification for  
7 community.

Page 23

PH-21

PH-22

## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

8 And, most important, we feel that we want

9 to increase more -- better service for public

10 transportation, pedestrian safety.

11 Thank you.

12 PRESIDENT ALEXANDER: Thank you.

13 Carmen Ho, followed by Anthony Eng, Doreen

14 Der-McLeod.

15 MS. DER-McLEOD: Commissioners, my name is

16 Doreen Der-McLeod. I'm the executive director of Donna

17 Deena Cameron House. And some of the things I was going

18 to say have been said, so I don't want to repeat.

19 We are in support of the project, but we

20 want to make sure that mitigations are taken into

21 consideration for small businesses and that job

22 opportunities be available for the community -- and

23 especially in the transit sector area, which is a

24 growing area for our community.

25 Thank you.

21

1 PRESIDENT ALEXANDER: Thank you.

2 Leon Chow?

3 MR. CHOW: Good afternoon, Commissioners.

4 My name is Leon Chow. I'm the chairperson of the San

Page 24

PH-22  
Cont.

PH-23

## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

5 Francisco Chinese Progressive Association located at  
 6 1042 Grant in the Chinatown.

7 Our organization is very supportive of the  
 8 SEIR, but also I don't want to repeat about the same  
 9 comment that the organizations from previous speakers,  
 10 like Visitation Valley or Chinatown, mentioned.  
 11 But our Chinese Progressive Association has always  
 12 been advocate for immigrant workers, either unemployed  
 13 or been displaced, and we are working on getting job  
 14 opportunity to have them getting -- working for --  
 15 on the job ladder for a better job and permanent job.  
 16 So, the purpose of make sure that the work has been  
 17 done and moving forward with the example about the  
 18 Third Street Light Rail Project and how it's going  
 19 about getting the jobs and make sure that immigrant  
 20 workers, displaced workers, will get the full benefit  
 21 of the opportunity for the construction phases is really  
 22 important.

23 So, thank you very much.

24 PRESIDENT ALEXANDER: Thank you.

25 Cynthia Joe?

22

1 MS. JOE: Good afternoon, Commissioners.

Page 25

PH-24

## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

2 Once upon a time, I was a planning commissioner  
3 appointed by Mayor Willie Brown back in the days of  
4 1996 when the stipend was 15 dollars, and the marathon  
5 meeting that I had was starting with the Live-Work  
6 Projects and ending with the Sutro TV tower after 12  
7 midnight.

8 I am a member of the Presbyterian church  
9 in Chinatown at 925 Stockton Street. The church will  
10 be submitting a letter before the December 10, 2007  
11 deadline. We are in support of a Chinatown station.

PH-25

12 I am speaking as an individual sinner, not  
13 to raise hell about environmental issues' impacts on the  
14 church.

15 According to the Executive Summary,  
16 Alternative 3B is less costly and requires a shorter  
17 construction period. At the proposed Chinatown station  
18 next to the church, what wind, sunlight and shadow  
19 studies are being done to look at the environmental  
20 issues and impacts of a 65-foot high development next  
21 to the church and the Gordon Lau Elementary School yard?  
22 Mitigation measures should include setbacks and various  
23 buildings adjacent to the church and 65-foot height at

PH-26

<p>SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project</p> <p>24 the Washington-Stockton portion.</p>	<p>PH-26 Cont.</p>
<p>25 There will be a loss of 17 units of housing.</p> <p>23</p>	<p>PH-27</p>
<p>1 What replacement housing will there be for the folks</p> <p>2 that will be displaced?</p>	
<p>3 What about settling and vibration due to</p> <p>4 construction? They will be rocking and rolling in</p>	<p>PH-28</p>
<p>5 Chinatown. What plans are made for rat abatement</p> <p>6 and vermin control in the Chinatown community? Please,</p>	<p>PH-29</p>
<p>7 no construction noise around the church on Sundays.</p> <p>8 Never on a Sunday.</p>	<p>PH-30</p>
<p>9 Let's work together to keep the process</p> <p>10 moving to build the Central Subway to Chinatown by 2016</p> <p>11 as projected. And by God's grace, we hope we'll be able</p> <p>12 to use it by then.</p>	
<p>13 Thank you.</p>	
<p>14 Oh, I have a written statement, so -- it</p> <p>15 leaves out all the "hell" and the humor.</p>	
<p>16 COMMISSION SECRETARY AVERY: Thank you.</p>	
<p>17 PRESIDENT ALEXANDER: Thank you.</p>	
<p>18 David Lee?</p>	
<p>19 MR. LEE: My name is David Lee, and I am</p> <p>20 the second generation of three generations of my family.</p>	<p>PH-31</p>

## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

21 We're members of the Presbyterian church in Chinatown,

22 and we are definitely in support of this project. But

23 there are two historical facts that this church has

24 sacrificed and I wish to share with you and a request.

25 This concerns the selection -- the possible selection

24

]

1 of 3B, which would be a station on Stockton and

2 Washington Street.

3 Historically, the church has given up

4 property to build the Gordon Lau School, who at that

5 time called it the "Stockton School." Of course, this

6 was in support -- schools in the neighborhood, of

7 course, it's a benefit to all.

8 The second is that the church recently went

9 through a major renovation. The renovation took over

10 seven years. Two of those years was dealing with the

11 San Francisco Landmarks Board.

12 The original design was rejected by the

13 building department. They requested that we go before

14 the Landmarks Board, and the Landmarks Board prevailed.

15 They would not allow us to change any of the designs,

16 at great cost to the church. We had to refabricate the

17 church building.

PH-31  
Cont.

Ph-32



## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

18 And as you can see before you, that is the  
19 present design of the building. What benefited from  
20 the church was the addition of a third story, which has  
21 a re-set and is the new sanctuary of the building.

22 On the second page, you'll see that on the  
23 sanctuary are windows that have natural lighting. What  
24 we are requesting is that, in the event that this site  
25 gets selected, that we have a representative from the

25

1 church to be involved with the design process. As you  
2 can see, the peak of the building is 49 feet tall. 65  
3 feet is the line that is above the building.

4 PRESIDENT ALEXANDER: Thank you.

5 MR. DAVID LEE: Thank you.

6 PRESIDENT ALEXANDER: Ben Lee?

7 MR. BEN LEE: I'm Ben Lee. I'm the president  
8 of the Chinatown Photographic Association. We situated  
9 at 132 Waverly Place. I'm here to speak on the legacy  
10 of this project.

11 We fully support this project.

12 I'll try to address the public arts  
13 requirement for the stations.

14 I have three things I want to say. I travel

PH-32  
Cont.

PH-33

PH-34

SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project  
15 around the world. I think Chinatown is a living museum.

16 When we decide any of this public artwork, I think we  
17 should have that in mind.

18 Also, Chinatown is our home away from home.

19 I don't live in Chinatown, but I go to Chinatown every  
20 day, every week. It's a living town, a living culture.

21 When we decide this art, we have to keep that in mind.

22 And I think we also have heard from the other  
23 speakers it's going to be a project for as long as San  
24 Francisco is around. It's a living legacy that we have  
25 to carry.

26

1 And there are a lot of good artists in San  
2 Francisco. And I want the Commission to remember, when  
3 we decide on this public art, we get all the artists,  
4 whether from Chinatown or any other area, to work  
5 together, so that we can make the station a living  
6 museum, a walking museum, so everybody can enjoy.

7 And as far as I'm concerned, there's no  
8 better people that can help to coordinate this but the  
9 Chinese Culture Center, because they've been there for  
10 years. We have been a member for years. And I want to  
11 support them for this project.

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PH-34  
Cont.

## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

12 Thank you.

13 PRESIDENT ALEXANDER: Thank you.

14 Pam Wu, followed by Joan Wood and Cindy Wu.

15 Pam Wu?

16 Joan Wood?

17 MS. WOOD: Yes. Good afternoon,

18 Commissioners. My name is Joan Wood, and I live on

19 Houston Street. It's in North Beach. I'm a member of

20 Telegraph Hill Dwellers, one of their committees, and

21 also Friends of Washington Square.

22 I don't think a station north of Market

23 Street is really necessary. Anyone who's been to

24 Chinatown knows that people certainly don't have any

25 problem getting there. And I think that the upheaval --

27

□

1 six years of upheaval is really not worth it. But I

2 think this project has gone on long enough that it's

3 pointless for me to say that I object to it.

4 I do think that the confines -- the border

5 of Chinatown is blurred. To me -- I've lived, since

6 1962, continuously in North Beach on Telegraph Hill,

7 and I think the border is clearly at Grant and Broadway,

8 the north border of it.

PH-35

PH-36

## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

9 I notice that the Metropolitan  
 10 Transportation Authority designated six affected  
 11 neighborhoods. We're not one of them, although  
 12 we're obviously affected. I suppose we're lumped  
 13 with Chinatown and downtown. But that accounts for  
 14 the fact that Telegraph Hill Dwellers hasn't weighed in  
 15 on this, which they certainly will be doing so before  
 16 December 10.

PH-36  
 Cont.

17 I just saw a digest of the EIR yesterday,  
 18 as did the head of the Planning and Zoning Committee  
 19 yesterday. It's been analyzed. The EIR has been  
 20 analyzed by one of our directors. He says this EIR  
 21 doesn't give complete coverage to the impacts in North  
 22 Beach, particularly if you've got a boring machine, for  
 23 gosh sake, coming up at Columbus and Union Street.

PH-37

24 And an example of the deficiencies of the  
 25 EIR -- it's simple to say this. They mentioned two bus  
 28

1

1 lines that would be disturbed. There's six bus lines.  
 2 They left off four of them.

3 Also, there's no comment about what will  
 4 happen to the dirt that is thrown up at Washington  
 5 Square Park.

PH-38

SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

6 PRESIDENT ALEXANDER: Thank you.

7 MS. WOOD: Thank you.

8 PRESIDENT ALEXANDER: Cindy Wu?

9 MS. WU: Good afternoon, Commissioners. My  
10 name is Cindy Wu. I work for the Chinatown Community  
11 Development Center. I'm reading a letter on behalf of  
12 Chi-Hsin Shao.

13 Dear Commissioners, my name is Chi-Hsin  
14 Shao, a member of the Community Advisory Group  
15 representing Yerba Buena Alliance. The CAG has  
16 been working very closely with the MTA staff and its  
17 consultants in the deliberation of the Muni Central  
18 Subway alignment and station locations.

19 I would like to report to you that the MTA  
20 staff and its consultants have been listening to the  
21 suggestions and comments provided to them by the CAG.  
22 The Central Subway alignment has been modified from  
23 Third Street to Fourth Street. This new alignment and  
24 its extension to Chinatown would provide tremendous  
25 benefits to Muni riders, especially those who live,

29

1 work and shop in the San Francisco Chinatown. With the  
2 Central Subway project, these riders would not need to

PH-39

SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

3 wait for the crowded number 30 bus line that sometimes

4 people see several totally-full buses come by, not

5 able to board the bus. The benefits to Muni riders

6 would potentially trigger better access for patrons to

7 Chinatown and thus benefit Chinatown economically.

8 For the station at the Yerba Buena area,

9 we would suggest a name of Yerba Buena Garden. This

10 issue was discussed at the Board of Directors of Yerba

11 Buena Alliance and has been communicated to MTA staff

12 and its consultants.

13 Sincerely yours, Chi-Hsin Chao.

14 PRESIDENT ALEXANDER: Thank you.

15 April Vernanocion?

16 MS. VERNANOCION: Hello. My name is April

17 Vernanocion, and I'm with the South of Market Community

18 Action Network, and I wanted to share some of my concerns

19 in regards to some of the construction that's going to

20 take place in the south of Market.

21 First, I would like to say that we're in

22 support of quality public transportation for low-income

23 families and seniors, of which Central Subway is one of

24 those, but we wanted to talk about specific mitigation

25 measures necessary to address, especially during the

Page 34

PH-39  
Cont.

PH-40

PH-41

## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

30

1 construction phase, the impact of construction on the  
2 seniors that are living on Fourth Street, as well as  
3 the youth that are at the middle school on Fourth and  
4 Harrison, as well as -- as you all know -- and you've  
5 heard me say this many times before -- there is about  
6 40 thousand cars that pass by Sixth Street every day.  
7 And so we're concerned about the re-routing of traffic  
8 onto the Sixth Street area. It was a real mess this  
9 weekend because of the Oracle convention.

10 And so these are the types of things that  
11 need mitigation. And the EIR states that there's no  
12 feasible mitigation measures, but I think there needs  
13 to be more looked at on there.

14 As well as there's a lot of discussion,  
15 particularly in the adjacent eastern neighborhoods,  
16 about transit-oriented development and density along  
17 transit lines. I'm really concerned that this density,  
18 an increase in housing, is only going to be available  
19 for those who are able to afford market-rate housing.  
20 So I'm also concerned about the indirect displacement  
21 of individuals that would result from this increased  
22 density in housing. So I think there should be some

Page 35

PH-41  
Cont.

PH-42

## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

23 specific mitigations or increased affordable housing

24 along these transit corridors in the south of Market.

PH-42  
Cont.

25 So we would like more time, also, to

31

]

1 analyze the EIR and provide written concerns beyond

2 the December 10 timeline. There isn't much analysis

3 and information on the impact on the south of Market.

PH-43

4 So, thank you.

5 PRESIDENT ALEXANDER: Thank you.

6 I have no additional speaker cards. Is

7 there anyone else desiring to comment on this item?

8 MS. WEISS: Good afternoon, Commissioners.

9 My name is Ernestine Weiss, and I've followed the

10 Central Subway since the beginning.

11 And I'm a very huge advocate of

12 transportation in San Francisco. If you've ever ridden

13 the number 30 line -- as one of the ladies said before,

14 it is a nightmare. You cannot approach a bus. So

15 the Central Subway would relieve all that congestion on

16 the surface and put people underground where the Central

17 Subway will move thousands of people much quicker than

18 the buses could ever do.

PH-44

19 So this is very important and is sorely

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20 needed in Chinatown. I live in the Financial District,  
21 and I use the Number 1 quite often. And when I have  
22 to use the 30, I dread it. But this will be a wonderful  
23 addition, and it will be worth the inconvenience that --  
24 the noise, and all these things that people worry about  
25 will take place. I'm sure that these conditions will

32

1 be mitigated to the best way possible.

2 So, good luck and God speed. Thank you.

3 PRESIDENT ALEXANDER: Thank you.

4 Next speaker, please.

5 MS. PEEL: Commissioners, my name is

6 Pauline Peel. I'm a resident of the Bay View District

7 and a member of the Community Advisory Group since its

8 inception, and I've stayed on with the group to work on

9 the Central Subway project.

10 One of the driving forces behind our

11 neighborhood support of the project was the promise

12 of connectivity with the city. As you know, the

13 southeast -- Bay View, Vis Valley -- is pretty isolated,

14 and our hope was to have better access to downtown and

15 connecting buses.

16 After looking through the supplemental EIR, I

Page 37

PH-44  
Cont.

PH-45

## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

17 noted that attention was paid to potential disruptions  
 18 that affect neighborhoods, and I think the proposed  
 19 accommodations seemed pretty adequate. I feel that  
 20 proper outreach and cooperation with neighborhood  
 21 stakeholders will be forthcoming and to the extent that,  
 22 as tax payers, we will look into making that, putting  
 23 that into effect.

24 I support the existing project and look  
 25 forward to the extensions, first to North Beach and,

33

1 finally, to the wharf.

2 Thank you so much.

3 PRESIDENT ALEXANDER: Thank you.

4 Next speaker, please.

5 MS. CHEN: Hi. Good afternoon. My name is  
 6 Inna Chen. I'm part of a youth group called Adopt An  
 7 Alleyway.

8 Public transportation is really important  
 9 to youth. Youth are like one of the main people who  
 10 relies the Muni because, without Muni, how could we go  
 11 to school or community events or to just hang out with  
 12 friends? We don't have cars, so Muni is the only way we  
 13 can get around in.

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PH-45  
Cont.

PH-46

## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

14 I heard stories from my fellow triple A  
 15 members saying how it's really hard to get from their  
 16 schools -- Lowell, Washington and Keena Burton (ph) --  
 17 to go to Chinatown. It takes, like, 20 to 40 minutes  
 18 just to go from downtown to Chinatown, which is a lot.

19 I, personally, live on the border of Daly  
 20 City and San Francisco, and it takes me about three to  
 21 four hours to commute to Chinatown to go to work.

22 I am 100 percent supportive of the Central  
 23 Subway, but that doesn't mean that I don't have any  
 24 concerns. Please put community input into the noise  
 25 reduction of service, blocking of streets, corridors

34

1 and... I know that everyone that I know knows those  
 2 are just little prices to pay for something great like  
 3 the Central Subway.

4 And also youth should be included into the  
 5 art process of making the subways nice, because youth  
 6 has a lot of creativity, but we don't have much place  
 7 to express it at.

8 Thank you.

9 PRESIDENT ALEXANDER: Thank you.

10 Is there anyone else desiring to comment on

Page 39

PH-46  
Cont.

PH-47

PH-48

## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

11 this item? Is there any additional public comment?

12 Seeing none, public comment is closed.

13 Written comments will be accepted at the

14 Planning Department's offices until the close of

15 business on December 17, 2007.

16 Commissioners? Commissioners Antonini?

17 COMMISSIONER ANTONINI: Thank you for a lot

18 of very good comments.

19 And I think I'm in agreement with almost

20 everything I heard today. I think this is a wonderful

21 project, unlike some of the things that, perhaps, for

22 cost reasons, are being promoted on Van Ness, like

23 the Bus Rapid Transit, which takes away lanes and is

24 somewhat -- you know, this complements; it doesn't

25 compete with the existing buses. And so I think this is

35

1 going to allow, for example, Fourth Street and Stockton

2 Street to have easier movement aboveground for bicycles,

3 for pedestrians, for cars and for buses. So that's one

4 of the things.

5 I favor the option being modified which has

6 the Fourth Street route and then has one less -- one

7 station aboveground, and the portal has been moved

Page 40

PH-49

## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

8 further north -- the southern portal -- so it's closer  
9 to the 80 freeway.

PH-49  
Cont.

10 And I would concur with those who advocate  
11 for completion with the boring machine all the way to  
12 Washington Square with a fifth station -- if you count  
13 the aboveground one in the south of Market -- as one  
14 of the stations proposed as soon as possible.

15 Also, I would strongly advise that options  
16 be looked at in the future to continue the line to  
17 Fisherman's Wharf and then, perhaps, moving westward  
18 to the Marina, Presidio and the Richmond District.

PH-50

19 Originally, one of the first BART plans,  
20 before Marin backed out of the BART system in the  
21 early 60's, was to have a second spur go through San  
22 Francisco to Marin and would have followed a lot of  
23 the same course as this conceivably could eventually.  
24 Whether or not it all needs to be subway through all  
25 those areas is a matter for future discussion.

36

1 But I think the key issue here is that  
2 you have your own right-of-way. So, rather than being  
3 captive to whatever congestion occurs on the street,  
4 the subway moves belowground and -- or if it's

PH-51

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5 aboveground, has its own right-of-way and is not tied  
 6 into things that may occur aboveground that they can't  
 7 prevent.

PH-51  
 Cont.

8       Some things I heard. I think transfer  
 9 is a very important thing, and I think that has to be  
 10 addressed at all the stations, to be able to get into  
 11 BART and Muni from the new stations that will be built.

PH-52

12       One comment in the EIR was about the mini  
 13 stations. I'm not quite sure of the exact size of the  
 14 stations, but I want to make sure that the stations  
 15 are adequately large to accommodate a train length that  
 16 makes sense and, also, that they have enough entrances  
 17 and exits so people can reach the stations easily from  
 18 different sites that are around the area. I mean, one  
 19 of the very great things that was done with the BART  
 20 system along Market Street --BART and Muni -- is that  
 21 there are so many entrances and the stations are long  
 22 that people can come from all different directions and  
 23 there's rarely, if ever, congestion as people enter  
 24 these stations because there are many sites of access.

PH-53

25       I had a question about the amount of time

37

PH-54

1 this whole process will take. Six years seems like a

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## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

2 long time. There's a lot to do. We hope that it's  
3 well planned and well thought out so we don't have to  
4 go beyond the time table and add even more to the  
5 projected cost.

PH-54  
Cont.

6 And there were comments about the  
7 architectural and cultural appropriateness of the  
8 stations. I think that's very important to address  
9 those.

PH-55

10 And, also, the protection for businesses  
11 that might be inconvenienced or displaced -- hopefully  
12 not displaced -- during the construction process is  
13 very important.

PH-56

14 And I think, also, that this is something  
15 that really could go a ways towards making people less  
16 reliant on cars -- at least in that particular area --  
17 because this is an area that not only has residents  
18 moving through it, but there's a lot of tourists, a  
19 lot of visitors from throughout the Bay Area. And,  
20 you know, I think the ridership figures in here speak  
21 to the amount of usage this area gets.

PH-57

22 So I'm very supportive and, hopefully, we  
23 can move forward as soon as possible.

SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project  
 24 PRESIDENT ALEXANDER: Thank you.

25 Commissioner Bill Lee?

38

□

1 COMMISSIONER BILL LEE: Yeah, I think the

2 EIR addresses quite a few of the concerns from the

3 people that spoke today.

4 I had a couple comments.

5 One is that I -- some of the options will

6 probably force out rent-controlled units. And that's

7 a concern for me.

8 The other idea is I had a presentation by

9 Mr. John Funghi yesterday in front of the Convention

10 Visitors Bureau regarding issues of construction

11 aboveground. They are going to bore at least 50 feet

12 belowground. So I think there will be minimal types of

13 disruption, except the entranceway and the exits there.

14 I think the question of transferability is

15 an issue -- where you get off, where you get on.

16 One of the considerations Muni should look

17 at is that you want to have underground stores. Those

18 stores will displace -- maybe you should have first

19 right of refusal to rent underground stores when people

20 get on and off of Muni that way.

PH-58

PH-59

PH-60

PH-61



## SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

21 What we did with Home Depot I don't know a

22 if we could do here, of first right of refusal, first

23 source hiring. We allocated two zip codes where Home

24 Depot would have to give first right of refusal for

25 hiring. I don't know if we could do this in Chinatown

39

]

1 or not because we do that, we may leave out the people

2 like Marlene Tran and the Vietnamese Community Center

3 down in the southeast part of town. But I think we

4 should strongly consider that.

5 I think CPA and CA has done a good job in

6 getting people hired. I know the Ping Yuen, a lot

7 of housing people are looking for jobs. And how that

8 relates with the construction work, and training through

9 the carpenters union or the plumbers is something we

10 should look at through the mayor's office and the work

11 force development.

12 I think, all in all, this will bring closer

13 different parts of the city, and I'm very hopeful that,

14 in the future, we'll go to Phase Three and include North

15 Beach. I don't like the demarcation between Chinatown

16 and North Beach there, especially Stockton and Columbus

17 area.

PH-62

PH-63

SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

18 PRESIDENT ALEXANDER: Thank you.

19 Commissioner Sugaya?

20 COMMISSIONER SUGAYA: Thank you.

21 Since this is a hearing on the EIS and EIR, I

22 will confine my comments to the EIS and EIR and not the

23 project.

24 I believe, on a singular issue, there is

25 some inadequacies in the treatment of impacts to

40

1 historic resources within the APE that's been defined.

2 I'll submit some comments in more detail with respect

3 to this particular issue and provide some other examples

4 from EIRs that have dealt with this in a little bit more

5 detailed fashion.

6 PRESIDENT ALEXANDER: Thank you,

7 Commissioners.

8 COMMISSION SECRETARY AVERY: With that, this

9 item is concluded.

10 Thank you.

11 (Off the record at 4:27 p.m.).

12

13

14

PH-64

SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project

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1 STATE OF CALIFORNIA) SS.

2 I do hereby certify that the hearing was held at  
3 the time and place therein stated; that the statements  
4 made were reported by me, a certified shorthand  
5 reporter and disinterested person, and were, under my  
6 supervision, thereafter transcribed into typewriting.

7 And I further certify that I am not of counsel or  
8 attorney for either or any of the participants in said  
9 hearing nor in any way personally interested or involved  
10 in the matters therein discussed.

11 IN WITNESS WHEREOF, I have hereunto set my hand

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SF PLANNING COMMISSION MEETING 2007-11-15 Central Subway Project  
12 and affixed my seal of office this 27th day of November,  
13 2007.

14

15

16 -----

17 VALERIE E. JENSEN

18 Certified Shorthand Reporter

19

20

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25

**Wells Whitney, Renew SF****PH-1**

Comment in support of the SEIS/SEIR is noted.

**Tony Gantner, North Beach Merchants Association****PH-2**

Support for the Central Subway Project and for a fifth station in North Beach is noted. See Response to Comment AA-1 for a full discussion of project history and how the northern project boundary was established at Jackson Street. The future extension of rail service to North Beach would be facilitated by the North Beach Construction Variant tunnel construction, but a North Beach extension and station would be the subject of a future independent analysis.

**PH-3**

The potential disruption associated with the construction of the North Beach Construction Variant tunnel is discussed in Chapter 6.0, Construction Methods, Impacts, and Mitigation Measures. As stated on page 6-58 construction of the tunnel excavation shaft would occur in Columbus Avenue and would not disrupt Washington Park directly, but construction-related noise, dust, and vibration would temporarily affect the park users. Mitigation measures for these impacts are outlined in Sections 6.14 and 6.15.

**Stephen Taber, SPUR****PH-4**

Support for the Central Subway Project and the SEIS/SEIR is noted.

**PH-5**

Ease of transfers is an important consideration in the planning of the Central Subway Project, particularly at the Union Square/Market Street Station that would have a direct connection to the Powell Street BART/Muni Metro Station. See Responses to Comments C2/C3 and AA-29 for a discussion of how transfers would be accommodated.

**PH-6**

The platforms and station access points have been designed to meet projected ridership and also to handle maximum loads in the event of an emergency. See Response to Comment AB-4 for capacity issues unique to the Union Square/Market Street Station and its relationship to the Powell Street BART/Muni Metro Station.

**David Chiu, Small Business Commission and Central Subway CAG****PH-7**

Comments in support of the SEIS/SEIR and of the Central Subway Project are noted.

**PH-8**

See Responses to Comments A-4 and AL-2 for a discussion of the relocation process and relocation assistance (including rental or property leasing assistance) to businesses displaced by the project. The federally required Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646) and the State of California Relocation Act contain specific requirements that govern the manner in which property can be acquired for public use. Adherence to the state and federal laws is designed to ensure just compensation for all acquired properties and to minimize adverse impacts on the affected property owners.

**PH-9**

See Response to Comment AA-34. Potential changes to transit routes during construction of the Central Subway Project are described in Section 6.3 of the SEIS/SEIR. The potential transit detour routes have not yet been identified, however, the intent would be to minimize the out of direction travel from the existing bus corridor if a detour is required, therefore such detours are likely to fall within the study area boundaries.

As the project moves into final design in the next two years following project approvals, SFMTA would work closely with the communities/neighborhoods along the alignment to assess required bus line detours or schedule changes. Any necessary route changes would be communicated to transit users well in advance of implementation.

**Marlene Tran, Visitacion Valley Agents Alliance****PH-10**

Comment in support of the Central Subway Project and the connection between Visitacion Valley and Chinatown is noted. The 9X bus route will be retained when the Central Subway service is initiated. The frequencies of the surface bus routes may be modified to reflect the shift of passengers from buses to the rail line. See Response to Comment J-2 regarding the retention of surface bus lines.

**Bonnie Shiu, Visitacion Valley Parent Association****PH-11**

See Response to Comment J-2. Surface bus line service will remain though the frequencies of the surface bus routes may be adjusted to reflect the shift in ridership to the rail line.

**Ken Nim, Visitation Valley Community Development Corporation****PH-12**

Support for project is noted.

**PH-13**

Design and construction of the Central Subway Project (Alternative 3B, LPA) would generate an estimated \$188 million in professional services and labor contracts and would provide temporary employment opportunities for the City and region, which would be considered a beneficial impact. SFMTA would advertise contract opportunities in local newspapers, including the Chinese papers, to alert the local contractors to opportunities to bid on contracts. SFMTA will also work with the City Build pre-apprentice training program and with CCDC to provide advance notice to community-based organizations, including local unions, to encourage local contractors to bid on work.

**Wayne Hu-Chinese Chamber of Commerce****PH-14**

Support for project noted, and concern for small businesses noted.

**PH-15**

See Response to Comment AL-2. The eight small businesses displaced by the Alternative 3B transit-oriented station in Chinatown would be relocated within the local neighborhood, and business owners would be provided relocation assistance including rental or property leasing assistance.

**Sabina Chen, Chinese Culture Foundation of San Francisco****PH-16**

Comment noted that the potential loss of the Hogan and Vest building at 933-949 Stockton Street, or of the Ning Yuen building at 814-828 Stockton Street, would not affect the potential eligibility of Chinatown as a Historic District.

The Historic Architectural Resources specialist on the SEIS/SEIR team and the Landmarks Preservation Advisory Board staff are in the process of consulting with the State Historic Property Office (SHPO), as part of the Section 106 review process, to issue a Finding of Effect Report. The Finding of Effect will be the final determination of the historic significance associated with the removal of one of the contributory buildings in Chinatown. SFMTA has also retained the services of an architectural firm to develop conceptual layouts for the proposed stations as part of early design development, and will include the services of architectural historians to work with architects to develop a station exterior that compliments (would not distract from) the historic character of the Chinatown neighborhood. See Response to

Comment T-2 for additional mitigation measure proposed to ensure compatibility with the Chinatown cultural character.

**PH-17**

See Response to Comment H-3 for a description of the community involvement in the arts program. The request for the Chinese Culture Center to serve as the formal community liaison with the San Francisco Arts Commission, and for SFMTA to provide funding for these services, is outside the scope of the SEIS/SEIR, but could be considered as part of project approvals. There are no environmental impacts related to the arts program.

**Ronnie Rhoe, Director of Community Development, Chinese Affirmative Action****PH-18**

SFMTA is committed to outreach to the communities and neighborhoods along the Central Subway Corridor prior to and during construction to inform residents and businesses of the project schedule and job/contracting opportunities related to the project. This will include public outreach in both English and in Chinese. SFMTA will work with City Build to encourage the development of information to English learner trainees about job opportunities that will be advertised for the Central Subway Project.

**Guang Wu Chen, Ping Yuen Resident Improvement Association****PH-19**

Support for the project is noted.

**PH-20**

The request for advance notice of construction activities to the low-income housing project is noted. SFMTA will provide periodic updates to the community along the Central Subway Corridor (Stockton Street between Market Street and Jackson Street) about the project, and about the schedule for construction activities. Information will be provided in both Chinese and in English in newsletters, on the project web site, and in local newspapers. Notices will be posted along the corridor one month prior to start of construction to alert residents and businesses to parking displacement next to the station site. Environmental compliance monitoring during construction will ensure that noise, dust, and storm water impacts are minimized in accordance with the mitigation measures in the SEIS/SEIR. Pedestrian safety measures (construction fencing, barriers, and posted safe passageways) will be implemented during construction, and will be monitored by SFMTA.



**Anna Chang, on behalf of Deng Hing Zhi, Community Tenants Association****PH-21**

Support for the project is noted.

**PH-22**

Timely notice of start of construction is requested. See Response to Comment PH-20.

**Doreen Der-McLeod, Executive Director of Donaldina Cameron House****PH-23**

Support for the project is noted. Community information related to opportunities for small businesses and job opportunities will be available in local newspapers, the Central Subway newsletter, and the project web site prior to and during construction (see Response to Comment PH-20).

**Leon Chow, Chair of the San Francisco Chinese Progressive Association****PH-24**

Support for the SEIS/SEIR is noted. Opportunities for immigrant workers and displaced businesses will be part of the community outreach program (see Response to Comment PH-20).

**Cynthia Joe, Presbyterian Church of Chinatown****PH-25**

Support for station at 933-949 Stockton Street (Alternative 3B) is noted.

**PH-26**

A preliminary shadow analysis has been conducted for the station building outline (assuming maximum height and bulk) at Stockton and Washington Streets to show the maximum new shadows on the Gordon Lau Elementary School schoolyard, the Methodist Church across Washington Street, from the proposed station and the adjacent Presbyterian Church on Stockton Street. (See Appendix K of the SEIS/SEIR). Shadows on the south wall of the Methodist Church, from the proposed Chinatown Station, would occur in the morning and early afternoon hours during winter months (December 21), but not during other times of day or months of the year. Shadows would occur on the eastern edge of the Gordon Lau Elementary School playground in the morning hours and at noon during all seasons of the year and during the winter months (December 21) in the afternoon. There would be no additional shadows cast on the Presbyterian Church from the proposed Chinatown Station based on the preliminary analysis.

A wind study was not conducted because a building height of 65 feet would not substantially change existing wind patterns. The SEIS/SEIR assessed the potential impacts of a conceptual design, or building

envelop, for the station that considers full-build out of the site. The final architectural design for the transit-oriented station would be developed in coordination with the Chinatown community, including the church. Graduated setbacks would be considered as one of the potential measures to minimize shading or wind, if necessary.

#### **PH-27**

Residents displaced by the project would be provided relocation assistance and would be relocated in the local area, if possible. If the new transit-oriented station is designed to include replacement housing units (estimated to be 24 units for Alternative 3B) that would increase the number of low-income housing units in the area.

#### **PH-28**

Vibration and potential settlement from ground disturbance during construction is addressed in Section 6.10.2 of the SEIS/SEIR on page 6-90 and 6-91. Provisions such as concrete diaphragm walls to support the excavation and instrumentation to monitor settlement and deformation would be used to ensure that structures adjacent to tunnel alignment are not affected by adjacent and nearby excavations. Rigorous geomechanical instrumentation will be used to monitor ground movement during construction. Equipment used for underground construction, such as the tunnel boring machines and mine trains could generate vibration levels that could result in audible ground-borne noise levels at the surface and may cause intrusive low level vibration above the tunnel. Monitoring during construction will measure the actual noise and vibration levels within and outside of the Church and will provide project-specific information to develop additional measures to minimize impacts, if necessary. Monitoring information/data will be shared with church representatives.

#### **PH-29**

Monitoring during construction will include monitoring for rodents, and if found abatement measures would be undertaken.

#### **PH-30**

Construction activities that would have significant noise or vibration impacts above ground would be limited during evening hours and during weekends; particularly work that would affect Church services on Sundays or evening school sessions when background noise levels are lower than day-time background levels.

**David Lee, member Presbyterian Church in Chinatown****PH-31**

Support for the project is noted.

**PH-32**

See Response PH-26 above. Final architectural design will consider ways to minimize changes to natural light and shading from the transit-oriented station to the church.

**Ben Lee, President, Chinatown Photographic Association****PH-33**

Support for the project is noted.

**PH-34**

The point that Chinatown is a ‘living walking museum’ is noted. The Chinatown community and stakeholders will be actively involved in the transit-oriented development at the station, the station design, and the arts program. The history of the building at 933-949 Stockton Street will be recorded and preserved, and may be exhibited in the station, as described on page 6-76.

**Joan Wood, North Beach, Telegraph Hill Dwellers, Friends of Washington Square****PH-35**

Section 1.0 for the SEIS/SEIR describes the Purpose and Need and Project Goals and Objectives for the Central Subway Project. SFMTA’s objective for the proposed Project is to complete the second phase of the Third Street Light Rail Project and provide transit improvements in the Central Subway Corridor. The project limits of the Central Subway Corridor (and stations) were set at Jackson Street in Chinatown as part of the Third Street Light Rail Project definition for the 1998 FEIS/FEIR. This is a supplemental environmental document that tiers off of the original 1998 environmental document and focuses on the second phase of the project. Existing surface congestion in Chinatown and in Downtown San Francisco make service reliability for existing buses (9-San Bruno, 30-Stockton, and 45-Union/Stockton) that connect with other transit lines unreliable with extended wait times and slow operating speeds. A subway system into the heart of Chinatown will provide reliable transit service and improved connections to other parts of the City.

**PH-36**

The northern limit of the Central Subway to the vicinity of Jackson Street is consistent with the previously approved project definition and is not meant to define the limits of Chinatown. The North Beach Tunnel Construction Variant, described on page 2-33 of the SEIS/SEIR is a construction variant

that was added to the environmental review to minimize impacts from construction in the heavily congested Stockton Street area of the station. The purpose of the temporary shaft would be for removal of the tunnel boring machine, and possible delivery of materials for the Chinatown Station.

The North Beach Neighborhood has been invited by SFMTA to identify a representative to join the Community Advisory Group (CAG) for the Central Subway. Representative of the Telegraph Hill Dwellers (F. Joseph Butler and Vedica Puri) are on the project mailing list for newsletters and project updates. Friends of Washington Square have been added to the project mailing list.

#### **PH-37**

The construction shaft would be open for about six months during construction, and otherwise would be covered with decking. Impacts of the TBM retrieval shaft are addressed under each environmental topic, as the last part of the impact discussion for Alternatives 3A and 3B. Transit impacts of the temporary construction retrieval shaft are addressed on pages 6-35 and 6-36 of the SEIS/SEIR. While two travel lanes would remain open along Columbus Avenue, the 30-Stockton and the 45-Union/Stockton bus overhead trolley wires would need to be temporarily relocated to accommodate continued transit operations. The 41-Union and Coit Tower lines, which run on Union Street, and the 9X-San Bruno would not be affected.

#### **PH-38**

Dirt from excavation of the temporary shaft would be removed by truck during excavation, and would not be stockpiled in the park. Haul routes are described on page 6-25 (an estimated five trucks per day over a six month period) and would travel southeast on Columbus to Broadway and east on Broadway.

#### **Cindy Wu on behalf of Chi-Hsin Shao, representing Yerba Buena Alliance**

#### **PH-39**

Support for project is noted, especially revised alignment from Third Street to Fourth Street which will benefit Muni riders who live, work and shop in Chinatown.

#### **PH-40**

The requested change in the name of the proposed Moscone Station to Yerba Buena Garden Station will be considered by the SFMTA Board when the project comes before them for adoption (anticipated in late Summer 2008).

**April Vernanocion, South of Market community Action Network****PH-41**

Support for improved transit for low-income families and for seniors is noted. Figure E-9 on page E-28 of Appendix E in the SEIS/SEIR shows traffic during construction being routed to Fifth Street, not Sixth Street for Alternative 3B. Prior to final design, the SFMTA would work with the local community to develop temporary transportation system management (TSM) measures along detour routes to minimize traffic congestion. Also when detours are initially implemented, traffic control police would monitor critical intersections for corrective action.

**PH-42**

Provision of low-income housing could be part of the proposed future transit-oriented development above the stations.

**PH-43**

The Planning Commission did not take action to extend the public comment period. The close of comments for the Draft SEIS/SEIR was December 10, 2007 as originally advertised.

**Ernestine Weiss****PH-44**

Support for project is noted.

**Pauline Peel, Bay View District and CAG member****PH-45**

Central Subway will provide good connectivity to the Bay View and Visitacion Valley. Public outreach will be maintained throughout the final design and construction phases of the Central Subway Project.

**Inna Chen- Youth Group Adopt An Alleyway****PH-46**

Support for project is noted.

**PH-47**

The Chinatown community through CCDC and other planned outreach will continue to be actively involved in the planning, final design, and construction phases of the project. SFMTA will work with the community to minimize impacts. An independent environmental compliance monitor will be retained during construction to ensure that noise, dust, runoff, traffic disruption is minimized and mitigated. Monitoring reports will be made available to the public to provide input to compliance conditions.

**PH-48**

See Response to Comment H-3 for discussion pertaining to involvement of the community in the arts program. Youth, like other members of the community would be actively encouraged to participate. A special Youth Arts Program was undertaken for the T-Third Light Rail Line; where temporary art exhibits by youth were displayed for a five-month period. A similar program could be undertaken in conjunction with the Central Subway Project.

**Commissioner Antonini****PH-49**

Expressed support for the Central Subway Project and Alternative 3B.

**PH-50**

See Response to Comment AA-1 for a full discussion of project history and how the northern project boundary was established at Jackson Street. The future extension of rail service to North Beach would be facilitated by the North Beach Construction Variant tunnel construction, but a North Beach extension and station would be the subject of a future independent analysis.

**PH-51**

Support for an exclusive right-of-way for the Central Subway is noted.

**PH-52**

Ease of transfers is an important consideration in the planning of the Central Subway Project, particularly at the Union Square/Market Street Station that would have a direct connection to the BART/Muni Metro Powell Street Station. See Responses to Comments C2/C3 and AA-29 for a discussion of how transfers would be accommodated.

**PH-53**

The platforms and station access points have been designed to meet projected ridership and also to handle maximum loads in the event of an emergency. See Response to Comment AB-4 for capacity issues unique to the Union Square/Market Street Station and its relationship to the BART/Muni Metro Powell Street Station.

**PH-54**

The construction period for Alternative 3B would last approximately 5.5 years and would require an extensive coordination effort among city agencies, BART, Caltrans, the TJPA, and community business

and neighborhood organizations to minimize impacts and delays. See Response to Comment AA-31 for references to the construction impacts and construction management approach.

**PH-55**

See Response to Comment PH-26 for discussion of how design of the station sites would be undertaken to ensure integration of the new buildings into the neighborhood character. Additional mitigation language has also been added to ensure compatibility with the cultural character of Chinatown (see Response to Comment T-2).

**PH-56**

See Responses to Comments A-4 and AL-2 for a detailed discussion of the required procedures to minimize the impact to displaced businesses and residents. Alternative 3B would result in the displacement of eight businesses and 17 residential units in Chinatown and one business at the Moscone Station. Chapter 6.0 of the SEIS/SEIR outlines the potential construction impacts and recommended mitigation measures to minimize the construction-related impacts.

**PH-57**

Comment supporting the Central Subway Project and the potential for increasing the transit mode share is noted.

**Commissioner Bill Lee****PH-58**

Concern regarding the potential loss of affordable housing units is noted. As noted in the mitigation measures for each of the alternatives on pages 6-52 through 6-54, redevelopment of the station sites in Chinatown with affordable housing is recommended to minimize the impact of the displacement of existing affordable housing units. As noted in Response to Comment PH27, the number of replacement units would likely result in a net increase of affordable housing upon completion of the proposed Central Subway station site redevelopment.

**PH-59**

As noted in Chapter 6.0, the use of a tunnel boring machine during the construction of the subway would reduce the surface impacts along Fourth Street and Stockton Street (see pages 6-35).

**PH-60**

See Responses to Comments C2/C3 and AA-29 for a discussion of how transfers would be accommodated.

**PH-61**

Underground retail is not proposed as part of the Central Subway Project, but there would be opportunities in the future to provide connections to the underground stations.

**PH-62**

See Responses to Comments W-5 and W-6 for ensuring that local residents are informed of job opportunities associated with the project.

**PH-63**

Comment regarding future extension of the rail line to North Beach is noted. See Response to Comment AA-1 for a full discussion of project history and how the northern project boundary was established at Jackson Street. The future extension of rail service to North Beach would be facilitated by the North Beach Construction Variant tunnel construction, but a North Beach extension and station would be the subject of a future independent analysis.

**Commissioner Sugaya****PH-64**

The potential impacts on historic architectural resources are discussed in Section 5.4.3 (operation impacts), pages 5-21 to 5-25 and 6.7.2.1 (construction-related impacts), pages 6-72 to 6-82. Additional mitigation measures have been added to this section to provide further protection of historic structures during construction in response to comments provided by the Landmark Preservation Advisory Board (see Response to Comments AH-4 and AH-5). No further comments were received from Mr. Sugaya.



## **5.0 STAFF INITIATED TEXT CHANGES**

This chapter contains changes to the text of the SEIS/SEIR that were determined appropriate by the SEIS/SEIR preparers subsequent to publication of the SEIS/SEIR. These changes generally clarify text in the SEIS/SEIR or provide updated information. The changes are presented by chapter. For major changes in data, explanations of the changes are provided below. Minor editing changes, such as spelling or grammatical corrections have not specifically been noted in this chapter, but are included in Volume 1.0, Final SEIS/SEIR.

There are eleven major changes in text that were initiated by the SEIS/SEIR preparers. These are summarized below.

- **Operational Plan for the T-Third** – Further work undertaken by the SFMTA staff to optimize the transit operating plan was incorporated into the analysis completed for the Central Subway. This required changes to the transit operation descriptions as well as cost estimates that were based on the revised operations plan.
- **Travel Demand Forecasts** - Since the preparation of the Draft SEIS/SEIR was initiated, the San Francisco Transportation Authority has updated the San Francisco CHAMP travel demand forecasting model. Model inputs such as travel behavior characteristics and modal choice assumptions were revised; greater detail was added to the model zone system; and the transportation network was updated. The model was then recalibrated to the base year. With the updated inputs, new travel demand forecasts were generated for the Central Subway Project using the refined operational plan for the T-Third line. These new ridership projections showed lower ridership on the T-Third line and on the Central Subway corridor than previously reported.

Use of the updated travel demand forecasts brings the ridership for the Final SEIS/SEIR into consistency with the New Starts assumptions from the 2007 submission to FTA.

The SEIS/SEIR has been revised to incorporate the new assumptions and the updated daily trip projections, the T-Third and Central Subway ridership, and the modified travel times. These new projections and travel time results were also incorporated into updated project Operations & Maintenance costs and cost-effectiveness ratings for the project.

- **Traffic Level of Service** – The traffic level of service analysis was also updated to reflect more refined assumptions on signalization and traffic operations at each intersection. This resulted in

changes to the level of service during the a.m. peak hour of analysis and changes in the projected delays for the p.m. peak hour.

- **Parking Updates** – Additional parking counts were conducted on the block of Stockton Street between Washington and Jackson Streets, where the Chinatown Station is proposed under Alternative 3B, and updates were provided to reflect additional parking loss on Ellis Street to accommodate expansion of the existing BART station access/egress for emergency exiting. In addition, errors in the parking loss summary for the Fourth Street blocks between Townsend and Bryant Streets were corrected for the semi-exclusive and mixed-flow options of Alternative 3B.
- **Clarification of Mezzanine and Concourse levels of subway stations** – Text was revised throughout the document to clarify the distinction between the concourse (public passenger area) and the mezzanine (non-public areas accommodating staff functions and equipment storage) levels.
- **Adoption of Alternative 3B as the Locally Preferred Alternative (LPA)** – The SFMTA Board adopted Alternative 3A as the Locally Preferred Alternative in June 2005 and that was reflected in the Draft SEIS/SEIR. On February 19, 2008, the SFMTA Board adopted Alternative 3B as the LPA. This change was incorporated into the FEIS/FEIR.
- **Mitigation Monitoring and Reporting Program** – A Mitigation Monitoring and Reporting Program has been drafted for the Project. This is included in a new Appendix I.
- **Concurrence of “De Minimis” finding from Recreation and Parks Commission** – At the February 21 meeting of the San Francisco Recreation and Parks Commission they concurred with a “de minimis finding for impacts to Union Square Park for Alternative 3B, the newly selected Locally Preferred Alternative. A copy of Resolution No. 0802-011, dated February 21, 2008 is included in a new Appendix J.
- **Text Revisions to note required changes to Planning Code** – Section 812..1.39b of the San Francisco Planning Code prohibits demolitions of residences in Chinatown. To construct the Chinatown Station, an amendment to the Planning Code would be required.
- **Update to the New Starts Process** – FTA has requested that the Final SEIS/SEIR include an update to the New Starts Process which is included in Chapter 9.0.
- **Final SEIS/SEIR Distribution List** – The distribution list for the Final SEIS/SEIR has been included in Chapter 11.0.

None of these changes resulted in the identification of new significant environmental impacts.

The proposed text changes follow by Chapter of the SEIS/SEIR. Text additions are noted by an underline and text deletions are noted by a ~~striketrough~~.

## **ABSTRACT**

Revisions to the 1998 EIS/EIR Alternative are clarified in the second sentence, second paragraph:

“These changes include: a new double-track segment along Fourth and Stockton Streets between Brannan and Market Streets as an alternative to use of Third, Harrison, Kearny, and Geary Streets; extension of the planning horizon year from 2015 to 2030; the addition of above ground ventilation shafts for tunnel segments and stations; the use of off-street access to stations; a deep tunnel under Market Street; and the potential extension of a construction tunnel to the north end of the Project near Washington Square under Columbus Avenue for removing the tunnel boring machine.”

The fourth and fifth sentences of the third bullet, Alternative 3B description are revised as follows:

“The primary entrance to the Union Square station for Option B would be on the Geary Street side of the plaza rather than the Stockton Street side; and vent shafts, ~~but~~ would be in the Ellis/O’Farrell garage rather than the plaza, minimizing impacts to the plaza park. The Chinatown Station entrance for Option B would be located on the west side of Stockton Street ~~between~~ at the corner of Clay and Washington Streets, and would not affect Willie “Woo Woo” Wong Playground.”

The last sentence, last paragraph is revised as follows:

“Unavoidable impacts are described for: traffic at Third and King, Fourth and King, Fourth and Harrison, and Sixth and Brannan Streets; displacement of affordable housing units; and for prehistoric archaeological resources during construction and potential impacts to potentially eligible historic architectural buildings and ~~Districts in the~~ Chinatown ~~and Union Square Station areas~~ Historic District. Impacts to Section 4(f) properties meet the criteria for a “de minimis” impact finding.”

## **PREFACE**

The first paragraph and the first sentence of the second paragraph of the Preface are revised as follows:

“This Final Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report (SEIS/SEIR) is presented in two volumes: Volume I is the SEIS/SEIR with

text changes resulting from responses to comments on the Draft SEIS/SEIR, and from the Public Hearing, and also includes Staff Initiated Changes between the Draft and Final SEIS/SEIR. Volume II includes copies of all comment letters on the Draft SEIS/SEIR, copies of comment forms from the Public Hearings, and the transcript from the Public Hearing. Each comment letter and form is followed by responses to comments. The staff-initiated text changes follow by Chapter of the SEIS/SEIR. Text additions are noted by an underline and text deletions are noted by a strikethrough. The two volumes constitute the Final SEIS/SEIR.

The SEIS/SEIR is prepared pursuant to the requirements of both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA)."

The following text is added to the end of the second paragraph, last page of the Preface"

"Concurrence with a "de minimis" finding for impacts to Union Square Park by the Recreation and Parks Commission is attached as Appendix J. This satisfies the Section 4(f) requirement for the Project."

## **EXECUTIVE SUMMARY**

The last sentence, second paragraph, page S-1 is revised as follows:

"...extension of the planning horizon year from 2015 to 2030; the addition of above ground ventilation shafts for tunnel segments and stations; the use of off-street access to stations; a deep tunnel under Market Street; and the potential extension of a construction tunnel under Stockton Street and Columbus Avenue to the north end of the Project near Washington Square for removing the Tunnel Boring Machine (TBM)."

Table S-1, page S-5 is revised to included updated ridership projections as follows:

2030 Weekday Ridership T-Third Line	<del>60,030</del> <u>24,600</u>	<del>89,790</del> <u>76,300</u>	<del>88,840</del> <u>77,600</u>	<del>99,230</del> <u>76,600</u>
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The first sentence, last paragraph, page S-5 is revised as follows:

"The No Project/TSM Alternative has a projected weekday ridership of ~~60,030~~ 24,600 passengers for 2030 on the T-Third Line."

The following text is added at the end of the third paragraph, page S-7:

“Platform lengths would be approximately 250 feet at all subway stations.”

The first sentence, first paragraph, page S-8 is revised as follows:

The Enhanced EIS/EIR Alignment has a projected weekday ridership of ~~89,790~~ 76,300 passengers for the year 2030 on the T-Third Line.

The second to last sentence, second paragraph, page S-8 is revised as follows:

“It would continue north under Fourth and Stockton Streets as a double-track operation to a terminus in the vicinity of Stockton and Jackson Streets.”

The first sentence, last paragraph, page S-8 is revised as follows:

“This alternative was selected as the Locally Preferred Alternative (LPA) by the MTA Board at its meeting of June 7, 2005, but was replaced by Alternative 3B as the LPA by MTA Board action on February 19, 2008.”

The first sentence, second paragraph, page S-9 is revised as follows:

“The subway station platforms would be 200-250 feet in length (~~compared with 250 feet in similar to Alternative 2~~) and narrower in of varying widths and ~~but~~ would accommodate ~~two-three~~ car trains using high-floor LRVs.”

The first sentence, third paragraph, page S-9 is revised as follows:

“Alternative 3A has a projected weekday ridership of ~~88,840~~ 77,600 passengers for 2030 on”

The following text is added as the first sentence, fourth paragraph, page S-9:

“This alternative was selected as the LPA by the MTA Board on February 19, 2008, replacing Alternative 3A.”

The following text is added to the end of the fourth paragraph, page S-9:

“The subway platforms would be 200 feet in length (compared to 250 feet in Alternative 3A) and 26 feet in width and would accommodate two-car trains using high-floor LRVs.

The first sentence, sixth paragraph, page S-9 is revised as follows:

“Alternative 3B has a projected weekday ridership of ~~99,230~~ 76,600 passengers for 2030 on the T-Third Line.”

The San Francisco Planning Commission , Department of Recreation and Parks, and San Francisco Board of Supervisors entries in Table S-10 on page S-41 are revised as follows:

San Francisco Planning Commission	General Plan Review/Referral for all aspects of project which occur in public rights-of-way, and amendments to appropriate portions of General Plan, Transportation Element, <u>and Planning Code.</u>
San Francisco Department of Recreation and Parks	Section 4(f) “de minimis” approval. Prop. K review and approval for shadow analysis. <del>Long-term encroachment permits for Union Square plaza.</del>
San Francisco Board of Supervisors	Approval of General Plan <u>and Planning Code</u> amendments. Adoption of Redevelopment Plan amendments. Approval of property acquisitions, including eminent domain. Approvals required for use of City rights-of-way and Park property.

The first paragraph, page S-11 is revised as follows:

“Townsend and Brannan Streets, one block south of the original location, with a single portal remaining on Fourth Street between Brannan and Bryant Streets; and, (2) a double-track portal on Fourth Street between Townsend and Brannan Streets that used a two-track alignment via Third, Fourth, Harrison, Kearny, Geary Streets and Stockton Streets. The public preference was for a double-portal on Fourth Street. Members of the public also suggested a Fourth Street alignment, which was possible using a deep crossing at Fourth/Stockton and Market Streets.”

The second sentence, second paragraph, page S-11 is revised as follows:

“It maintained the Chinatown Station on Stockton Street ~~in the vicinity of Clay and Washington Streets~~ at Clay Street, combined the Union Square/Market Street Stations with northern entries in the vicinity of Union Square and southern entries using BART/Muni Metro Powell Street Station entrances; and relocated the Moscone Station to Fourth Street between Howard and Folsom Streets.”

The last two sentences, last paragraph, page S-11 are revised as follows:

“After the publication of the NOP in June 2005, a Fourth/Stockton Alignment Option B was developed based on public input, and design studies and to reduce the costs of the Project. This option reduced the size of the stations and provided new station entrance options for Union Square/Market Street and a new station location and entrance options for Chinatown. On February 19, 2008, subsequent to publication of the Draft SEIS/SEIR, the MTA Board voted to replace Alternative 3A with Alternative 3B as the LPA.”

The fourth to sixth sentences, first paragraph, page S-12 are revised as follows:

“Muni’s total LRV fleet size, including spares, would be 175 LRVs though the peak demand would vary from ~~127-130-139-142~~ LRVs by alternative. The diesel bus fleet would ~~remain the same as~~ increase by 23 buses from the existing condition in 2030 for all alternatives, but ~~and No Project/TSM fleets, with the same peak demand would not change~~. The trolley bus fleet would ~~remain the same~~ increase by five buses in 2030, but peak demand would be reduced by six trolleys over existing conditions and by eleven trolleys over No Project/TSM with the Project.”

Table S-2, page S-12 is revised as follows:

**TABLE S-2**  
**ANNUAL OPERATING STATISTICS**

Alternative	Peak Headways 9-X Line <sup>2</sup>	Diesel/Trolley Peak Demand (Systemwide Fleet size) <sup>1</sup>	Total Annual Diesel/Trolley Bus Hours (Systemwide) <sup>1</sup>	Peak Headways T-Third <sup>2</sup>	LRV Fleet Peak Demand <sup>3</sup> (Systemwide Fleet size) <sup>4,3</sup>	Total Annual LRV Car Hours T-Line (Systemwide)
Existing (2007) T-Third	5 minutes	377 (495-473) diesel buses; 225 (333-331) trolley buses	2,592,230	9 minutes	118-119 (151) LRVs	84,800 109,400 (568,500) (570,200)
No Project/TSM (2030)	5 minutes	377 (495) diesel buses; 230 (333-336) trolley buses	2,622,030	7 minutes	129-137 (171) LRVs	80,400 117,000 (609,500) (602,700)
Enhanced EIS/EIR Alignment (2030)	5 minutes	377 (495) diesel buses; 219 (333-336) trolley buses	2,545,630	5-6 minutes	130-142 (175) LRVs	87,500 83,900 (591,200) <sup>3</sup> (621,800) <sup>3</sup>
Fourth/Stockton Alignment Option A (2030)	5 minutes	377 (495) diesel buses; 219 (333-336) trolley buses	2,545,630	5-6 minutes	127-139 (175) LRVs	78,000 76,700 (581,700) <sup>3</sup> (614,500) <sup>3</sup>
Fourth/Stockton Alignment Option B (2030)	5 minutes	377 (495) diesel buses; 219 (333-336) trolley buses	2,545,630	5-6 minutes	130-140 (175) LRVs	86,400 78,000 (590,100) <sup>3</sup> (615,900) <sup>3</sup>
Notes: <sup>1</sup> Source for 2007 bus equipment demand and bus hours is the Muni 2006-2025 Short Range Transit Plan, December 2005 and Dan Rosen, MTA, May 2007. <u>Revised Dan Rosen, MTA, January 2008.</u> <sup>2</sup> Headway refers to the time between transit vehicles on a given line. <sup>3</sup> Assumes one-car trains operating in the peak for the Central Subway on both the long and short lines <u>and two car trains on the very short line.</u>						

The last sentence, last paragraph, page S-12 is revised as follows:

“Site-specific ~~detailed conceptual~~ engineering was used to develop capital costs for the proposed stations.”

The second to last sentence, first paragraph, page S-13 is revised as follows:

“Escalation factors were applied to the ~~Project costs~~ to account for ~~recent~~ escalation trends experienced in major transportation infrastructure projects to arrive at ~~2007 Year-of-~~ Expenditure (YOE) costs.”

The third paragraph, page S-14 is revised as follows:

“Table S-4 summarizes the ~~total~~ annual operating and maintenance costs for the Muni system, broken out by vehicle type, for each alternative.”



Table S-4, page S-14 is revised as follows:

**TABLE S-4**  
**~~OPERATING~~ OPERATING AND MAINTENANCE COST SUMMARY**  
**(MILLIONS \$ / YEAR OF OPERATING EXPENSES)**

	No Project	Alternative 2	Alternative 3A	Alternative 3B
2016	<del>\$707.9</del> <u>\$852.61</u>	<del>\$693.4</del> <u>\$852.73</u>	<del>\$693.0</del> <u>\$849.65</u>	<del>\$693.2</del> <u>\$849.91</u>
2030	<del>\$1,145.9</del> <u>\$1,261.49</u>	<del>\$1,122.3</del> <u>\$1,262.13</u>	<del>\$1,121.7</del> <u>\$1,257.77</u>	<del>\$1,122.1</del> <u>\$1,258.31</u>
<b>Increment Over No Project/TSM</b>				
2016	N/A	<del>(\$14.3)</del> <u>\$0.11</u>	<del>(\$14.9)</del> <u>(\$2.96)</u>	<del>(\$14.7)</del> <u>(\$3.20)</u>
2030	N/A	<del>(\$23.6)</del> <u>\$0.64</u>	<del>(\$24.2)</del> <u>(\$3.72)</u>	<del>(\$23.8)</del> <u>(\$3.18)</u>
Source: <del>MTA, May 2007</del> AECOM Consult Inc. April, 2008.				

The first and third sentences, last paragraph, page S-14 are revised as follows:

“Table S-5 presents the existing and 2030 weekday transit ridership estimates for the corridor. Currently about ~~92,870 person-trips~~ 93,300 transit trips are made in the Corridor each weekday...By 2030, it is estimated that transit ridership would increase to somewhere between ~~147,450~~ 142,600 and ~~162,610~~ 145,200 passengers in the Corridor depending on the Alternative.”

Table S-5, page S-15 is revised as follows to reflect the updated ridership projections for the Central Subway Project.

The last sentence, first paragraph, page S-15 is revised as follows to reflect updated ridership projections.

“The introduction of light rail in exclusive or semi-exclusive in the Central Subway Corridor would reduce the travel times for Muni patrons to between ~~5.0~~ 4.6 and 7.0 minutes as noted for the Build Alternatives.”

**TABLE S-5**  
**ESTIMATED WEEKDAY TRANSIT RIDERSHIP**  
**EXISTING AND 2030 CONDITIONS**

LRT/BUS LINE	2000	2030 NO PROJECT/TSM	2030 ENHANCED EIS/EIR ALIGNMENT	2030 FOURTH / STOCKTON ALIGNMENT OPTION A (LPA)	2030 FOURTH / STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)
<b>CORRIDOR BOARDINGS</b>					
RAIL					
T Long Line <sup>1</sup>	n/a	<del>60,030</del> <u>24,600</u> <sup>4</sup>	<del>59,710</del> <u>44,500</u>	<del>60,670</del> <u>45,800</u>	<del>65,830</del> <u>44,900</u>
T Short Line	n/a	n/a	<del>30,080</del> <u>18,900</u>	<del>28,170</del> <u>19,000</u>	<del>33,400</del> <u>18,900</u>
T-Third Very Short Line	n/a	n/a	<u>12,900</u>	<u>12,800</u>	<u>12,800</u>
<b>Subtotal</b>		<b><del>60,030</del> <u>24,600</u></b>	<b><del>89,790</del> <u>76,300</u></b>	<b><del>88,840</del> <u>77,600</u></b>	<b><del>99,230</del> <u>76,600</u></b>
BUS					
Line 15 <sup>2</sup>	<del>31,130</del> <u>28,300</u>	n/a	n/a	n/a	n/a
Lines 9X, 9AX, 9BX	<del>9,320</del> <u>10,600</u>	<del>29,560</del> <u>23,000</u>	<del>30,790</del> <u>22,300</u>	<del>30,760</del> <u>20,800</u>	<del>24,770</del> <u>21,200</u>
Lines 30, 45 <sup>3</sup>	<del>52,420</del> <u>54,400</u>	<del>57,860</del> <u>76,600</u>	<del>42,030</del> <u>46,600</u>	<del>42,510</del> <u>44,800</u>	<del>38,290</del> <u>44,800</u>
<b>Subtotal</b>	<b><del>92,870</del> <u>93,300</u></b>	<b><del>87,420</del> <u>99,600</u></b>	<b><del>72,820</del> <u>68,900</u></b>	<b><del>73,270</del> <u>65,600</u></b>	<b><del>63,060</del> <u>66,000</u></b>
<b>TOTAL IN CORRIDOR:</b>	<b><del>92,870</del> <u>93,300</u></b>	<b><del>147,450</del> <u>124,200</u></b>	<b><del>162,610</del> <u>145,200</u></b>	<b><del>162,110</del> <u>143,200</u></b>	<b><del>162,290</del> <u>142,600</u></b>
<b>Increase Over Existing:</b>	<b>0</b>	<b><del>54,580</del> <u>30,900</u></b>	<b><del>69,740</del> <u>51,900</u></b>	<b><del>69,240</del> <u>49,900</u></b>	<b><del>69,420</del> <u>49,300</u></b>
Increase Over No Project/TSM:	0	0	<del>15,160</del> <u>21,000</u>	<del>14,660</del> <u>19,000</u>	<del>14,840</del> <u>18,400</u>
Notes: <sup>1</sup> Central Subways T-Third long_line to Visitation Valley, <del>and T-Third short-line to 18<sup>th</sup> and Third Streets, and T-Third very short line to Fourth and Townsend Streets..</del> <sup>2</sup> Line 15-Third shifts to 9X San Bruno. <sup>3</sup> 45 Extended into Mission Bay n/a Not Applicable <u>Ridership is defined as the number of passengers boarding.</u> Source: San Francisco Model, January 2007. Revised 2008.					

The first through third paragraphs, page S-16 and continuing on page S-17 are revised as follows:

“In 2030, under the No Project/TSM Alternative three of the five Study Area intersections (~~Third/Fourth/King Streets, Fourth/Harrison Streets, and Sixth/Brannan Streets~~) would operate at LOS E or F in the a.m. and p.m. peak hour ~~and three intersections (Third/King Streets, Fourth/King Streets, and Sixth/Brannan Streets) would operate at LOS F in the p.m. peak hour.~~ While most of these intersections already operate at LOS E or F as they serve as the major access points to the regional freeway system, the traffic delays would increase in the future. For the No Project/TSM Alternative, the ~~Fourth and Harrison~~ Third and King Streets intersection would degrade from LOS ~~B-D~~ D to LOS E in the a.m. peak

hour. ~~Implementation of striping changes at the Fourth/Harrison intersection would mitigate these adverse impacts.~~

Implementation of the Enhanced EIS/EIR Alignment would reduce traffic delays on Fourth Street in the a.m. peak hour, but would increase delays experienced by motorists at the Third and King Streets and Sixth and Brannan Streets intersections when compared to the No Project/TSM Alternative. The intersection of Third and King Streets would degrade from LOS ~~D-E~~ to LOS F in the a.m. peak hour as a result of the implementation of this alternative and the Sixth and Brannan Streets intersection would continue to operate at LOS F. During the p.m. peak hour, the Third and King, ~~Fourth and King~~, and Sixth and Brannan Streets intersections would all continue to operate at LOS F, but with increased delays.

Implementation of either the Fourth/Stockton Alignment Option A or Option B rather than the Enhanced EIS/EIR Alignment would alleviate some of the delays on Third Street, but result in greater delays on Fourth Street. The Third and King and Sixth and Brannan Streets intersections under Alternatives 3A or 3B would operate as LOS F during the a.m. (a degradation from LOS ~~D-E~~ at Third/King Streets resulting from the Project) and p.m. peak hour (continued LOS F operation) while the Fourth and King Streets intersection would continue to operate at LOS E during the a.m. peak hour and LOS F during the p.m. peak hour. The intersection of Fourth and Harrison Streets would degrade from LOS ~~B-C~~ to LOS F for Alternative 3B in the a.m. peak hour and from LOS ~~B~~ to LOS E for Alternative 3A and to LOS F for Alternative 3B in the p.m. peak hour.”

The last sentence, third paragraph, page S-17 is revised as follows:

“The Fourth/Stockton Alignment Option B would eliminate 82 on-street parking spaces under the semi-exclusive option and ~~81~~79 parking spaces under the mixed-flow option (this option also retains some off-peak spaces on Fourth Street) in the Fourth and Stockton Street segments identified above.”

The last sentence, first paragraph, page S-18 is revised as follows:

“Under Alternative 3B, the pedestrian level of service would be reduced to LOS B, at the Chinatown Station, as a result of the increase in pedestrian activity rather than a reduction of effective sidewalk width.”

The following text is added to the end of the second sentence, fourth paragraph, page S-18:

“There would also be a temporary increase in truck traffic along the light rail alignment as a result of truck traffic associated with the removal of excavated soils and backfill around the guideway and station areas and delivery of materials.”

Table S-7, page S-19 is revised as noted on the following page.

The first two bullets, page S-32 are revised as follows:

- “traffic impacts in 2030 at the following locations: Fourth/Harrison Streets intersection (~~No Project/TSM Alternative – LOS B to LOS E in a.m. peak hour, Alternative 3A, LOS B-C to LOS E in a.p.m. peak hour, and Alternative 3B – LOS B-C to LOS F in a.m. and p.m. peak hour~~) and Third/King Streets intersection (Alternatives 2, 3A, and 3B – ~~LOS D-E to LOS F in a.m. peak hour~~) all as a result of project implementation.”
- “displacement of 10 small businesses (10 or fewer employees) ~~and 1 or 2 residential units~~ for Alternatives 2 and 3A and displacement of 8 small businesses (10 or fewer employees) and 17 residential units (which would require a Planning Code amendment) for Alternative 3B in the predominantly minority and low-income Chinatown neighborhood;”

The second sentence, last paragraph starting on page S-33 and continuing to page S-34 is revised as follows:

“It has been determined that this use of the plaza would not be considered a significant impact and a de ~~minus~~ minimis finding for impact on Section 4(f) resources ~~is anticipated for Alternative 3B has been concurred with by the Recreation and Parks Commission (see Appendix J) to satisfy Section 4(f) requirements.~~”

TABLE S-7

## SUMMARY OF SIGNIFICANT ENVIRONMENTAL IMPACTS

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
<b>TRANSPORTATION Traffic</b> Operation/Cumulative	<p><i>Significant Impacts:</i> Increases in traffic congestion and delays would occur in 2030 at all of the five intersections evaluated as a result of cumulative traffic growth. <del>Third/King (a.m. peak only), Streets intersection would degrade from LOS E to LOS F in the a.m. peak hour and would continue to operate at LOS F in the p.m. peak hour. Fourth/King, and Sixth/Brannan Streets intersections would continue to operate at LOS E or F conditions in the a.m. and p.m. peak hours. The intersection of Fourth and Harrison Streets would degrade from LOS B to LOS E when compared to the existing conditions.</del></p> <p><i>Mitigation Measure:</i> <del>Restriping the southbound curb lane of Fourth Street to accommodate a shared through/right turn lane to Harrison Street would mitigate the impacts to LOS B resulting in a less than significant impact.</del></p> <p><i>Significant environmental</i></p>	<p><i>Significant Impacts:</i> Increases in traffic congestion and delays would occur in 2030 at three out of the five intersections evaluated. The Project would have a significant traffic impact at the Third/King Streets intersection in the a.m. peak hour due to degradation in LOS from <del>D-E</del> to F when compared to the No Project/TSM Alternative and a cumulatively considerable contribution to the cumulative traffic impacts at the Sixth/Brannan Streets intersection during the p.m. peak hour in 2030.</p> <p><i>Significant environmental effects which can not be avoided:</i> The traffic impacts at Third/King and Sixth/Brannan Streets intersections could not be reasonably mitigated to a less-than-significant level.</p>	<p><i>Significant Impacts:</i> Increases in traffic congestion and delays would occur in 2030 at three out of the five intersections evaluated. The Project would have a significant traffic impact at the Third/King Streets intersection in the a.m. peak hour due to a degradation in LOS from <del>D-E</del> to F and at the Fourth/Harrison Streets intersection in the p.m. peak hour due to a degradation in LOS from C to E when compared to the No Project/TSM Alternative. This alternative would have a cumulatively considerable contribution to the adverse cumulative traffic impacts at the King Street intersections with Third and Fourth Streets and the Fourth/Harrison Streets intersection during the p.m. peak hour in 2030.</p> <p><i>Mitigation Measure:</i> Restriping the southbound curb lane of Fourth Street to accommodate a shared through/right-turn lane to Harrison Street would mitigate the impacts to LOS B resulting in a less-than-significant</p>	<p><i>Significant Impacts:</i> 1. Same as Alternative 3A, except the Project would also have a significant impact at the <del>Fourth/Harrison Streets intersection during the a.m. peak hour when compared to the No Project/TSM Alternative and a cumulatively considerable impact on the cumulative traffic impacts at the King Street and Third Streets intersection during a.m. peak hour and the Fourth/Harrison Streets intersection during the p.m. peak hour in 2030.</del></p> <p>2. In addition, the portal at Fourth Street under I-80 may restrict access to the proposed bus storage facility at Perry Street and large truck movements onto Stillman Street.</p> <p><i>Mitigation Measures:</i> Same as Alternative 3A, except MTA will explore design modifications to the portal with the TJPA and Golden Gate Transit options that will permit bus access to Perry Street and truck access to Stillman Street that will reduce the impacts to a less-than-significant level.</p>

	<p><i>effects which can not be avoided:</i></p> <p><del>None of the remaining traffic impacts could be reasonably mitigated.</del> <u>The traffic impacts at Third/King, Fourth/King, and Sixth/Brannan Streets intersections could not be reasonably mitigated to a less-than-significant level.</u></p>		<p>impact.</p> <p><i>Significant environmental effects which can not be avoided:</i></p> <p>The traffic impacts at the Third/King and Fourth/King Streets intersections could not be reasonably mitigated to a less- than-significant level.</p>	<p><i>Significant environmental effects which can not be avoided:</i></p> <p>Same as Alternative 3A.</p>
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The last sentence, fourth paragraph and the fifth paragraph, page S-35 are revised as follows:

“The increase in cost over time reflects an assumed inflation rate of ~~3.5~~2.3 percent.

Due to a faster and more direct alignment, Alternative 3A creates an annual reduction of ~~2,400~~ 40,300 LRV car hours on the Central Subway Corridor and a system-wide annual ~~reduction-increase~~ of ~~27,800~~11,900 car hours when compared to the No Project/TSM Alternative. Alternative 3A would also reduce the number of system-wide annual bus hours by 76,400. Alternative 3B would save the same number of annual bus hours, however, it would ~~increase~~ reduce the annual LRV car hours by ~~6,000~~39,000 on the Central Subway Corridor, while ~~reducing-increasing~~ by ~~19,400~~13,200 the system-wide LRV hours compared to the No Project/TSM Alternative. Alternative 2 ~~yields-would~~ result in an annual increase-decrease of ~~7,100~~33,100 LRV car hours, a system-wide annual ~~reduction-increase~~ of ~~18,300~~19,100 car hours, and would reduce the number of system-wide annual bus hours by 76,400 when compared to the No Project/TSM Alternative.”

The first paragraph, page S-36 is revised as follows:

“A total of ~~\$432.2~~\$473 million in state and local capital funding has been committed to the Central Subway Project. In addition, the MTA is currently seeking \$762.2 million in federal “New Starts” funding, for a total of ~~\$1,194.4~~ \$1,235 million in capital funding identified for the Project (see Table S-8). ~~Additional regional and state funding is being pursued to eliminate the funding shortfall.~~”

Table S-8 is revised as follows:

**TABLE S-8**  
**CENTRAL SUBWAY CAPITAL FUNDING PLAN (\$MILLIONS)**

Source	Amount
Federal-5309 New Starts	\$762
State	\$306
Local	<del>\$126</del> <u>167</u>
<b>Total</b>	<b><del>\$1,194</del> <u>\$1,235</u></b>
Source: MTA Central Subway FY2008 New Starts Financial Plan.	

Table S-9, page S-37 is revised as noted on the following page.

**TABLE S-9**  
**SUMMARY OF MOBILITY IMPROVEMENTS EVALUATION**

Performance Measures	No Project/TSM Alternative	Central Subway Alternatives		
		Enhanced EIS/EIR Alignment	Fourth/Stockton Alignment Option A	Fourth/Stockton Alignment Option B
<b>MOBILITY IMPROVEMENTS</b>				
<b>FTA Performance Measures</b>				
Hours of Transportation User Benefits	○	●	●●	●●
Low Income Households Served	●	●	●	●
Employment Near Stations	●	●	●	●
<b>Local Performance Measures</b>				
Daily Linked Transit Trips	○	●	●●	●●
Exclusive ROW for Transit	○	●	●	●
Travel Time Between Selected Origins & Destinations	○	●	●	●
Average Operating Speed for Transit	●	●	●	●
Compatibility with SFTA's <i>Four-Corridor Plan</i>	○	●	●	●
<b>ENVIRONMENTAL BENEFITS</b>				
<b>FTA Performance Measures</b>				
Change in Regional Air Pollutant Emissions	○	●	●	●
Change in Greenhouse Gases	○	●	●	●
Change in Regional Energy Consumption	○	●	○	●
EPA Air Quality Designation	○	○	○	○
<b>Local Performance Measures</b>				
Partial and Full Property Acquisitions	●	●●	●●	○
Affected Parkland/Cultural Sites	●	●	●	●
Visual, Noise, and Vibration	●	●	●	●
Displaced Parking During Construction	●	●○	●●	●●
<b>OPERATING EFFICIENCIES</b>				
<b>FTA Performance Measures</b>				
Systemwide Operating Cost per Passenger Mile <sup>(1)</sup>	<del>\$0.57</del> \$1.24	<del>\$0.58</del> \$1.25	<del>\$0.57</del> \$1.24	<del>\$0.57</del> \$1.24
<b>Local Performance Measures</b>				
Systemwide Operating Cost per Passenger <sup>(1)</sup>	<del>\$1.82</del> \$2.34	<del>\$1.63</del> \$2.31	<del>\$1.56</del> \$2.29	<del>\$1.52</del> \$2.29
Bus Operating Cost per Revenue Bus Hour <sup>(2)</sup>	\$254.00 <del>\$140.02</del>	<del>\$209.00</del> \$140.34	<del>\$209.00</del> \$140.32	<del>\$209.00</del> \$140.32



Performance Measures	No Project/TSM Alternative	Central Subway Alternatives		
		Enhanced EIS/EIR Alignment	Fourth/Stockton Alignment Option A	Fourth/Stockton Alignment Option B
Light Rail Operating Cost per Revenue Train Hour <sup>(2)</sup>	<del>\$303.00</del> \$248.20	<del>\$298.00</del> -\$260.32	<del>\$305.00</del> -\$259.98	<del>\$299.00</del> -\$259.84
<b>COST EFFECTIVENESS</b>				
<b>FTA Performance Measures</b>				
Incremental Cost per Hour of Transportation System User Benefit	--	\$33.58-\$30.31	\$22.73-\$21.12	\$18.36-\$21.24?
<b>TRANSIT SUPPORTIVE LAND USE AND FUTURE PATTERNS</b>				
<b>FTA Performance Measures</b>				
Existing Land Use	●	●	●	●
Transit Supportive Plans and Policies	●	●	●	●
Performance and Impacts of Policies	●	●	●	●
Other Land Use Considerations	●	●	●	●
<b>Local Performance Measures</b>				
Compatible with City and Area Plans	○	●	●	●
Support Revitalization Opportunities along the Central Subway Corridor Adjacent to Transit Stops/Stations	○	●	●	●
Project Serves Major Activity Centers	●	●	●	●
<b>OTHER LOCAL CRITERIA</b>				
Travel Time from Fourth/King to Market/Third/Fourth	○	●●	●	●●
Travel Time from Fourth/King to Stockton/Washington	○	●	●	●
Parking supply and on-street loading zones on or near Third/Fourth Streets and Stockton Street	●	○	●	●
Community Acceptance and Political Support	○	●	●	●
<b>LOCAL FINANCIAL COMMITMENT</b>				
<b>FTA Performance Measures</b>				
Stability and Reliability of Capital Financing Plan	--	●	●	●
Stability and Reliability of Operating Financing Plan	○	●	●	●
Local Share to Project Costs	--	●	●	●
Capital Costs Compared to Funding	--	●	●	●●
Operating Costs Compared to Funding	●	●	●	●
●-High, ●-Medium High, ●-Medium, ○-Medium Low, ○-Low				

Table S-10, page S-41, rows related to Bay Area Rapid Transit District and San Francisco Department of Recreation and Parks are revised as follows:

Bay Area Rapid Transit District (BART)	Amendment of joint use agreement for Powell Street sStation <del>reviews</del> , project review, and approval for joint use of station.
San Francisco Department of Recreation and Parks	Section 4(f) “de minimis” approval. Prop. K review and approval for shadow analysis. <del>Long-term encroachment permits for Union Square plaza.</del>

## Chapter 1.0 Purpose and Need

The text of the last two sentences, first paragraph, page 1-1 is revised as follows:

“This Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report (SEIS/SEIR) updates information in the Central Subway Project Study Area and focuses on changes to the Central Subway portion of the Third Street Light Rail Project that have occurred since the certification of the 1998 Final Environmental Impact ~~Study Statement~~ and Final Environmental Impact Report (FEIS/FEIR). Proposed changes to the Central Subway portion of the light rail project include: a new segment along Fourth Street between ~~Brannan-Harrison~~ and Market Streets and along Stockton Street between Market and Geary Streets as an alternative to use of Third, Harrison, Kearny, and Geary Streets; extension of the planning horizon year from 2015 to 2030; the addition of above ground ventilation shafts for tunnel segments and stations; the use of off-street access to stations; a deep tunnel under Market Street; a closed barrier fare system; and the potential extension of a construction tunnel under Stockton Street and Columbus Avenue to the north end of the Project near Washington Square for removing the Tunnel Boring Machine (TBM).”

The second sentence, third paragraph, page 1-5 is revised as follows:

“The Third Street Light Rail Project was intended to address the inequality of transit connections to the Muni Metro rail system and to regional transit services such as BART and Caltrain perceived by residents of the corridor.”

The first sentence, second paragraph, page 1-6 is revised as follows:

“As presented in Table 1-1, an ~~55-84~~ percent increase in Central Subway Corridor population and a ~~26-19~~ percent increase in the Central Subway Corridor employment is projected by 2030 (see also Figure 1-2).”

The fourth sentence, second paragraph, page 1-6 is revised as follows:

“The ~~26-19~~ percent employment increase in the Central Subway Corridor is slightly lower than the projected citywide employment growth of 28 percent over the same period.”

Table 1-1, page 1-6 is revised as follows to correct reporting errors contained in the Draft SEIS/SEIR:

**TABLE 1-1**  
**POPULATION AND EMPLOYMENT PROJECTIONS**  
**2000 AND 2030**

Area	Population				Employment			
	2000	2030	Difference	% Change	2000	2030	Difference	% Change
Central Subway Corridor	52,160	<del>80,690</del> <u>96,040</u>	<del>28,530</del> <u>43,880</u>	<del>55%</del> <u>84%</u>	280,690	<del>352,490</del> <u>335,030</u>	<del>71,800</del> <u>54,340</u>	<del>26%</del> <u>19%</u>
North Beach Variant	12,120	10,510	(1,610)	(13.3%)	6,100	6,490	390	6.4%
SF	776,730	935,050	158,320	20%	636,670	815,680	179,010	28.0%
Source: San Francisco County Transportation Authority Model, based on Transportation Analysis Zone (TAZ) data derived from 2000 Census Tract information.								
Note: Central Subway is defined by the MTC Travel Analysis Zones (and Census Tracts) that are included in the Study Area identified in Figure 1-2. This includes Census Tracts 113, 114, 117, 118, 119, 121, 123, 125, 176.01, 176.02, 178, 179.01, and 180. The North Beach Tunnel Construction Variant is defined by the MTC Transportation Analysis Zones and Census Tracts 106 and 107. There are minor differences between TAZ and Census Tract information.								

## Chapter 2.0 Alternatives

The second sentence, fourth paragraph, page 2-1 is revised as follows:

“In response to public input during the 2005 Scoping process and technical recommendations from a Peer Review Panel, and in order to reduce the cost of the project, a new design (Alternative 3B) was subsequently developed for the Fourth/Stockton Alignment.”

The following text is added following the description of Alternative 3B, page 2-3.

“On February 19, 2008, the MTA, subsequent to publication of the Draft SEIS/SEIR, endorsed Alternative 3B as the LPA.”

The second bullet, third paragraph, page 2-3 is revised as follows:

- “operation of the T-Third line, which opened for passenger service in April 2007 as an extension of the ~~Castro Shuttle~~ K-Ingleside to Visitacion Valley, with associated restructured bus service in Visitacion Valley at the south end of the corridor and bus connections in Chinatown/North Beach at the north end;”

The second sentence, second paragraph, page 2-14 is revised as follows:

“This configuration was provided to not preclude a future connection of the Central Subway with a possible future Geary subway line traveling under Geary, Kearny, and Third Streets and then east via Folsom Street to the vicinity of the Transbay Terminal.”

The first sentence, third paragraph, page 2-14 is revised as follows:

“Northbound and southbound station platforms would be at two levels and would share a common ~~mezzanine~~ ~~(concourse)~~.”

The third and fourth sentences, first paragraph, page 2-17 are revised as follows:

“The shallow configuration of the station would preclude construction of a mezzanine and ~~(concourse)~~ level above the platform. Instead, access would be provided from street level to a mezzanine and ~~(concourse)~~ under the platform level for fare payment, and then up to the platform level via subsurface escalators, stairs, and elevators.”

The fourth sentence, second paragraph, page 2-17 is revised as follows:

“The stacked tunnels would affect the design of the Union Square Station, which would include a mezzanine and ~~(concourse)~~ and two platform levels (refer to Figure 2-9).”

The fifth sentence, second paragraph, page 2-19 is revised as follows:

“The underground station, between Sacramento and Washington Streets on Stockton Street, would have a mezzanine and ~~(concourse)~~ and one platform level (see Figure 2-10).”

The last sentence, second paragraph, page 2-21 is revised as follows:

“All subway station designs include fare gates and ticket vending machines (TVMs) per new Muni policy; this specification requires longer station layouts and typically the need for a mezzanine and ~~(concourse)~~ level.”

The station type descriptions for all the subway stations in Table 2-1, page 2-21 are revised as follows:

**TABLE 2-1**

**ALTERNATIVE 2 - ENHANCED EIS/EIR ALIGNMENT STATION LOCATIONS**

<b>Station</b>	<b>Type</b>	<b>Location</b>
King Street (northbound only)	Surface Station - Platform adjacent to Sidewalk	Third Street between King and Townsend Streets
Moscone	Underground - Two level stacked platform with a mezzanine <u>and</u> <del>(concourse)</del> level above the platform level.	Third Street between Folsom and Howard Streets
Market Street	Underground - Single level side platforms with a mezzanine <u>and</u> <del>(concourse)</del> level below the platform level.	Third Street between Mission and Market Streets
Union Square	Underground - Two level stacked platforms with a mezzanine <u>and</u> <del>(concourse)</del> level above the platform level.	Stockton Street between Geary and Sutter Streets
Chinatown	Underground – Single level side platforms with a mezzanine <u>and</u> <del>(concourse)</del> level above the platform level.	Stockton Street between Sacramento and Washington Streets

The third through the fifth sentences, last paragraph, page 2-21 and continuing on page 2-22 are revised as follows:

“The T-Third short line would extend from the Mission Bay Turnaround Loop (18th, Illinois, 19th, and Third Streets) to Chinatown, also operating with one-car trains and the T-Third very short line would operate from Fourth and Berry Streets to Chinatown. Service frequencies for each line would be ~~five-six~~ minutes in the peak period and ten minutes during the midday, except for the short line. The ~~Castro Shuttle~~ K-Ingleside would be extended to operate as the T-Third line under the 2030 No Project/TSM Alternative, but would operate as an independent line for the Enhanced EIS/EIR Alignment, using the 2006 configuration between Castro and Embarcadero Muni Metro Stations.”

Table 2-2, page 2-23 is revised to incorporate updates to the operational plan affecting peak headways, peak LRV fleet demand, and annual LRV car hours as noted below.

**TABLE 2-2**  
**ANNUAL OPERATING STATISTICS**  
**ALTERNATIVE 2 - ENHANCED EIS/EIR ALIGNMENT**

Alternative	Peak Headways 9-X Line <sup>2</sup>	Diesel/Trolley Peak Demand (Systemwide Fleet size) <sup>1</sup>	Total Annual Diesel/Trolley Bus Hours (Systemwide) <sup>1</sup>	Peak Headways T-Third <sup>2</sup>	LRV Fleet Peak Demand <sup>3</sup> (Systemwide Fleet size) <sup>4,3</sup>	Total Annual LRV Car Hours T-Line (Systemwide)
Existing (2007) T-Third	5 minutes	377 (495-473) diesel buses; 225 (333-331) trolley buses	2,592,230	9 minutes	118-119 (151) LRVs	84,800 109,400 (568,500) (570,200)
No Project/TSM (2030)	5 minutes	377 (495) diesel buses; 230 (333-336) trolley buses	2,622,030	7 minutes	129-137 (171) LRVs	80,400 117,000 (609,500) (602,700)
Enhanced EIS/EIR Alignment (2030)	5 minutes	377 (495) diesel buses; 219 (333-336) trolley buses	2,545,630	5-6 minutes	130-142 (175) LRVs	87,500 83,900 (591,200) <sup>3</sup> (621,800) <sup>3</sup>
Notes: <sup>1</sup> Source for 2007 bus equipment demand and bus hours is the Muni 2006-2025 Short Range Transit Plan, December 2005 and Dan Rosen, MTA, May 2007. <u>Revised Dan Rosen, MTA, January 2008.</u> <sup>2</sup> Headway refers to the time between transit vehicles on a given line <sup>3</sup> Assumes one-car trains operating in the peak for the Central Subway on both the T-Third long and short lines and two-car trains on the T-Third very short line.						

The last three sentences, first paragraph, page 2-23 are revised as follows:

“The Enhanced EIS/EIR Alignment would reduce the peak demand requirements for the combined diesel and trolley fleets over No Project/TSM which would result in a systemwide annual reduction of bus hours by 76,400. Rail headways on T-Third line would improve from the current nine minutes under existing conditions to seven minutes in the No Project/TSM Alternative and to five-six minutes under the Enhanced EIS/EIR Alignment. The additional LRV route miles and service frequencies associated with the new Central Subway service would result in an annual increase-decrease of 7,400 33,100 LRV car hours on the Central Subway Corridor-T-Third line, but a system-wide annual reduction of 18,300 19,100 car hours.”

The first four sentences, last paragraph, page 2-23 are revised as follows:

“The Enhanced EIS/EIR Alignment would require ~~four~~ six additional LRVs (~~three~~ five peak LRVs and one spare) compared to the No Project/TSM Alternative. Muni’s total fleet size, including spares, would be 175 LRVs with ~~130~~ 142 LRVs in the peak. The diesel bus fleet would be increased by 23 buses, but the ~~and~~ peak demand would remain the same as under the existing condition and the No Project/TSM Alternative. The trolley bus fleet would ~~remain the same as under~~ increase by five buses from the existing conditions ~~and No Project/TSM Alternative~~ by 2030 for Alternative 2, but the peak demand would be reduced by six vehicles over existing conditions and eleven vehicles over No Project/TSM.”

The fourth sentence, second paragraph, page 2-28 is revised as follows:

“Between Townsend and Brannan Streets ~~eight~~ 18 parking spaces would be eliminated on Fourth Street.”

The second sentence, third paragraph, page 2-28 is revised as follows:

“This station would have a mezzanine and ~~(concourse)~~ and one platform level that would serve both northbound and southbound trains.”

The first sentence, last paragraph, page 2-28 is revised as follows:

“Immediately north of Howard Street, the alignment would descend and continue in a twin side-by-side tunnel configuration to permit a deep crossing of the Market Street Subway and an easement under buildings at 790-798 Market Street/2 Stockton Street (Assessor’s Parcel 0328-002) (see Figure 2-14).”

The second sentence, fourth paragraph, page 2-28 is revised as follows:

“An additional stairway ~~set~~ would be located in the sidewalk on the west side of Fourth Street just north of Howard Street and an escalator on the north side of Howard Street, just west of Fourth Street.”

The third sentence, last paragraph, page 2-28 is revised as follows:

“The station would have a ~~common~~ mezzanine and ~~(concourse)~~ and one center platform level that would serve both northbound and southbound trains.”

The fourth sentence, last paragraph, page 2-31 is revised as follows:

“It would have a mezzanine and ~~(concourse)~~ and one platform level for north and southbound trains. ”

The second paragraph, page 2-33 is revised as follows:

“A double crossover and twin storage tracks, capable of storing two ~~three~~ two-car trains, would extend north of this station to Jackson Street.”

The station type description for Moscone Station in Table 2-1, page 2-33 is revised as follows:

Moscone	Underground – Single level center platform with a mezzanine <u>and</u> <del>(concourse)</del> level above the platform level.	Fourth Street between Folsom and Howard Streets
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The third and fourth sentences, last paragraph, page 2-34 is revised as follows:

“Train headways on the T-Third line would improve from the current nine minutes under existing conditions to seven minutes in the No Project/TSM Alternative and to ~~five~~ six minutes under the Fourth/Stockton Alignment Option A. Even though there is an increase in route miles and service frequencies associated with the new Central Subway service, the result is an annual reduction of ~~2,400~~ 40,300 LRV car hours on the ~~Central Subway Corridor~~ T-Third line and a system-wide annual reduction increase of ~~27,800~~ 11,900 car hours when compared to the No Project/TSM Alternative.”

Table 2-4, page 2-35 is revised to incorporate updates to the operational plan affecting peak headways, peak LRV fleet demand, and annual LRV car hours as noted on the following page.

The first three sentences, first paragraph, page 2-35 are revised as follows:

“Fourth/Stockton Alignment Option A would require ~~four~~ three additional LRVs (~~three~~ two plus one spare) beyond the 2030 LRV fleet requirements for the No Project/TSM Alternative. In this scenario, Muni’s total LRV fleet size, including spares, would be 175 LRVs with ~~127~~ 139 LRVs in the peak period. The diesel bus fleet would ~~remain the same as the under~~ increase by 30 buses from the existing conditions and No Project/TSM (2030) Alternative, in 2030, but with the same peak demand would not change.”



**TABLE 2-4**  
**ANNUAL OPERATING STATISTICS**  
**ALTERNATIVE 3 –FOURTH/STOCKTON ALIGNMENT OPTION A**

Alternative	Peak Headways 9-X Line <sup>2</sup>	Diesel/Trolley Peak Demand (Systemwide Fleet size) <sup>1</sup>	Total Annual Diesel/Trolley Bus Hours (Systemwide) <sup>1</sup>	Peak Headways T-Third <sup>2</sup>	LRV Fleet Peak Demand <sup>3</sup> (Systemwide Fleet size) <sup>4,3</sup>	Total Annual LRV Car Hours T-Line (Systemwide)
Existing (2007) T-Third	5 minutes	377 (495-473) diesel buses; 225 (333-331) trolley buses	2,592,230	9 minutes	118-119 (151) LRVs	84,800 109,400 (568,500) (570,200)
No Project/TSM (2030)	5 minutes	377 (495) diesel buses; 230 (333-336) trolley buses	2,622,030	7 minutes	129-137 (171) LRVs	80,400 117,000 (609,500) (602,700)
Fourth/Stockton Alignment Option A (2030)	5 minutes	377 (495) diesel buses; 219 (333-336) trolley buses	2,545,630	5-6 minutes	127-139 (175) LRVs	78,000 76,700 (581,700) <sup>(4)</sup> (614,600) <sup>3</sup>
Notes: <sup>1</sup> Source for 2007 bus equipment demand and bus hours is the Muni 2006-2025 Short Range Transit Plan, December 2005 and Dan Rosen, MTA, 2007. <u>Revised Dan Rosen, MTA, January 2008.</u> <sup>2</sup> Headway refers to the time between transit vehicles on a given line <sup>3</sup> Assumes one-car trains operating in the peak for the Central Subway on both the long and short lines <u>and two-car trains on the T-Third very short line.</u>						

The second and third sentences, first paragraph, page 2-35 are revised as follows:

“In this scenario, Muni’s total LRV fleet size, including spares, would be 175 LRVs with ~~127-139~~ LRVs in the peak period. ”

The second paragraph, page 2-35 is revised as follows:

“The trolley bus fleet would ~~remain the same~~ increase by five buses, but peak demand would be reduced by six trolleys over existing conditions and by eleven trolleys over the No Project/TSM Alternative.”

The second and third sentences, second paragraph, page 2-40 are revised as follows:

“The street configuration from west to east would provide: two southbound traffic lanes, the semi-exclusive double-track median, and one northbound traffic lane. In this segment, ~~all 18 out of 20~~ parking spaces on Fourth Street would be permanently eliminated. Just

north of Brannan Street the tracks would spread to accommodate a center platform between Brannan and Freelon Streets.”

The second to last sentence, third paragraph, page 2-42 is revised as follows:

“Between Brannan and Bryant Streets ~~33-29~~ out of 36 parking spaces on Fourth Street would be permanently eliminated.”

The fifth paragraph, page 2-42 is revised as follows:

“The subway for Alternative 3B would continue under Fourth Street to the Moscone Station located between Folsom and Howard Streets (see Figure 2-20), ~~the same as discussed for Alternative 3A on page 2-28. Like Alternative 3A, this station would have mezzanine and concourse levels and a platform level that would serve both northbound and southbound trains. The main station entrance (escalators, stairs, and two elevators), would be in the off-street property at 266 Fourth Street. The station would be shorter than the one proposed in Alternative 3A and the emergency exit would be provided on the west side of Fourth Street mid-block between Folsom and Howard Streets.~~”

The first sentence, last paragraph, page 2-42 is revised as follows:

“Immediately north of Howard Street, the alignment would descend and continue in a side-by-side configuration to permit a deep crossing of the Market Street Subway and an easement under buildings at 790-798 Market Street/2 Stockton Street (Assessor’s Parcels #0328-002 and #37052-001 to 004).”

The first sentence, first paragraph, page 2-45 is revised as follows:

“...mezzanine and ~~(concourse)~~ and one platform level that would serve both northbound and southbound trains.”

The fourth and fifth sentences, second paragraph, page 2-45 are revised as follows:

“Different from both Alternatives 2 and 3A, the Chinatown Station for Fourth/Stockton Alignment Option B would be located on Stockton Street between ~~Washington~~ Clay and Jackson Streets (see Figure 2-22). It would have a mezzanine and ~~(concourse)~~ and one platform level for north and southbound trains. The main pedestrian entrance would be in a building that Muni would construct on the west side of Stockton Street south of

Washington Street (933-~~935~~949 Stockton Street, Assessor's Parcel #0211-001) to accommodate escalators, stairs, two elevators, and two emergency ventilation shafts.”

The last sentence, second paragraph, page 2-45 is revised as follows:

“The bulb-out would be extended slightly to an overall length of 38 feet, eliminating ~~about one-two~~ parking spaces.”

The third sentence, first paragraph, page 2-47 is revised as follows:

“The surface station would be between 14 and 15 feet in width. The subway station platforms would be about 200 feet in length (225 feet at Union Square/Market Street), ~~(compared with 250 feet in Option 3A)~~, and 26 feet in width to accommodate two-car trains using high-floor LRVs.”

The last sentence, first paragraph, page 2-47 is revised as follows:

“All subway station platforms are single level with a mezzanine and concourse level above to permit a deep crossing of Market Street.”

The station type descriptions for all the subway stations in Table 2-5, page 2-47 are revised as follows:

**TABLE 2-5**

**CENTRAL SUBWAY FOURTH/STOCKTON ALIGNMENT OPTION B STATION LOCATIONS**

Station	Type	Location
Brannan	Surface – Single Center Platform	Fourth Street between Brannan and Freelon Streets
Moscone	Underground – Single level center platform with a mezzanine <u>and</u> <del>(concourse)</del> level above platform level.	Fourth Street between Folsom and Howard Streets
Union Square/Market Street	Underground -Single level center platform with a mezzanine <u>and</u> <del>(concourse)</del> level above the platform level and a non-paid pedestrian level between Union Square and Market Street.	Stockton Street between Market and Geary Streets
Chinatown	Underground – Single level center platform and a mezzanine <u>and</u> <del>(concourse)</del> level above the platform level.	Stockton Street between Washington and Jackson Streets

The third and fourth sentences, last paragraph, page 2-47 and continuing on to page 2-48 are revised as follows:

“Rail headways on the T-Third line would improve from the current nine minutes under existing conditions to seven minutes in the No Project/TSM Alternative and to ~~five~~six minutes under the Fourth/Stockton Alignment Option B (same as Option A). Even though

there would be an increase in LRV route miles and service frequencies associated with the new Central Subway service, the result ~~is~~ would be an annual reduction of ~~6,000-39,000~~ LRV car hours (compared with ~~2,400~~ 40,300 LRV car hours for Option A) on the ~~Central Subway Corridor T-Third line~~ and a systemwide annual ~~reduction-increase~~ of 19,400 13,200 car hours, compared to the No Project/TSM Alternative and the ~~27,800~~ 11,900 car hours for Option A, which has ~~a more direct alignment-one fewer stations~~ and a faster travel time.”

Table 2-6, page 2-48 is revised to incorporate updates to the operational plan affecting peak headways, peak LRV fleet demand, and annual LRV car hours as noted below:

**TABLE 2-6**  
**ANNUAL OPERATING STATISTICS FOR**  
**ALTERNATIVE 3 – FOURTH/STOCKTON ALIGNMENT OPTION B**

Alternative	Peak Headways 9-X Line <sup>2</sup>	Diesel/Trolley Peak Demand (Systemwide Fleet size) <sup>1</sup>	Total Annual Diesel/Trolley Bus Hours (Systemwide) <sup>1</sup>	Peak Headways T-Third <sup>2</sup>	LRV Fleet Peak Demand <sup>3</sup> (Systemwide Fleet size) <sup>1,3</sup>	Total Annual LRV Car Hours T-Line (Systemwide)
Existing (2007) T-Third	5 minutes	377 ( <del>495-473</del> ) diesel buses; 225 ( <del>333-331</del> ) trolley buses	2,592,230	9 minutes	<del>418-119</del> (151) LRVs	<del>84,800</del> <u>109,400</u> <del>(568,500)</del> <u>(570,200)</u>
No Project/TSM (2030)	5 minutes	377 (495) diesel buses; 230 ( <del>333-336</del> ) trolley buses	2,622,030	7 minutes	<del>429-137</del> (171) LRVs	<del>80,400</del> <u>117,000</u> <del>(609,500)</del> <u>(602,700)</u>
Fourth/Stockton Alignment Option B (2030)	5 minutes	377 (495) diesel buses; 219 ( <del>333-336</del> ) trolley buses	2,545,630	<del>5-6</del> minutes	<del>430-140</del> (175) LRVs	<del>86,400</del> <u>78,000</u> <del>(590,100)</del> <sup>3</sup> <u>(615,900)</u> <sup>3</sup>
Notes: <sup>1</sup> Source for 2007 bus equipment demand and bus hours is the Muni 2006-2025 Short Range Transit Plan, December 2005 and Dan Rosen, MTA, 2007. Revised Dan Rosen, January 2008. <sup>2</sup> Headway refers to the time between transit vehicles on a given line. <sup>3</sup> Assumes one-car trains operating in the peak for the Central Subway on both the long and short lines.						

The second sentence, second paragraph, page 2-48 is revised as follows:

“Muni’s total LRV fleet size, including spares, would be 175 LRVs and ~~430-140~~ LRVs in the peak period, the same as Option A. The diesel bus fleet would ~~remain the same as~~ increase by 23 buses from the existing condition in 2030, but ~~and No Project/TSM fleets,~~ with the same peak demand would remain the same. The trolley bus fleet would ~~remain~~

~~the same increase by five buses,~~ but peak demand would be reduced by six trolleys over existing conditions and by eleven trolleys over No Project/TSM.”

The sixth and seventh bullets on page 2-50 are revised as follows:

- Surface Platform, and Trackwork, ~~and Overhead Contact System~~
- Systems (Train Control, Traction Power, Communications and Overhead Contact System)

Figure 2-29, page 2-53 is revised to correct the number of stations in the original Central Subway Project (5 stations) and to correct the miles in the T-Third operation (5.4 miles) as shown on the following page.

The last sentence, first paragraph, page 2-54 is revised as follows:

“All subway station entrances would have been located in public sidewalks. Station designs assumed Proof-of-Payment (POP) fare collection, which eliminated the need for fare gates, like those used on the Market Street Metro, at the mezzanine/concourse level.”

The third sentence, first paragraph, page 2-56 is revised as follows:

“The prevailing public preference was for a single double-track portal on Fourth Street. Members of the public also suggested a Fourth Street alignment, which was possible using a deep crossing at Fourth and Market Streets.”

The following text is added to the end of the third paragraph, page 2-56:

“On February 19, 2008, the MTA, subsequent to publication of the Draft SEIS/SEIR, endorsed Alternative 3B as the LPA.”

The second sentence, second bullet, page 2-57 is revised as follows:

**FIGURE 2-29**  
**THIRD STREET LIGHT RAIL**  
**PHASE 1 INITIAL OPERATING SEGMENT AND PHASE 2 1998 FEIS/FEIR CENTRAL SUBWAY**



“In addition, the four southbound lanes in the segment between Bryant and ~~King~~  
Townsend Streets were reconfigured to two northbound and two southbound lanes.”

The third sentence, second paragraph, page 2-63 is revised as follows:

“Following the selection of the ~~Preferred Investment Strategy~~ LPA, the Final SEIS/SEIR will be completed.”

The following text is added at the end of the third paragraph, page 2-56:

“On February 19, 2008, the MTA, subsequent to publication of the Draft SEIS/SEIR, selected Alternative 3B as the LPA.”

Table 2-9, page 2-64, entries related to San Francisco Planning Commission, Department of Recreation and Parks, and Board of Supervisors are revised as follows:

San Francisco Planning Commission	General Plan Review/Referral for all aspects of project which occur in public rights-of-way, and amendments to appropriate portions of General Plan, Transportation Element, <u>and Planning Code.</u>
San Francisco Department of Recreation and Parks	Section 4(f) “de minimis” approval. Prop. K review and approval for shadow analysis. <del>Long-term encroachment permits for Union Square plaza.</del>
San Francisco Board of Supervisors	Approval of General Plan <u>and Planning Code</u> amendments. Adoption of Redevelopment Plan amendments. Approval of property acquisitions, including eminent domain. Approvals required for use of City rights-of-way and Park property.

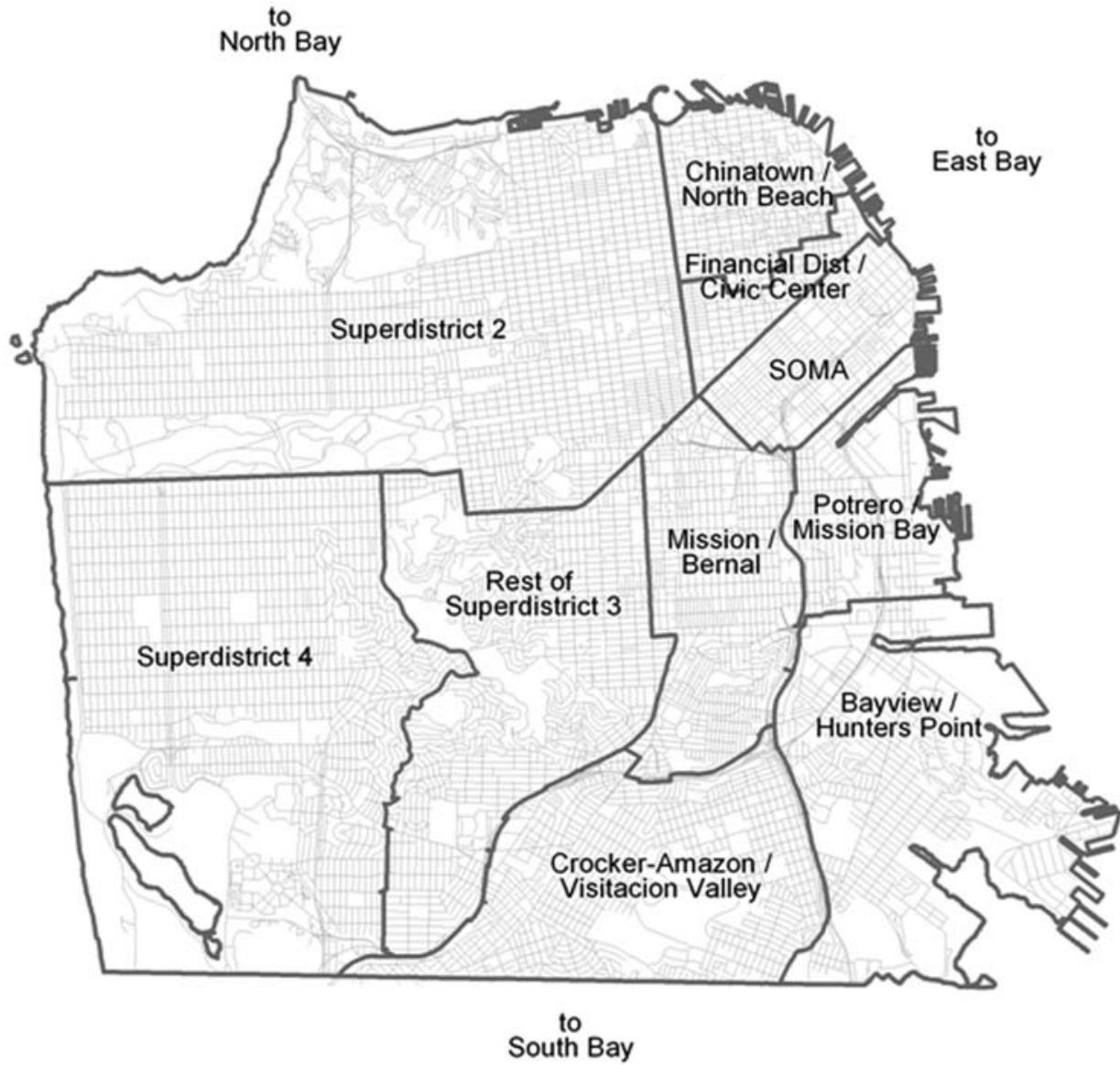
## CHAPTER 3.0 TRANSPORTATION ANALYSIS

Figure 3-3, page 3-12 is revised to correct the spelling error of Civic Center as shown on the following page.

The fourth sentence, second paragraph, page 3-22 is revised as follows:

“During the p.m. peak hour, two of the Study Area intersections operate at LOS ~~C, or better B~~, with the other three operating at LOS E or F conditions as outbound traffic peaks towards the I-280 freeway on-ramps.”

FIGURE 3-3



Source: PB/Wong  
Not to Scale  
Revised 1/08



Table 3-4, page 3-22 is revised as follows to incorporate updated level of service analysis performed by the Department of Parking and Traffic in February 2008.

**TABLE 3-4**  
**EXISTING INTERSECTIONS**  
**LEVEL OF SERVICE CONDITIONS**

<b>INTERSECTION</b>	<b>A.M. PEAK HOUR (LOS/ave. sec. delay)</b>	<b>P.M. PEAK HOUR (LOS/ave. sec. delay)</b>
Third Street / King Street	<del>D/ 36.1</del> <u>D/ 35.8</u>	F/ >80.0
Fourth Street / King Street	E/ 55.9	F/ >80.0
Fourth Street / Harrison Street	<del>B/ 13.2</del> <u>B/ 13.5</u>	<del>B/ 19.5</del> <u>B/ 18.5</u>
Sixth Street / Brannan Street	F/ >80.0	F/ >80.0
Fourth Street / Bryant Street	<del>B/ 11.8</del> <u>B/ 18.9</u>	<del>C/ 20.7</del> <u>B/ 19.6</u>
Source: San Francisco Department of Parking and Traffic, November 2006 and February 2007. <u>Revised February 2008.</u>		

The last sentence, last paragraph of page 3-24 is revised as follows to incorporate parking revisions:

“On those segments of Third and Fourth Streets that will be impacted by the Project, there are currently ~~172~~192 on-street parking spaces (~~201~~221 including the spaces removed for construction on Fourth Street between Bryant and Harrison Streets).”

Table 3-6, page 3-25 is revised to reflect the updated parking counts and corrections provided by the Department of Parking and Traffic in January 2008 as noted on the following page.

The last two sentences of the second paragraph, page 3-26 are revised as follows:

“There are 10 parking spaces on the block between Geary and Post Streets, ~~and~~ 14 spaces on the block between Clay and Washington Streets, and 20 spaces on the block between Washington and Jackson Streets (including truck and passenger loading zones). The average occupancy is ~~63~~75 percent for these ~~two~~three blocks of Stockton Street.”

**TABLE 3-6**  
**EXISTING ON-STREET PARKING CONDITIONS IN CORRIDOR**

SEGMENT	APPROXIMATE NUMBER OF ON-STREET PARKING SPACES			NUMBER AND PERCENTAGE OF SPACES OCCUPIED	
	WEST	EAST	TOTAL	NO.	Percent
<i>Third Street</i>					
King to Townsend Streets	13 (All metered)	10 (All metered)	23	20	87%
Townsend to Brannan Streets	19 (All metered)	16 (Tow-away east side 7-9 a.m. & 4-7 p.m.)	35	20	57%
Brannan to Bryant Streets	21 (All metered)	13 (Tow-away east side 7-9 a.m. & 4-7 p.m.)	34	25	74%
<b>Subtotal</b>	<b>53</b>	<b>39</b>	<b>92</b>	<b>65</b>	<b>71%</b>
<i>Fourth Street</i>					
Townsend to King Streets	0	0	0	0	0%
Townsend to Brannan Streets	5 (All metered)	15 (All metered)	20	14	70%
Brannan to Bryant Streets	20 (All metered)	16 (10 metered, Tow-away east side 7 am-7 pm between Freelon and Brannan – affects 6 sp)	36	30	83%
Bryant to Harrison Streets <sup>1</sup>	17 (all metered)	12 (all metered)	29	N/A	N/A
<b>Subtotal<sup>2</sup></b>	<b>25+</b>	<b>31+</b>	<b>56</b>	<b>44</b>	<b>79%</b>
<i>Stockton Street</i>					
Geary to Post Streets	0	10	10	4	40%
Clay to Washington Streets	11 (All metered)	3 (All metered)	14	11	79%
<u>Washington to Jackson Streets</u>	<u>8</u> (All metered)	<u>12</u> (All metered)	<u>20</u>	<u>18</u>	<u>90%</u>
<b>Subtotal<sup>3</sup></b>	<del>11</del> <u>19</u>	<del>13</del> <u>25</u>	<del>24</del> <u>44</u>	<del>15</del> <u>33</u>	<del>63%</del> <u>75%</u>
<b>TOTAL</b>	<b><del>89</del><u>97+</u></b>	<b><del>83</del><u>95+</u></b>	<b><del>172</del><u>192+</u></b>	<b><del>124</del><u>142</u></b>	<b><del>72%</del><u>74%</u></b>
<sup>1</sup> This segment of Fourth Street was under construction during the recent counts. Therefore, no parking occupancy data was available. <sup>2</sup> Occupancy counts do not include the segment between Bryant and Harrison, so the <u>29 parking spaces between Bryant and Harrison Streets numbers</u> are not included in the subtotal. <sup>3</sup> Average occupancy was not calculated for the Stockton Street blocks because the two blocks are located in different districts and an average occupancy would not give an accurate assessment of occupancies in each area. Source: San Francisco Department of Parking and Traffic, Sept. 27 and 28, 2006, <del>and</del> May 7 and 8, 2007, and January 2008.					

The last two sentences of the third paragraph, page 3-26 are revised as follows:

“On the blocks between Clay and ~~Washington-Jackson~~ Streets, there are a total of ~~1434~~ metered spaces, composed of a mix of standard parking spaces and white and yellow zones. The average weekday occupancy in ~~this~~ these two blocks is ~~79-85~~ percent.”

The last two sentences of the fourth paragraph, page 3-26 are revised as follows:

“On Fourth Street between King Street and Bryant Street, 56 on-street parking spaces exist and on the ~~two-three~~ blocks of Stockton Street evaluated, there are ~~24-44~~ parking spaces. Existing parking occupancy is approximately ~~72-74~~ percent on a combined corridor-wide basis.”

The first footnote, Table 3-7, page 3-30, is revised as follows:

“<sup>1</sup> Counts conducted April and June 2007 p.m. peak period .”

The first sentence, fourth paragraph, page 3-36 is revised as follows:

“Under all Build Alternatives, the greatest amount of passenger activity would occur at the Central Subway Market Street Station (or Union Square/Market Street Station); ~~45-47~~ percent of system boardings for Alternative 2 and ~~50-49~~ and 48 percent of system boardings for Alternatives 3A and 3B, respectively.”

The third sentence, fourth paragraph, page 3-36, is revised as follows:

“It is estimated that ~~3849~~ percent of the passengers boarding the Central Subway system at Powell Street would be transfers from BART.”The first and third sentences, last paragraph, page 3-36 are revised as follows:

“The Fourth and King Station, serving the T-Third Line also has a high level of passenger activity ranging from ~~25-29~~ percent (Alternative 3B) to 32 percent (Alternative 3A) of system ridership...Caltrain boardings are projected to be about ~~8767~~ percent of total ridership at this station in 2030.”

Table 3-8, page 3-37 is revised to incorporate the changes to the projected transit ridership for the Central Subway Project on the following page.

**TABLE 3-8**  
**ESTIMATED WEEKDAY TRANSIT RIDERSHIP**  
**EXISTING AND 2030 CONDITIONS**

LRT/BUS LINE	2000	2030 NO PROJECT/TSM	2030 ENHANCED EIS/EIR ALIGNMENT	2030 FOURTH / STOCKTON ALIGNMENT OPTION A (LPA)	2030 FOURTH / STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)
<b>CORRIDOR BOARDINGS</b>					
RAIL					
T-Third Long Line <sup>1</sup>	N/A	<del>60,030</del> <u>24,600</u> <sup>4</sup>	<del>59,710</del> <u>44,500</u>	<del>60,670</del> <u>45,800</u>	<del>65,830</del> <u>44,900</u>
T-Third Short Line	N/A	N/A	<del>30,080</del> <u>18,900</u>	<del>28,170</del> <u>19,000</u>	<del>33,400</del> <u>18,900</u>
T-Third Very Short Line	N/A	N/A	<u>12,900</u>	<u>12,800</u>	<u>12,800</u>
<b>Subtotal</b>		<del>60,030</del> <u>24,600</u>	<del>89,790</del> <u>76,300</u>	<del>88,840</del> <u>77,600</u>	<del>99,230</del> <u>76,600</u>
BUS					
Line 15 <sup>2</sup>	<del>31,130</del> <u>28,300</u>	<del>n/a</del> <u>N/A</u>	<del>n/a</del> <u>N/A</u>	<del>n/a</del> <u>N/A</u>	<del>n/a</del> <u>N/A</u>
Lines 9X, 9AX, 9BX	<del>9,320</del> <u>10,600</u>	<del>29,560</del> <u>23,000</u>	<del>30,790</del> <u>22,300</u>	<del>30,760</del> <u>20,800</u>	<del>24,770</del> <u>21,200</u>
Lines 30, 45 <sup>3</sup>	<del>52,420</del> <u>54,400</u>	<del>57,860</del> <u>76,600</u>	<del>42,030</del> <u>46,600</u>	<del>42,510</del> <u>44,800</u>	<del>38,290</del> <u>44,800</u>
<b>Subtotal</b>	<del>92,870</del> <u>93,300</u>	<del>87,420</del> <u>99,600</u>	<del>72,820</del> <u>68,900</u>	<del>73,270</del> <u>65,600</u>	<del>63,060</del> <u>66,000</u>
<b>TOTAL IN CORRIDOR:</b>	<del>92,870</del> <u>93,300</u>	<del>147,450</del> <u>124,200</u>	<del>162,610</del> <u>145,200</u>	<del>162,110</del> <u>143,200</u>	<del>162,290</del> <u>142,600</u>
Increase Over Existing:	0	<del>54,580</del> <u>30,900</u>	<del>69,740</del> <u>51,900</u>	<del>69,240</del> <u>49,900</u>	<del>69,420</del> <u>49,300</u>
Increase Over No Project/TSM:	0	0	<del>15,160</del> <u>21,000</u>	<del>14,660</del> <u>19,000</u>	<del>14,840</del> <u>18,400</u>
<b>SYSTEM BOARDINGS</b>					
RAIL	<del>209,510</del> <u>185,700</u>	<del>280,550</del> <u>238,900</u>	<del>303,190</del> <u>287,900</u>	<del>311,730</del> <u>300,700</u>	<del>320,630</del> <u>299,500</u>
BUS	<del>543,240</del> <u>547,000</u>	<del>585,470</del> <u>609,000</u>	<del>590,450</del> <u>567,800</u>	<del>575,760</del> <u>566,700</u>	<del>566,290</del> <u>566,800</u>
<b>TOTAL SYSTEM:</b>	<del>752,750</del> <u>732,800</u>	<del>866,020</del> <u>848,800</u>	<del>893,640</del> <u>855,700</u>	<del>887,490</del> <u>867,400</u>	<del>886,910</del> <u>866,300</u>
Increase Over Existing:	0	<del>113,270</del> <u>116,050</u>	<del>140,890</del> <u>122,900</u>	<del>134,740</del> <u>134,600</u>	<del>134,160</del> <u>133,500</u>
Increase Over No Project/TSM:	0	0	<del>27,620</del> <u>6,900</u>	<del>21,470</del> <u>18,600</u>	<del>20,890</del> <u>17,500</u>
Notes: <sup>1</sup> Central Subways T-Third long-line to Visitation Valley, <del>and</del> T-Third short-line to 18 <sup>th</sup> and Third Streets, <del>and</del> T-					

- <sup>2</sup> Third very short line to the Caltrain Station at Fourth and King Streets.  
<sup>3</sup> 15-Third Line shifts to 9X-San Bruno or to the T-Third line.  
 45 Union/Stockton extended into Mission Bay  
<sup>4</sup> Rail ridership on the K between The Embarcadero and the county line and on the N to The Embarcadero.  
 N/A Not Applicable  
Ridership is defined as the number of passengers boarding.

Source: San Francisco Model, January 2007. Revised January 2008.

The first sentence, first paragraph, page 3-38 is revised as follows:

“If, in the future, the Caltrain line is extended to the Transbay Terminal as proposed in Phase 2 (Downtown Extension) of the Transbay Terminal Improvements, ridership on the Central Subway line would be reduced by some portion of the ~~89~~67 percent.”

The last sentence, first paragraph, page 3-38 is revised as follows:

“The p.m. peak period ridership ~~at each of the Central Subway stations on the key transit routes in the T-Third corridor~~ is presented in Table 3-10.”

Table 3-9, page 3-38 is revised to incorporate the changes to the projected transit ridership for the Central Subway Project on the following page.

**TABLE 3-9**  
**ESTIMATED WEEKDAY RIDERSHIP**  
**BY CENTRAL SUBWAY STATION**  
**2030 CONDITIONS**

STATION	2030 NO PROJECT /TSM	2030 ENHANCED EIS/EIR ALIGNMENT	2030 FOURTH / STOCKTON ALIGNMENT OPTION A (LPA)	2030 FOURTH / STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)
Fourth and King	---	<del>20,250</del> <u>15,700</u>	<del>20,670</del> <u>19,100</u>	<del>19,520</del> <u>17,400</u>
Fourth and Brannan	---	---	---	<del>6,670</del> <u>3,000</u>
Third (between King and Townsend)	---	<del>2,990</del> <u>4,000</u>	---	---
Moscone	---	<del>4,290</del> <u>3,800</u>	<del>3,860</del> <u>3,500</u>	<del>3,520</del> <u>2,800</u>
Market Street	---	<del>30,540</del> <u>28,300</u>	<del>32,620</del> <u>29,400</u>	<del>38,510</del> <u>28,600</u>
Union Square	---	<del>2,640</del> <u>1,600</u>		
Chinatown	---	<del>6,570</del> <u>6,200</u>	<del>8,190</del> <u>8,300</u>	<del>8,050</del> <u>8,000</u>
<b>TOTAL IN CORRIDOR:</b>	---	<del>67,280</del> <u>59,600</u>	<del>65,340</del> <u>60,300</u>	<del>76,270</del> <u>59,800</u>
<b><u>TOTAL IN CENTRAL SUBWAY</u></b>	---	<b><u>43,900</u></b>	<b><u>41,200</u></b>	<b><u>42,400</u></b>

Note: An estimated ~~89~~67 percent of passenger activity at the Fourth and King Station is related to transfers from Caltrain and about ~~25 to 32~~49 percent of passenger activity at the Market Street or Union Square/Market Street Stations is related to transfers from BART to Muni at Powell Street Station.  
Ridership is defined as the number of passengers boarding.  
Central Subway total excludes the Fourth and King Station which is part of the T-third line.  
Source: San Francisco Model, January 2007. Revised January 2008.

Table 3-10, page 3-39 is revised to incorporate the changes to the projected transit ridership for the Central Subway Project as noted on the following page.

**TABLE 3-10**  
**2030 ESTIMATED P.M. PEAK PERIOD RIDERSHIP**  
**FOR SELECTED ROUTES IN CORRIDOR**

<b>VOLUME</b>	<b>2000 BASE</b>	<b>2030 NO PROJECT / TSM ALIGNMENT</b>	<b>2030 ENHANCED EIS/EIR ALIGNMENT</b>	<b>2030 FOURTH / STOCKTON ALIGNMENT OPTION A (LPA)</b>	<b>2030 FOURTH / STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)</b>
<u>T-Third Lines</u> <u>Central Subway/30</u>	<u>1,260</u> <u>---</u>	<u>1,950-11,590</u>	<u>19,020-26,990</u>	<u>16,710-27,110</u>	<u>19,720-26,820</u>
9AX	<u>1,680</u> <u>1,490</u>	<u>710-1,810</u>	<u>610-1,670</u>	<u>610-1,610</u>	<u>610-1,620</u>
9BX	<u>720 940</u>	<u>1,080-1,900</u>	<u>1,000-1,570</u>	<u>970-1,550</u>	<u>970-1,570</u>
9X	<u>570 750</u>	<u>5,120-1,630</u>	<u>6,210-1,690</u>	<u>5,270-1,520</u>	<u>2,730-1,580</u>
<u>30</u>	<u>8,370</u>	<u>13,900</u>	<u>4,150</u>	<u>4,140</u>	<u>4,120</u>
<u>45</u>	<u>4,600</u>	<u>8,530</u>	<u>5,620</u>	<u>5,510</u>	<u>5,480</u>
Note: The p.m. peak period is three-hour ridership. Ridership is defined as the number of passengers boarding. Source: San Francisco Model, January 2007. <u>Revised January 2008.</u>					

Table 3-11, page 3-39 is revised to incorporate the changes to the projected travel times for the Central Subway Project as follows:

**TABLE 3-11**  
**IN-VEHICLE TRAVEL TIMES FOR SELECTED TRANSIT TRIPS**  
**EXISTING AND 2030 CONDITIONS**

<b>TRANSIT TRAVEL TIME (minutes)</b>					
<b>ORIGIN- DESTINATION</b>	<b>2000</b>	<b>2030 NO PROJECT / TSM ALIGNMENT</b>	<b>2030 ENHANCED EIS/EIR ALIGNMENT</b>	<b>2030 FOURTH / STOCKTON ALIGNMENT OPTION A (LPA)</b>	<b>2030 FOURTH / STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)</b>
Fourth/King – Market Street	8.1	10.5	<u>4.4-4.7</u>	<u>3.2-3.5</u>	<u>4.5 4.9</u>
<u>Market Street to Chinatown Station<sup>2</sup></u>	<u>3.7</u>	<u>6.5</u>	<u>2.3</u>	<u>1.1</u>	<u>1.4</u>
Fourth/King – Chinatown Station <sup>1</sup>	11.8	17.0	7.0	4.6	6.3
Notes: <sup>1</sup> The Chinatown Station is at Stockton/Clay for the Enhanced EIS/EIR and Fourth/Stockton Alignment Option A (LPA) Alternatives, and at Stockton/Washington for the Fourth/Stockton Option B (Modified LPA) Alternative. <sup>2</sup> <u>Market Street is the Market Street Station under Alternative 2 and the Union Square/Market Street Station under Alternatives 3A and 3B</u> Source: PB/Wong, April 2007. <u>Revised October 2007.</u>					

The first two sentences, last paragraph, page 3-39 is revised as follows:

“By 2030, the No Project/TSM Alternative transit ridership demand in the Corridor is expected to grow by nearly ~~60-33~~ percent over existing conditions, due to employment and population growth in the South of Market, Mission Bay, Bayview-Hunters Point, and the Financial districts (refer to Table 3-8). In the base year 2000, the San Francisco Model inputs indicate an estimated population of ~~58,000-52,120~~ and estimated employment of ~~142,000-280,700~~ jobs ~~within ¼ mile of in~~ the Central Subway Corridor (refer to Table 1-1).”

The first two paragraphs, page 3-40 are revised as follows:

“Planning Department, SFCTA, and Association of Bay Area Government (ABAG) forecasts, the population is expected to grow to by approximately ~~83,000-96,040~~ persons (plus ~~41-84~~ percent) and the employment is expected to grow to ~~177,000-335,030~~ jobs (plus ~~24-19~~ percent) in the Central Subway Corridor. This growth can be compared to a county-wide projected population growth of approximately ~~18-20~~ percent and employment growth of about ~~29-28~~ percent, ~~demonstrating that the~~ The rate of population growth in the project corridor exceeds the rate of growth citywide, though the employment growth is lower. This growth could increase travel demand and result in increased congestion on surface streets. The travel time of a transit trip between Fourth and King Streets and Chinatown would increase by 5.2 minutes when compared to existing conditions.

Corridor transit ridership demand would increase by about ~~54,580-30,900~~ daily trips between 2000 and 2030 under the No Project/TSM Alternative. The daily rail ridership would increase by approximately ~~60,030-24,600~~ trips over existing conditions, ~~but this would be offset by a reduction of~~ and the daily bus ridership would increase by approximately ~~5,450-6,300~~ trips (refer to Table 3-8). This reduction in bus increase in transit ridership would occur as a result of service changes that were implemented for the T-Third line, as well as growth in population and employment. Changes to transit services in the Corridor between the base year 2000 and the year 2030 TSM included:”

The fourth sentence, second paragraph, page 3-41 is revised as follows:

“However, capacities of the light rail vehicles operating along the Muni Metro Extension, which connects service between the Market Street subway and the T-Third Line, may experience capacity issues for limited durations during the peak period due to capacity



constraints on the segment between the Embarcadero Station and the Folsom/Embarcadero stop.”

The last two sentences, second paragraph, page 3-41 are revised as follows:

“The Muni ~~9AX/9BX~~-San Bruno Expresses are not expected to experience capacity issues, but capacity issues would arise on the 9AX-San Bruno Express, ~~with a~~ Ridership on ~~this the 9X-San Bruno Express~~ routes is forecast to increase from approximately ~~9,320~~ 10,600 daily boardings to approximately ~~29,560~~ 23,000 daily boardings between 2000 and 2030. Table 3-10 indicates a peak period demand of about ~~5,120~~ 4,930 passengers ~~(at Fourth and Mission Streets)~~ on the 9X-San Bruno Express lines, which is a substantial increase over the 2000 ridership demand of approximately ~~570~~ 3,180 passengers.”

The last paragraph, page 3-41 and the first three paragraphs, page 3-42 are revised as follows:

“Travel times between Fourth and King Streets and the Market Street Station would be ~~6.4~~ 5.8 minutes faster and travel times between Fourth and King Streets and the Chinatown Station would be 10.0 minutes faster in the Enhanced EIS/EIR Alternative than in the No Project/TSM Alternative due to the replacement of buses traveling in mixed-flow with trains traveling in a semi-exclusive or dedicated right-of-way (refer to Table 3-11). When compared to the existing conditions the travel time between Fourth and King Streets and the Market Street Station would be ~~4.1~~ 3.4 minutes faster and ~~3.7~~ 4.8 minutes faster for the trip between Fourth and King Streets and the Chinatown Station.

As shown in Table 3-8, the proposed light rail line is expected to serve approximately ~~89,790~~ 76,300 trips per weekday in 2030, or ~~29,760~~ 51,700 more daily riders than served by the T-Third line in the No Project/TSM Alternative, primarily due to the more direct alignment providing connections to the Union Square and Market Street Stations and also due to travel time savings gained in the proposed tunnel. A large share of these travelers are persons with origins likely outside San Francisco who board the Central Subway at Fourth and King near the Caltrain Terminal ~~and alight along or board at Market Street connecting from the BART system~~, as shown in Table 3-9. Overall boardings on routes serving the Third Street Corridor are expected to increase by approximately ~~15,160~~ 21,000 over the No Project/TSM Alternative or ~~69,740~~ 51,900 over existing conditions. The increase of ~~29,760~~ 51,700 rail boardings over the No Project/TSM Alternative would be

offset ~~some~~ by a decline in bus boardings in the corridor of approximately ~~14,600~~ 30,700.

The large numbers of travelers using the Enhanced EIS/EIR Alignment could exceed the capacity at some point in the future. The combined peak load on the T-Third long, T-Third short, and T-Third very short lines is predicted to be ~~19,020~~ 26,990 riders by 2030, assuming ~~56~~-minute headways (refer to Table 3-11). The service provided by two-car trains on the T-Third very short line and one-car trains on the T-Third long and short lines may need to be supplemented in the future as growth occurs to meet Muni planning capacity standards. These capacity issues may be substantially alleviated if the Caltrain Downtown Extension were implemented (the Caltrain Extension was not included in the networks because it was not part of the fiscally constrained RTP). As was the case with the No Project/TSM Alternative, demand projected for 9AX-San Bruno Express line may exceed capacity by 2030. Ridership on ~~this the 9X-San Bruno Express routes~~ is forecast to increase to ~~6,210~~ 4,930 passengers ~~(at Fourth and Mission Streets).~~”

The second through fourth paragraphs, page 3-43 are revised as follows:

“Travel times between Fourth and King Street Station and the Union Square/Market Street Station are assumed to be 1.2 minutes faster in Fourth/Stockton Alignment Option A than in the Enhanced EIS/EIR Alignment and 2.4 minutes faster between Fourth and King Streets and the Chinatown station due to the straightening out of the route and a reduction in the number of stops. ~~and The travel time between the Fourth and King Street Station and the Chinatown Station would be~~ 12.4 minutes faster than under the No Project/TSM Alternative (refer to Table 3-11). When compared to existing conditions, travel times from Fourth and King Streets would be ~~4.9~~ 4.6 minutes faster to Market Street and 7.2 minutes faster to Chinatown Station.

As shown in Table 3-8, when compared to the No Project/TSM Alternative, the Fourth/Stockton Alignment Option A is projected to serve about ~~88,840~~ 77,600 trips per weekday in 2030, or ~~28,840~~ 53,000 more daily riders than served by the T-Third line operating along The Embarcadero. This is primarily due to the more direct alignment providing connections to the Union Square/Market Street Station and also due to the travel time savings gained in the proposed tunnel. This ~~is slightly fewer passengers than served~~ 1,300 more passengers than by the Enhanced EIS/EIR Alternative, ~~as Though~~ Option A provides slightly faster travel times, ~~with~~ the reduction in the number of stops ~~increases~~

~~the walk time to stations and a more direct alignment. This out of vehicle time is often perceived by travelers to be more onerous than time spent riding in vehicles.~~ As was the case with the Enhanced EIS/EIR Alternative, a large share of the users of the Central Subway ~~are likely~~ have trip origins outside San Francisco; boarding the Central Subway at the Fourth and King Station after getting off Caltrain and ~~alighting at or~~ Market Street transferring from the BART system (refer to Table 3-9). When compared to the No Project/TSM Alternative, overall boardings on routes serving the Third Street Corridor are expected to increase by approximately ~~14,660–19,000~~ over the No Project/TSM Alternative or ~~69,240–49,700~~ over the existing conditions. The increase of ~~28,810–53,000~~ rail boardings over the No Project/TSM Alternative would be offset by a decline in bus boardings of approximately ~~14,150–34,000~~.

As observed in the Enhanced ESI/EIR Alternative, the large numbers of travelers using the Fourth/Stockton Alignment Option A could exceed the capacity by 2030. The combined peak load on the T-Third long, T-Third short, and T-Third very short lines is predicted to be ~~16,710–27,110~~ riders (refer to Table 3-10). To meet the Muni planning capacity standards, additional service may be required as development occurs. As previously noted, these capacity issues would be substantially alleviated if the Caltrain Downtown Extension were implemented. Once again, capacity issues may arise on the 9AX-San Bruno Express line. Table 3-10 indicates a peak load of about ~~5,270–4,680~~ passengers on the 9X-San Bruno Express lines (at Fourth and Mission Streets).”

The third to fifth paragraphs, page 3-44 and continuing on page 3-45 are revised as follows:

“For the Fourth/Stockton Alignment Option B, travel time between the Fourth and King Station and the Union Square/Market Street Station is estimated to be ~~1.3–1.4~~ minutes slower and travel time between Fourth and King Streets and the Chinatown Station would be 1.7 minutes slower than in Fourth/Stockton Alignment Option A due to the presence of an additional stop in SOMA, but travel times between Fourth and King Streets and Chinatown 10.7 minutes faster than under the No Project/TSM Alternative (refer to Table 3-11). When compared to existing conditions, travel times from Fourth and King Streets would be ~~3.6–3.2~~ minutes faster to Market Street and 5.5 minutes faster to Chinatown Station.

The light rail line in the Fourth/Stockton Alignment Option B is expected to serve approximately ~~99,230–76,600~~ trips per weekday in 2030, or ~~39,200–52,000~~ more daily

riders when compared to the No Project/TSM Alternative (refer to Table 3-8). It serves ~~40,390 more~~ 1,000 fewer passengers or one percent less than served by the light rail train in the Fourth/Stockton Alignment, Option A Alternative, primarily due to the ~~additional access provided by slightly slower travel times resulting from the proposed surface station on Fourth Street.~~ The bus ridership is projected to decline on lines serving the Corridor, such as the 9X/9AX/9BX- San Bruno Expresses, 30-Stockton, and 45-Union/Stockton, as well as other lines serving Downtown San Francisco and SOMA as a result of the Central Subway Project implementation. As was the case with the Enhanced EIS/EIR Alternative and Fourth/Stockton Alignment Option A, a large share of the users of the Central Subway are expected to have trip origins outside San Francisco, transferring to the Central Subway at Fourth and King Station (from Caltrain) ~~and alighting or~~ at Market Street transferring from the BART system (refer to Table 3-9). When compared to the No Project/TSM Alternative, overall transit boardings on routes serving the Third Street Corridor are expected to increase by approximately ~~14,840~~ 18,400 over the No Project/TSM Alternative or ~~69,420~~ 49,300 over existing conditions. The increase of ~~39,200~~ 52,000 rail boardings over the No Project/TSM Alternative would be offset by a decline of ~~24,360~~ 33,600 bus boardings.

~~The Fourth/Stockton Alignment Option B has the highest Central Subway ridership of the four alternatives evaluated and b~~By 2030 the large numbers of travelers using the Central Subway could exceed the capacity during the peak hours under the Fourth/Stockton Alignment Option B (refer to Tables 3-9 and 3-10). Table 3-10 indicates that the peak load on the combined T-Third light rail lines, is projected to be ~~19,720~~ 26,820 by 2030. Assuming the use of Muni planning capacity standards, additional rail service may be required to meet demand as development along the Corridor and to the south of San Francisco occurs. For the Fourth/Stockton Alignment Option B, the 9X-San Bruno Express demand would be less than under ~~all other a~~ Alternatives 2. This is due to a shift in passengers disembarking at the Fourth and Harrison Streets and Fifth and Harrison Street stops, from the 9X-San Bruno Express and other lines, to the T-Third light rail line stop at Fourth and Brannan Streets. The 9AX-San Bruno Express line could experience capacity issues.

Table 3-13, page 3-47, as shown on the following page, is revised to incorporate the intersection delays and level of service resulting from DPT's revised traffic analysis completed in February 2008.

TABLE 3-13

## 2030 A.M. INTERSECTION LOS / AVERAGE SECONDS OF DELAY

INTERSECTION	EXISTING	NO PROJECT / TSM ALTERNATIVE	ENHANCED EIS/EIR ALTERNATIVE	FOURTH / STOCKTON ALTERNATIVE OPTION A (LPA)	FOURTH / STOCKTON ALTERNATIVE OPTION B (MODIFIED LPA)
Third Street / King Street	<del>D/ 36.1</del> <u>D/ 35.8</u>	<del>D/ 47.1</del> <u>E/61.0</u>	<b>F/&gt;80.0</b>	<b>F/&gt;80.0</b>	<b>F/&gt;80.0</b>
Fourth Street / King Street	E/ 55.9	E/ 69.5	<del>D/ 40.0</del> <u>E/ 62.6</u>	<del>E/ 64.6</del> <u>E/64.1</u>	<del>E/ 58.6<sup>1</sup></del> <u>E/64.1<sup>1</sup></u>
Fourth Street / Harrison Street	<del>B/ 13.2</del> <u>B/ 13.5</u>	<del>E/ 66.5</del> <u>C/28.0</u>	<del>C/ 31.5</del> <u>C/34.8</u>	<del>C/ 31.2</del> <u>C/34.8</u>	<del>F/ 75.7</del> <u>C/34.1</u>
Sixth Street / Brannan Street	F/>80.0	F/>80.0	F/>80.0	F/>80.0	F/>80.0
Fourth Street / Bryant Street	<del>B/ 11.8</del> <u>B/ 18.9</u>	<del>B/ 11.8</del> <u>B/ 19.0</u>	<del>C/ 23.8</del> <u>C/ 23.4</u>	<del>C/ 28.2</del> <u>C/ 27.7</u>	<del>D/ 52.5</del> <u>D/51.7</u>
<b>Bold</b> shows Project related impact.					
<sup>1</sup> The level of service presented here is for the semi-exclusive flow option. The level of service under the mixed-flow option would be LOS D.					
Source: San Francisco Department of Parking and Traffic, November 2006, February 2007, and March 2007. <u>Revised February 2008.</u>					

Table 3-14, page 3-48, as shown on the following page, is revised to incorporate the intersection delays and level of service resulting from DPT's revised traffic analysis completed in February 2008.

The text of Alternative 1 – No Project/TSM, Operations and Cumulative Impacts on pages 3-48 to 3-50 is revised as follows to reflect the updates to the traffic analysis completed in February 2008:

“Under the No Project/TSM Alternative, the roadway network in 2030 would be similar to existing conditions, with the exception of the roadway changes within the proposed Mission Bay development. Two of the intersections, Third/King-Fourth/Harrison and Fourth/Bryant, intersections would operate at acceptable levels of service, LOS D-C and B, respectively, in the a.m. peak hour and both the Bryant and Harrison Street intersections with Fourth Street would operate at LOS C during the p.m. peak hour. As under existing conditions, many Three of the Study Area intersections would operate at LOS E, or worse, conditions during the a.m. and p.m. peak period. LOS E or F conditions would occur at the following intersections under the No Project/TSM Alternative (refer to Tables 3-13 and 3-14):

**TABLE 3-14**  
**2030 P.M. INTERSECTION LOS**

INTERSECTION	EXISTING	NO PROJECT / TSM ALTERNATIVE	ENHANCED EIS/EIR ALTERNATIVE	FOURTH / STOCKTON ALTERNATIVE OPTION A (LPA)	FOURTH / STOCKTON ALTERNATIVE OPTION B (MODIFIED LPA)
Third Street / King Street	F/>80.0	F/>80.0	F/>80.0	F/>80.0	F/>80.0
Fourth Street / King Street	F/>80.0	F/>80.0	F/>80.0	F/>80.0	F/>80.0 <sup>1</sup>
Fourth Street / Harrison Street	<del>B/ 19.5</del> <u>B/ 18.5</u>	<del>C/ 27.6</del> <u>C/ 27.0</u>	<del>D/ 35.8</del> <u>D/35.3</u>	<del>E/ 65.2</del> <u>E/64.6</u>	<b>F/&gt;80.0<sup>2</sup></b>
Sixth Street / Brannan Street	F/>80.0	F/>80.0	F/>80.0	F/>80.0	F/>80.0
Fourth Street / Bryant Street	<del>C/ 20.7</del> <u>B/19.6</u>	<del>C/ 30.9</del> <u>C/30.4</u>	<del>B/ 18.5</del> <u>B/ 18.2</u>	<del>D/ 39.5</del> <u>C/ 24.4</u>	<del>D/ 37.3</del> <u>D/ 36.9</u>
<b>Bold</b> shows Project related impact. <sup>1</sup> The level of service presented here is for the mixed-flow and semi-exclusive option. <sup>2</sup> <u>The level of service presented here is for the semi-exclusive option. The level of service for the mixed-flow option would be LOS E.</u> Source: San Francisco Department of Parking and Traffic, November 2006, February 2007, and March 2007. <u>Revised February 2008.</u>					

- Third Street/King Street would degrade from LOS D to LOS E during the a.m. peak hour and continue to operate at LOS F during the p.m. peak hour with increased delays due to increases in traffic volumes on all approaches,
- Fourth Street/King Street would remain at LOS E during the a.m. peak hour and LOS F during the p.m. peak hour with increases in traffic volumes on all approaches, except on the eastbound through movement in the a.m. peak hour, where congestion would limit the traffic flows, and
- ~~Fourth Street/Harrison Street would degrade from LOS B to LOS E during the a.m. peak hour with significant increase in traffic volume to the I-80 on-ramp, and~~
- Sixth Street/Brannan Street would continue to operate at LOS F during a.m. and p.m. peak hours but would experience increased delays in the p.m. peak hour.

#### Mitigation Measures

Given the constrained roadway space available and limited opportunities for roadway restriping or signal enhancements, none of the LOS E and F intersections, ~~except for the~~

~~Fourth and Harrison Streets intersection~~ Third/King, Fourth/King and Sixth Brannan Streets, could be reasonably mitigated and are therefore considered cumulative, unavoidable adverse impacts. ~~At the Fourth/Harrison Streets intersection, the following mitigation measure is recommended:~~

- ~~Fourth Street/Harrison Street: In 2030, the Fourth/Harrison Street intersection would degrade to LOS E conditions during the a.m. peak hour; however, the intersection's performance could be improved to LOS B conditions by adding, via striping changes, a shared through and right turn lane from Fourth Street to Harrison Street. This improvement would require parking removal on the east side of Fourth Street, from Harrison Street to a point about 200 feet to the north for lane transition purposes. Signal timing changes would also help improve the operating conditions by allocating the appropriate amount of green time to all approaches."~~

The text of Alternative 2 – Enhanced EIS/EIR Alignment, Operations and Cumulative Impacts starting with the fourth paragraph, page 3-51 and continuing through the first paragraph, page 3-52 is revised as follows to reflect the updates to the traffic analysis completed in February 2008:

“Under Alternative 2, the Third and King Streets intersection would degrade from LOS ~~D~~ E to LOS F and the Fourth and Bryant Streets intersection would degrade from LOS B to LOS C in the a.m. peak hour with the implementation of the Project. This would result in a significant project impact for the Third/King Streets intersection. The LOS operating conditions for the other three intersections would remain the same, with the Fourth/King Streets intersection experiencing slightly fewer delays than under the No Project/TSM Alternative and the Fourth/Harrison and Sixth/Brannan Streets intersections experiencing slightly higher delays. Cumulative unavoidable adverse impacts are expected to occur at Third Street/King Street intersection in the a.m. peak hour., ~~Fourth Street/King Street (p.m. peak hour only), and Sixth Street/Brannan Street under the No Project/TSM Alternative as these intersections are expected to perform at LOS E or F conditions during the a.m. and/or p.m. peak hours.~~

Implementation of the Enhanced EIS/EIR Alignment would result in a degradation of level of service from LOS C to LOS D at the Fourth Street/Harrison Street intersection and exacerbate the congested LOS F operations during the p.m. peak hours at Third Street/King Street, Fourth Street/King Street, and Sixth Street/Brannan Street intersections., but At the Fourth/Bryant Streets intersection, the level of service would

improve from LOS C to LOS B with Alternative 2. Alternative 2 would make a considerable contribution to the cumulative congestion only at the Sixth/Brannan Streets intersection. At the Sixth Street/Brannan Street intersection, Alternative 2 would increase delays for vehicles accessing the I-280 on- and off-ramps. The Project would not make a considerable contribution to the cumulative adverse impacts at the other two intersections. At the Third Street/King Street intersection, the increase in the northbound left turns ~~that~~ would cause greater delays than under the No Project/TSM Alternative. At Fourth Street/King Street, the overall traffic volume and delays are ~~is~~ slightly less than the No Project/TSM Alternative, ~~but the increase in eastbound left turns could cause delays to increase. During the a.m. peak hours, the LOS operating conditions for two of the intersections remain the same, but would experience slightly fewer delays than under the No Project/TSM Alternative.~~ The Fourth Street/King Street intersection would operate as a constraint to traffic traveling southbound on Fourth Street.”

The text of Alternative 3 – Fourth/Stockton Alignment Option A (LPA), Operations and Cumulative Impacts, second paragraph, page 3-53 is revised as follows to reflect the updates to the traffic analysis completed in February 2008:

“Under Alternative 3A, the Third Street/King Street intersection would degrade from LOS ~~D-E~~ to LOS F in the a.m. peak hour and the Fourth Street/Harrison Street intersection would degrade from LOS C to LOS E in the p.m. peak hour with the implementation of the Project, resulting in a significant project impact. The Fourth Street/Bryant Street intersection would degrade from LOS B to LOS C in the a.m. peak hour and would remain at LOS C in the p.m. peak hour, but would still operate at an acceptable level of service. Third/King, Fourth/King, and Sixth/Brannan streets intersections are expected to continue to operate at LOS E or F in the a.m. and p.m. peak hours. Cumulative unavoidable adverse traffic impacts are expected to occur at Third Street/King Street (a.m. peak hour), Fourth Street/King Street (a.m. and p.m. peak hour), and Fourth Street/Harrison Street (a.m. and p.m. peak hour). These intersections are expected to perform at LOS E or F conditions during the a.m. and/or p.m. peak hours with or without the Fourth/Stockton Alignment Option A (LPA), but Alternative 3A would have a considerable contribution to the cumulative impacts at these intersections in the p.m. peak hour. Implementation of light rail would exacerbate the congested operations at the Fourth Street/King Street intersection during the p.m. peak hours with increases in the eastbound through volumes contributing to the increase in delays. At Third Street/King Street, the increases in



eastbound left turn movements would contribute to the increased delays at the intersection and at the Fourth Street/Harrison Street intersection, the increase in southbound right turn movements resulting from Alternative 3A would contribute to the increased congestion. At the Sixth Street/Brannan Street intersection, the LOS operating conditions would remain at LOS F during the a.m. and p.m. peak hours, but would experience slightly ~~fewer~~ higher delays ~~than under the No Project/TSM Alternative~~ with the reduction in southbound lanes.”

The text of Alternative 3 – Fourth/Stockton Alignment Option A (LPA), Mitigation Measures, first paragraph, page 3-54 is revised as follows to reflect the updates to the traffic analysis completed in February 2008:

“Project-related unavoidable adverse impacts are expected to occur at the Fourth/Harrison Streets and Third/King Streets intersections. Cumulative unavoidable adverse traffic impacts, which cannot be reasonably mitigated are expected to occur by 2030, with and without the light rail project, at Third Street/King Street, and Fourth Street/King Street, ~~and Fourth Street/Harrison Street~~. Alternative 3A would have a considerable contribution to these cumulative impacts in the p.m. peak hour.”

The text of Alternative 3 – Fourth/Stockton Alignment Option B (Modified LPA), Operations and Cumulative Impacts, third paragraph, page 3-55 is revised as follows to reflect the updates to the traffic analysis completed in February 2008:

“For Alternative 3B, when compared to the No Project/TSM Alternative, the LOS at the Third Street/King Street intersection would degrade from LOS ~~D-E~~ to LOS F in the a.m. peak hour and the operation of the Fourth Street/Harrison Street intersection would degrade from ~~LOS E to LOS F in the a.m. peak hour and from~~ LOS C to LOS F in the p.m. peak hour as a result of the Project implementation. The intersection of Fourth/Bryant Streets would degrade from LOS B to LOS D in the a.m. peak hour and from LOS C to LOS D in the p.m. peak hour, but would continue to operate at acceptable levels of service. The intersections of Third/King (a.m. peak hour changes from LOS E to LOS F), Fourth/King, and Sixth Brannan would continue to operate at LOS E or LOS F in the peak hours. Cumulative unavoidable adverse impacts are expected to occur at Third Street/King Street (a.m. and p.m. peak hour), Fourth Street/Harrison Street (p.m. peak hour only), and Fourth Street/King Street (p.m. peak hour only) intersections. Implementation of light rail would exacerbate their congested operations at these locations

during the p.m. peak hours with either ~~of the~~ semi-exclusive or mixed-flow street configurations. These locations would experience greater delays in this alternative than in the No Project/TSM Alternative due to overall increases in traffic volumes, ~~as noted under Alternative 3A,~~ resulting in a considerable contribution to the cumulative impacts.

The LOS operating conditions at the critical intersections remain the same or degrade one level of service during the a.m. peak hours, and would also experience moderately longer delays than under the No Project/TSM Alternative, except at Fourth Street/King Street intersection where overall traffic volumes are less than those under the No Project/TSM Alternative. The increased traffic at the Third/King Streets intersection resulting from Alternative 3B will also result in a considerable contribution to the cumulative impacts.

The only differences in the level of service between the semi-exclusive and mixed-flow track lane options are at Fourth/King Streets and Fourth/Harrison Streets. In the a.m. peak, Fourth/King Streets performs at LOS E for the semi-exclusive track option, while it operates at LOS D in the mixed-flow option. In the p.m. peak, Fourth/Harrison Streets intersection performs at LOS F for the semi-exclusive option and LOS E for the mixed-flow option. The improvement in the level of service for the mixed-flow option could be attributed to the added capacity of the mixed-flow lane, which would be used by both the LRVs and automobile traffic.”

Table 3-16, page 3-60, as shown on the following page, is revised to correctly reflect the remaining parking spaces for the Townsend to Brannan and Bryant to Harrison Streets segments with the implementation of Alternative 3B and to incorporate new counts conducted by the Department of Parking and Traffic for the segment of Stockton Street between Washington and Jackson Streets.

The last sentence, last paragraph, page 3-62 is revised as follows:

“At the Chinatown Station on Stockton Street between Clay and Washington Streets, 6 of the ~~16-14~~ parking spaces would be lost due to the new emergency access hatch located on the west side of the street and the station emergency stairs.”

The last sentence, last paragraph, page 3-63 is revised as follows:

“The proposed location of the light rail tracks, platforms, and subway portal on Fourth Street would remove ~~82-76~~ of the 85 existing on-street parking spaces (east side and west side) under the semi-exclusive option and ~~81-73~~ spaces under the mixed-flow option between Townsend and Harrison Streets (refer to Table 3-16).”

**TABLE 3-16**  
**2030 PARKING CONDITIONS IN CORRIDOR**

APPROXIMATE NUMBER OF ON-STREET PARKING SPACES								
SEGMENT	NO PROJECT / TSM ALTERNATIVE		ENHANCED EIS/EIR ALTERNATIVE		FOURTH / STOCKTON ALTERNATIVE OPTION A (LPA)		FOURTH / STOCKTON ALTERNATIVE OPTION B (MODIFIED LPA)	
Third Street - Total 92 Spaces								
	Spaces Remaining	Spaces Lost	Spaces Remaining	Spaces Lost	Spaces Remaining	Spaces Lost	Spaces Remaining	Spaces Lost
King to Townsend Streets	23	0	0	-23	23	0	23	-0
Townsend to Brannan Streets	35	0	35	0	35	0	35	-0
Brannan to Bryant Streets	34	0	0	-34	34	0	34	-0
Fourth Street - Total 85 Spaces								
King to Townsend Streets	0	0	0	0	0	0	0	-0
Townsend to Brannan Streets	20	0	20	0	2 NB/SB Portal	-18	Semi- Exclusive 0-2	Semi- Exclusive -20-18
							Mixed- Flow 5	Mixed- Flow -15
Brannan to Bryant Streets	36	0	0	-36	36	0	Semi- Exclusive 7	Semi- Exclusive -29
							Mixed- Flow 3-7	Mixed- Flow -33 -29
Bryant to Harrison Streets	29	0	29	0	29	0	Both 0	Both -29
Stockton Street – Total 26 Spaces								
Geary to Post Streets	10	0	2	-8	5	-5	10	-0
Clay to Washington Streets	14	0	4	-10	8	-6	10	-4
Washington to Jackson Streets	20	0	20	0	20	0	18	-2
TOTAL CORRIDOR	204-221	0	90-110	-111	172-192	-29	Semi- Exclusive 149-139	Semi- Exclusive -82
							Mixed- Flow 120-142	Mixed- Flow -81-79
Source: San Francisco Department of Parking and Traffic, May 2007 and January 2008.								
NOTE: Under Alternative 3B up to three parking spaces would potentially be removed on the north side of Ellis Street to accommodate the expansion of the One Stockton Street (Apple Store) access/egress into the public sidewalk area.								

The first paragraph, page 3-64 is revised as follows:

“There would be a loss of three parking spaces on the north side of Ellis Street, west of Stockton Street, to accommodate the potential widening of the existing station access/egress at One Stockton Street (the Apple Store) and ~~four~~ six parking spaces near the Chinatown Station to accommodate emergency access to the station.”

The first sentence, second paragraph, page 3-64 is revised as follows:

“Overall, the Fourth/Stockton Alignment Option B (Modified LPA) would displace ~~82-79~~ parking spaces.”

The last sentence, first paragraph, page 3-65 is revised as follows:

“According to the results from the pedestrian counts, the existing pedestrian levels of service at all proposed station entrances, which currently operate at LOS A, would continue to operate at LOS A except on Stockton Street at Maiden Lane at the Union Square Station for Alternative 3A and along Stockton Street at the proposed Chinatown Station for Alternative 3B where sidewalks would operate at LOS B (see Table 3-17).”

Table 3-17, page 3-66 is revised as noted on the following page.:

The second to the last sentence, second paragraph, page 3-71 is revised as follows:

“Pedestrian analysis for future conditions indicates that the sidewalks on the east side of Stockton Street where the station access points are located would operate at LOS ~~A-B~~.”

The third sentence, first paragraph, page 3-78 is revised as follows:

“For Fire Station #1, the following locations will be upgraded with emergency preemption equipment: Third and Howard Streets, Third and Mission Streets, Fourth and Howard Streets, Fourth and Mission Streets, Geary Street and Grant Avenue, Geary and Powell Streets, and Geary and ~~Post~~ Stockton Streets.”

**TABLE 3-17**  
**EXISTING AND PROJECTED PEDESTRIAN LEVEL OF SERVICE**  
**AT PROPOSED STATION ENTRANCES**

Alternative	Intersection	Corner	Street	Existing LOS	Existing 15-minute count <sup>1</sup>	3-hr PM Peak Period			Projected Total 15-min Ped Volume at Portal	Effective Walkway Width (ft)	Ped Unit Flow Rate (ped/min/ft)	LOS
						PM peak period count	Projected 2030 Pedestrian Volumes	Projected Ridership Volumes at Portal <sup>2</sup>				
2	Market Street Station											
	Third/Market	SW	Market	A	431	5172	7086	<del>3565-3250</del>	<del>888-861</del>	22.00	2.61	A
	Third/Market	SE	Market	A	523	6276	8598	<del>3565-3250</del>	<del>1014-987</del>	16.50	<del>4.10-3.99</del>	A
	Union Square Station											
	Stockton/Maiden Lane	NE	Stockton	A	262	3144	4307	<del>380-270</del>	<del>391-381</del>	5.81	<del>4.47-4.38</del>	A
	Stockton/Maiden Lane	SE	Stockton	A	261	3132	4291	<del>380-270</del>	<del>389-380</del>	7.81	<del>3.31-3.24</del>	A
	Chinatown Station											
	Stockton between Sacramento and Clay	Mid	Stockton	A	179	2148	2943	<del>1255-1350</del>	<del>350-358</del>	7.00	<del>3.33-3.41</del>	A
	Hang Ah Alley (south of Clay)	Mid	Hang Ah	A	27	324	444	<del>1255-1350</del>	<del>142-149</del>	11.00	<del>0.86-0.81</del>	A
3A	Moscone Station											
	Fourth/Howard <sup>3</sup>	NE	Fourth	A	121	1452	1989	0	166	7.60	1.43	A
	Fourth/Howard	NW	Fourth	A	96	1152	1578	<del>600-570</del>	<del>182-179</del>	13.00	<del>0.93-0.92</del>	A
	Fourth/Howard	NW	Howard	A	72	864	1184	<del>600-570</del>	<del>149-146</del>	14.00	<del>0.71-0.70</del>	A
	Union Square/Market Street Station											
	Stockton/Maiden Lane	NE	Stockton	A	262	3144	4307	<del>380-1750</del>	<del>391-505</del>	6.50	<del>4.01-5.18</del>	<del>A-B</del>
	Stockton/Maiden Lane	SE	Stockton	A	261	3132	4291	<del>380-1750</del>	<del>389-503</del>	8.50	<del>3.05-3.95</del>	<del>A-B</del>

**TABLE 3-17 (CONTD.)**  
**EXISTING PEDESTRIAN LEVEL OF SERVICE**  
**AT PROPOSED STATION ENTRANCES**

Alternative	Intersection	Corner	Street	Existing LOS	Existing 15-minute count <sup>1</sup>	3-hr PM Peak Period			Projected Total 15-min Ped Volume at Portal	Effective Walkway Width (ft)	Ped Unit Flow Rate (ped/min/ft)	LOS
						PM peak period count	Projected 2030 Pedestrian Volumes	Projected Ridership Volumes at Portal <sup>2</sup>				
	Chinatown Station											
	Stockton between Sacramento and Clay	Mid	Stockton	A	179	2148	2943	<del>1675</del> 1950	<del>385</del> 408	7.00	<del>3.66</del> 3.88	A
	Hang Ah Alley (south of Clay)	Mid	Hang Ah	A	27	324	444	<del>1675</del> 1950	<del>177</del> 199	11.00	<del>1.07</del> 1.21	A
3B	Chinatown Station											
	Stockton/Geary	NE	Geary	A	238	2856	3913	<del>2990</del> 2230	<del>575</del> 512	9.10	<del>4.22</del> 3.75	A
	Stockton/Washington	SW	Stockton	A	193	2316	3173	<del>3130</del> 3700	<del>525</del> 573	7.00	<del>5.00</del> 5.45	B
Note: Pedestrian Growth Factor = 1.37												
<sup>1</sup> Counts conducted April 2007. <u>Analysis updated April 2008.</u>												
<sup>2</sup> Total projected station ridership (p.m. peak period) divided by the number of station exits. See Table E-11 (Appendix E) for total projected station ridership during the p.m. peak period.												
<sup>3</sup> Proposed station elevator location.												

## Chapter 4.0 Affected Environment

The following text is added as a new paragraph following the fourth paragraph on page 4-6:

“Section 812.1.39b of the San Francisco Planning Code prohibits demolition of residential apartment units in the Chinatown Residential Neighborhood Commercial District. The Chinatown Station site at 933-949 Stockton Street is located in this zoning district and would require an amendment to the Planning Code for the demolition of the residential units at this location.”

## Chapter 5.0 Environmental Consequences and Mitigation Measures

The last sentence, fourth paragraph, page 5-18 is revised as follows:

~~“If the Recreation and Parks Department does not make a~~ has concurred with the “de minimis” finding; for this alternative, which satisfies the Section 4(f) ~~report would be subject to review by the Department of Interior review requirements (see Appendix J).~~”

The text in the first sentence, second paragraph, page 5-31 is revised as follows:

“The Chinatown Stations would be centered on Clay Street at Stockton Street, and would have a mezzanine and ~~(concourse)~~ level and one platform level.”

The text of the first two sentences, last paragraph, page 5-37 is revised as follows:

“The same as for Alternative 2 above, the Chinatown Station entrance for Alternative 3A would be located on the east side of Stockton Street between Sacramento and Clay Streets in a new facility replacing an existing two-story building. The building above the new station would be limited to less than 40 feet tall to reduce possible shadows on the playground and tennis courts (Willie “Woo Woo” Wong Playground ) to the east of the station ~~at~~ location.”

The text of the fourth sentence, last paragraph, page 5-39 is revised as follows:

“This underground station would have a mezzanine and ~~(concourse)~~ and one platform level for north and southbound trains.”

The last sentence, fifth paragraph, page 5-59 is revised as follows:

“Design measures to address groundwater flow to the Powell Street BART/Muni Metro Station would be incorporated into the Union Square/Market Street Station.”

The last sentence, second paragraph, page 5-60 is revised as follows:

“Design measures to address groundwater flow to the Powell Street BART/Muni Metro Station would be incorporated into the Union Square/Market Street Station.”

## **Chapter 6.0 Construction Methods, Impacts, and Mitigations**

The second sentence, second paragraph, page 6-1 is revised as follows:

“The impacts discussion is organized by environmental topic in the same order as in Chapters ~~3-0~~ 4.0 and 5.0.”

The fifth paragraph, page 6-20 is revised as follows:

~~“Clementina Street and the adjacent~~ The lot at the southwest corner of Clementina and Fourth Streets (14,800 square feet) presently occupied by a gas station would serve as the staging area for the Moscone Station and the temporary construction shaft.”

The second sentence, fourth paragraph, page 6-34 is amended as follows:

~~“Although it is not feasible to~~ Temporary re-routing of the 30-Stockton and 45-Union/Stockton electric trolley bus lines to alternative streets during the ~~for the entire construction period (six to eight months)~~ duration, temporary re-routing of these lines may be required.”

The second paragraph, page 6-35 is revised as follows:

“Re-routing the 30-Stockton and the 45-Union/Stockton trolley coaches would require moving the existing overhead wires to allow the trolley buses to reach lanes not presently served, construction of new overhead wires, or temporary substitution of motor coaches for the trolley coaches; a cost that is included in the project cost estimates. Use of auxiliary power units (APUs) may be feasible for limited lengths traveling downhill on Stockton Street. ~~Moving the overhead wires would add substantial cost to the Project. Given the length of the construction and the length of travel, and the congestion in which the buses would have to maneuver, use of the auxiliary power units (APUs) would not be feasible for the buses to travel off wire.~~”



The second sentence, sixth paragraph, page 6-35 is revised as follows:

“Overhead trolley lines for the 30-Stockton and the 45-Union/Stockton lines would need to be ~~removed temporarily relocated for a period of six to eight months~~ to facilitate installation of the shoring and decking.”

The second to last sentence, third paragraph, page 6-36 is revised as follows:

“Also, Stockton Street, between Geary and Ellis Streets may need to be closed completely for an estimated six to eight months for installation of the secant piles for the deep cut-and-cover platform section of the station.”

Table 6-2, page 6-50 is revised as shown on the following page.

**TABLE 6-2**  
**ACQUISITION AND RELOCATION REQUIREMENTS**

LOCATION	REASON FOR ACQUISITION	ACQUISITION	RELOCATION	ALTERNATIVE
370 Third Street APN 3751-157	Subway alignment	60 square feet (easement underneath building)	No	Alternative 2
425 Fourth Street APN 3762-112	Subway alignment	150 square feet (easement underneath building)	No	Alternative 2
255 Third Street (Moscone Garage) APN 3735-060	Location of vent shafts for Moscone Station	Agreement/easement for placement of vent shafts on the southeast corner of building and elevators under the entrance at northwest corner	No	Alternative 2
Tehama Pedestrian Way	Location for entrance to Moscone Station on Third Street	None	Possible Vendor Relocation	Alternative 2
Hearst Garage 45 Third Street APN 3707-058	Location of vent shafts	Agreement/easement for locating vent shafts inside space in garage (30 parking spaces displaced).	No	Alternative 2
Union Square Garage APN 0308-001	Location of vent shafts and entrance to Union Square Station	Agreement for locating vent shafts and station entry in the Union Square terrace and plaza, (29 parking spaces displaced in Alternatives 2 and 3A; 34 parking spaces displaced in Alternative 3B)	No	Alternative 2 and Alternative 3A, Alternative 3B
814-828 Stockton Street APN 0225-014	Location of vent shafts and entrance to Chinatown Station	4,600 square feet (acquisition entire lot)	Yes	Alternative 2 and Alternative 3A
266 Fourth Street APN 3733-093	Location of vent shafts and entrance to Moscone Station on Fourth Street	14,800 square feet (entire gas station lot)	Yes	Alternative 3A Alternative 3B
<del>790-798 Market Street APN 0328-002</del>	<del>Easement</del>	<del>Market Street tunnel</del>	<del>No</del>	<del>Alternative 3A Alternative 3B</del>
801 Market Street APN 3705-048 (Old Navy)	Subway alignment	1,700 square feet easement underneath the building	No	Alternative 3A Alternative 3B
44 Stockton Street	Subway alignment	5 square feet (Easement A underneath building)	No	Alternative 3A

790-798 Market Street/2 Stockton Street APN 0328-002 and 37052-001 to 004 (Virgin Records)	Subway alignment	3,900 square feet <u>easement</u> for Option A and 3,300 square feet <u>easement</u> for Option B (Option A easement area underneath building)	No	Alternative 3A Alternative 3B
BART Entries on Market Street at Powell Station	Access to station	None – Use Agreement	No	Alternative 3A Alter native 3B
123 O’Farrell Street (Ellis/O’Farrell Garage) APN 0327-021	Location of vent shafts	Agreement for locating vent shafts in the parking garage. 24 parking spaces displaced	No	Alternative 3B
933-949 Stockton Street APN 0211-001	Location of vent shafts and entrance to Chinatown Station	10,100 square feet (acquisition of entire lot)	Yes	Alternative 3B
1455 Stockton Street	Subway alignment for North Beach Tunnel Construction Variant	1,400 square feet (easement underneath building)	No	Alternative 3A Alternative 3B
Sidewalk Basements – Various Locations	Station construction at Union Square and on Market Street between Third Street and the Montgomery Station (Alternative 2).	Revocation of permits for use of public right-of-way	No	All Alternatives
Source: PB/Wong, 2007				

The following new paragraph is added following the fifth paragraph, page 6-47 is revised as follows:

“An amendment of the Planning Code, which prohibits the demolition of residential apartment units in the Chinatown Residential Neighborhood Commercial District, would be required for the Chinatown Station. The impacts would be the same as those discussed in Section 6.5.2, Property Acquisition.

The third sentence, paragraph five, page 6-53 is revised as follows:

“The Department of Recreation and Parks would need to authorize ~~a long-term encroachment permit~~ for the use of Union Square ~~plaza and a Section 4(f) approval would also be required.~~”

The following text is added at the end of the last paragraph, page 6-53:

“An amendment to the San Francisco Planning Code would be required for the demolition of the residential apartment units at this station site and the mitigation measures would be the same as those proposed for acquisition of the parcels.”

The first sentence, third paragraph, page 6-76 is revised as follows:

“Although this would not be considered a mitigation ~~measure~~ to a less-than-significant effect, if the historic building at 814-828 Stockton Street is demolished, then it would be

standard practice to perform Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) documentation.”

The first sentence, first paragraph, page 6-79 is revised as follows:

“...Street served the immediate need for lodging and shop space by Chinese merchants in the aftermath of ~~a~~the 1906 natural disaster.”

The first sentence, second paragraph, page 6-79 is revised as follows:

“Within the block (Block 211), the three remaining buildings on the west side of Stockton Street are also contributing elements to the historic district, and other important buildings are nearby, including the Commodore School, the Chinese Methodist Episcopal Church, Presbyterian Church in Chinatown, and the Gum Moon Residence.”

The first sentence, second paragraph, page 6-82 is revised as follows:

Although this would not be considered a mitigation ~~measure to a less-than-significant effect~~, if the historic building at 933-949 Stockton Street is demolished, then it would be standard practice to perform Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) documentation “.”

## **Chapter 7.0 CEQA Considerations**

The last two paragraphs on page 7-8 are revised as follows to incorporate the revised traffic analysis prepared by DPT:

“Under the No Project/TSM Alternative, traffic congestion and delays would increase at all of the five intersections analyzed. The Third/King ~~and Fourth/Harrison Streets~~ intersections would degrade from LOS D to LOS E, the Fourth/King Streets intersection would continue to operate at LOS E, and Sixth/Brannan Streets intersection would experience increased delays at LOS F in the a.m. peak hour. In the p.m. peak hour, the Third/King, Fourth/King, and Sixth/Brannan Streets intersections would continue to operate at LOS F. Under all Build Alternatives, the Third/King, Fourth/King, and Sixth/Brannan Streets intersections would operate at LOS F in the a.m. or p.m. peak hours. The Project would have a cumulatively considerable contribution to the 2030 adverse cumulative impact at the following locations: Sixth/Brannan Streets intersection for Alternative 2; and Third/King, ~~and Fourth/King for Alternatives 3A and 3B~~, and

Fourth/Harrison Streets intersections for Alternative 3A and 3B (see Tables E-12 and E-13 in Appendix E). This determination was based on the examination of traffic volumes for the traffic movements which determine overall LOS intersection performance.

For Alternative 2, ~~two~~ three of the five intersections analyzed would operate at LOS E or F conditions for Cumulative 2030 conditions during the a.m. peak hour and three of the five intersections analyzed would operate at LOS ~~E or~~ F conditions for Cumulative 2030 conditions during the p.m. peak hour. There would be a project-specific significant traffic impact at the Third/King intersection compared to No Project/TSM conditions due to a deterioration of LOS from ~~D-E~~ to F for the a.m. peak hour. The Project's share of future traffic growth at the Sixth/Brannan Streets intersection would constitute a cumulatively considerable contribution to adverse 2030 cumulative traffic conditions for the p.m. peak hour. Alternative 2 contributions to adverse cumulative conditions were found to be significant, in particular, as under Alternative 2 project-related traffic would constitute substantial percentages for critical volume movements that would operate with adverse conditions. As project-related traffic would represent a"

The Transit, Operation/Cumulative Impacts in Table 7-2, page 7-10 are revised as noted on the following pages.

The Traffic, Operation/Cumulative Impacts and Mitigation Measures in Table 7-2, page 7-11 and 7-12 are revised as noted on the following pages.

The Parking, Operation/Cumulative Impacts for Alternative 3B in Table 7-2, page 7-14 is revised as noted on the following pages.

The Land Use Construction Impacts for Alternative 3B in Table 7-2, page 7-18 is revised as noted on the following pages.

The Socioeconomic Construction Impacts for Alternative 3B in Table 7-2, page 7-19 is revised as noted on the following pages.

The first sentence, third paragraph, page 7-46 is revised as follows:

"For Alternative 3A, there would be a project-specific significant traffic impact at the Third/King Streets intersection compared to No Project/TSM conditions due to a deterioration of LOS from ~~D-E~~ to F for the a.m. peak hour and Fourth/Harrison Streets due

to a deterioration of LOS C to LOS ~~F~~E in the p.m. peak hour compared to No Project/TSM conditions.”

The second paragraph, page 7-47 is revised as follows:

“For Alternative 3B, the impacts would be the same as described for Alternative 3A, except ~~that at the Fourth/Harrison Streets intersection there would also be a Project-specific impact in the a.m. peak hour where level of service would degrade from LOS E to~~

## TRANSIT

Operation/Cumulative	<u>Less-than-Significant Impact:</u>	<u>Less-than-Significant Impact:</u>	<u>Less-than-Significant Impact:</u>	<u>Less-than-Significant Impact:</u>
	1. Muni Metro rail service on the Embarcadero and the 9AX San Bruno express buses are projected to experience capacity issues by 2030. The capacity constraints on the Embarcadero rail line between Market Street and Folsom Street would preclude capacity improvements for the rail service.	The Central Subway rail service and the 9AX/ <del>BX</del> San Bruno express buses are projected to experience capacity issues by 2030.	Same as Alternative 2.	The Central Subway rail service and the 9AX San Bruno Express <del>are is</del> projected to experience capacity issues by 2030.

## TRAFFIC

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
Operation/Cumulative	<p><i>Significant Impacts:</i></p> <p><del>Increases in traffic congestion and delays would occur in 2030 at all of the five intersections evaluated as a result of cumulative traffic growth. Third/King (a.m. peak only). Streets intersection would degrade from LOS E to LOS F in the a.m. peak hour and would continue to operate at LOS F in the p.m. peak hour. Fourth/King, and Sixth/Brannan Streets intersections would continue to operate at LOS E or F conditions in the a.m. and p.m.</del></p>	<p><i>Significant Impacts:</i></p> <p><del>Increases in traffic congestion and delays would occur in 2030 at three out of the five intersections evaluated.</del> The Project would have a significant traffic impact at the Third/King Streets intersection in the a.m. peak hour due to degradation in LOS from <del>D-E</del> to F when compared to the No Project/TSM Alternative and a cumulatively considerable contribution to the cumulative traffic impacts at the Sixth/Brannan Streets intersection during the p.m. peak hour in 2030.</p>	<p><i>Significant Impacts:</i></p> <p><del>Increases in traffic congestion and delays would occur in 2030 at three out of the five intersections evaluated.</del> The Project would have a significant traffic impact at the Third/King Streets intersection in the a.m. peak hour due to a degradation in LOS from <del>D-E</del> to F and at the Fourth/Harrison Streets intersection in the p.m. peak hour due to a degradation in LOS from C to E when compared to the No Project/TSM Alternative. This alternative would have a</p>	<p><i>Significant Impacts:</i></p> <p>1. Same as Alternative 3A, except the Project would also have a significant impact at the <del>Fourth/Harrison Streets intersection during the a.m. peak hour when compared to the No Project/TSM Alternative</del> and a cumulatively considerable impact on the cumulative traffic impacts at the King Street and Third Streets intersection during a.m. peak hour <del>and the Fourth/Harrison Streets intersection during the p.m. peak hour</del> in 2030.</p> <p>2. In addition, the portal at</p>

	<p>peak hours. <del>The intersection of Fourth and Harrison Streets would degrade from LOS B to LOS E when compared to the existing conditions.</del></p> <p><del><i>Mitigation Measure:</i></del> Restriping the southbound curb lane of Fourth Street to accommodate a shared through/right turn lane to Harrison Street would mitigate the impacts to LOS B resulting in a less-than-significant impact.</p> <p><i>Significant environmental effects which can not be avoided:</i> <del>None of the remaining traffic impacts could be reasonably mitigated. The traffic impacts at Third/King, Fourth/King, and Sixth/Brannan Streets intersections could not be reasonably mitigated to a less-than-significant level.</del></p>	<p><i>Significant environmental effects which can not be avoided:</i> The traffic impacts at Third/King and Sixth/Brannan Streets intersections could not be reasonably mitigated to a less-than-significant level.</p>	<p>cumulatively considerable contribution to the adverse cumulative traffic impacts at the King Street intersections with Third and Fourth Streets and the Fourth/Harrison Streets intersection during the p.m. peak hour in 2030.</p> <p><i>Mitigation Measure:</i> Restriping the southbound curb lane of Fourth Street to accommodate a shared through/right-turn lane to Harrison Street would mitigate the impacts to LOS B resulting in a less-than-significant impact.</p> <p><i>Significant environmental effects which can not be avoided:</i> The traffic impacts at the Third/King and Fourth/King Streets intersections could not be reasonably mitigated to a less- than-significant level.</p>	<p>Fourth Street under I-80 may restrict <del>access to the proposed bus storage facility at Perry Street and large</del> truck movements onto Stillman Street.</p> <p><i>Mitigation Measures:</i> Same as Alternative 3A, except MTA will explore <del>design modifications to the portal with the TJPA and Golden Gate Transit</del> options that will permit bus access to Perry Street and truck access to Stillman Street <del>that will</del> to reduce the impacts to a less-than-significant level.</p> <p><i>Significant environmental effects which can not be avoided:</i> Same as Alternative 3A.</p>
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## PARKING

Operation/Cumulative	No operation or cumulative impacts.	<p><u><i>Less-than-Significant Impact:</i></u> This alternative would eliminate 111 on-street parking spaces and 59 off-street parking spaces.</p>	<p><u><i>Less-than-Significant Impact:</i></u> This alternative would eliminate 29 on-street parking spaces and 29 off-street parking spaces.</p>	<p><u><i>Less-than-Significant Impact:</i></u> This alternative would eliminate 82 on-street parking spaces for the semi-exclusive option and <del>8479</del> spaces for the mixed-flow option and 59 off-street parking spaces. <u>An additional 3 spaces</u></p>
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				<u>may be removed on the north side of Ellis Street to accommodate emergency exiting.</u>
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## EMERGENCY VEHICLE ACCESS

Operation/Cumulative	No operation or cumulative impacts	<p><u><i>Less-than-Significant Impact:</i></u> The introduction of a single-track median in the middle of Fourth Street would require fire trucks exiting Fire Station #8 on Bluxome Street to cross the entire trackway to travel contra-flow on Fourth Street.</p> <p><i>Improvement Measures;</i> DPT will be upgrading traffic signals with emergency vehicle preemption equipment in order to minimize the emergency response time and improve signal operations.</p>	<p><u><i>Less-than-Significant Impact:</i></u> Same as Alternative 2, except there would be a double-track median to cross in Fourth Street.</p> <p><i>Improvement Measures;</i> Same as Alternative 2.</p>	<p><u><i>Less-than-Significant Impact:</i></u> Same as Alternative 3A, except the trackway would be about 3 feet wider than under Alternative 2 <u>and with two-way operation on Fourth Street, there would be no contra-flow travel.</u></p> <p><i>Improvement Measures;</i> Same as Alternative 2.</p>
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## LAND USE

Construction	No construction impacts.	<p><u><i>Less-than-Significant Impact:</i></u> Construction would not cause a change in land use patterns or neighborhood character, but would temporarily disrupt access to the adjacent uses as described under Transportation.</p> <p><i>Improvement Measures:</i></p>	<p><u><i>Less-than-Significant Impact:</i></u> Same as Alternative 2, but would have a lesser area of surface disruption.</p> <p><i>Improvement Measures:</i> Same as Alternative 2.</p>	<p><u><i>Less-than-Significant Impact:</i></u> Same as Alternative 3A, except that the surface area of disruption would be greater than under Alternative 3A <u>and an amendment of Planning Code would be required to allow the demolition of residential apartment units.</u></p>
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		Public information programs and signage will be used to minimize impacts to adjacent land uses during construction.		<i>Improvement Measures:</i> Same as Alternative 2.
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### SOCIOECONOMIC (POPULATION AND HOUSING)

Construction	No construction impacts.	<u><i>Less-than-Significant Impact:</i></u> The Project would create temporary construction-related jobs that would not be expected to have a substantial effect on the regional population.	<u><i>Less-than-Significant Impact:</i></u> Same as Alternative 2.	<u><i>Less-than-Significant Impact:</i></u> Same as Alternative 2, <u>except an amendment of Planning Code would be required to allow the demolition of residential apartment units..</u>
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~~LOS F and the LOS would degrade from LOS C to LOS F in the p.m. peak hour the Project's share of future traffic growth would also constitute a cumulatively considerable contribution to adverse 2030 cumulative traffic conditions at the Third/King Streets intersection in the a.m. peak hour."~~

The first sentence, last paragraph, page 7-47 is revised as follows:

"Alternatives 2 and 3A would result in the displacement of 10 small businesses (10 or fewer employees per business) ~~and 1 or 2 residential units~~ in the Chinatown neighborhood at 814-828 Stockton Street for construction of the proposed Chinatown Station."

## **Chapter 8.0 Financial Feasibility**

The second through fourth sentences, first paragraph, page 8-1 are revised as follows:

"The primary basis for this section is the MTA's Central Subway FY ~~2008-2009~~ New Starts Report, Financial Plan, which was prepared in ~~2006-2007~~, ~~although this section also includes in addition to~~ updated costs estimates and revenue projections ~~for Project alternatives, which that~~ have been provided by the MTA and its consultants. The analysis is not required for CEQA environmental review, but is presented for informational purposes as a financial plan is an important element of the federal and local project approval process. ~~Total forecast o~~Operating and capital costs are compared to ~~operating and non-operating~~ revenues from federal, state and local sources to determine the financial feasibility of the Project alternatives."

The last sentence, second paragraph, page 8-1 is revised as follows:

"The MTA expects to update the Project financial plan in September ~~2007-2008~~."

The fifth paragraph, page 8-4 is revised as follows:

"Preliminary estimates predict that utility relocations for the Central Subway will commence in ~~2010-2009~~ with heavy construction scheduled to begin in ~~2011-2010~~. ~~The start of revenue service~~ Completion of construction is scheduled for 2016 for Alternative 3B and 2017 for Alternative 2 and Alternative 3A."

The second sentence, second paragraph, page 8-5 is revised as follows:

“Alternative 3B is similar to Alternative 3A, but its cost estimates differ in part because of a shorter tunnel (with a longer surface line), four stations (the fourth is a surface platform), and a shorter (~~one year~~ six months less) construction period than the other build alternatives.”

The first sentence, last paragraph, page 8-5 is revised as follows:

“Other differences in Alternative 2 that affect the alternatives cost estimates include: operation as a surface line on both Third and Fourth Streets, south of Harrison Street; two portals (one on Third Street and one on Fourth Street) rather than one portal; a tunnel under Third Street ~~instead of in addition to~~ in addition to Fourth Street, and five stations (four underground and one surface).”

The second through the fourth sentences, paragraph one, page 8-6 are revised as follows:

~~“A second independent line (The T-Third Short Line) is anticipated to operate between Chinatown and a turnaround loop near 18th Street and the T-Third Very Short Line is planned to operate between Chinatown and Fourth and Berry Streets. Service levels are planned for single car trains on the T-Third Long and Short lines and two-car trains on the T-Third Very Short Line operating at five-six-minute peak period and 10-minute midday frequencies on each line. For Alternative 3B (the LPA as selected in February 2008), tThis would require three additional LRVs, plus one spare, for a total of four additional LRVs in 2030. For Alternative 2, it would require six additional LRVs (five peak plus one spare) and for Alternative 3A, it would require three additional LRVs (two peak plus one spare).”~~

The second through the fourth paragraphs, page 8-6 are revised as follows:

“Basis for Rail Estimating Operation and Maintenance Costs

~~Light rail operating expenses were estimated in four major cost categories: vehicle operations, vehicle maintenance, non vehicle maintenance, and general and administrative. Total MTA costs including the Central Subway Project were estimated by using FY2005 MTA data to calculate cost ratios (e.g., \$37.13 per train revenue hour for vehicle operator salaries and wages) for subcategories of the four major categories and multiplying the ratios by an appropriate cost driver (e.g., revenue car miles, number~~

~~of service and inspection yards, etc.). The MTA has assumed that rail operating and maintenance (O&M) costs increase at a rate of 3.5 percent per year on average.~~

#### Basis for Other Costs

~~MTA system operating expenses for motor bus, trolley bus, and cable car were estimated using the same major cost categories and methodology as rail costs. Similar to the rail costs, the MTA has assumed that bus and cable car O&M costs increase 3.5 percent per year on average.~~

The system wide Operations and Maintenance (O&M) expenses were estimated by applying the results of an O&M cost model developed for the Transit Effectiveness Project (TEP) and the FY 2009 Central Subway New Starts Report submission to the FTA.

The O&M cost model is disaggregate and resource build-up in structure, consistent with the approach suggested by the Federal Transit Administration (FTA). Line item costs are determined according to the quantity of service supplied and other system characteristics. Expenses are classified as fixed and/or variable (a driving variable drives the variable costs). Costs are broken out by class so appropriate inflation rates can be applied to project future costs for labor, fringes, and energy costs, which historically have varied significantly from each other.

The O&M cost model was calibrated and unit costs computed based on the SFMTA FY 2006 actual operating expenses, staffing costs, and levels of service provided. The following inflation factors were applied to FY 2006 dollars to forecast unit costs in year-of-expenditure dollars.

- Salaries and Wages: San Francisco Consumer Price Index - All Urban Consumers (CPI-U) + 0.5%, based on historical growth in salaries and wages
- Health Benefits: Historical growth in healthcare expenses of 10%
- Other Benefits: San Francisco CPI-U - All Items
- Fuel and Lubes: Crude Oil Price: West Texas Intermediate - Sweet Wellhead
- Materials & Supplies: San Francisco CPI-U - All Items

- Propulsion Electricity: San Francisco CPI-U - Electricity
- Other: San Francisco CPI-U - All Items

#### Factors That May Alter Operating Cost Estimates

~~Altering the following variables in the operating plan for the Central Subway Project would change the operating cost forecasts: number of peak cars; car revenue miles; train revenue hours; subway stations; one-way route miles; and number of service and inspection yards. The O&M cost model estimates unit costs using a variety of variables, including peak vehicles, revenue bus/train hours, weekday peak revenue bus/train hours, revenue vehicle miles, ridership, manned stations, wayside or surface platforms, maintenance garages, power sub-stations, miles of trolley wire lines, and track miles. Some of these variables were broken out to associate mode-specific costs to the mode-specific variable. Any change in the value of these variables would affect the forecast of O&M costs for the baseline and the build alternatives.”~~

The first two paragraphs and Table 8-2, page 8-7 are revised as follows:

“The projected incremental operating costs for both the T-Third line (IOS) and Central Subway Alternatives are summarized in Table 8-2 in year of expenditure dollars (YOE). ~~All Project a~~ Alternatives 3A and 3B are expected to result in a net operating cost savings relative to the No Project/TSM Alternative, however, Alternative 2 would result in a net-operating increase. The 2016 figures represent the cost at the startup of the Central Subway operations, while the 2030 figures are for a selected forecast year.

#### **Comparative Discussion**

Due to a faster and more direct alignment, Alternative 3A creates an annual reduction of ~~2,400~~ 40,300 LRV car hours on the Central Subway Corridor and a system-wide annual ~~reduction~~ increase of 27,800-11,900 car hours when compared to the No Project Alternative. Alternative 3A would also reduce the number of system-wide annual bus hours by 76,400. Alternative 3B would save the same number of annual bus hours, however, it would ~~increase-reduce the~~ annual LRV car hours by ~~6,000-39,000~~ on the Central Subway Corridor while ~~reducing-increasing~~ by ~~19,400-13,200~~ system-wide LRV hours compared to the No Project/TSM Alternative. Alternative 2 would result in yields-an annual ~~increase-decrease~~ of ~~7,100-33,100~~ LRV car hours, a

system-wide annual ~~reduction~~ increase of ~~18,300~~ 19,100 car hours, and would reduce the number of system-wide annual bus hours by 76,400 when compared to the No Project/TSM Alternative.”

<b>TABLE 8-2</b>				
<b>CENTRAL SUBWAY INCREMENTAL OPERATING COSTS (IN YOE\$ MILLIONS)</b>				
	<b>No Project/TSM Alternative</b>	<b>Alternative 2</b>	<b>Alternative 3A</b>	<b>Alternative 3B</b>
2016	<del>\$707.9</del> <u>\$852.61</u>	<del>\$693.4</del> <u>\$852.73</u>	<del>\$693.0</del> <u>\$849.65</u>	<del>\$693.2</del> <u>\$849.41</u>
2030	<del>\$1,145.9</del> <u>\$1,261.49</u>	<del>\$1,122.3</del> <u>\$1,262.13</u>	<del>\$1,121.7</del> <u>\$1,257.77</u>	<del>\$1,122.1</del> <u>\$1,258.31</u>
<b>Difference from No Project/TSM Alternative</b>				
2016	N/A	<del>(\$14.5)</del> <u>\$0.11</u>	<del>(\$14.9</del> <u>\$2.96)</u>	<del>(\$14.7</del> <u>\$3.20)</u>
2030	N/A	<del>(\$23.6)</del> <u>\$0.64</u>	<del>(\$24.2</del> <u>\$3.72)</u>	<del>(\$23.8</del> <u>\$3.18)</u>
Note: YOE is Year of Expenditure.				
Source: <del>MTA, May 2007</del> AECOM Consult, Inc. April 2008.				

The last paragraph, page 8-7 and continuing on to page 8-8 is revised as follows:

“A total of ~~\$432.2~~ \$473 million in state and local capital funding has been committed to the Central Subway Project. In addition, the MTA is currently seeking \$762.2 million in federal “New Starts” funding, for a total of ~~\$1,194.4~~ \$1,235 million in capital funding identified for the Project. These sources are discussed in this section. Only Alternative 3B is fully funded; and the steps that the MTA is taking to overcome the capital funding shortfalls for the other alternatives are discussed in Section 8.1.4. MTA’s funding plan for the Central Subway Project alternatives ~~are~~ is displayed in Table 8-3.”

Table 8-3, page 8-8 is revised as follows:

<b>TABLE 8-3</b>	
<b>CENTRAL SUBWAY CAPITAL FUNDING PLAN (IN SMILLIONS)</b>	
<b>Source</b>	<b>Amount</b>
Federal – 5309 New Starts	\$762
State	\$306
Local	<del>\$126</del> <u>167</u>
Total	<del>\$1,194</del> <u>1,235</u>
Source: MTA Central Subway FY2008 <del>9</del> New Starts Financial Plan	

The first through third sentences, third paragraph, page 8-8 is revised as follows:

“The MTA is seeking a minimum of \$762.2 million in Section 5309 New Starts funding. The MTA started receiving New Starts funds for the Central Subway Project in FY 2003.

To date, the MTA has received \$45.3 million in New Starts funds as follows: \$1.5 million in 2003; \$8.9 million in 2004; \$9.9 million in 2005; ~~and \$25 million in 2006, and \$11.74 million approved for 2008.~~ These funds were allocated for preliminary engineering and environmental review. The Central Subway Project ~~still~~ needs to complete Preliminary Engineering and enter Final Design before it is eligible to receive an FFGA, and the federal government's allocation of New Starts funding to-date does not guarantee that the Central Subway Project will receive an FFGA."

The last sentence, third paragraph, page 8-8 is revised as follows:

"In FTA's FY 2008~~9~~ New Starts Report to Congress, the Central Subway Project (Alternative 3AB) received a "Medium" Overall Rating, a "Medium" Local Financial Commitment Rating, a "Medium" Project Justification Rating, a "Medium-Low" Cost Effectiveness Rating, and a "High" Transit Supportive Land Use Rating."

The second sentence, sixth paragraph, page 8-9 is revised as follows:

~~"Muni-~~The MTA has either planned, programmed, or been awarded funding for all capital projects in the State of Good Repair CIP, which includes the capital projects needed to maintain the current level of service as well as the Central Subway Project Alternative 3AB."

Pages 8-12 and 8-13 are revised as follows:

### **"Operating Sources**

#### Project Specific Transit Farebox and Non-farebox Operating Revenue Sources

~~In 2030 -~~The MTA's estimates ~~that the~~ of additional annual fare revenues ~~by from~~ the Central Subway Project ~~would be~~ is \$9.0-7.0 million ~~per year~~ for Alternative 3A, based on the estimated change in ridership and an increase in the average fare that is consistent with the MTA's estimate for inflation (~~3.2~~ 2.3 percent per year). Alternative 3B is ~~predicted~~ projected to generate slightly less incremental annual revenues of \$8.8-6.6 million and Alternative 2 is expected to generate \$11.6-5.6 million more than the No Project/TSM Alternative. The operating revenue estimates are shown in Table 8-7. MTA has assumed that the Central Subway Project will generate the same non-farebox operating revenue as the No Project/TSM Alternative."

**TABLE 8-7****2030 CENTRAL SUBWAY OPERATING REVENUES (NOMINAL\$)**

	<b>Alternative 2</b>	<b>Alternative 3A</b>	<b>Alternative 3B</b>
Boardings with Central Subway	283,284,830	281,333,060	281,151,420
Boardings for No Project/TSM Alternative	274,528,660	274,528,660	274,528,660
Change in Boardings	8,756,170	6,804,405	6,622,764
Average Fare	\$1.33	\$1.33	\$1.33
Fare Revenue Generated by Central Subway	\$11,645,710	\$9,049,860	\$8,808,280
Note: Estimates developed using MTA methodology from MTA Central Subway FY2008 New Starts Financial Plan, Figure 15 and updated MTA boarding estimates.			



**TABLE 8-7**  
**2030 CENTRAL SUBWAY OPERATING REVENUES (YOE\$)**

	<u>Alternative 2</u>	<u>Alternative 3A</u>	<u>Alternative 3B</u>
<b><u>Light Rail, Bus Trolley Bus, and Historic Streetcar</u></b>			
<u>Boardings with Central Subway</u>	<u>262,855,770</u>	<u>265,115,520</u>	<u>264,783,700</u>
<u>Boardings for No Project/TSM Alternative</u>	<u>259,444,570</u>	<u>259,447,570</u>	<u>259,447,570</u>
<u>Change in Boardings</u>	<u>3,408,200</u>	<u>5,66,950</u>	<u>5,336,130</u>
<u>Average Fare</u>	<u>\$0.98</u>	<u>\$0.98</u>	<u>\$0.98</u>
<u>Fare Revenue Generated by Central Subway</u>	<u>\$3,325,750</u>	<u>\$5,530,840</u>	<u>\$5,207,040</u>
<b><u>Cable Car</u></b>			
<u>Boardings with Central Subway</u>	<u>11,717,740</u>	<u>11,591,460</u>	<u>11,573,020</u>
<u>Boardings for No Project/TSM Alternative</u>	<u>11,329,200</u>	<u>11,329,200</u>	<u>11,329,200</u>
<u>Change in Boardings</u>	<u>388,540</u>	<u>262,260</u>	<u>243,820</u>
<u>Average Fare</u>	<u>\$5.79</u>	<u>\$5.79</u>	<u>\$5.79</u>
<u>Fare Revenue Generated by Central Subway</u>	<u>\$2,250,580</u>	<u>\$1,519,120</u>	<u>\$5,579,950</u>
<b><u>Total Change in Boardings</u></b>	<b><u>3,796,740</u></b>	<b><u>5,930,210</u></b>	<b><u>5,579,950</u></b>
<b><u>Total Fare Revenue Generated by Central Subway</u></b>	<b><u>\$5,576,330</u></b>	<b><u>\$7,049,950</u></b>	<b><u>\$6,619,330</u></b>
Note: YOE is Year of Expenditure. Estimates developed using MTA methodology from MTA Central Subway FY2009 New Starts Financial Plan and updated MTA boarding estimates.			

### “Systemwide

The MTA has estimated the amount of revenue available for operating and maintaining the New Starts Project while maintaining the existing and proposed level of service.<sup>1</sup> This estimate is shown in Table 8-8. It also assumes two new revenue measures ~~requiring third party approval~~. The first of these is an increase to the parking tax of 10 percent, from the current rate of 25 percent to a proposed rate of 35 percent. ~~The MTA’s analysis assumes it would be approved by voters in FY2008 that was approved by voters in November 2007 and will begin to generate additional revenues in FY2009.~~ The second new revenue source MTA staff is currently pursuing is the ~~development of a Transit Operations fee~~. proactive management of parking collections in on-street meters and off-street parking facilities generating an expected increase of \$30 million annually.

~~The MTA’s operating financial plan is based on its estimates of long term growth trends rather than the budget estimate or requirements for any given year.<sup>2</sup>—The MTA has—~~

1 Maintaining existing service levels is required to receive a Federal New Starts Full Funding Grant Agreement.

2 ~~MTA Central Subway FY2008 New Starts Financial Plan, p.10-27.~~

**DELETED TABLE 8-8**  
**MTA 20-YEAR FINANCIAL PLAN INCLUDING CENTRAL SUBWAY ALTERNATIVE 3A**  
**(YOY \$MILLIONS)**

	Total	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
<b>SOURCES</b>																					
<b>Operating</b>																					
Fare Revenues	\$4,152	\$131	\$159	\$159	\$159	\$179	\$179	\$179	\$197	\$197	\$197	\$216	\$216	\$216	\$236	\$236	\$236	\$259	\$259	\$259	\$284
Parking Revenues	4,847	173	177	182	190	196	202	211	218	225	234	242	249	260	268	277	288	298	307	320	330
Parking Tax Increase	198	0	0	0	9	9	10	10	10	10	11	11	12	12	12	13	13	13	14	14	15
New Cong. Mgmt/Trans. Imp. Fee	221	0	0	0	10	10	11	11	11	12	12	12	13	13	14	14	15	15	16	16	17
Charges for Service	137	5	5	5	5	6	6	6	6	6	6	7	7	7	8	8	8	8	8	8	9
Intergovernmental Revenue	3,032	91	114	151	122	125	129	133	137	141	146	151	155	160	166	171	176	182	188	194	200
Miscellaneous Revenue	755	14	29	30	31	32	33	34	35	36	37	38	40	41	42	44	45	46	48	49	51
Gen. Fund Cont. - Prop E Form.	4,150	140	154	160	167	172	178	184	189	195	202	208	215	222	229	236	244	252	260	268	276
Use of Carryforward Fund Bal.	9	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interdepartmental Recoveries	419	15	16	16	17	17	18	18	19	20	20	21	22	22	23	24	25	25	26	27	28
Departmental Transfer Adj.	(256)	(9)	(10)	(10)	(10)	(11)	(11)	(11)	(12)	(12)	(12)	(13)	(13)	(14)	(15)	(15)	(15)	(16)	(16)	(16)	(17)
Dedicated Paratransit Funding	351	16	16	16	16	16	16	17	17	17	17	18	18	18	19	19	19	19	19	20	20
Special Revenue - TIDF	247	10	10	10	10	10	10	11	11	11	12	12	13	13	13	14	14	15	15	16	16
<b>Total Operating Sources</b>	<b>18,262</b>	<b>586</b>	<b>679</b>	<b>720</b>	<b>726</b>	<b>764</b>	<b>781</b>	<b>802</b>	<b>839</b>	<b>859</b>	<b>882</b>	<b>923</b>	<b>945</b>	<b>970</b>	<b>1,015</b>	<b>1,040</b>	<b>1,068</b>	<b>1,117</b>	<b>1,144</b>	<b>1,175</b>	<b>1,229</b>
<b>Capital - State of Good Repair</b>																					
Federal	2,763	106	79	111	90	173	170	160	140	165	218	206	172	167	87	84	110	126	107	132	160
State	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local	1,232	42	50	61	89	133	95	108	58	58	95	108	25	17	50	63	11	11	45	61	51
<b>Total Capital Sources</b>	<b>3,996</b>	<b>148</b>	<b>129</b>	<b>172</b>	<b>181</b>	<b>306</b>	<b>264</b>	<b>269</b>	<b>198</b>	<b>223</b>	<b>313</b>	<b>314</b>	<b>198</b>	<b>184</b>	<b>137</b>	<b>148</b>	<b>121</b>	<b>137</b>	<b>152</b>	<b>194</b>	<b>212</b>
<b>Total Sources</b>	<b>22,259</b>	<b>734</b>	<b>808</b>	<b>893</b>	<b>906</b>	<b>1,069</b>	<b>1,046</b>	<b>1,071</b>	<b>1,037</b>	<b>1,082</b>	<b>1,195</b>	<b>1,237</b>	<b>1,143</b>	<b>1,154</b>	<b>1,152</b>	<b>1,187</b>	<b>1,188</b>	<b>1,254</b>	<b>1,296</b>	<b>1,368</b>	<b>1,441</b>
<b>USES</b>																					
<b>Operating</b>																					
Platform Salaries	4,124	128	144	150	156	162	169	176	183	190	198	206	214	222	231	240	250	260	270	281	293
Other Salaries	4,357	157	168	172	174	180	186	192	198	204	211	217	224	232	239	247	254	263	271	280	289
Fringe Benefits	6,795	114	131	144	158	174	191	210	231	254	280	308	339	373	410	451	496	545	600	660	726
Overhead	191	7	7	7	8	8	8	8	9	9	9	10	10	10	10	11	11	12	12	12	13
Non-Personal Services	3,201	109	121	125	129	133	137	141	146	151	155	160	165	171	176	182	188	194	200	206	213
Materials and supplies, incl. fuel	1,041	35	39	41	42	43	45	46	47	49	51	52	54	56	57	59	61	63	65	67	69
Capital/Facilities Expenditures	162	3	25	28	5	5	5	5	5	6	6	6	6	6	7	7	7	7	8	8	8
Services of Other Departments	1,039	36	39	40	42	43	44	46	47	49	50	52	54	55	57	59	61	63	65	67	69
Debt Service	171	8	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Allocated Charges	(381)	(14)	(14)	(15)	(15)	(16)	(16)	(17)	(17)	(18)	(18)	(19)	(20)	(20)	(21)	(22)	(22)	(23)	(24)	(24)	(25)
Appropriated Rev. - Res. & Des.	202	1	10	10	10	10	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Repay Breda Money	7	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
Service Plan Changes	(57)	0	0	0	0	5	5	5	5	5	5	(8)	(8)	(8)	(8)	(9)	(9)	(9)	(9)	(10)	(10)
Transfer to Unapprop. Fund Bal.	23	0	0	9	8	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Operating Uses</b>	<b>20,875</b>	<b>586</b>	<b>679</b>	<b>720</b>	<b>726</b>	<b>764</b>	<b>794</b>	<b>833</b>	<b>875</b>	<b>919</b>	<b>966</b>	<b>1,003</b>	<b>1,058</b>	<b>1,116</b>	<b>1,178</b>	<b>1,245</b>	<b>1,316</b>	<b>1,394</b>	<b>1,477</b>	<b>1,566</b>	<b>1,663</b>
<b>Capital - State of Good Repair</b>																					
Fleet	1,684	23	16	14	10	40	42	85	38	64	154	155	72	128	108	110	83	99	114	156	174
Infrastructure	2,239	98	80	148	169	265	222	184	159	159	159	159	126	56	29	38	38	38	38	38	38
Facilities	49	7	31	10	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Projects	24	20	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Capital Uses</b>	<b>3,996</b>	<b>148</b>	<b>129</b>	<b>172</b>	<b>181</b>	<b>306</b>	<b>264</b>	<b>269</b>	<b>198</b>	<b>223</b>	<b>313</b>	<b>314</b>	<b>198</b>	<b>184</b>	<b>137</b>	<b>148</b>	<b>121</b>	<b>137</b>	<b>152</b>	<b>194</b>	<b>212</b>
<b>Total Uses</b>	<b>\$24,872</b>	<b>\$734</b>	<b>\$808</b>	<b>\$893</b>	<b>\$906</b>	<b>\$1,069</b>	<b>\$1,058</b>	<b>\$1,102</b>	<b>\$1,072</b>	<b>\$1,142</b>	<b>\$1,279</b>	<b>\$1,318</b>	<b>\$1,255</b>	<b>\$1,299</b>	<b>\$1,315</b>	<b>\$1,392</b>	<b>\$1,437</b>	<b>\$1,530</b>	<b>\$1,629</b>	<b>\$1,760</b>	<b>\$1,875</b>
<b>Projected Surplus (Deficit)</b>	<b>(\$2,613)</b>	<b>\$0</b>	<b>\$0</b>	<b>(\$0)</b>	<b>\$0</b>	<b>\$0</b>	<b>(\$12)</b>	<b>(\$31)</b>	<b>(\$36)</b>	<b>(\$60)</b>	<b>(\$84)</b>	<b>(\$81)</b>	<b>(\$113)</b>	<b>(\$145)</b>	<b>(\$162)</b>	<b>(\$205)</b>	<b>(\$249)</b>	<b>(\$277)</b>	<b>(\$333)</b>	<b>(\$392)</b>	<b>(\$434)</b>

Note: Data reflects the combined total for the Municipal Transportation Agency, which includes Muni and DPT.

Source: MTA, 2007

Central Subway Project Final SEIS/SEIR – Volume II

OPERATING SOURCES OF FUNDS		Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																
(Year of Expenditure Declined in Millions)	Fiscal Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455

~~indicated that deficits or surpluses shown in Table 8-8 are for planning purposes only, and are intended to flag years in which revenue”~~

The first paragraph, page 8-14 is revised as follows:

~~“enhancements or cost cutting measures are needed, or to alert the MTA to years in which contributions to a Contingency Fund or service enhancements may be possible. By law, the MTA must have a balanced operating budget every year.”~~

The first sentence, second paragraph, page 8-14 is revised as follows:

~~“The surplus/deficit line annual cash balance is not an indication that the MTA has the ability to build up a capital reserve or channel surplus operating revenues into capital projects.”~~

The third and fourth paragraphs, page 8-14 are revised as follows:

~~“Based on the MTA’s estimates of the capital cost for Alternative 3B, this is the only alternative that is fully funded. Both Alternative 2 and 3A would have funding shortfalls based on the current funding plan. 3A, \$424 million in local capital funding is still unidentified. The Central Subway is expected to result in a net operating surplus on a project level basis.~~

~~If the MTA identifies \$424 million in local capital funding, it estimates that it will have sufficient funds for its 20-year State of Good Repair Capital Improvement Program, which includes the capital cost of the Central Subway Project (Alternative 3A). Alternative 3B is estimated to have a lower capital cost and would therefore result in a smaller shortfall whereas Alternative 2 would result in a larger shortfall due to its higher capital cost.”~~

The first two sentences, fifth paragraph, page 8-14 are revised as follows:

~~“Systemwide, the MTA estimates that Muni will have an not experience operating shortfalls beginning in 2011 that continues through the end of the evaluation period. Although a cumulative 20-year budget deficit of \$2.6 billion is shown in Table 8-8, ~~t~~The MTA is required to have a balanced operating budget every year pursuant to the City Charter.”~~

The second sentence, second paragraph, page 8-15 is revised as follows:

“FTA considers the amount of Section 5309 New Starts funding available when it signs a Full Funding Grant Agreement, ~~and outside of New York City, the largest FFGA awarded has been \$750 million.~~”

The last sentence, fourth paragraph, page 8-15 is revised as follows:

“Two general sales tax measures failed a public vote in 2004; however, the reauthorized Proposition K sales tax dedicated to transit was approved by 75 percent of voters in 2003 and Proposition A, which secured parking revenues for use by the MTA was passed in November 2007.”

The following text is added to the end of the first paragraph, page 8-16:

“In addition, as a result of Proposition E, the MTA would receive a base amount of revenue from the General Fund annually, which stabilizes the annual budgeting process.”

The last paragraph, page 8-16 and continuing to the top of page 8-17 is revised as follows:

“As discussed in Section 8.1.3, the Central Subway Project must ~~improve its~~ receive a federal New Starts Cost Effectiveness Rating ~~from “Medium-Low” to of “Medium” from the FTA~~ to receive a Full Funding Grant Agreement (FFGA), ~~which is needed to~~ and receive a significant portion of the Project’s capital funding. ~~The MTA is working to reduce the Project’s capital cost as well as preparing an Action Plan to resolve issues that the Federal Transit Administration has indicated need to be addressed. Even with a Medium rating for Costs Effectiveness, there is no assurance of New Starts funding. The New Starts program is scheduled to expire in 2009 unless it is reauthorized by Congress, and many other projects nationwide are competing for available funds. The level of New Starts funding the MTA is seeking for the Project is unprecedented outside of New York City. Finally a New Starts FFGA does not guarantee that the annual grant for~~ Even if the MTA receives a New Starts funding commitment from FTA, there is also a risk that New Starts funds will be appropriated by Congress in accordance with the funding schedule in the FFGA.”

The first sentence, third paragraph, page 8-17 is revised as follows:

“Proposition E, approved by the San Francisco voters in 2000, created a Municipal Transportation fund that is dedicated to transit operations.”

The first two sentences, fourth paragraph, page 8-17 is revised as follows:

~~“The MTA has indicated~~ if federal capital funds are not received according to the amounts or schedule as planned, or if the federal funding stream is lengthened beyond the projected cash flow, the MTA ~~would~~ will ~~pursue additional bond financing through the City and County of San Francisco and/or financing through the SFCTA.”~~

The last paragraph, page 8-17 is revised as follows:

~~“Additional finance risk lies mostly in variations in interest rates, construction costs, and ridership on the existing system that could affect the total capital cost estimate. Both long term and short term borrowing are dependent on this variable. These risks can be mitigated through staging the construction of the project, controlling the growth of service, raising fares, redefining the scope of the project, and introducing short and long term financing strategies.”~~

The first paragraph, page 8-18 is revised as follows:

~~“A downside sensitivity analysis on the MTA 20-year Financial Plan, with operating and capital revenue reduced by 5 percent and operating and capital expenditures increased by 5 percent was developed. These projections increase the 20-year budget shortfall from \$2.6 billion to \$5.0 billion. An upside sensitivity analysis on the 20-year Financial Plan with revenues increased by 5 percent and expenditures decreased by 5 percent shows the MTA with a 20-year deficit of \$0.3 billion. An uncertainty analysis using a “Monte Carlo” simulation was undertaken to assess the financial risks of the project on MTA over a 30-year period. This simulation tool provides a probability distribution of potential project financing out-comes that reflects all possible outcomes of risk variable values. The Monte Carlo simulation determined that the mean of the average annual revenue required over the 30-year period of analysis is \$134 million for a mean 30-year total future capital revenue of \$4 billion required to sustain MTA programs. The MTA would not experience a deficit over this period.”~~

## **Chapter 9.0 Evaluation of Alternatives - Environmental Benefits**

A New Starts Evaluation Process Update has been inserted at the beginning of Chapter 9.0. Refer to Volume I of the complete text.

Table 9-2, page 9-4 is revised as follows:

**TABLE 9-2**  
**SUMMARY OF MOBILITY IMPROVEMENTS EVALUATION**

Performance Measures	No Project/TSM Alternative	Central Subway Alternatives		
		Enhanced EIS/EIR Alignment	Fourth/Stockton Alignment Option A	Fourth/Stockton Alignment Option B
<b>FTA Performance Measures</b>				
Hours of Transportation User Benefits	○	●	●●	●●
Low Income Households Served	●	●	●	●
Employment Near Stations	●	●	●	●
<b>Local Performance Measures</b>				
Daily Linked Transit Trips	○	●	●●	●●
Exclusive ROW for Transit	○	●	●	●
Travel Time Between Selected Origins & Destinations	○	●	●	●
Average Operating Speed for Transit	●	●	●	●
Compatibility with SFTA's <i>Four-Corridor Plan</i>	○	●	●	●
●-High, ●-Medium High, ●-Medium, ○-Medium Low, ○-Low				

The second sentence, last paragraph, page 9-4 is revised as follows:

“The No Project/TSM Alternative would result in the greatest travel times for Muni passengers between Fourth and King Streets and Chinatown and transit ridership in the Corridor would be ~~about nine percent~~ at least 10 minutes slower than if the Central Subway was implemented.”

The text on page 9-5 and continuing to the first line of page 9-6 is revised as follows:

“these factors, the weekday transit ridership of ~~147,450~~ 124,200 passengers under the No Project/TSM Alternative would be the lowest of any alternative.

**Alternative 2 - Enhanced EIS/EIR Alignment**

The Enhanced EIS/EIR Alignment would have in-vehicle travel time savings of ~~6.4~~ 5.8 minutes from Fourth/King Streets to Third and Market Streets and 10.0 minutes from Fourth/King Streets to the Chinatown Station compared to the No Project/TSM Alternative due to the more direct route and the addition of 1.75 miles of exclusive right-



of-way. The Enhanced EIS/EIR Alignment would improve service to the substantial number of low income households and employment centers along the Corridor resulting in an increase of ~~15,160~~ 21,000 transit riders over the No Project/TSM Alternative to a total of ~~162,610~~ 145,200 average daily transit riders, including ~~89,790~~ 76,300 rail passengers. The split of service between the Third and Fourth Street corridors in the South of Market would slightly extend the market reach to low income households. The Enhanced EIS/EIR Alignment would be fully compatible with citywide and area-specific plans.

### **Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

The Fourth/Stockton Alignment Option A would have the greatest travel time savings (12.4 minutes over the No Project/TSM Alternative from Fourth/King to Chinatown Station and ~~7.3~~ 7.0 minutes to Market Street) and would add approximately 1.7 miles of exclusive right-of-way for transit. The Fourth/Stockton Alignment Option A would attract about ~~14,660~~ 19,000 new weekday riders over the No Project/TSM Alternative, for a total average weekday ridership of ~~162,110~~ 143,200, which would be slightly lower than the ridership increases achieved with the Enhanced EIS/EIR Alignment. This would include ~~88,840~~ 77,600 rail passengers. This alternative would see the greatest increase in rail ridership among the alternatives. While, the Fourth/Stockton Alignment Option A would not serve quite as many low income households and employment centers as the Enhanced EIS/EIR Alignment, the benefits in travel time savings would partially offset the potential negative of a smaller service area. This alternative would be fully compatible with the *Four Corridor Plan* and other citywide and area-specific plans.

### **Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

The Fourth/Stockton Alignment Option B would have a travel time savings of 10.7 minutes from Fourth/King Streets to Chinatown Station and ~~6.0~~ 5.6 minutes to Market Street when compared to the No Project/TSM Alternative. Similar to Option A, approximately 1.7 miles of new exclusive transit right-of-way would be added to the Muni System and approximately ~~14,840~~ 18,400 new daily transit riders would be added to the Corridor, for an average daily ridership of ~~162,290~~ 142,600 passengers in the Corridor including ~~99,230~~ 76,600 rail passengers. This alternative would see the greatest increase in rail ridership among the alternatives.”

Table 9-4, page 9-7 is revised as shown on the following page:

**TABLE 9-4**  
**SUMMARY OF ENVIRONMENTAL BENEFITS EVALUATION**

Performance Measures	No Project/TSM Alternative	Central Subway Alternatives		
		Enhanced EIS/EIR Alignment	Fourth/Stockton Alignment Option A	Fourth/Stockton Alignment Option B
<b>FTA Performance Measures</b>				
Change in Regional Air Pollutant Emissions	○	●	●	●
Change in Greenhouse Gases	○	●	●	●
Change in Regional Energy Consumption	○	●	●	●
EPA Air Quality Designation	○	○	○	○
<b>Local Performance Measures</b>				
Partial and Full Property Acquisitions	●	●-○	●-○	○
Affected Parkland/Cultural Sites	●	○	○	●
Visual, Noise, and Vibration	●	○	●	●
Displaced Parking During Construction	●	●-○	●-○	●-○
●-High, ●-Medium High, ○-Medium, ○-Medium Low, ○-Low				

Table 9-5, page 9-9 is revised as follows:

**TABLE 9-5**  
**CRITERIA FOR EVALUATING OPERATING EFFICIENCIES**

Criteria/Objective	Performance Measure
<b>FTA Criteria</b>	
Operating Efficiencies	Operating Cost per Passenger Mile
<b>Local Criteria</b>	
Maximize Transit Operating Efficiency While Accommodating 2030 Demand	Operating Cost per Passenger Operating Cost per <u>Revenue</u> Bus Hour Operating Cost per <u>Revenue</u> Train Hour

Tables 9-6 and 9-7, page 9-10 are revised as follows:

**TABLE 9-6**  
**OPERATING EFFICIENCIES - 2030**

Performance Measures	No Project/TSM Alternative	Central Subway Alternatives		
		Enhanced EIS/EIR Alignment	Fourth/Stockton Alignment Option A	Fourth/Stockton Alignment Option B
<b>FTA Performance Measures</b>				
<u>Systemwide</u> Operating Cost per Passenger Mile <sup>(1)</sup>	<del>\$0.57</del> \$1.24	<del>\$0.58</del> \$1.25	<del>\$0.57</del> \$1.24	<del>\$0.57</del> \$1.24
<b>Local Performance Measures</b>				
<u>Systemwide</u> Operating Cost per Passenger <sup>(1)</sup>	<del>\$1.82</del> \$2.34	<del>\$1.63</del> \$2.31	<del>\$1.56</del> \$2.29	<del>\$1.52</del> \$2.29
<u>Bus</u> Operating Cost per <u>Revenue</u> Bus Hour <sup>(2)</sup>	<del>\$254.00</del> \$140.02	<del>\$209.00</del> \$140.34	<del>\$209.00</del> \$140.32	<del>\$209.00</del> \$140.32

Light Rail Operating Cost per Revenue Train Hour <sup>(2,3)</sup>	<del>\$303.00</del> <u>\$248.20</u>	<del>\$298.00</del> <u>\$260.32</u>	<del>\$305.00</del> <u>\$259.98</u>	<del>\$299.00</del> <u>\$259.84</u>
Sources: 2030 base system ridership – San Francisco Model, January 2007 2008, and <del>MTA, May 2007</del> AECOM Consult Inc., March 2008.				
Notes: <sup>(1)</sup> Includes Cable Car mode.				
<sup>(2)</sup> Excludes Cable Car mode				
<sup>(3)</sup> Includes Historic Street Cars				

**TABLE 9-7**  
**SUMMARY OF OPERATING EFFICIENCIES**

Performance Measures	No Project/TSM Alternative	Central Subway Alternatives		
		Enhanced EIS/EIR Alignment	Fourth/Stockton Alignment Option A	Fourth/Stockton Alignment Option B
FTA Performance Measures				
Systemwide Operating Cost per Passenger Mile	●	○	●	●
Local Performance Measures				
Systemwide Operating Cost per Passenger	○	○	●	●●
Bus Operating Cost per Revenue Bus Hour	●●	●○	●	●
Light Rail Operating Cost per Revenue Train Hour	●●	●○	●○	●
● -High, ● -Medium High, ○ -Medium, ○ -Medium Low, ○ -Low				

The last sentence, last paragraph, page 9-10 is revised as follows:

“The No Project/TSM Alternative would have the highest operating cost per passenger (~~\$1.82~~ \$2.34), ~~and but would have the highest~~ lowest operating cost per revenue bus hour (~~\$254.00~~ \$140.02) and per revenue train hour (\$248.20) when compared to all the Build Alternatives ~~and would have a higher operating cost per train hour (\$303.00) than the Enhanced EIS/EIR or Fourth/Stockton Option B alignments.~~”

The last paragraph, page 9-10 and continuing as the first paragraph on page 9-11 is revised as follows:

“The Enhanced EIS/EIR Alternative would provide faster and more reliable transit service than the No Project/TSM Alternative, ~~generally without a some~~ loss in operating efficiency. The operating costs per passenger (~~\$1.63~~ \$2.31) would go down, while the operating costs per revenue bus hour (~~\$209.00~~ \$140.34), and per revenue train hour (~~\$298.00~~ \$260.32) would all go down ~~increase~~ when compared to the No Project/TSM. The service would be of higher quality and capacity compared to the No Project/TSM Alternative; however, the operating cost per passenger (~~\$0.58~~ \$1.25) would marginally increase.”

The second and third paragraphs page 9-11 are revised as follows:

**“Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

The Fourth/Stockton Alignment Option A would provide some systemwide improvements in operational efficiency compared to both the No Project/TSM Alternative and the Enhanced EIS/EIR Alternative. The operating cost per passenger (~~\$1.56~~ \$2.29) would be lower, ~~and the operating cost per passenger mile (\$0.57 \$1.24) about the same,~~ and the operating cost per bus hour (~~\$209.00 \$140.32~~) would be ~~about the same~~ slightly lower than Alternative 2, though higher than the No Project/TSM Alternative, with no perceptible decrease in operating efficiency. ~~This alternative would have the highest operating cost per revenue train hour would be \$259.98, which falls between the other two Build Alternatives.~~

**Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)**

The Fourth/Stockton Alignment Option B ~~has the greatest overall operating efficiencies are comparable to Alternative 3A for passenger and passenger mile costs and for bus operating costs per revenue bus hour. With the highest ridership, this alternative generates the lowest operating cost per passenger (\$1.52). The operating costs per passenger mile (\$0.57) and per bus hour (\$209.00) are comparable to other Build Alternatives. The This alternative has the lowest operating cost per revenue train hour (\$299.00 \$259.84) falls just below the Enhanced EIS/EIR Alignment and is lower by \$6.00 than for Option A of all the Build Alternatives.”~~

The second sentence, first paragraph, including footnote 2, page 9-12 is revised as follows:

“The Table 9-9 incremental costs were calculated from Operations and Maintenance (O&M) forecasts developed in ~~2006-2008~~ consistent with all of the evaluations performed for the SEIS/SEIR.<sup>2</sup>

<sup>2</sup> Updated Operations & Maintenance costs have been performed for Alternative 3B (Modified Locally Preferred Alternative) only and are included in the Fiscal Year 2009 New Starts Report. The Fiscal Year 2007 numbers used in Table 9-9 are to be only used for comparing one alternative against another. These are different from the numbers submitted in the Fiscal Year 2009 New Starts Report. The New Starts Report reflects the most current ridership numbers and cost effectiveness for the modified LPA (Alternative 3B) and should be used for all other circumstances. See Appendix H for ~~updated~~ further discussion of cost-effectiveness numbers.”

Table 9-9, page 9-12 is revised as follows to incorporate updated cost effectiveness benefits:

**TABLE 9-9**  
**SUMMARY OF COST EFFECTIVENESS**

Performance Measures	No Project/TSM Alternative	Central Subway Alternatives			
		Enhanced EIS/EIR Alignment	Fourth/Stockton Alignment Option A	Fourth/Stockton Alignment Option B	
		FY 2007 <del>9</del> New Starts	FY 2007 <del>9</del> New Starts	<del>FY 2007</del> New Starts	FY 2009 New Starts
Incremental Cost per Hour of Transportation System User Benefit	--	<del>\$33.58</del> <u>\$30.37</u>	<del>\$22.73</del> <u>\$21.12</u>	\$18.36	<del>\$20.60</del> <u>\$21.24</u>
● High, ● Medium High, ● Medium, ● Medium Low, ○ Low Note: An updated cost effectiveness index was calculated for Alternative 3B as part of the Fiscal Year 2009 New Starts Report submitted to FTA in September 2007. The cost-effectiveness index for all other alternatives is based on the Fiscal Year 2007 <del>2009</del> New Starts Report. For the Final SEIS/SEIR, the cost effectiveness index will be updated for all alternatives.					

The last paragraph, page 9-12 is revised as follows:

“Alternative 2 has the highest incremental cost per hour of transportation system-user benefit (~~\$33.58~~ \$30.37) of all of the build alternatives and would be assigned a low cost effectiveness rating based on the FTA criteria. The MTA 2030 projected systemwide ridership would be ~~higher~~ lower in Alternative 2 than in other alternatives, but the Central Subway Corridor ridership would be higher. ~~and~~ The MTA revenues generated from this alternative would also be highest lowest among alternatives; however, relative operating costs per revenue bus and train hour for this alternative are also high low, though without comparable user benefits. This alternative would generate a higher level of Central Subway ridership than either Alternative 3A or 3B, but would generate lower ridership on the Central Subway line than under Alternative 3B and would result in the highest travel times of all Build Alternatives.”

The first two paragraphs, page 9-13 are revised as follows:

**“Alternative 3 - Fourth/Stockton Alignment Option A (LPA)**

Alternative 3A has an incremental cost per hour of transportation system-user benefit (~~\$22.73~~ \$21.12), which is an improvement over Alternative 2. This cost would receive a medium cost-effectiveness rating based on FTA criteria. This alternative would have the lowest projected ridership on the Central Subway line of all Build Alternatives, ~~and would rank behind Alternative 2~~ but would rank the highest in systemwide MTA ridership and projected revenues. While travel times are the fastest for this alternative, by providing only three stations, the accessibility to the system is less with Alternative 3A.

### Alternative 3 - Fourth/Stockton Alignment Option B (Modified LPA)

Alternative 3B has ~~the lowest~~ a slightly higher incremental cost per hour of transportation system-user benefit (~~\$18.36-\$21.24~~) than Alternative 3A, but would also achieve ~~ing~~ a medium rating, ~~but would rank above the other two Build Alternatives~~ with respect to the FTA cost-effectiveness criteria. This alternative achieves the second highest projected ridership of all Build Alternatives, falling just below Alternative 3A. It improves by improving travel times over the No Project/TSM Alternative and Alternative 2 and also provides ing a high level of system accessibility. ~~The resulting user benefits offset the higher systemwide costs and lower systemwide revenues projected for Alternative 3B.~~ These factors give Alternative 3B the best overall performance in operating efficiencies (refer to Table 9-6).”

Table 9-13, page 9-16 is revised as follows:

**TABLE 9-13**  
**SUMMARY OF OTHER LOCAL EVALUATION FACTORS**

Performance Measures	No Project/TSM Alternative	Central Subway Alternatives		
		Enhanced EIS/EIR Alignment	Fourth/Stockton Alignment Option A	Fourth/Stockton Alignment Option B
Travel Time from Fourth/King to Market/Third/Fourth	○	●●	●	●●
Travel Time from Fourth/King to Stockton/Washington	○	○	●	●
Parking supply and on-street loading zones on or near Third/Fourth Streets and Stockton Street	●	○	●	○
Community Acceptance and Political Support	○	○	●	●
● -High, ● -Medium High, ○ -Medium, ○ -Medium Low, ○ -Low				

The second and third sentences, third paragraph, page 9-17 are revised as follows:

“The Fourth/Stockton Alignment Option B would result in a net loss of 82 on-street parking spaces along the Central Subway Corridor (79 with mixed-flow operations) and 59 off-street spaces at the Ellis/O’Farrell and Union Square garages. In terms of the community acceptance and political support objective, the Fourth/Stockton Alignment Option B likely have the greatest public support of the Build Alternatives as it provides the highest level of ridership, ~~and~~ the greatest level of accessibility by improving the direct

connections between Visitacion Valley and Chinatown, and minimizes the impact on park lands.”

Table 9-15, page 9-18 is revised as follows:

**TABLE 9-15**  
**SUMMARY OF LOCAL FINANCIAL COMMITMENT**

Performance Measures	No Project/TSM Alternative	Central Subway Alternatives		
		Enhanced EIS/EIR Alignment	Fourth/Stockton Alignment Option A	Fourth/Stockton Alignment Option B
FTA Performance Measures				
Stability and Reliability of Capital Financing Plan	--	●	●	●
Stability and Reliability of Operating Financing Plan	○	●	●	●
Local Share to Project Costs	--	●	●	●
Capital Costs Compared to Funding	--	●	●	●●
Operating Costs Compared to Funding	●	●	●	●
● -High, ● -Medium High, ● -Medium, ○ -Medium Low, ○ -Low				

The second and third sentences, last paragraph, page 9-19 are revised as follows:

~~“Funding for this alternative would fall just short of the funds required to implement the Project. Additional funds would need to be secured to address escalation costs for implementation of the Project (see Chapter 8.0, Financial Feasibility, for a more detailed discussion of the Project cost escalation factors). This alternative is the only alternative that is fully funded.”~~

#### **Chapter 10.0 Section 4(f)**

The second and third paragraphs, page 10-29 are revised as follows:

“Noise, dust, and vibration would temporarily affect the recreational enjoyment of the eastern portion of Union Square until the initial station excavation is decked over and construction activities can occur below the surface. It would take approximately two months for the ~~station to be excavated and~~ excavation to be decked over.

The decked cut and cover excavation of the subway station at Union Square would require the closure of two lanes (out of four) on Stockton Street for the duration of station

construction, approximately ~~66~~36 months. Spoils generated from excavation of Union Square Station and the guideway tunnels north of Union Square would be hauled to surface streets for off-site disposal. Overall construction at Union Square for Alternative 2 is ~~66~~48 months. No portion of the park would be used as a construction staging area.”

The bullet at the bottom of page 10-31 is revised as follows:

- “The sidewalk on the western side of Stockton Street along the Square would be closed for the duration of station construction (~~66~~54 months).”

The last sentence, second paragraph, page 10-32 is revised as follows:

“The entire duration of construction for this alternative would be 66 months.”

The last sentence, second paragraph, page 10-34 is revised as follows:

“The overall construction duration for the alternative is ~~52~~60 months.”

The last sentence, first paragraph, page 10-37 is revised as follows:

“Excavation, ground support, and structural work for the station would require approximately ~~66~~36 months.”

The second to last sentence, first paragraph, page 10-39 is revised as follows:

“Construction of the Chinatown Station and tail track tunnel would require approximately ~~66~~36 months.”

The first sentence, last paragraph, page 10-39 is revised as follows:

“The ~~north-east~~ elevation wall of the demolished building would be left in tact or a temporary noise barrier would be constructed during the subway station construction to minimize noise and dust effects on the adjacent alleyway and playground.”

The last sentence, second paragraph, page 10-42 is deleted as noted below:

~~“Concurrence from the SHPO of “de minimis” effects has been requested.”~~

The second to the last sentence, first paragraph, page 10-43 is revised as follows:



“If impacts to a resource have been determined “de minimis,” the Section 4(f) evaluation process is considered complete for that resource once concurrence is obtained from officials with jurisdiction over the Park, recreation area, ~~and from the SHPO [concurrence is needed].~~”

The last sentence, second paragraph, page 10-43 is replaced with the following text:

~~“These avoidance alternatives would be deleted from this section of the Final SEIS/SEIR if concurrence for “de minimis” impacts occurs between Draft and Final SEIS/SEIR. The Recreation and Parks Commission concurred with the de minimis finding on February 21, 2008 (see Appendix J), therefore the following avoidance alternatives are not applicable.”~~

The following text is added after the third sentence, first paragraph,, page 10-44:

“The preferred alternative was also reviewed with the Union Square Association and the Union Square Merchants Association, and at public meetings.”

The last sentence, second paragraph, page 10-46 is revised as follows:

“Measures to minimize harm to Section 4(f) resources will be ~~finalized~~ included in the Final SEIS/SEIR and will be included in the Mitigation and Monitoring Plan and in construction specifications and plans for the project.”

The potential feasible and prudent alternatives for Washington Square identified in Table 10-6, page 10-48 are revised as follows:

Washington Square	Local landmark	Air quality, vibration and noise impacts associated with construction. Access limited temporarily on the Columbus Avenue side of Park.	<u>Consider relocation of Relocate</u> excavation shaft to the North or South of park along Columbus Avenue	Minimize noise and dust impacts with buffer walls; off-haul during non-peak hours
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The last sentence, second paragraph, page 10-49 is deleted as noted below:

~~“Concurrence with this finding by the SHPO and City Historic Preservation Officer has been requested.”~~

The last sentence, fourth paragraph, page 10-49 is revised as follows:

“Detailed measures to minimize harm to historic resources ~~will be developed during~~ are part of the Final Section 106 and SEIS/SEIR phase.”

## Chapter 11.0 Coordination and Consultation

The following Community Outreach Presentations and Briefings are added to the end of Table 11-3, page 11-7:

<u>Asian Heritage Street Celebration</u>	<u>05-1-2007</u>	<u>Folsom Street near Fourth Street</u>
<u>S.F. Arts Commission Civic Design Committee</u>	<u>05-21-2007</u>	<u>25 Van Ness Avenue, Suite 70</u>
<u>S. F. Arts Commission Visual Arts Committee</u>	<u>06-11-2007</u>	<u>25 Van Ness Avenue, Suite 70</u>
<u>SPUR</u>	<u>06-20-2007</u>	<u>312 Sutter Street, 5th Fl</u>
<u>Market Street Association, Board of Directors</u>	<u>06-25-2007</u>	<u>SMWM Offices, 989 Market, 3rd Fl</u>
<u>Metropolitan Transportation Commission</u>	<u>06-27-2007</u>	<u>MTC Offices</u>
<u>Transportation Forum with Mayor Newsom</u>	<u>06-30-2007</u>	<u>Jean Parker Elementary School</u> <u>840 Broadway at Powell Street</u>
<u>Sierra Club Executive Board</u>	<u>07-16-2007</u>	<u>SPUR</u> <u>312 Sutter Street, Suite 500</u>
<u>Senior Action Network, Pedestrian Safety Committee</u>	<u>07-18-2007</u>	<u>965 Mission Street</u>
<u>Mayor's Pedestrian Safety Advisory Council</u>	<u>07-23-2007</u>	<u>City Hall, Room 408</u>
<u>Women's Transportation Seminar</u>	<u>7-26-2007</u>	<u>Atrium, 101 California</u>
<u>Building Owners &amp; Managers Association – Gov't &amp; Public Affairs Committee</u>	<u>08-01-2007</u>	<u>233 Sansome Street, 8th Floor</u>
<u>SF Chamber of Commerce-Public Policy Forum</u>	<u>08-09-2007</u>	<u>235 Montgomery, 12th Fl</u>
<u>Chinatown Station Location Site Meeting</u>	<u>08-09-2007</u>	<u>City Hall</u>
<u>Bayview District Advisory Council Meeting</u>	<u>08-10-2007</u>	<u>Bayview Police Station</u> <u>201 Williams St.</u>
<u>S.F. Recreation &amp; Park Commission</u>	<u>08-16-2007</u>	<u>City Hall, Room 416</u>
<u>Central Subway Community Advisory Group Meeting</u>	<u>08-22-2007</u>	<u>SFMTA, One S. Van Ness Ave., 3rd Floor</u>
<u>District 3 Democratic Club Transportation Forum</u>	<u>09-10-2007</u>	<u>Bocce Café</u> <u>478 Green Street at Grant</u>
<u>North Beach Chamber of Commerce, Board of Directors Meeting</u>	<u>09-11-2007</u>	<u>Citibank Building, 580 Green St, Mezzanine</u>
<u>Telegraph Hill Dwellers</u>	<u>09-11-2007</u>	<u>TBD</u>
<u>S.F. Convention &amp; Visitors Bureau Executive Staff</u>	<u>09-14-2007</u>	<u>Central Subway Project Office</u>
<u>SF Immigration Rights Summit</u>	<u>09-15-2007</u>	<u>Bill Graham Civic Center Auditorium</u>
<u>Live Chinese Radio Interview with Nat Ford</u>	<u>09-18-2007</u>	
<u>SFMTA Board of Directors Meeting</u>	<u>09-18-2007</u>	<u>City Hall, Room 400</u>
<u>Autumn Moon Festival</u>	<u>09-23-2007</u>	<u>Booth is in Chinatown</u>
<u>RENEWSF Board of Directors</u> <u>(Revitalize and Energize the Northeast and Waterfront of San Francisco)</u>	<u>10-04-2007</u>	<u>Central Subway Project Office</u>
<u>Mary Peters, US DOT Secretary Project Briefing</u>	<u>10-16-2007</u>	<u>TBA</u>
<u>Transportation Authority, Plans &amp; Programs Committee</u>	<u>10-16-2007</u>	<u>City Hall, Room 263</u>
<u>SF Landmarks Preservation Advisory Board</u>	<u>10-17-2007</u>	<u>City Hall, Room 400</u>
<u>Environmental Document Release Press Conference</u>	<u>10-17-2007</u>	<u>Four Seas Restaurant</u> <u>731 Grant Avenue</u>
<u>SOMA/Union Square/Downtown Community Meeting</u>	<u>10-30-2007</u>	<u>Pacific Energy Center</u> <u>851 Howard Street</u>
<u>Yerba Buena Alliance (Community Meeting)</u>	<u>11-01-2007</u>	<u>UCB Extension</u> <u>965 Third Street</u>
<u>SF Planning Commission</u>	<u>11-01-2007</u>	<u>City Hall, Room 400</u>
<u>Chinatown Families Economic Self-Sufficiency Coalition</u>	<u>11-02-2007</u>	<u>17 Walter Lum Place (the alleyway facing Portsmouth Square).</u>
<u>SF Landmarks Preservation Advisory Board</u>	<u>11-07-2007</u>	<u>City Hall, Room 400</u>
<u>Chinatown Station Site Workshop</u>	<u>11-07-2007</u>	<u>City Hall</u>

<u>Chinatown/North Beach Community Meeting</u>	<u>11-08-2007</u>	<u>Gordon J. Lau Elementary School</u> <u>950 Clay Street</u>
<u>Central Subway Community Advisory Group Meeting</u>	<u>11-13-2007</u>	<u>SFMTA Office</u> <u>One South Van Ness, 3rd Main Conference</u>
<u>SF Convention &amp; Visitors Bureau Board of Directors Meeting</u>	<u>11-14-2007</u>	<u>Firehouse, At Fort Mason</u> <u>Entrance at Marina Blvd &amp; Buchanan Street</u>
<u>SF Planning Commission Meeting</u>	<u>11-15-2007</u>	<u>City Hall, Room 400</u>
<u>Senator Boxer's Aide Project Visit</u>	<u>11-16-2007</u>	
<u>Chinese Consolidated Benevolent Association</u>	<u>12-01-2007</u>	<u>843 Stockton Street</u>
<u>Chinatown Presbyterian Church</u>	<u>12-02-2007</u>	
<u>Central Subway Art Program Presentation</u>	<u>12-12-2007</u>	<u>Chinese Cultural Foundation</u>

The following name is added to the Chinatown representation from the Community Advisory Group:

“David Chiu - Grassroots Enterprise”

## APPENDICES

The following three appendices are added following Appendix H:

- I. MITIGATION MONITORING AND REPORTING PROGRAM**
- J. SECTION 4(F) “DE MINIMIS” CONCURRENCE LETTERS FROM RECREATION AND PARKS DEPARTMENT AND FTA**
- K. SHADOW ANALYSIS, ALTERNATIVE 3B, CHINATOWN STATION**

See Volume I for text of new appendices.

Tables E-1 through E-4, pages E-4 to E-7 and Table E-7, page E-10 are revised as noted on the following pages.

Tables E-9 to E-11, pages E-11 to E-13 are revised as noted on the following pages.

**TABLE E-1**  
**ESTIMATED WEEKDAY A.M. PEAK HOUR TRANSIT RIDERSHIP COMPARISON**

LRT/BUS LINE	2000	2030 NO PROJECT /TSM	2030 Enhanced EIS/EIR ALIGNMENT	2030 FOURTH / STOCKTON ALIGNMENT OPTION A (LPA)	2030 FOURTH / STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)
<b>CORRIDOR BOARDINGS</b>					
<b>RAIL</b>					
T Long Line (1)	n/a	8,050 5,650	8,400 6,350	8,370 6,460	9,120 6,320
T Short Line	n/a	n/a	5,050 3,240	4,670 3,200	5,520 3,190
T Very Short Line	n/a	n/a	2,900	2,850	2,850
<b>Subtotal</b>		<b>8,050 5,650</b>	<b>13,450 12,490</b>	<b>13,040 12,510</b>	<b>14,640 12,360</b>
<b>BUS</b>					
Line 15 <sup>(2)</sup>	3,680 3,930	n/a	n/a	n/a	n/a
Lines 9X, 9AX, 9BX	4,620 1,720	5,100 3,320	5,540 3,290	5,090 2,970	3,880 3,070
Lines 30, 45 <sup>(3)</sup>	12,700 7,220	5,010 10,950	3,170 5,070	3,310 5,060	3,220 5,060
<b>Subtotal</b>	<b>14,320 12,870</b>	<b>10,110 14,270</b>	<b>8,710 8,360</b>	<b>8,400 8,030</b>	<b>7,100 8,130</b>
<b>TOTAL IN CORRIDOR:</b>	<b>14,320 12,870</b>	<b>18,160 19,920</b>	<b>22,160 20,850</b>	<b>21,440 20,540</b>	<b>21,740 20,490</b>
Increase Over Existing:	0	3,840 7,050	7,840 7,980	7,120 7,670	7,420 7,620
Increase Over No Project/TSM:	0	0	4,000 930	3,280 620	3,580 570
<b>SYSTEM BOARDINGS</b>					
RAIL	20,590 19,620	32,360 26,690	35,650 36,760	37,060 37,540	38,180 37,390
BUS	61,350 70,200	68,500 76,720	65,590 70,530	64,060 70,460	62,740 70,480
<b>TOTAL SYSTEM:</b>	<b>81,940 89,820</b>	<b>98,160 103,710</b>	<b>101,240 107,290</b>	<b>101,120 108,000</b>	<b>100,920 107,870</b>
Increase Over Existing:	0	16,220 13,980	19,300 17,470	19,180 18,180	18,980 18,050
Increase Over No Project/TSM:	0	0	3,080 3,580	2,960 4,290	2,760 4,160
n/a Not Applicable Source: San Francisco Model, January 2007. Revised January 2008. Notes: <sup>1</sup> Central Subways T-Third long-line to Visitacion Valley and T-Third short-line to 18 <sup>th</sup> and Third Streets. <sup>2</sup> 15-Third Line shifts to 9X-San Bruno or to the T-Third line. <sup>3</sup> 45 Union/Stockton extended into Mission Bay.					

**TABLE E-2**  
**ESTIMATED WEEKDAY P.M. PEAK HOUR TRANSIT RIDERSHIP COMPARISON**

LRT/BUS LINE	2000	2030 NO PROJECT /TSM	2030 Enhanced EIS/EIR ALIGNMENT	2030 FOURTH / STOCKTON ALIGNMENT OPTION A (LPA)	2030 FOURTH / STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)
<b>CORRIDOR BOARDINGS</b>					
<b>RAIL</b>					
T Long Line (1)	n/a	<del>6,720</del> <u>4,290</u>	<del>7,370</del> <u>4,980</u>	<del>7,270</del> <u>5,040</u>	<del>7,850</del> <u>4,960</u>
T Short line	n/a	n/a	<del>4,530</del> <u>2,630</u>	<del>4,080</del> <u>2,640</u>	<del>4,810</del> <u>2,620</u>
T Very Short Line	n/a	n/a	2,370	2,350	2,350
<b>Subtotal</b>		<del>6,720</del> <u>4,290</u>	<del>11,900</del> <u>9,980</u>	<del>11,350</del> <u>10,030</u>	<del>12,660</del> <u>9,930</u>
<b>BUS</b>					
Line 15(2)	<del>3,500</del> <u>7,510</u>	n/a	n/a	n/a	n/a
Lines 9X, 9AX, 9BX	<del>1,300</del> <u>3,180</u>	<del>3,160</del> <u>1,980</u>	<del>3,190</del> <u>1,820</u>	<del>3,630</del> <u>1,730</u>	<del>2,490</del> <u>1,770</u>
Lines 30, 45(3)	<del>11,190</del> <u>5,020</u>	<del>4,710</del> <u>8,560</u>	<del>2,550</del> <u>3,860</u>	<del>2,640</del> <u>3,810</u>	<del>2,500</del> <u>3,790</u>
<b>Subtotal</b>	<del>12,490</del> <u>15,170</u>	<del>7,870</del> <u>10,540</u>	<del>5,740</del> <u>5,680</u>	<del>6,270</del> <u>5,540</u>	<del>4,990</del> <u>5,560</u>
<b>TOTAL IN CORRIDOR:</b>	<del>12,490</del> <u>15,170</u>	<del>14,590</del> <u>14,830</u>	<del>17,640</del> <u>15,660</u>	<del>17,620</del> <u>15,570</u>	<del>17,650</del> <u>15,490</u>
Increase Over Existing:	0	<del>2,100</del> <u>2,340</u>	<del>5,150</del> <u>3,170</u>	<del>5,130</del> <u>3,080</u>	<del>5,160</del> <u>3,000</u>
Increase Over No Project/TSM:	0	0	<del>3,050</del> <u>830</u>	<del>3,030</del> <u>740</u>	<del>3,060</del> <u>660</u>
<b>SYSTEM BOARDINGS</b>					
RAIL	<del>18,780</del> <u>16,690</u>	<del>27,130</del> <u>21,780</u>	<del>30,840</del> <u>29,600</u>	<del>31,350</del> <u>30,120</u>	<del>32,620</del> <u>30,120</u>
BUS	<del>49,950</del> <u>51,400</u>	<del>56,100</del> <u>58,830</u>	<del>57,650</del> <u>52,250</u>	<del>54,750</del> <u>52,310</u>	<del>53,340</del> <u>52,260</u>
Increase Over Existing:	0	<del>14,510</del> <u>12,520</u>	<del>19,760</del> <u>13,760</u>	<del>17,370</del> <u>14,430</u>	<del>17,230</del> <u>14,290</u>
Increase Over No Project/TSM:	0	0	<del>5,250</del> <u>1,240</u>	<del>2,860</del> <u>1,910</u>	<del>2,720</del> <u>1,770</u>
n/a Not Applicable Source: San Francisco Model, January 2007, Revised January 2008. Notes: <sup>1</sup> Central Subways T-Third long-line to Visitation Valley and T-Third short-line to 18 <sup>th</sup> and Third Streets. <sup>2</sup> 15-Third Line shifts to 9X-San Bruno or to the T-Third line. <sup>3</sup> 45 Union/Stockton extended into Mission Bay.					

**TABLE E-3****ESTIMATED DAILY TRANSIT RIDERSHIP****SUMMARY OF ORIGIN-DESTINATION PATTERNS FOR 15-THIRD BUS LINE**

<b>FROM</b>		<b>Vis Valley– Crocker Amazon</b>	<b>Bayview Hunters Point</b>	<b>Mission–Bernal</b>	<b>Potrero– Mission Bay</b>	<b>SOMA</b>	<b>Financial District – Civic Center</b>	<b>Chinatown– North Beach</b>	<b>Superdistrict 2</b>	<b>Superdistrict 3</b>	<b>Superdistrict 4</b>	<b>South Bay</b>	<b>East Bay</b>	<b>North Bay</b>	<b>Total</b>
	<b>Vis Valley– Crocker Amazon</b>	744	754	79		762	262	476	101	262	187	284			3,911
	<b>Bayview Hunters Point</b>	640	1,010	9	163	1,775	945	666	139	110	121	94	27		5,701
	<b>Mission–Bernal</b>	115	264		28	37				27	48				520
	<b>Potrero– Mission Bay</b>		155		32	107	260	75	39	24					692
	<b>SOMA</b>	250	825		182	57	230	553	74	24	116	75	88		2,473
	<b>Financial District – Civic Center</b>	289	543		195	74	48	566	44			207	59	28	2,054
	<b>Chinatown–North Beach</b>	200	700	408	136	976	909	935	107	112	45	314	112		4,954
	<b>Superdistrict 2</b>	305	312			61		321				61			1,060
	<b>Superdistrict 3</b>	24	370			135		184	27			58			797
	<b>Superdistrict 4</b>	243	99			28		14							384
	<b>South Bay</b>	91	139			192	230	43	27	64	16	75			878
	<b>East Bay</b>	529	174		28							75			805
	<b>North Bay</b>	30							30						60
	<b>Total</b>	3,460	5,346	496	764	4,204	2,885	3,832	589	623	533	1,243	286	28	24,289

**TABLE E-4**  
**ESTIMATED DAILY TRANSIT RIDERSHIP**  
**SUMMARY OF ORIGIN-DESTINATION PATTERNS FOR ALL CORRIDOR ROUTES**  
**(9AX, 9BX, 9X, 15, 30, 45)**

FROM		Vis Valley– Crocker Amazon	Bayview Hunters Point	Mission–Bernal	Potrero– Mission Bay	SOMA	Financial District – Civic Center	Chinatown– North Beach	Superdistrict 2	Superdistrict 3	Superdistrict 4	South Bay	East Bay	North Bay	Total
	Vis Valley– Crocker Amazon	1,935	821	263	45	1,587	1,064	1,684	252	434	295	335	116	-	8,831
	Bayview Hunters Point	694	1,010	9	163	2,268	1,064	1,356	155	232	121	94	27		7,194
	Mission–Bernal	211	264		54	219		246		91	48				1,133
	Potrero– Mission Bay	82	155	64	42	347	519	551	39	105					1,905
	SOMA	1,070	883	7	601	1,324	1,433	2,791	282	915	116	356	148		9,926
	Financial District – Civic Center	568	658		560	337	237	1,487	94	1,750	22	261	59	28	6,061
	Chinatown–North Beach	2,783	758	674	280	4,012	2,633	3,273	276	2,904	251	387	173		18,405
	Superdistrict 2	356	312			247		530		147		88			1,681
	Superdistrict 3	135	580	330	134	2,220	2,768	7,404	48	841	115	281	292		15,149
	Superdistrict 4	276	99			103		133		16					626
	South Bay	141	139		16	485	404	321	27	153	16	82			1,782
	East Bay	594	174		28			339		196		75			1,406
	North Bay	30						109	30						169
	<b>Total</b>	<b>8,874</b>	<b>5,855</b>	<b>1,347</b>	<b>1,924</b>	<b>13,150</b>	<b>10,122</b>	<b>20,223</b>	<b>1,203</b>	<b>7,784</b>	<b>983</b>	<b>1,959</b>	<b>815</b>	<b>28</b>	<b>74,268</b>

**TABLE E-9**  
**EXISTING PARKING CONDITIONS**

SEGMENT	APPROXIMATE NUMBER OF ON-STREET PARKING SPACES			NUMBER AND PERCENTAGE OCCUPIED		NOTES
	WEST	EAST	TOTAL	NO.	%	
<b><i>Third Street:</i></b>						
King to Townsend Streets	13	10	23	20	87	
Townsend to Brannan Streets	19	16	35	20	57	
Brannan to Bryant Streets	21	13	34	25	74	
Subtotal (Third Street)	53	39	92	65	71	
<b><i>Fourth Street:</i></b>						
King to Townsend Streets	0	0	0	0	0	
Townsend to Brannan Streets	5	15	20	14	70	
Brannan to Bryant Streets	20	16	36	30	83	
Bryant to Harrison Streets <sup>1</sup>	17	12	29	N/A	N/A	
Subtotal (Fourth Street)	42 (25)	43 (31)	85 (56)	-- (44)	-- (79)	With Bryant and Harrison (Without Bryant and Harrison)
<b><i>Stockton Street:</i></b>						
Geary to Post Streets	0	10	10	4	40	
Clay to Washington Streets	11	3	14	11	79	
Washington to Jackson Streets	8	12	20	18	90	
Subtotal (Stockton Street)	<del>14</del> 19	<del>13</del> 25	<del>24</del> 44	<del>15</del> 33	<del>63</del> 75	
TOTAL CORRIDOR <sup>2</sup>	<del>106</del> 114 (89) (97)	<del>95</del> 107 (83) (95)	<del>201</del> 221 (172) (192)	-- (109) (142)	-- (74)	With Bryant and Harrison (Without Bryant and Harrison)
Source: San Francisco Department of Parking and Traffic, October 2006 and May 2007. Revised January 2008.						
<sup>1</sup> This segment of Fourth Street was under construction during the recent counts. Therefore, no parking occupancy data was available.						



**TABLE E-10**  
**2030 PARKING CONDITIONS**

SEGMENT	APPROXIMATE NUMBER OF ON-STREET PARKING SPACES			
	NO PROJECT / TSM ALTERNATIVE	ENHANCED EIS/EIR ALTERNATIVE	FOURTH / STOCKTON ALTERNATIVE OPTION A (LPA)	FOURTH / STOCKTON ALTERNATIVE OPTION B (MODIFIED LPA)
<b>Third Street:</b>				
King to Townsend Brannan Streets	23	0	23	23
Townsend to Brannan Streets	35	35	35	35
Brannan to Bryant Streets	34	0	34	34
Subtotal (Third Street)	92	35	92	92
<b>Fourth Street:</b>				
King to Townsend Streets	0	0	0	0
Townsend to Brannan Streets	20	20	2	Semi-Exclusive <del>0-2</del>
				Mixed-Flow 5
Brannan to Bryant Streets	36	0	36	Semi-Exclusive 7
				Mixed-Flow <del>3-7</del>
Bryant to Harrison Streets	29	29	29	<u>Both</u> 0
Subtotal (Fourth Street)	85	49	67	Semi-Exclusive <del>7-9</del>
				Mixed-Flow <del>8-12</del>
<b>Stockton Street:</b>				
Geary to Post Streets	10	2	5	10
Clay to Washington Streets	14	4	8	10
<u>Washington to Jackson Streets</u>	<u>20</u>	<u>20</u>	<u>20</u>	<u>18</u>
Subtotal	<del>24-44</del>	<del>6-26</del>	<del>13-33</del>	<del>20-38</del>
<b>TOTAL CORRIDOR</b>				
	<del>201-221</del>	<del>90-110</del>	<del>172-192</del>	Semi-Exclusive <del>119-139</del>
				Mixed-Flow <del>120-142</del>
Source: San Francisco Department of Parking and Traffic, October 2006 and May 2007. <u>Revised January 2008.</u>				

**TABLE E-11**  
**ESTIMATED PM PEAK PERIOD RIDERSHIP**  
**BY CENTRAL SUBWAY STATION**  
**2030 CONDITIONS**

STATION	2030 NO PROJECT /TSM	2030 ENHANCED EIS/EIR ALIGNMENT	2030 FOURTH / STOCKTON ALIGNMENT OPTION A (LPA)	2030 FOURTH / STOCKTON ALIGNMENT OPTION B (MODIFIED LPA)
Fourth and King	---	9,580 8,200	9,750 9,800	9,400 8,900
Fourth and Brannan	---	---	---	3,840 1,500
Third (between King and Townsend)	---	4,880 1,800	---	---
Moscone	---	2,830 2,400	4,800 1,700	4,740 1,300
Market Street	---	7,130 6,500	8,370 7,000	8,960 6,700
Union Square	---	4,140 800		
Chinatown	---	2,510 2,700	3,350 3,900	3,130 3,700
<b>TOTAL IN CORRIDOR:</b>	---	<b>25,070 22,400</b>	<b>23,270 22,400</b>	<b>27,070 22,100</b>

Source: San Francisco Model., January 2007. Revised January 2008.

NOTE: Under Alternative 3B up to three parking spaces would potentially be removed on the north side of Ellis Street to accommodate the expansion of the One Stockton Street (the Apple Store) access/egress into the public sidewalk area.



## SAN FRANCISCO PLANNING DEPARTMENT

To: Members of the Planning Commission and other Interested Persons  
From: Joan A. Kugler, Senior Environmental Planner  
Date: August 7, 2008  
Subject: Central Subway Comments & Responses Errata

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Subsequent to the publication of the Comments and Responses document, it was found that there were six additions and/or corrections that needed to be made. All of the additional language will be included in the Final Supplemental Environmental Impact Statement/Supplemental Impact Report when it is published. The replacement pages are attached to this memo with the new text highlighted in yellow. In some cases because of text continuing on to the next page, there is more than one replacement page included.

The revisions are:

1) On C&R page 3-133 - (in the response to comment AB-4); the additional sentence that was added to the text for Alternative 3A also needed to be added to the text for Alternative 3B to call out that the potential for capacity issues at the Powell Street Station would be for both options. These text changes will be on pages 3-44 and 3-45 of the Final when it is published.

2) On C&R page 3-137 - (in the response to AB-8); an additional sentence to clarify that operational impacts to the Powell Station with Alternative 3A would be the same as Alternative 2 except that specific improvements to the station would be addressed in cooperation with BART During final design. There would be an additional revision to the text for Alternative 3B as both alternatives have the same impact. (This was a correction to the original text of this page of the C&R document as the original text said that this language should be inserted on the previous page (pg. 5-15) under Alternative 2.) These text changes for both options will be on page 5-16 of the Final when it is published.

For these next four – The additions were made in the text of Chapters 3, 4, 5 or 6 based on the responses to the comments in Letter AB but left out of either the Summary table or the Table of CEQA Impacts in Chapter 7.

3) On C&R page 5-12 – in Table S-7 of the Summary in the area of Geology and Seismicity, an acknowledgment that similar to Alternative 2; the construction of Alternatives 3A and 3B could result in potential displacement of BART structures. This text changes for both options will be on page S-27 of the Final when it is published.

4) On C&R page 5-60 – additions to Table 7-2 in the area of transit construction, a less-than-significant impacts re: the potential for temporary disruption to BART service, that the BART entry at One Stockton Street would be temporarily closed during construction of the connection to the Union/Market St. station and that there may be pedestrian capacity issues at the Powell Street station. Added improvement measures for these additional impacts were included – that MTA and BART will prepare and enter into a Station Improvement Plan that will address these issues including monitoring pedestrian capacity and station improvements to increase capacity if found necessary. These text changes will be on pages 7-9 et sequence (because of roll over of text) of the Final when it is published.

5) Also on C&R page 5-60 – additions to Table 7-2 for Options 3A and 3B (page C&R 5-65c) in the area of Community Facilities added a less than significant impact stating that improvements to the Powell St. station in the areas of existing vertical circulation, platform capacity, lighting, ventilation, fire suppression and signage for way-finding shall all be jointly addressed by MTA and BART during final design. These text additions will be on pages 7-22 and 7-23 of the Final when it is published.

6) Also on C&R page 5-60 - additions to Table 7-2 for Options 3A and 3B (page C&R 5-65d) in the area of Geology and Seismicity, similar to the addition in the Summary Table, an acknowledgment that similar to Alternative 2; the construction of Alternatives 3A and 3B could result in potential displacement of BART structures. This text changes for both options will be on page 7-32 & 7-33 of the Final when it is published.

Attachment: Errata – Replacement Pages

**ERRATA**  
**August 7, 2008**

**Central Subway Final Supplemental Environmental Impact  
Statement/Supplemental Environmental Impact Report**

**Response to Comments, Volume II**

**July 11, 2008**

**Federal Transit Administration  
U.S. Department of Transportation**

**City and County of San Francisco  
Planning Department**

**Case No. 96.281E  
State Clearinghouse No. 96102097**

The attached pages have been revised from the Volume II document published on July 11, 2008. Please replace the original pages with those attached.

circulation in the concourse unpaid area; and capitalizing on Central Subway excavation along the Stockton alignment for BART to develop a police facility in the Hallidie Plaza area.

The general analysis done for the Draft SEIS/SEIR identified no significant impacts at the Powell Street Station, however, the Draft June 2008 Arup studies conducted for BART identified potential cumulative capacity/passenger flow and emergency vertical egress impacts in the joint-use areas at the underground Powell Street Station. While the assumptions used and the results of the study have not been fully reviewed and evaluated, the SFMTA agrees to address these issues as part of the Station Improvement Coordination Plan through monitoring of station activity levels and by incorporating project design features that will ensure the implementation of the Central Subway Project does not result in significant safety or pedestrian circulation impacts. To minimize potential station capacity impacts at the eastern end of the Powell Street Station concourse level, SFMTA and BART will explore design options to provide increased capacity for passenger flow between the Powell Street and UMS Stations. BART has identified potential for removal of the existing physical barrier on the south side of the fare gate and for relocation of the fare gates and adding up to five new fare gates to improve passenger flow in the BART non-paid area of the station. SFMTA has identified the potential for reopening a closed entrance (former CALFED entrance) to create additional capacity for pedestrian flow between the Powell Street and the UMS station. If the new pedestrian corridor is opened up under Market Street, then SFMTA will explore the possibility of adding a new elevator. SFMTA will continue to work with BART to address future potential capacity issues for station entries that may be necessary for the expansion of capacity of the joint-use station area.

A discussion of the potential for Powell Street Station impacts and an improvement measure are added as noted below to the Final SEIS/SEIR to ensure that the internal station circulation flows at the Powell Street Station meet BART's requirements for station circulation and that no new significant environmental impacts would occur as a result of the project implementation.

The sentence is added to the end of the first paragraph, page 3-44 and to the end of the first paragraph, page 3-45 to call out the potential capacity issues at Powell Street Station:

"The Powell Street Station may also experience capacity issues at the concourse level due to increased passenger activity at the northeast end of the station."

The text of the second paragraph, page 3-44 is revised as follows:

"Mitigation measures would be the same as those outlined under Alternative 2, except as noted below."



Page 5-15 of the SEIS/SEIR describes that Muni, in concert with the San Francisco Fire Department and the Department of Public Health, holds two to three emergency drills per year and emergency orientation sessions to ensure a coordinated response effort to emergencies occurring in the subway system. SFMTA has designed the emergency ventilation system for the Project such that it will not adversely effect the Powell Street BART station emergency ventilation.

The third paragraph, page 5-16 is revised as follows to address the additional use of the station due to the Central Subway:

“The operation impacts would be the same as described above for Alternative 2, except improvements to the existing Powell Street Station, as needed for the connection to the UMS Station, will be addressed in cooperation with BART during final design of the station connections. This will include assessment and, if necessary, implementation of improvements to the existing vertical circulation, platform capacity, lighting, ventilation system, fire suppression system and way-finding. The emergency ventilation system for the UMS shall be designed and operating procedures written/revised and tested to ensure that the UMS and Powell Street Station emergency ventilation systems do not adversely affect each other during an emergency event or system test.”

The sixth paragraph, page 5-16 is revised as follows:

“The operation impacts would be the same as described above for Alternative-2 3A.

No significant impacts are identified for the BART Emergency Plan or services at the Powell Street Station.

#### **AB-9**

Muni and BART currently provide security officers and would continue to provide security services at the Powell Street joint-use station for Central Subway passengers. Also, Muni “proof of payment” inspectors patrol the concourse. No significant impacts are identified for the BART security services based on increases to ridership from the Central Subway transfers, and no mitigation measures are described. Monitoring the need for added security services at the Powell Street Station would be the responsibility of both SFMTA and BART following start-up of the Central Subway operation. Resolution of issues would take place as provided for in the Station Improvement Coordination Plan and existing 1986 Muni/BART Joint Station Maintenance Agreement, First Supplement.

SFMTA will install security systems at the interface between the Powell Street Station and the UMS station and will perform a Threat and Vulnerability analysis. The San Francisco Police Department (SFPD) and SFMTA Security and Enforcement Division will provide security for the Union Square/Market Street Station (UMS). The 1986 BART/Muni Joint Station Maintenance Agreement, First Supplement includes an agreed-to process to re-apportion cost between BART and Muni based upon



## 5.0: STAFF INITIATED CHANGES

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The last sentence, first paragraph, page S-18 is revised as follows:

“Under Alternative 3B, the pedestrian level of service would be reduced to LOS B, at the Chinatown Station, as a result of the increase in pedestrian activity rather than a reduction of effective sidewalk width.”

The following text is added to the end of the second sentence, fourth paragraph, page S-18:

“There would also be a temporary increase in truck traffic along the light rail alignment as a result of truck traffic associated with the removal of excavated soils and backfill around the guideway and station areas and delivery of materials.”

Table S-7, pages S-19 and S-27 is revised as noted on the following pages.

The first two bullets, page S-32 are revised as follows:

- “traffic impacts in 2030 at the following locations: Fourth/Harrison Streets intersection (~~No Project/TSM Alternative~~ ~~LOS B to LOS E in a.m. peak hour~~, Alternative 3A, ~~LOS B-C to LOS E in a.p.m. peak hour~~, and Alternative 3B – ~~LOS B C to LOS F in a.m. and p.m. peak hour~~) and Third/King Streets intersection (Alternatives 2, 3A, and 3B – ~~LOS D-E to LOS F in a.m. peak hour~~) all as a result of project implementation.”
- “displacement of 10 small businesses (10 or fewer employees) ~~and 1 or 2 residential units~~ for Alternatives 2 and 3A and displacement of 8 small businesses (10 or fewer employees) and 17 residential units (which would require a Planning Code amendment) for Alternative 3B in the predominantly minority and low-income Chinatown neighborhood;”

The second sentence, last paragraph starting on page S-33 and continuing to page S-34 is revised as follows:

“It has been determined that this use of the plaza would not be considered a significant impact and a ~~de minimus-minimis~~ finding for impact on Section 4(f) resources is anticipated for Alternative 3B has been concurred with by the Recreation and Parks Commission (see Appendix J) to satisfy Section 4(f) requirements.”

<p><b>GEOLOGY AND SEISMICITY</b></p> <p>Construction</p>		<p><i>Significant Impacts:</i></p> <ol style="list-style-type: none"> <li>1. Construction period settlement could cause damage to existing building foundations, subsurface utilities, and surface improvements.</li> <li>2. Construction of the shallow subway crossing over the BART tunnel would be expected to result in reduction of ground loads and upward displacement of the BART/Muni Metro tunnels.</li> </ol> <p><i>Mitigation Measures:</i></p> <ol style="list-style-type: none"> <li>1. Provisions such as concrete diaphragm walls to support the excavation and instrumentation to monitor settlement and deformation would be used to ensure that structures adjacent to tunnel alignments are not affected by excavations.</li> <li>2. Tunnel construction methods that minimize ground movement, such as pressure-faced TBMs, Sequential Excavation Method, and ground improvement techniques such as compensation grouting, jet grouting or underpinning will be used.</li> <li>3. Rigorous geomechanical instrumentation would be used to monitor underground excavation and grouting or underpinning will be employed to avoid</li> </ol>	<p><i>Significant Impacts:</i></p> <p>Same as Alternative 2, except the use of TBMs for deep tunnel construction would minimize the impact to BART/Muni Metro tunnels. <u>Similar to Alternative 2, the construction of a deep tunnel could result in the potential downward displacement of the BART structures.</u></p> <p><i>Mitigation Measures:</i></p> <p>Same as Alternative 2.</p>	<p><i>Significant Impacts:</i></p> <p>Same as Alternative <del>2</del> <u>3A</u>.</p> <p><i>Mitigation Measures:</i></p> <p>Same as Alternative 2.</p>
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Fourth/Harrison Streets intersections for Alternative 3A and 3B (see Tables E-12 and E-13 in Appendix E). This determination was based on the examination of traffic volumes for the traffic movements which determine overall LOS intersection performance.

For Alternative 2, ~~two~~three of the five intersections analyzed would operate at LOS E or F conditions for Cumulative 2030 conditions during the a.m. peak hour and three of the five intersections analyzed would operate at LOS ~~E~~E or F conditions for Cumulative 2030 conditions during the p.m. peak hour. There would be a project-specific significant traffic impact at the Third/King intersection compared to No Project/TSM conditions due to a deterioration of LOS from ~~D-E~~E to F for the a.m. peak hour. The Project's share of future traffic growth at the Sixth/Brannan Streets intersection would constitute a cumulatively considerable contribution to adverse 2030 cumulative traffic conditions for the p.m. peak hour. Alternative 2 contributions to adverse cumulative conditions were found to be significant, in particular, as under Alternative 2 project-related traffic would constitute substantial percentages for critical volume movements that would operate with adverse conditions. As project-related traffic would represent a"

The Transit, Construction and Operation/Cumulative Impacts in Table 7-2, pages 7-9 and 10 are revised as noted on the following pages.

The Traffic, Operation/Cumulative Impacts and Mitigation Measures in Table 7-2, page 7-11 and 7-12 are revised as noted on the following pages.

The Parking, Operation/Cumulative Impacts for Alternative 3B in Table 7-2, page 7-14 is revised as noted on the following pages.

The Land Use Construction Impacts for Alternative 3B in Table 7-2, page 7-18 is revised as noted on the following pages.

The Socioeconomic Construction Impacts for Alternative 3B in Table 7-2, page 7-19 is revised as noted on the following pages.

The Community Facilities Operation/Cumulative Impacts in Table 7-2, page 7-22 and 7-23 are revised as noted on the following pages.

The Geology and Siesmicity Construction Impacts in Table 7-2, page 7-32 and 7-33 are revised as noted on the following pages.

The first sentence, third paragraph, page 7-46 is revised as follows:

“For Alternative 3A, there would be a project-specific significant traffic impact at the Third/King Streets intersection compared to No Project/TSM conditions due to a deterioration of LOS from ~~D-E~~ to F for the a.m. peak hour and Fourth/Harrison Streets due to a deterioration of LOS C to LOS ~~F-E~~ in the p.m. peak hour compared to No Project/TSM conditions.”

The second paragraph, page 7-47 is revised as follows:

“For Alternative 3B, the impacts would be the same as described for Alternative 3A, except ~~that at the Fourth/Harrison Streets intersection there would also be a Project-specific impact in the a.m. peak hour where level of service would degrade from LOS E to~~



## TRANSIT

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
<b>TRANSPORTATION</b> <b>Transit</b> Construction	No construction impacts.	<p><u>Less-than-Significant Impact:</u></p> <ol style="list-style-type: none"> <li>1. Temporary reduction in traffic lanes on King, Third, Fourth, Harrison, Kearny, Geary, and Stockton Streets during construction would disrupt transit operations.</li> <li>2. F-line service would be temporarily disrupted for the subway crossing of Market Street.</li> <li>3. Rerouting of the 30-Stockton and 45-Union/Stockton trolley bus lines would likely be required.</li> </ol> <p><u>Improvement Measures:</u></p> <ol style="list-style-type: none"> <li>1. DPT will develop detour routes for all non-transit related traffic to minimize the construction disruption to transit.</li> <li>2. Overhead wires for the 30-Stockton and the 45-Union/Stockton lines will be temporarily relocated or reconstructed to alternative routes where feasible or motor coaches would be temporarily substituted on alternative routes.</li> </ol>	<p><u>Less-than-Significant Impact:</u></p> <p>Same as Alternative 2, except:</p> <ol style="list-style-type: none"> <li>1. Reduction in traffic lanes would not occur on Third, Harrison, Kearny, or Geary Streets</li> <li>2. Buses would be temporarily rerouted to the west side of Fourth Street.</li> <li>3. The bus stop at the southwest corner of Fourth and Howard Streets would be temporarily relocated.</li> <li>4. Construction of a TBM retrieval shaft near Washington Square would require temporary relocation of bus stops for the 30-Stockton and 45-Union/Stockton and possible temporary shifting of overhead wires to accommodate continued transit service.</li> <li>5. <u>Excavation of the construction shaft under the I-80 freeway between Bryant and Harrison Streets would also impact Golden Gate Transit bus operations.</u></li> <li>6. <u>Temporary disruption to BART service could occur</u></li> </ol>	<p><u>Less-than-Significant Impact:</u></p> <p>Same as Alternative 3A, except:</p> <ol style="list-style-type: none"> <li>1. The overall project duration of construction would be .5 years shorter.</li> <li>2. The bus stop at the southwest corner of Fourth and Howard Streets would not need to be relocated.</li> <li>3. <u>The BART entry at One Stockton Street would need to be closed temporarily during construction.</u></li> </ol> <p><u>Improvement Measures:</u></p> <p>Same as Alternative 2-3A.</p>

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
		<p>3. SFMTA will provide signing related to transit changes in Chinese as well as English.</p>	<p>during construction.</p> <p><i>Improvement Measures:</i>            Same is Alternative 2, except SFMTA would coordinate with TJPA and GGBHTD to minimize construction impacts on Golden Gate Transit. SFMTA would stage excavation shaft construction and utility relocation to maintain access to the bus storage facility by Golden Gate buses and work with GGBHTD to develop bus detour routing plans for continued access. Access to the construction shaft would be scheduled to avoid conflict with the active bus periods.</p> <p>MTA and BART will prepare and enter into a Station Improvement Coordination Plan to include construction management procedures and processes to address any and all construction and operational impacts resulting from the tunnel boring. MTA will also coordinate with BART to develop bus bridges, if needed, public outreach, and other programs to minimize impacts to transit riders during construction.</p>	

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
Operation/Cumulative	<u>Less-than-Significant Impact:</u>  1. Muni Metro rail service on the Embarcadero and the 9AX San Bruno express buses are projected to experience capacity issues by 2030. The capacity constraints on the Embarcadero rail line between Market Street and Folsom Street would preclude capacity improvements for the rail service.  2. Surface transit travel times would increase as a result of increased congestion on streets.  <i>Improvement Measure:</i> Muni will monitor ridership levels and modify service plans to increase transit capacity as ridership demand warrants.	<u>Less-than-Significant Impact:</u>  The Central Subway rail service and the 9AX/BX San Bruno express buses are projected to experience capacity issues by 2030.  <i>Improvement Measure:</i> Same as Alternative 1.	<u>Less-than-Significant Impact:</u>  Same as Alternative 2, <u>except the Powell Street Station may also experience capacity issues at the concourse level due to increased passenger activity at the northeast end of the station.</u>  <i>Improvement Measure:</i> Same as Alternative 1, <u>except the MTA and BART will prepare and enter into a Station Improvement Coordination Plan for the Powell Street Station that will provide for, at a minimum, implementation of allocation of cost for any station infrastructure improvements necessary to maintain pedestrian safety and a pedestrian level of service of D or better at the Powell Street Station as a result of the Central Subway Project.</u>	<u>Less-than-Significant Impact:</u>  1. The Central Subway rail service and the 9AX San Bruno Express are is-projected to experience capacity issues by 2030.  2. The Powell Street Station may <u>also experience capacity issues at the concourse level due to increased passenger activity at the northeast end of the station.</u>  <i>Improvement Measure:</i> Same as Alternative <u>1, 3A.</u>

## TRAFFIC

Environmental Area/Impacts	Alternative 1 -No Project/TSM	Alternative 2 - EIS/EIR Enhanced Alignment	Alternative 3A - Fourth/Stockton Alignment Option A	Alternative 3B - Fourth/Stockton Alignment Option B
Operation/Cumulative	<u>Significant Impacts:</u> <u>Increases in traffic congestion and delays would occur in</u>	<u>Significant Impacts:</u> <u>Increases in traffic congestion and delays would occur in 2030</u>	<u>Significant Impacts:</u> <u>Increases in traffic congestion and delays would occur in 2030</u>	<u>Significant Impacts:</u> 1. Same as Alternative 3A, except the Project would also



	<p>2030 at all of the five intersections evaluated as a result of cumulative traffic growth. <del>Third/King (a.m. peak only), Streets intersection would degrade from LOS E to LOS F in the a.m. peak hour and would continue to operate at LOS F in the p.m. peak hour. Fourth/King, and Sixth/Brannan Streets intersections would continue to operate at LOS E or F conditions in the a.m. and p.m. peak hours. The intersection of Fourth and Harrison Streets would degrade from LOS B to LOS E when compared to the existing conditions.</del></p> <p><i>Mitigation Measure:</i> Restriping the southbound curb lane of Fourth Street to accommodate a shared through/right-turn lane to Harrison Street would mitigate the impacts to LOS B resulting in a less-than-significant impact.</p> <p><i>Significant environmental effects which can not be avoided:</i> None of the remaining traffic impacts could be reasonably mitigated. <u>The traffic impacts at Third/King, Fourth/King, and Sixth/Brannan Streets intersections could not be reasonably mitigated to a less-than-significant level.</u></p>	<p><u>at three out of the five intersections evaluated. The Project would have a significant traffic impact at the Third/King Streets intersection in the a.m. peak hour due to degradation in LOS from D E to F when compared to the No Project/TSM Alternative and a cumulatively considerable contribution to the cumulative traffic impacts at the Sixth/Brannan Streets intersection during the p.m. peak hour in 2030.</u></p> <p><u>Significant environmental effects which can not be avoided:</u> <u>The traffic impacts at Third/King and Sixth/Brannan Streets intersections could not be reasonably mitigated to a less-than-significant level.</u></p>	<p><del>at three out of the five intersections evaluated. The Project would have a significant traffic impact at the Third/King Streets intersection in the a.m. peak hour due to a degradation in LOS from D-E to F and at the Fourth/Harrison Streets intersection in the p.m. peak hour due to a degradation in LOS from C to E when compared to the No Project/TSM Alternative. This alternative would have a cumulatively considerable contribution to the adverse cumulative traffic impacts at the King Street intersections with Third and Fourth Streets and the Fourth/Harrison Streets intersection during the p.m. peak hour in 2030.</del></p> <p><i>Mitigation Measure:</i> Restriping the southbound curb lane of Fourth Street to accommodate a shared through/right-turn lane to Harrison Street would mitigate the impacts to LOS B resulting in a less-than-significant impact.</p> <p><i>Significant environmental effects which can not be avoided:</i> The traffic impacts at the Third/King and Fourth/King Streets intersections could not be reasonably mitigated to a less- than-significant level.</p>	<p><del>have a significant impact at the Fourth/Harrison Streets intersection during the a.m. peak hour when compared to the No Project/TSM Alternative and a cumulatively considerable impact on the cumulative traffic impacts at the King Street and Third Streets intersection during a.m. peak hour and the Fourth/Harrison Streets intersection during the p.m. peak hour in 2030.</del></p> <p>2. In addition, the portal at Fourth Street under I-80 may restrict access to the proposed bus storage facility at Perry Street and large truck movements onto Stillman Street.</p> <p><i>Mitigation Measures:</i> Same as Alternative 3A, except MTA will explore design modifications to the portal with the TJPA and Golden Gate Transit options that will permit bus access to Perry Street and truck access to Stillman Street that will <u>to</u> reduce the impacts to a less-than-significant level.</p> <p><i>Significant environmental effects which can not be avoided:</i> Same as Alternative 3A.</p>
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5.0: STAFF INITIATED CHANGES

	less- than-significant level.		level.	
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## PARKING

Operation/Cumulative	No operation or cumulative impacts.	<u>Less-than-Significant Impact:</u> This alternative would eliminate 111 on-street parking spaces and 59 off-street parking spaces.	<u>Less-than-Significant Impact:</u> This alternative would eliminate 29 on-street parking spaces and 29 off-street parking spaces.	<u>Less-than-Significant Impact:</u> This alternative would eliminate 82 on-street parking spaces for the semi-exclusive option and 8479 spaces for the mixed-flow option and 59 off-street parking spaces. <u>An additional 3 spaces may be removed on the north side of Ellis Street to accommodate emergency exiting.</u>
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## EMERGENCY VEHICLE ACCESS

Operation/Cumulative	No operation or cumulative impacts	<u>Less-than-Significant Impact:</u> The introduction of a single-track median in the middle of Fourth Street would require fire trucks exiting Fire Station #8 on Bluxome Street to cross the entire trackway to travel contra-flow on Fourth Street.  <u>Improvement Measures;</u> DPT will be upgrading traffic signals with emergency vehicle preemption equipment in order to minimize the emergency response time and improve signal operations.	<u>Less-than-Significant Impact:</u> Same as Alternative 2, except there would be a double-track median to cross in Fourth Street.  <u>Improvement Measures;</u> Same as Alternative 2.	<u>Less-than-Significant Impact:</u> Same as Alternative 3A, except the trackway would be about 3 feet wider than under Alternative 2 <u>and with two-way operation on Fourth Street, there would be no contra-flow travel.</u>  <u>Improvement Measures;</u> Same as Alternative 2.
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## LAND USE

Construction	No construction impacts.	<p><u>Less-than-Significant Impact:</u> Construction would not cause a change in land use patterns or neighborhood character, but would temporarily disrupt access to the adjacent uses as described under Transportation.</p> <p><u>Improvement Measures:</u> Public information programs and signage will be used to minimize impacts to adjacent land uses during construction.</p>	<p><u>Less-than-Significant Impact:</u> Same as Alternative 2, but would have a lesser area of surface disruption.</p> <p><u>Improvement Measures:</u> Same as Alternative 2.</p>	<p><u>Less-than-Significant Impact:</u> Same as Alternative 3A, except that the surface area of disruption would be greater than under Alternative 3A <u>and an amendment of Planning Code would be required to allow the demolition of residential apartment units.</u></p> <p><u>Improvement Measures:</u> Same as Alternative 2.</p>
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## SOCIOECONOMIC (POPULATION AND HOUSING)

Construction	No construction impacts.	<p><u>Less-than-Significant Impact:</u> The Project would create temporary construction-related jobs that would not be expected to have a substantial effect on the regional population.</p>	<p><u>Less-than-Significant Impact:</u> Same as Alternative 2.</p>	<p><u>Less-than-Significant Impact:</u> Same as Alternative 2, <u>except an amendment of Planning Code would be required to allow the demolition of residential apartment units.</u></p>
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## COMMUNITY FACILITIES

<p>Operation</p>	<p><u>Less-than-Significant Impacts:</u></p> <p>1. Lack of transit investment could result in long-term degradation of mobility in the Corridor, but would not be expected to have a major affect on access to community facilities, parklands, or recreational facilities or cause major impedance for emergency response times.</p>	<p><u>Less-than-Significant Impacts:</u></p> <p>1. The placement of vent shafts and station entries and elevators in Union Square Plaza would permanently remove 1,517 square feet of open space for transportation purposes.</p> <p>2. Pedestrian traffic to and from the Union Square plaza would be increased as would pedestrian traffic on Hang Ah Alley.</p> <p><u>Improvement Measures:</u></p> <p>1. During the final design, minimize the footprint of station entrances in Union Square plaza and locate them in such a manner as to minimize disruption to park users.</p> <p>2. Design subway entrances so they are visually integrated with the existing park design.</p> <p>3. Ensure subway entrances are maintained by MTA on a regular basis to keep them free of litter and graffiti in perpetuity.</p> <p>4. The secondary access to the Chinatown Station could be closed to minimize impacts to Hang Ah Alley.</p>	<p><u>Less-than-Significant Impacts:</u></p> <p>Same as described for Alternative 2, <u>except improvements to the existing Powell Street Station, as needed for the connection to the UMS Station, will be addressed in cooperation with BART during final design of the station connections. This will include assessment and, if necessary, implementation of improvements to the existing vertical circulation, platform capacity, lighting, ventilation system, fire suppression system and way-finding. The emergency ventilation system for the UMS shall be designed and operating procedures written/revised and tested to ensure that the UMS and Powell Street Station emergency ventilation systems do not adversely affect each other during an emergency event or system test.</u></p> <p><u>Improvement Measures:</u></p> <p>Same as described for Alternative 2.</p>	<p><u>Less-than-Significant Impacts:</u></p> <p>Same as Alternative <u>2 3A</u>, except that only 1,690 square feet of open space would be permanently removed for transportation purposes in Union Square. The vent shafts would be located in the Ellis/O'Farrell garage rather than in Union Square. Access to the Union Square/Market Street Station would be from Geary Street and would not result in increased pedestrian traffic through the plaza and access to and from Willie "Woo Woo" Wong Playground would not be impacted.</p> <p><u>Improvement Measures:</u></p> <p>Same as Alternative 2, except closure of Hang Ah Alley would not be relevant.</p>
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## GEOLOGY AND SEISMICITY

<p><b>GEOLOGY AND SEISMICITY</b></p> <p>Construction</p>	<p>No construction impacts.</p>	<p><i>Significant Impacts:</i></p> <ol style="list-style-type: none"> <li>1. Construction period settlement could cause damage to existing building foundations, subsurface utilities, and surface improvements.</li> <li>2. Construction of the shallow subway crossing over the BART tunnel would be expected to result in reduction of ground loads and upward displacement of the BART/Muni Metro tunnels.</li> </ol> <p><i>Mitigation Measures:</i></p> <ol style="list-style-type: none"> <li>1. Provisions such as concrete diaphragm walls to support the excavation and instrumentation to monitor settlement and deformation would be used to ensure that structures adjacent to tunnel alignments are not affected by excavations.</li> <li>2. Tunnel construction methods that minimize ground movement, such as pressure-faced TBMs, Sequential Excavation Method, and ground improvement techniques such as compensation grouting, jet grouting or underpinning will be used.</li> <li>3. Rigorous geomechanical instrumentation would be used to monitor underground excavation and grouting or underpinning will be employed to avoid displacement of structures.</li> <li>4. Automated ground movement</li> </ol>	<p><i>Significant Impacts:</i></p> <p>Same as Alternative 2, except the use of TBMs for deep tunnel construction would minimize the impact to BART/Muni Metro tunnels. <u>Similar to Alternative 2, the construction of a deep tunnel could result in the potential downward displacement of the BART structures.</u></p> <p><i>Mitigation Measures:</i></p> <p>Same as Alternative 2.</p> <p><i>Less-than-Significant Impacts:</i></p> <p>Same as Alternative 2.</p>	<p><i>Significant Impacts:</i></p> <p>Same as Alternative 3.</p> <p><i>Mitigation Measures:</i></p> <p>Same as Alternative <del>2</del> 3A.</p> <p><i>Less-than-Significant Impacts:</i></p> <p>Same as Alternative 2.</p>
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		<p>monitoring will be used to detect distortion on the BART/Muni Metro tunnels and grout pipes will be placed prior to tunnel excavation to allow immediate injection of compensation grouting to replace ground losses if deformation exceeds established thresholds.</p> <p>With the implementation of these mitigation measures the impacts would be less-than-significant.</p> <p><i>Less-than-Significant Impacts:</i> Adherence to all applicable federal, state and local safety and health codes and practices for construction of the underground tunnels, shafts, and excavations would be required to minimize harm to workers should an earthquake occur during construction. MTA would also require contractors to submit a site-specific earthquake preparedness and emergency response plan as part of compliance with bid specifications.</p>		
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# SAN FRANCISCO PLANNING DEPARTMENT

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## ADDENDUM TO SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT/SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT

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Planning  
Information:  
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Date: January 31, 2013  
Case No.: 1996.0281E  
Project Title: Central Subway  
Zoning: North Beach NCD (North Beach  
Neighborhood Commercial District) Zoning District  
40-X Height and Bulk District  
Block/Lot: 0101/004  
Lot Size: 15,320 square feet (1731 Powell St)  
Project Sponsor: San Francisco Municipal Transportation Agency (SFMTA)  
John Funghi – (415) 701-4299  
Lead Agency: San Francisco Planning Department  
Staff Contact: Sarah Jones – (415) 575-9034  
[Sarah.b.jones@sfgov.org](mailto:Sarah.b.jones@sfgov.org)

## INTRODUCTION AND PROJECT DESCRIPTION

This Addendum addresses the Central Subway project, as described in the 2008 Phase 2 Central Subway Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report (2008 SEIS/SEIR) certified by the Planning Commission on August 7, 2008<sup>1</sup>.

California Environmental Quality Act (CEQA) allows for preparation of an addendum to a certified EIR when a change to a project is proposed that would not result in new or substantially more severe significant impacts. SFMTA has proposed a modification to the Central Subway project that would 1) change the location at which the tunnel boring machines (TBM) being used to excavate the subway tunnel are removed from the ground and 2) allow for redevelopment of the proposed new TBM retrieval shaft site, after the retrieval process is concluded.

As described in the 2008 SEIS/SEIR, as currently approved, the construction tunnel for the underground portion of the Central Subway would continue north from the Chinatown Station

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<sup>1</sup> Federal Transit Administration and San Francisco Planning Department, *Final Central Subway Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report*, August 7, 2008. This document is on file and available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 1996.281E.

(at Jackson and Stockton Streets) and extend under Columbus Avenue to a site north of Union Street, where the TBM would be extracted via a retrieval shaft located in the public right-of-way. The proposal analyzed in this Addendum would relocate this retrieval site to a privately-owned parcel at 1731 Powell Street (Assessor's Block 101, Lot 004), approximately 100 feet northwest of the original TBM extraction location. ("modified project"). The modified project would also involve redevelopment of the 1731 Powell Street site, currently occupied by a vacant, approximately 55-foot-tall structure formerly used as a theater ("Pagoda Theater").

The Pagoda Theater property is the site of an approved project (Planning Department Case File No. 2007.1117) (the "Pagoda Theater project") which would modify and convert the existing theater to a mixed-use building with 18 residential units and approximately 4,700 square feet (sf) of ground floor restaurant and retail use. Five stories (40,875 sf) of developed space over basement parking would be accommodated within the existing 56-foot high structure. The Planning Department issued a Certificate of Determination for a Class 32 Categorical Exemption for the Pagoda Theater project on January 6, 2009, and the Planning Commission adopted a conditional use authorization for the project in Motion 17797 on January 8, 2009. On October 28, 2010, the Planning Commission amended the Conditional Use Authorization, in Motion Number 18204, to allow the project sponsor to change the method by which the project sponsor complied with the City's affordable housing requirements.

Relocation of the TBM retrieval shaft site to 1731 Powell Street (hereinafter referred to as the "project site") as proposed in the modified project would require demolition of the Pagoda Theater building. In addition to TBM extraction at the project site, the modified project also would include the construction of a development substantially similar to the Pagoda Theater project. The new construction would include a building with substantially the same building envelope and development specifications as the Pagoda Theater project, with the exception of a different configuration of the ground floor commercial space as one 4,700 sf restaurant use.

## PROJECT BACKGROUND

SFMTA is constructing the Central Subway, a light-rail line that will operate independently from the Muni Market Street Metro as a new 1.7-mile cross town connector. The Central Subway is an extension of the existing 5.1-mile Phase 1 of the Third Street Light Rail Transit Program, which began service in April 2007.

The Central Subway will extend from the existing station at Fourth and King Streets as a surface line, transitioning to subway operation under the Interstate 80 Freeway, between Bryant and



Harrison Streets. The alignment will pass underneath the existing BART/Muni Market Street tube, and continue north under Stockton Street to the system terminus in Chinatown at Stockton and Jackson Streets. A double track, 200-foot tail track for storage will continue beyond the Chinatown station platform. Four stations will be located along the 1.7-mile alignment:

- A surface station on Fourth Street between Brannan and Bryant Streets;
- The Yerba Buena/Moscone (subway) Station at 4th and Folsom streets;
- Union Square/Market Street Station on Stockton Street at Union Square (subway) with a direct path linking to the Market Street Muni Metro and BART trains; and
- Chinatown Station at Stockton and Washington streets (subway).

North of the Chinatown Station, the project scope includes continuation of the twin tunnel excavation to the retrieval shaft site in North Beach. As described in this Addendum, SFMTA is currently proposing relocation of the approved TBM retrieval shaft site from Columbus Avenue to the property at 1731 Powell Street, affecting only the northernmost terminus of the Phase 2 alignment.

### ***Central Subway EIS/EIR Timeline***

Milestones in the environmental review of the Central Subway project are summarized below:

**1998:** The *Third Street Light Rail Project Final Environmental Impact Study and Final Environmental Impact Report* (1998 FEIS/FEIR) is certified by the Planning Commission.

**1999:** The Federal Transit Administration (FTA) issues a Record of Decision (ROD) for Third Street Light Rail Project. The San Francisco Public Transportation Commission (predecessor to SFMTA) approves Third Street Light Rail Project.

**Spring 2007:** Third Street Light Rail opens for service.

**October 17 2007-December 10, 2007:** The *Central Subway Draft Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report*, addressing Phase 2, is circulated for a 55-day public review as part of the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) processes.

**February 19, 2008:** SFMTA Board of Directors selects Central Subway Project Alternative 3B with the North Beach Construction Variant as the Locally Preferred Alternative.

**August 2008:** Planning Commission certifies the Final Supplemental EIS/EIR (2008 SEIS/SEIR). The SFMTA Board of Directors approves the 2008 SEIS/SEIR and (SFMTA Board Resolution 08-150) and adopts the Project CEQA Findings, the Mitigation Monitoring and Reporting Program (MMRP) and the Statement of Overriding Considerations.

**September 16, 2008:** On appeal, Board of Supervisors upholds Planning Commission's certification of 2008 SEIS/SEIR.

**November 2008:** The FTA issues an ROD, granting full environmental clearance to the project and directing implementation of the MMRP.

**March 2012:** Construction begins along alignment from Interstate 80 to Union Square to prepare for tunnel boring.

**December 4, 2012:** SFMTA Board of Directors instructs the Director of SFMTA to take actions necessary for implementation of TBM retrieval at 1731 Powell Street.

## SETTING

The project site is located on an irregularly-shaped block bounded by Powell Street on the east, Columbus Avenue on the northeast, Filbert Street on the north, Mason Street to the west, and Union Street to the south. The project site is located on the eastern portion of the block where Columbus Avenue and Powell Street intersect. Land uses adjacent to the project site include: a one-story restaurant ("Pellegrini") and surface parking on Lot 045 north of the site; a brick parking garage with second-story offices fronting on Filbert Street and abutting the rear of the project site (Lot 031); and 2-3 story residential over commercial buildings fronting on Powell Street south of the site. All other properties on the project block are developed with 2-4 story residential uses, including Lot 007 which abuts the western edge of the project site. Buildings of three or more stories are similar in height to the existing Pagoda Theater building, despite the differences in the number of stories, due to the prevailing construction practices at the time they were built. Other blocks in the vicinity have a similar development pattern, with mixed commercial and residential uses along Columbus Avenue and small scale multifamily residential uses elsewhere. Washington Square, an approximately 2.15-acre park, is located across Powell Street and Columbus Avenue from the project site.

The project site, and other properties along Columbus Avenue, are zoned North Beach Neighborhood Commercial District (NCD) and are in a 40-X height and bulk district. The project site is also within the North Beach Special Use District (SUD) and North Beach Limited Financial SUD. The residential portions of the project block and other nearby blocks are in the RM-2 (Residential Mixed etc.) zoning district. The project site is also within the North Beach historic resource survey area and the Washington Square Historic District.

## PROJECT SUMMARY

See Figures 1-12 for representations of the project site, proposed TBM retrieval shaft site, and proposed 1731 Powell Street Mixed Use Building.

The modified project would include the following components:

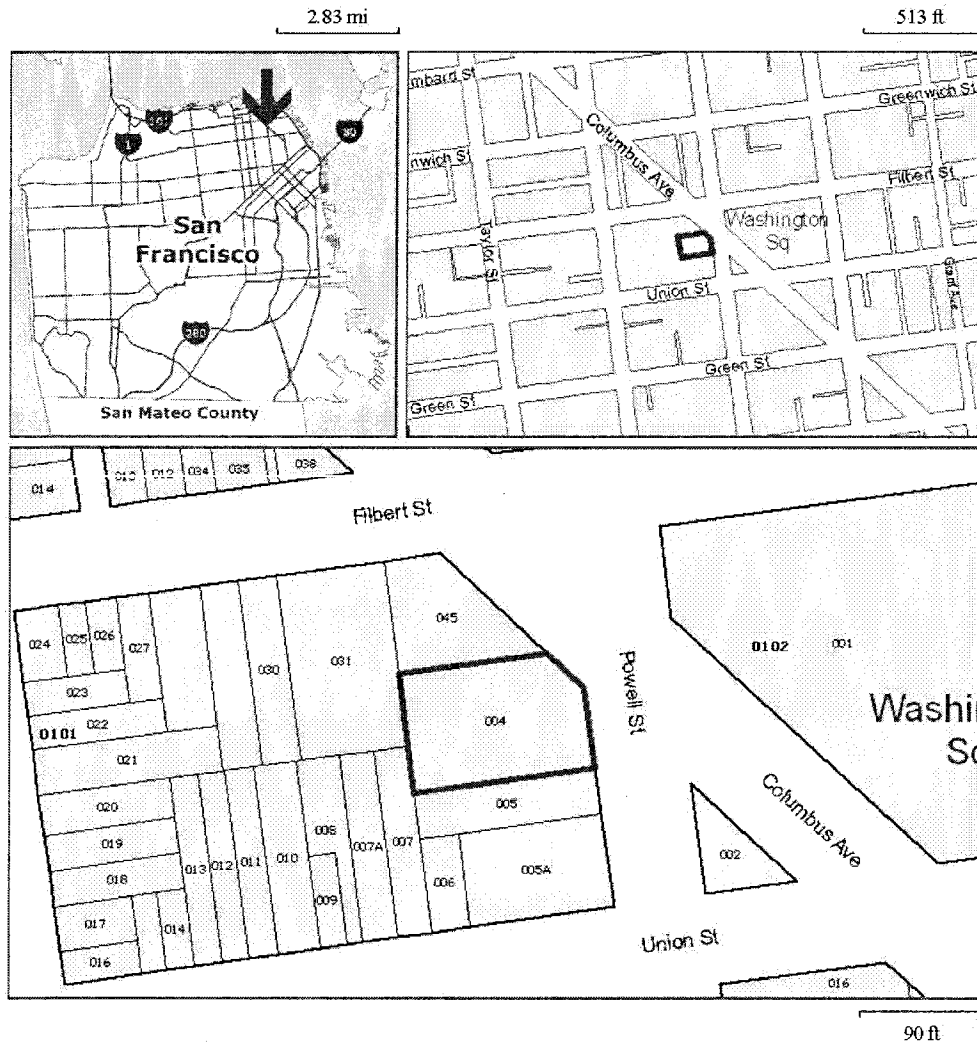
- Relocation of the TBM retrieval shaft site 100 feet northwest of the approved location, from the Columbus Avenue right-of-way between Powell and Union Street to the project site;
- Demolition of the existing Pagoda Theater building on the project site; and
- Construction of a 56-foot tall mixed-use residential/retail building with 18 residential units, up to 4,700 square feet of restaurant use, and 27 basement parking spaces.

The project components are described in further detail below.



CITY AND COUNTY OF SAN FRANCISCO  
PLANNING DEPARTMENT

### 1741 Powell St. Project Location Map



**FIGURE 1: PROJECT LOCATION**

Source: San Francisco Planning Department, January 2013

Not to Scale



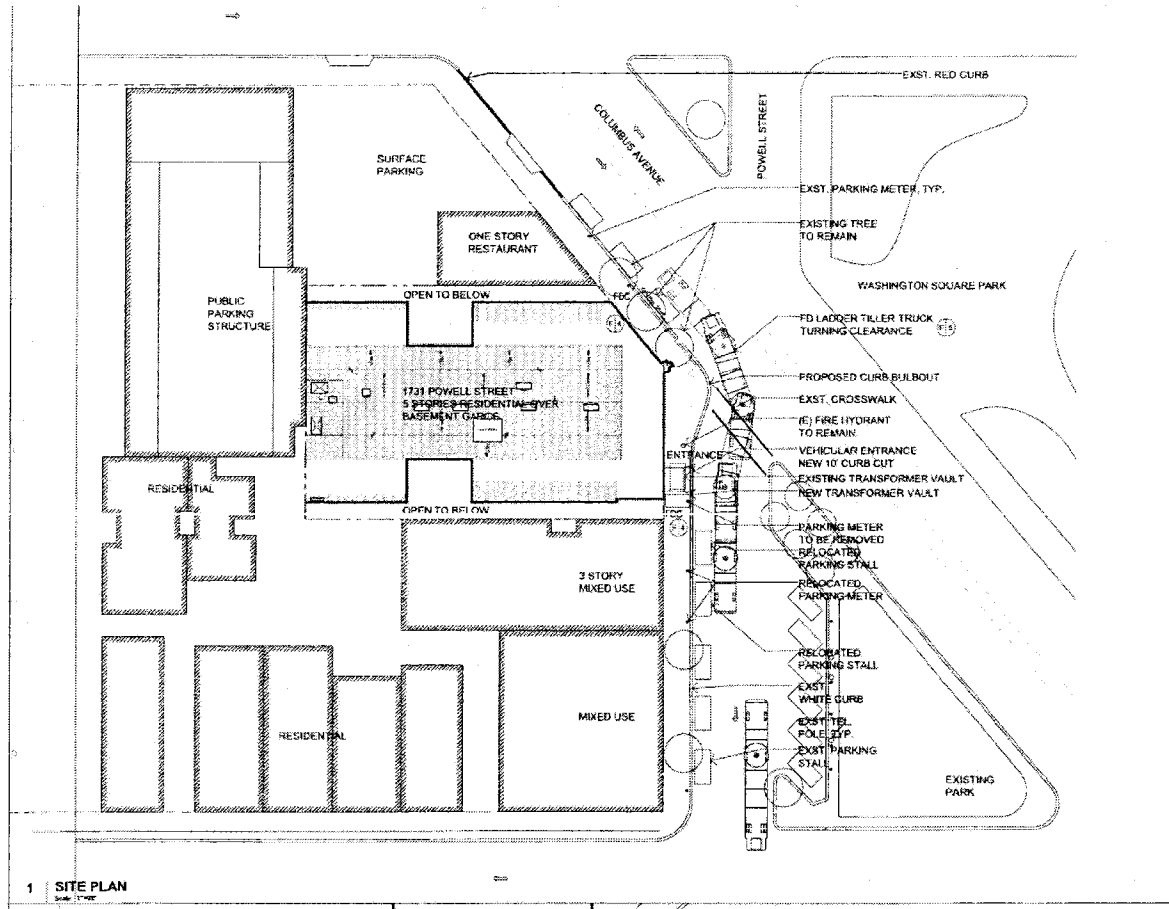
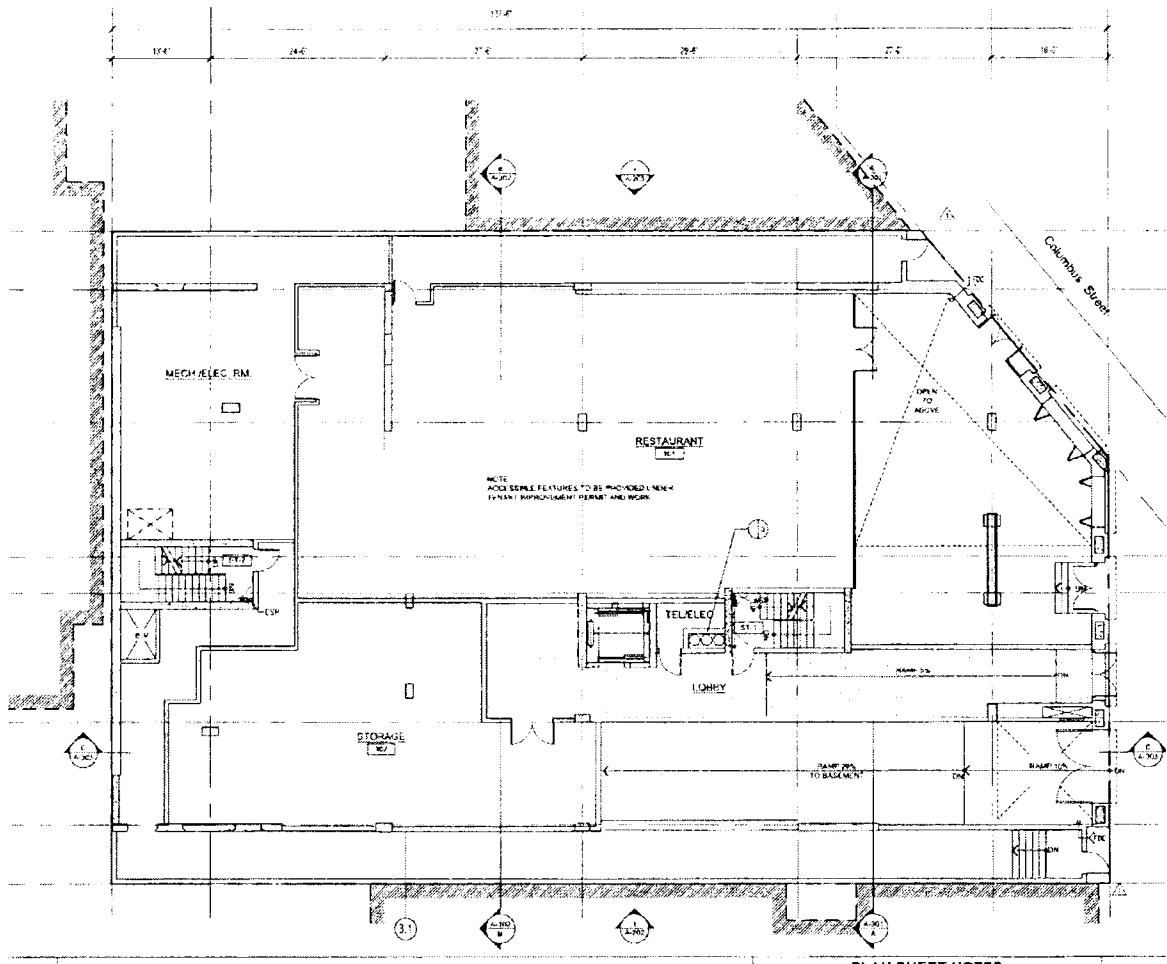


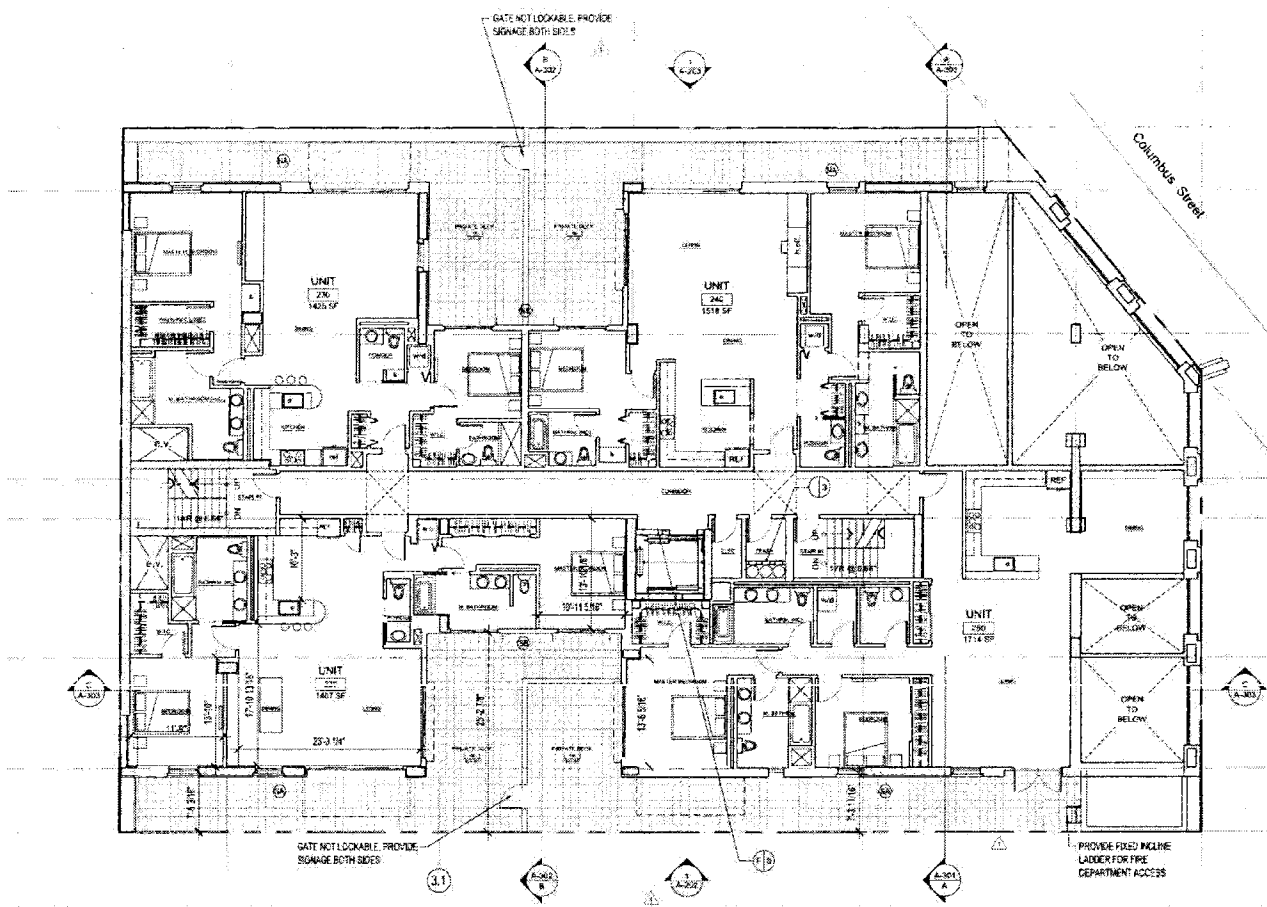
FIGURE 3: PROPOSED 1731 POWELL ST SITE PLAN

Source: SWS 1/7/13



**FIGURE 4: PROPOSED 1731 POWELL ST GROUND FLOOR PLAN**

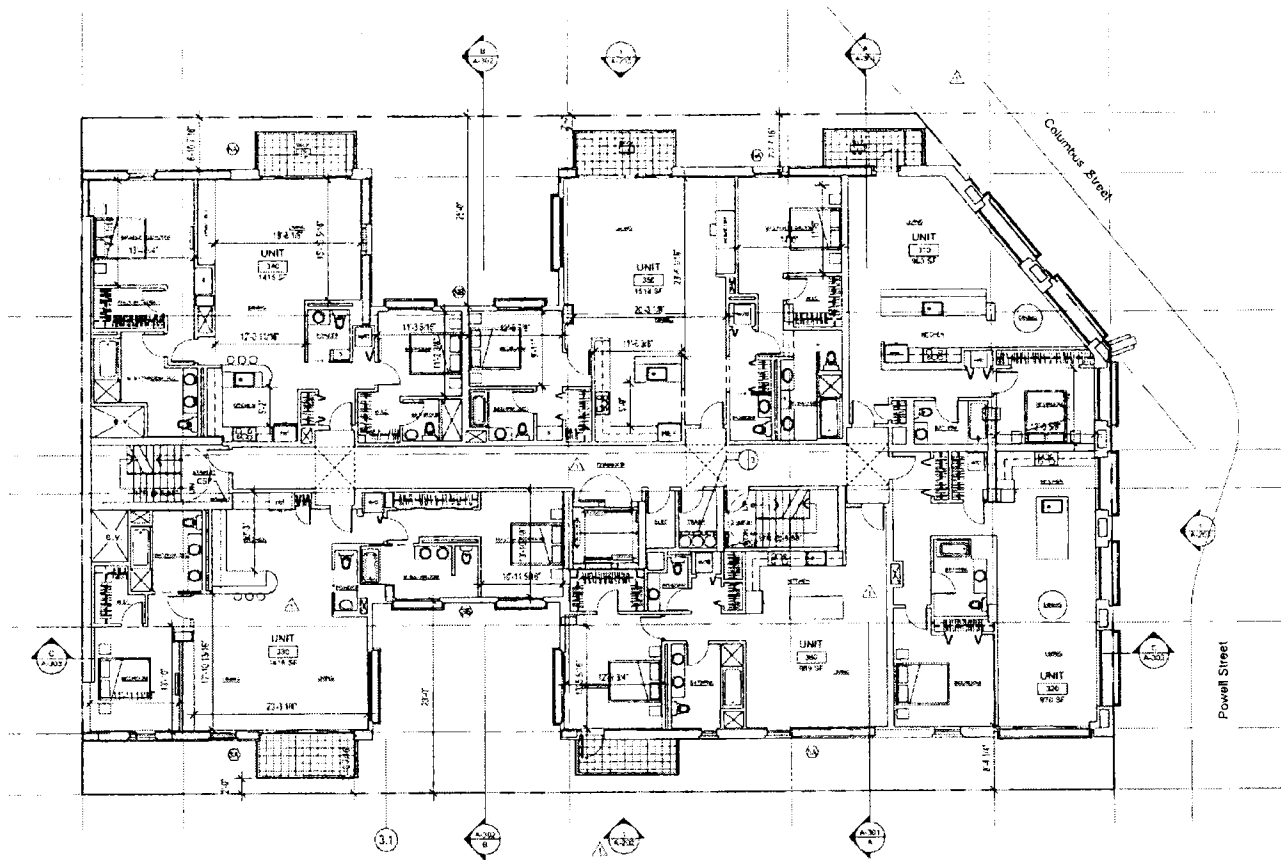
**Source: SWS 1/7/13**



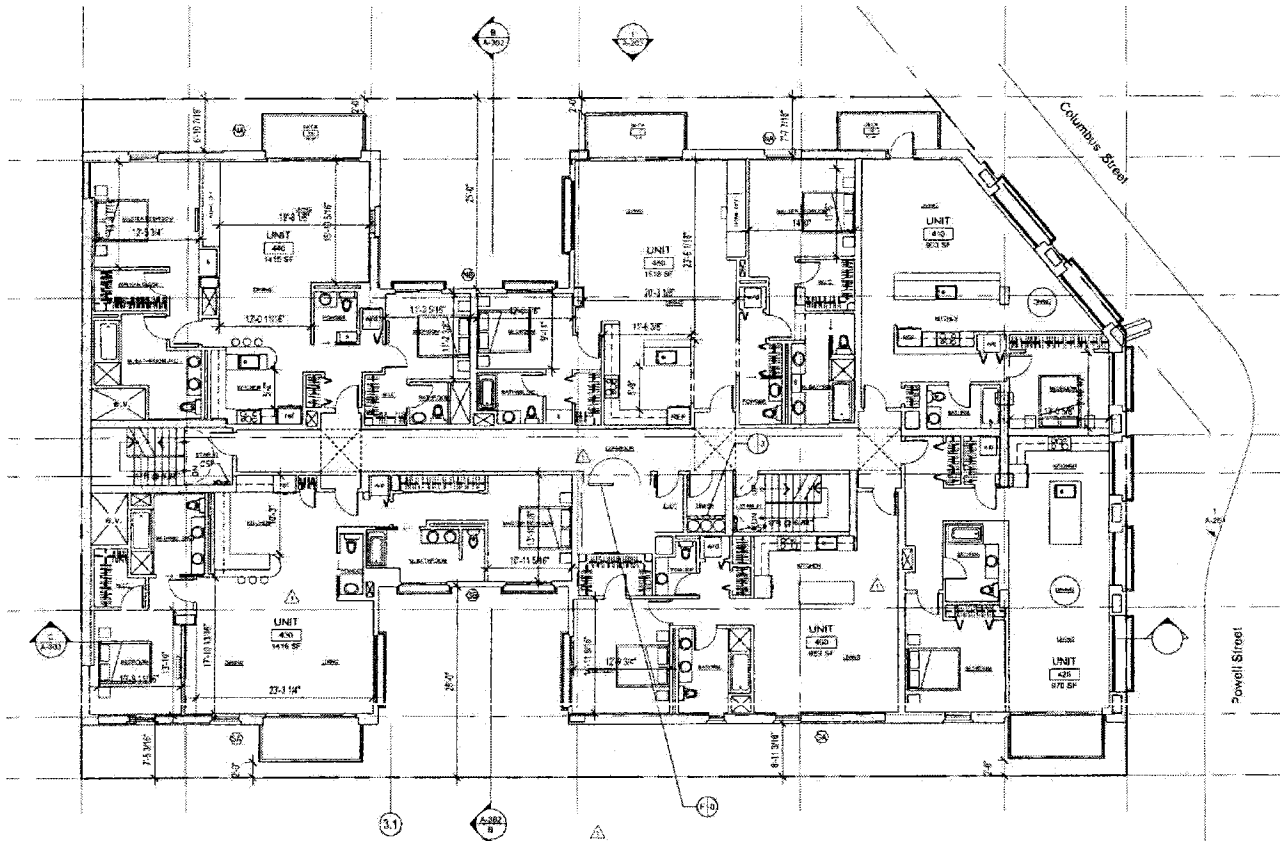
**FIGURE 5: PROPOSED 1731 POWELL ST SECOND LEVEL PLAN**

**Source: SWS 1/7/13**

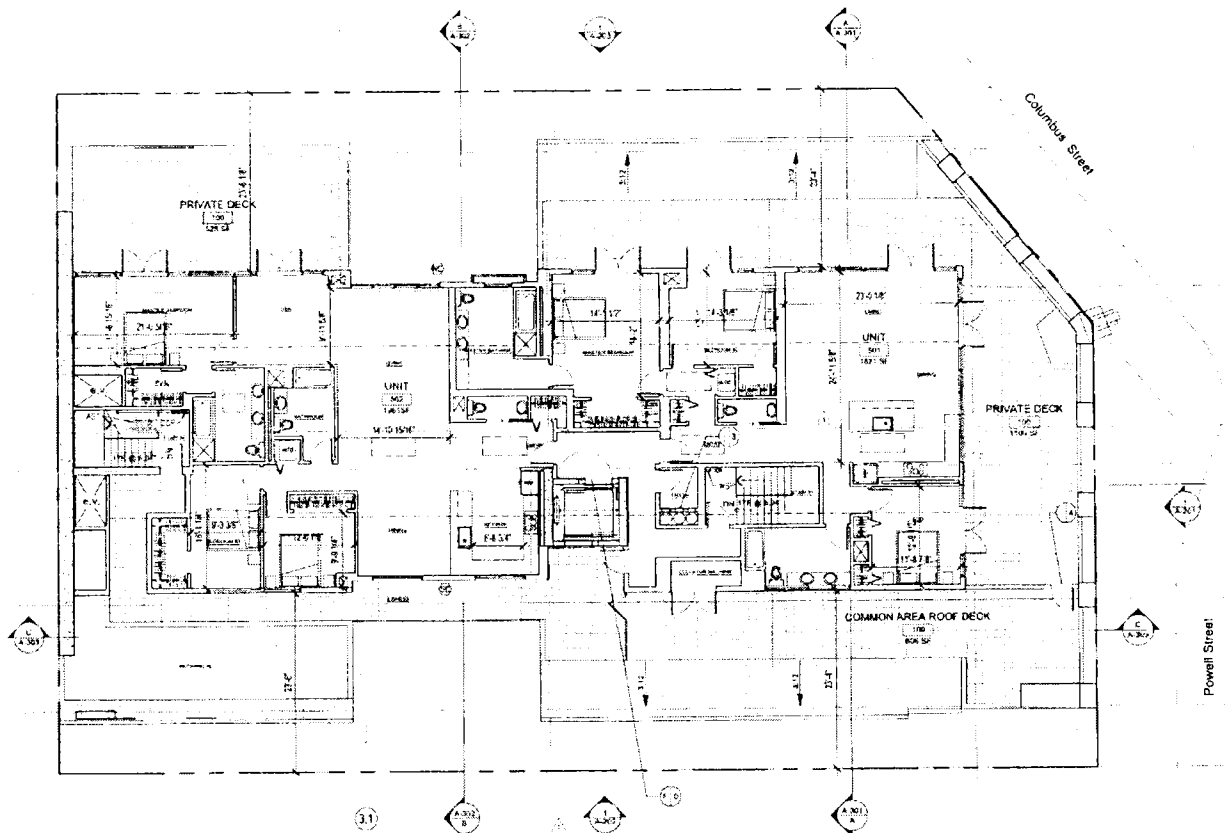




**FIGURE 6: PROPOSED 1731 POWELL ST THIRD LEVEL PLAN**  
**Source: SWS 1/7/13**

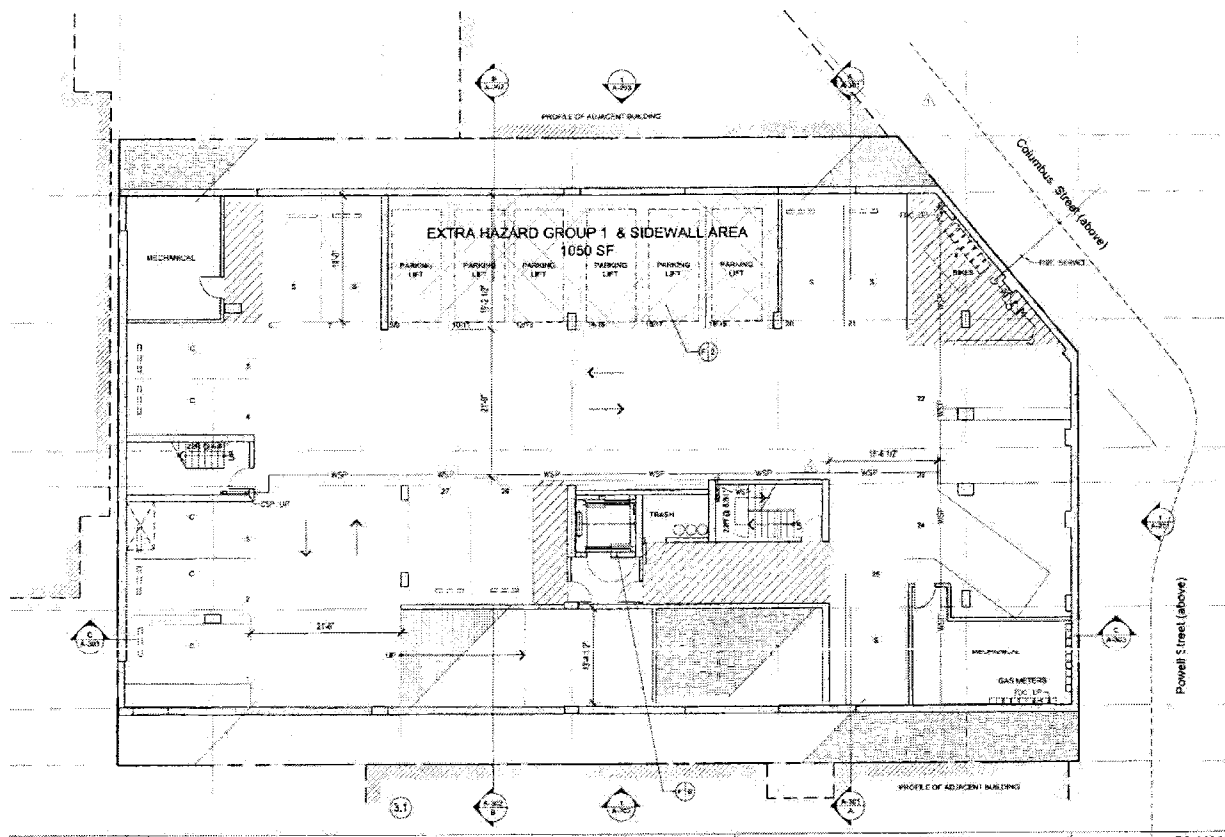


**FIGURE 7: PROPOSED 1731 POWELL ST FOURTH LEVEL PLAN**  
**Source: SWS 1/7/13**



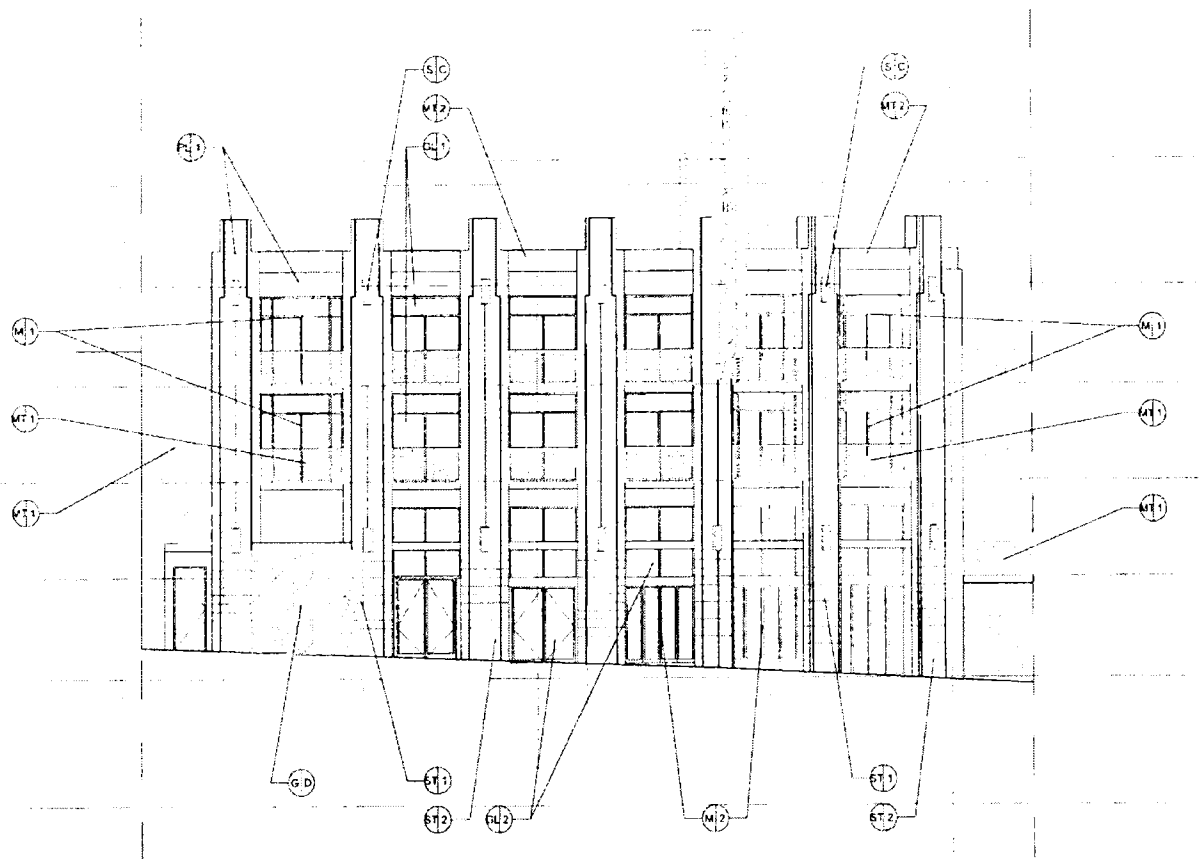
**FIGURE 8: PROPOSED 1731 POWELL ST FIFTH LEVEL PLAN**

**Source: SWS 1/7/13**



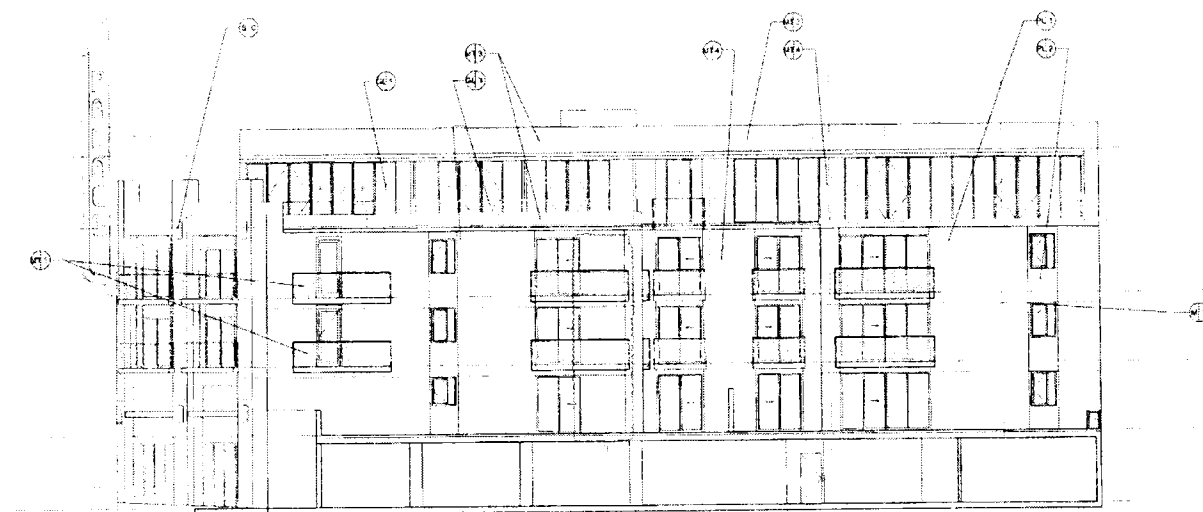
**FIGURE 9: PROPOSED 1731 POWELL ST BASEMENT LEVEL PLAN**

**Source: SWS 1/7/13**



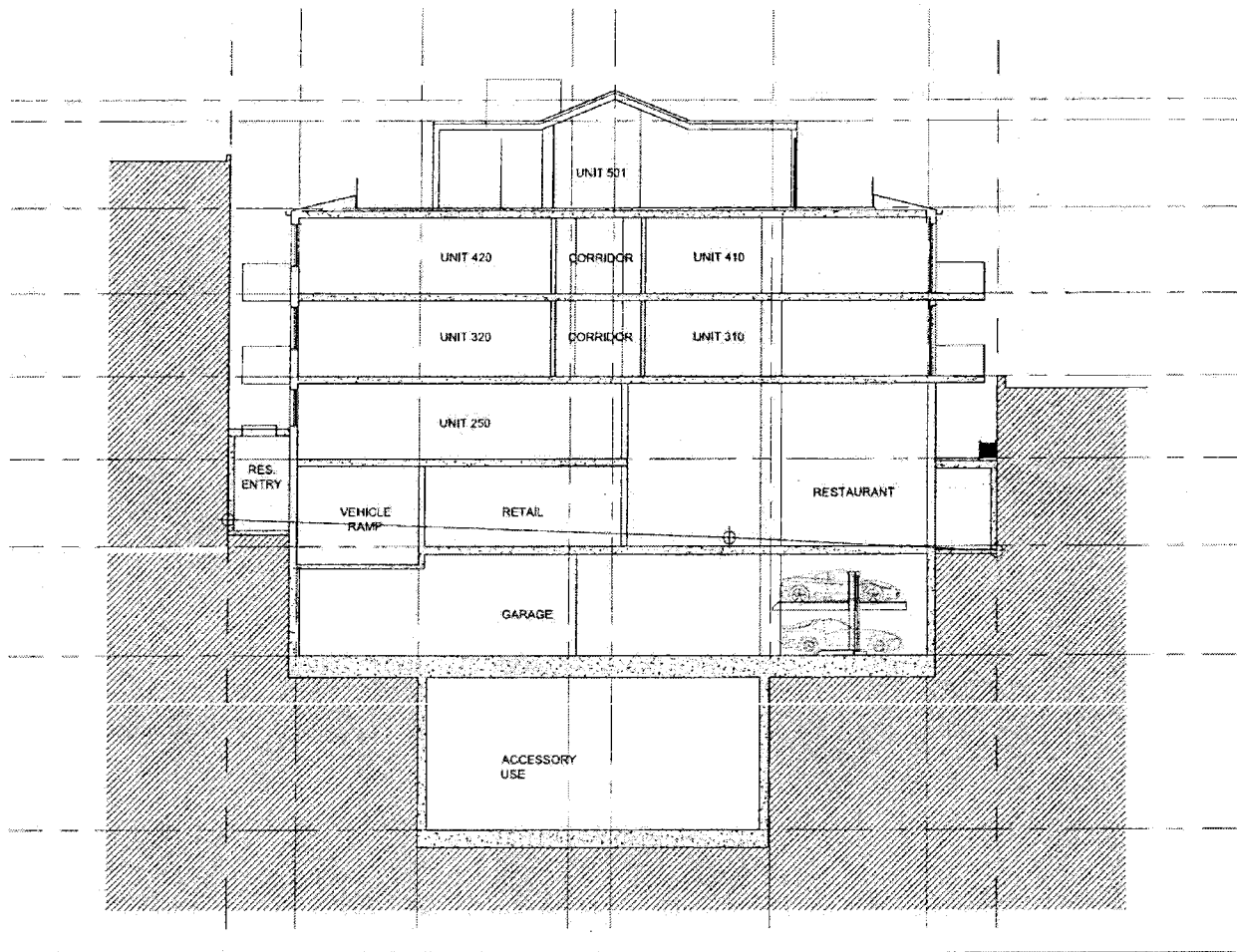
**FIGURE 10: PROPOSED 1731 POWELL ST EAST (COLUMBUS AVENUE) ELEVATION**

**Source: SWS 1/7/13**



**FIGURE 11: PROPOSED 1731 POWELL ST NORTH (FILBERT STREET) ELEVATION**

**Source: SWS 1/7/13**



**FIGURE 12: PROPOSED 1731 POWELL ST NORTH-SOUTH SECTION**

**Source: SWS 1/7/13**

### *TBM Retrieval Shaft Relocation*

Currently, and as described in the 2008 SEIS/SEIR, the Central Subway Project includes TBM retrieval within the Columbus Avenue right-of-way, between Union and Powell Streets. The grade level at the current TBM extraction site on Columbus Avenue is at an elevation of approximately 70 feet SF Datum. As currently planned, the bored tunnel will rise gradually underground from 20 feet SF Datum to 30 feet SF Datum, with the depth change occurring over a distance of approximately 130 feet. A concrete shaft with a 1,600 sf footprint (40 feet by 40 feet) would be constructed and TBM retrieval would occur 40 feet below grade level (30 feet SF Datum). The retrieval shaft would essentially be a large concrete box, and would allow for access to the TBM and removal of the TBM via a crane. A treated zone, measuring 20 feet by 40 feet and 40 feet in depth, would be located immediately adjacent to the retrieval shaft at the point where the TBM would enter, and would consist of injected grouted columns within the soil that create a stable ground water barrier at the interface of the tunnel with the retrieval shaft. At the end of the TBM extraction process, the retrieval shaft would be covered with a hatch roof and the Columbus Avenue street surface would be restored.

Under the modified project, the TBM extraction would occur at the project site, rather than the Columbus Avenue right-of-way. This change, involving an additional 100 feet of tunneling, would entail excavation of 530 additional cubic yards of soil.

In the modified project, there would be no grade change for the tunnel work. The bottom of the tunnel alignment would remain at an elevation of approximately 20 feet SF Datum over the length of the proposed extension. There is an existing downward-sloping grade over the length of the proposed extended tunnel alignment, so at the point of retrieval the bottom of the tunnel would be approximately 40 feet below the grade level of 60 feet SF Datum; in addition, the retrieval shaft structure would extend approximately 25 feet further below ground, to -10 feet SF Datum, 70 feet below grade level. A treated zone equivalent in size to the one currently planned would be located adjacent to the retrieval shaft at the point where the TBM would enter the shaft.

Construction and TBM retrieval equipment would be positioned on the project site, and may also require use of an existing surface parking lot abutting the project site to the west. TBM extraction activity would occur over a period of 15 months, including 4 months of building demolition, 6 months of shaft construction, and 5 months of TBM removal and shaft closing.

### *1731 Powell Street Mixed-Use Project*

A building permit (BPA 200908124636) for modifications to the existing building at the Pagoda Theater project site was approved by the Planning Department on November 2, 2012. The Pagoda Theater project as approved would convert the 56-foot high vacant structure to a mixed-use building with 18 residential units, two retail commercial spaces – including an approximately 3,875 square foot restaurant and a 1,000 square foot retail space – and 27 independently accessible parking spaces in a below-grade garage.

The proposed TBM retrieval would require demolition of the Pagoda Theater building, eliminating the possibility of alteration of the existing building as approved. After the retrieval work is completed, the property owner would construct a mixed-use building substantially similar to the approved project. In addition to the tunnel extension and TBM retrieval, this Addendum considers the demolition and construction of a new mixed-use building with up to 18 residential units, a 4,700 square foot restaurant, and 27 independently accessible parking spaces in a below-grade garage on the project site, following completion of the TBM retrieval. Total developed, usable space would be 40,875 sf. The TBM retrieval shaft would be converted to storage for residential use. The height of the new building would be approximately 55 feet, consistent with the height of the existing building. The roof line of the new building would be consistent with the roof line of the existing building. The existing building has a blade sign on its western façade; a blade sign with generally the same position and dimensions as the existing blade sign would be included in the new building design (see Figures 10 and 11).

The existing height limit on the project site is 40 feet. Built prior to the implementation of the 40-X height district, the current building, at approximately 55 feet, is a non-complying structure. Because the Pagoda Theater project involved modification of an existing, non-complying structure, the existing building height could be retained. However, because the project as proposed now involves demolition of the existing building and construction of a new building, a Special Use District (SUD) is proposed as part of the modified project to allow construction to a height of approximately 55 feet as measured under the Planning Code, maintaining the same roof line at the same height as the existing building. In addition, since the time of the approval of the Pagoda Palace project, the Planning Code has been amended several times in ways which would otherwise impede the construction of the Pagoda Palace project, if the project were to move forward under current code. The SUD would allow modifications to these otherwise applicable Planning Code provisions related to off-street parking, rear yard, ground floor ceiling heights, dwelling unit exposure, signage, establishment of a restaurant use, and maximum non-residential use size.



### *Approvals Required*

The modified project would require the following approvals:

- Conditional Use authorization (Planning Commission);
- Special Use District approval (Board of Supervisors);
- Height Reclassification from the 40-X Height and Bulk District to the 55-X Height and Bulk District (Board of Supervisors);
- Authorization of lease of 1731 Powell Street and authorization of Central Subway tunnel contract modification (SFMTA Board of Directors); and
- Approval of a building permit for 1731 Powell Street building (Department of Building Inspection).

### **CEQA REVIEW OF THE PROPOSED PROJECT**

Based on the application submitted to the Planning Department by SFMTA (for the proposed project), the Department must determine what level of environmental review is required to comply with CEQA. An Addendum may be prepared if (1) the proposed project is not substantially revised so as to result in new significant impacts or a worsening of significant impacts identified in the previously certified EIR; (2) the background conditions under which the proposed project would be constructed have not changed substantively from those conditions described in the previously certified EIR; and (3) new information of substantial importance has not surfaced (see California Public Resources Code Section 21081 and Section 15162 of the *CEQA Guidelines* for a detailed description of the conditions that trigger preparation of a subsequent EIR). The proposed project would not result in any new significant impacts compared to those identified in the 2008 SEIS/SEIR for the Third Street Light Rail/Central Subway project. Therefore, under Section 21081 and Section 15162 of the *CEQA Guidelines*, a subsequent EIR does not need to be prepared. This Addendum conforms to the requirements of CEQA Guidelines Section 15164 and discloses potential changes in physical effects relating to project modifications.

As described above, when compared to the approved Central Subway project, the currently proposed project would alter the location of the TBM retrieval shaft site by approximately 100

feet to the northwest, from the Columbus Avenue right-of-way to the privately-owned parcel at 1731 Powell Street. The project would also alter the existing approvals for the conversion of the Pagoda Theater building from a theater to a mixed-use residential and commercial building, instead providing for demolition of the existing building and construction of a new mixed-use project.

The project site and its surroundings have remained largely the same as when they were analyzed within the 2008 SEIS/SEIR. New significant effects or increases in the severity of previously identified significant effects are not expected to result from the proposed project, and a subsequent or supplemental EIR is, therefore, not necessary. Accordingly, an Addendum provides an appropriate level of CEQA analysis for the modified project.

## **ENVIRONMENTAL ANALYSIS**

### **LAND USE, PLANS, AND ZONING**

The existing building on the 15,320 square foot project site was used as a film and live performance theater from its construction in 1908 until 1985. The project site is located on the southwest corner of Powell Street and Columbus Avenue across Columbus Avenue from Washington Square. The surrounding North Beach neighborhood is characterized by a mix of small commercial uses and single and small-scale multifamily residential uses, and has experienced relatively little new development. Aside from the approved Pagoda Theater conversion, the North Beach Library project one block northwest of the project site on Columbus Avenue is the only major new development pending in the area. Predominant building heights are 2-4 stories.

The modified project introduces a new component of the Central Subway project, redevelopment of the project site with residential and commercial uses. The environmental impacts of the uses proposed on the site were analyzed in a Class 32 Categorical Exemption for the Pagoda Theater conversion project, issued on January 6, 2009. In that determination, the Planning Department concluded that the addition of 18 units and 3,875 sf of restaurant use would not create any significant impacts, including significant land use impacts, because the proposed project would be consistent with the type of uses in the area and would not disrupt or divide the existing community. At the time that the Pagoda Theater project was considered for approvals, it was consistent with then-applicable Planning Code requirements.

The proposed project includes the adoption of a special use district. With the adoption of the SUD, the modified project would be consistent with the San Francisco Planning Code. There have been no major changes in the vicinity since that determination that would alter this conclusion with regard to land use, and the proposed residential and restaurant uses, residential density, and building height continue to be consistent with buildings and activities in the surrounding neighborhood. Although commercial uses would exceed those analyzed in the categorical exemption by approximately 800 sf, the proposed building on the project site would contain substantially the same uses as the previously approved Pagoda Theater project.

Relocation of the TBM retrieval shaft site from Columbus Avenue to the project site would reduce disruption of vehicular and pedestrian traffic on Columbus Avenue, potentially reducing the less-than-significant effects on neighboring commercial and residential uses. Although no significant land use impact associated with this activity was identified in the 2008 SEIS/SEIR, the modified project would reduce any such impact on the viability of Columbus Avenue commercial uses.

The modified project would have less-than-significant land use impacts.

### *Compatibility with Existing Zoning and Plans*

#### *Planning Code*

At approximately 55 feet in height, the existing Pagoda Theater building is a nonconforming structure within the 40-X Height and Bulk district. The building was constructed in 1908, prior to the creation of the height and bulk district. Numerous buildings on the project block and in the surrounding area similarly exceed the 40-foot height limit.

The approved Pagoda Theater project involved modification of the extant structure, allowing for retention of the existing building height. The modified project involves demolition of the building to enable excavation and operation of the TBM retrieval shaft, and construction of a new approximately 55-foot-high building. This new building is not consistent with the 40-X Height and Bulk District. The modified project includes a proposed Central Subway Tunnel Boring Machine Extraction Site Special Use District (SUD), applying the provisions of the 55-X Height and Bulk District to the site.

The SUD also exempts the proposed new building from recently amended Planning Code provisions that otherwise would preclude the construction of the existing entitled building program. In contrast with the existing zoning on the site, the SUD as proposed would allow:

- Use of the ground floor commercial space as a restaurant;
- Nonresidential use exceeding 4,000 sf in size;
- Provision of a maximum of 27 vehicle parking spaces;
- Minimum ceiling height of 8.5 feet for ground floor nonresidential uses;
- Modification of the rear yard requirements
- Modification of the dwelling unit exposure requirement; and
- Exemption the proposed blade sign from height limitation.

Other provisions of the SUD address administrative and permitting requirements and would not affect the physical environment.

The SUD as proposed would allow construction of a building with the same overall specifications as the approved Pagoda Theater project. Potential physical environmental impacts of the demolition, excavation, and new construction that would be permitted under the SUD are addressed in this Addendum.

#### *General Plan*

The City's *General Plan*, which provides general policies and objectives to guide land use decisions, contains some policies that relate to physical environmental issues. *General Plan* policies pertaining to other issues but not affecting the physical environment are not discussed in this document, but will be considered by decision makers as part of their decision whether to approve or disapprove the proposed project. No substantial conflict with any environmental objective or policy within the *General Plan* was identified in the 2008 SEIS/SEIR for the project. Similarly, the proposed project would not result in substantial conflict with any environmental *General Plan* objective or policy. The issue of *General Plan* conformity will be reconsidered by the Planning Commission during their deliberations over the proposed project. Any potential conflicts with the *General Plan* identified as part of that process would not alter the physical and environmental effects of the proposed project. Further, the conclusions reached in the 2008 SEIS/SEIR that the original project would not conflict with relevant plans would remain

applicable to the proposed project. Thus, the modified project would have similar less-than-significant land use impacts, as was identified in the 2008 SEIS/SEIR.

## **VISUAL QUALITY**

Equipment used for construction and operation of the TBM retrieval shaft will be visible from the surrounding area, including Washington Square. Relocation of the TBM extraction site by 100 feet will not substantially change this impact. Moreover, the impact is temporary and was not considered significant in the 2008 SEIS/SEIR; an improvement measure requiring screening of construction areas was included in the 2008 SEIS/SEIR (See Mitigation Measures p. 57).

The modified project would involve redevelopment of the Pagoda Theater site with a new structure equal in size to the existing vacant building. Because the new structure would not exceed the existing structure in size, any change resulting from the modified project in views from publicly-accessible vantage points would be minimal. The project site is not considered a scenic resource, and construction of a new building on the site would not have a substantial, demonstrable negative effect on the visual character of the project site or its surroundings. The project would be subject to restrictions on the use of reflective or mirrored glass, and night lighting would be at a level consistent with the proposed uses and other lighting in the area.

The above analysis indicates that the modified project would not degrade the visual character of this urbanized portion of San Francisco; would not have a demonstrable adverse aesthetic effect; and would not result in substantial light or glare. Therefore, the proposed modification to the Central Subway project would not have significant aesthetic impacts.

## **CULTURAL RESOURCES**

### ***Archeological Resources***

The Planning Department reviewed the Pagoda Theater project for impacts to CEQA-significant archeological resources.<sup>2</sup> The existing basement slabs extend to a depth of 7 to 15 feet below grade, and the Pagoda Theater project involved a further 7 feet of excavation.

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<sup>2</sup> Archeological Response for 1735-1741 Powell Street, Memorandum from Don Lewis, Major Environmental Analysis, January 5, 2009. This document is on file and available for public review at the Planning Department, 1650 Mission Street, 4<sup>th</sup> Floor, as part of Case File No. 1996.281E and Case File No 2007.1117E.

By the mid-1860s, the project site was occupied by San Francisco's only Eastern Orthodox church, which was destroyed in the 1906 earthquake and fire. The site contains deposits indicating significant fill episodes dating from prior to the construction of the Orthodox church, and again from the time period between 1906 and the construction of the theater in 1908. The Department concluded that any historical remains were likely removed at the time that the basement of the Pagoda Theater was constructed, and the Pagoda Theater project would not affect CEQA-significant archeological resources.

According to the geotechnical report prepared for the site, the project site soils may contain alluvial deposits, which have a moderate sensitivity for prehistory remains. The Colma Formation may also be present under the site, the upper 3-5 feet of which is considered sensitive for prehistoric deposits of the Middle and Late Holocene era.<sup>3</sup>

While it is not expected that the redevelopment of the project site with the 1731 Powell Street mixed-use building would result in any greater impact to CEQA-significant archeological resources than the Pagoda Theater project, the modified project would increase the depth of excavation on the project site at the tunnel and TBM retrieval shaft locations. If archeological resources are present at greater depths than previously considered for the Pagoda Theater proposal, they could be affected by construction of the tunnel, treated zone, and/or TBM retrieval shaft.

Potential archeological resource impacts of the Central Subway project are described in Section 4.4, 6.7, and 7.3.3 of the 2008 SEIS/SEIR. The analysis identified two known prehistoric and five known historic archeological sites within the Area of Potential Effect (APE) for the Central Subway alignment alternatives. Columbus Avenue and the TBM retrieval shaft site were identified as potential historic archeological resource sites because the roadway cut through multiple city lots that were already developed at the time of roadway construction in the 1870s, and because of the early use of Washington Square as a public space. As a project subject to Section 106 of the National Historic Preservation Act of 1966, the project was subject to a Programmatic Agreement (PA) and further mitigation as part of the 2008 SEIS/SEIR process. Extension of the excavation to 1731 Powell Street as proposed would require further consultation with SHPO to make modifications to the APE and develop an Archeological Monitoring Plan for the newly affected area.

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<sup>3</sup> Memorandum from Randall Dean, San Francisco Planning Department to Sarah Jones, San Francisco Planning Department, January 18, 2013. This document is on file and available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 1996.281E.

An archeological mitigation measure was applied to the Central Subway project, requiring limited testing along the selected alignment, monitoring during construction in sections of the alignment determined to have moderate to high sensitivity for significant archeological resources, completion of a technical report following assessment, and requirements associated with discovery of any unexpected resources during construction (see Mitigation Measures, p. 57). This mitigation measure would continue to be implemented for the project as modified.

The modified project would not result in any new significant impacts or require mitigation beyond that identified in the 2008 SEIS/SEIR.

### ***Historical Architectural Resources***

#### *TBM Retrieval Shaft Relocation*

The 1731 Powell Street site is located within the Washington Square Historic District. The TBM retrieval shaft would not result in any permanent physical change; therefore, with regard to the TBM retrieval shaft compatibility with the surrounding district, impacts would be similar to the approved project, would not affect the use or historic character of Washington Square, and would be temporary and less than significant.

The 2008 SEIS/SEIR analyzed the impacts of project construction on historic buildings and concluded that vibration from tunnel and station construction, and ground settlement near cut-and-cover construction locations, could result in minor architectural or structural damage. Accordingly, construction mitigation measures were identified to reduce impacts to a less than significant level, including vibration monitoring and adjustments in construction methods if warranted to ensure that vibration remains below 0.12 inches/second peak particle vibration (PPV).<sup>4</sup> The mitigation measures were included in the mitigation monitoring and reporting program (MMRP) adopted for the project (see Mitigation Measures, p. 57).

The TBM retrieval shaft relocation would increase the potential for construction activities to affect the building at 721 Filbert Street, which abuts the project site to the west. 721 Filbert Street is a two-story masonry garage building constructed in 1907. It is included in the UMB (Unreinforced Masonry Building) Survey and was rated "1" (on a scale of -2 to 5, with 5 being the most important) in the 1976 Architectural Survey. It is considered a potential historic resource by the Planning Department and is a historic resource for the purposes of CEQA. The

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<sup>4</sup> 2008 SEIS/SEIR pp. 6-72-6-82.

proposed retrieval shaft site is also adjacent to a potential historic resource at 1717-1719 Powell Street to the south of the project site, a three-story frame building constructed in 1914 with a survey rating of "2" on the North Beach Survey and a National Register historic status code of "6L."

Mitigation measures adopted for the Central Subway project to reduce construction vibration impacts on historic buildings to less-than-significant levels would be applied to the extension of the tunnel and construction of the TBM retrieval shaft. As with the approved project, impacts associated with historical architectural resources from the proposed TBM retrieval shaft relocation would be less than significant with mitigation.

#### *1731 Powell Redevelopment*

Because the Pagoda Theater project proposed substantial alteration to the Pagoda Theater Building, the Planning Department required preparation of a Supplemental Information Form for Historical Resource Evaluation<sup>5</sup> and completed a Historic Resource Evaluation Response (HRER).<sup>6</sup> The HRER concluded that the building is located in the Washington Square Historic District, but due to removal of the marquee and all interior partitions and finishes, and creation of new openings on the primary building elevation, the building lacks the necessary integrity to be considered eligible individually or as a contributor to the district for the California Register of Historic Resources (CRHR). Therefore, no resource is present on the site. The determination that the proposed alterations would not have an adverse effect on the Washington Square Historic District was based on the Pagoda Theater project's maintenance of the overall size, massing, and architectural features such as the blade sign.

The modified project would result in demolition of the Pagoda Theater building. This would not result in a significant impact as the existing building is not a historical resource. The Planning Department considered the effect of the proposed new mixed-use development on the Washington Square Historic District, and concluded that the modified project would be a

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<sup>5</sup> Page & Turnbull, Inc, *Supplemental Information Form, Pagoda Theatre, 1731-1741 Powell Street, San Francisco CA*, 14 June 2007. This document is on file and available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2007.1117E and Case File No. 1996.281E.

<sup>6</sup> Historic Resource Evaluation Response prepared by Tim Frye, San Francisco Planning Department, December 24, 2008. This document is on file and available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2007.1117E and Case File No. 1996.281E.



compatible infill development due to the replication of similar size, scale, and detailing, with inclusion of the blade sign.<sup>7</sup>

### *Summary*

The adopted mitigation measures for Central Subway construction impacts on cultural resources would effectively reduce impacts from the modified project to less than significant. The modified project would not result in significant impacts on cultural resources beyond those addressed in the 2008 SEIS/SEIR.

## **TRANSPORTATION**

### *TBM Retrieval Site Relocation*

The 2008 SEIS/SEIR acknowledged that there would be temporary, less than significant traffic and transit impacts on Columbus Avenue during construction and operation of the TBM retrieval shaft. Columbus Avenue is a four-lane, two-way major arterial with multiple transit lines and sidewalks and on-street parking on both sides of the street. The modified project would avoid these less than significant impacts.

As currently proposed under the modified project, the project site (and potentially the neighboring surface parking lot) would accommodate most work areas for TBM retrieval shaft construction and operation. However, periodic lane and street closure of Powell Street between Columbus Avenue and Union Street may be required. The tunnel contractor and SFMTA would maintain all current and approved practices for traffic control and loading zone relocation, and no new significant impacts would occur. It is expected that the transportation impacts of TBM retrieval shaft relocation would be less substantial than those of the approved project, as Powell Street in this location accommodates less traffic than Columbus Avenue, and no relocation of overhead bus lines for the 30-Stockton bus would be required.

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<sup>7</sup> Historic Resource Evaluation Response (revised Part II) prepared by Rich Sucre, San Francisco Planning Department, January 18, 2013. This document is on file and available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 1996.281E.

### *1731 Powell Street*

This section provides an updated assessment of the trip generation associated with the proposed 1731 Powell Street redevelopment.<sup>8</sup>

Trip generation was conducted to estimate the total trips from the 1731 Powell Street project and assess the impact of the net new trips on the surrounding roadway network. Trip generation calculations and assumptions were based on the 2002 San Francisco Transportation Impact Analysis Guidelines for Environmental Review (*SF Guidelines*) and assumed a daily trip rate of 10 trips for every residential unit, and 150 trips per 1,000 gross square feet of retail space. Trip generation calculations also assumed that 17.3 percent of the daily residential trips, and 9 percent of the retail trips, would occur during the PM peak hour. Average vehicle occupancy factors obtained from the *SF Guidelines* were applied to the auto mode split to obtain the vehicle trips due to the proposed project. Resultant vehicle trips are shown in Table 3 along with the person trips for other modes of travel. Mode split and vehicle occupancy information for the proposed project land uses was based on the *SF Guidelines*.<sup>9</sup> Residential mode split data were obtained from the 2000 Census for Census Tract 107. Table 1, below, summarizes expected trips.

As shown in Table 1, the modified project would result in 17 peak hour vehicle trips and 21 peak hour transit trips attributable to the redevelopment of 1731 Powell Street. Seventeen vehicle trips distributed to local intersections would not have the potential to contribute substantially to traffic levels, and the modified project would not create new significant traffic impacts.

The project site is served by eight MUNI lines with stops within two blocks of the site. The projected 21 peak hour transit trips would be distributed over those lines, and the project would not have the potential to increase transit ridership beyond capacity levels.

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<sup>8</sup> San Francisco Planning Department, Transportation Calculations for 1741 Powell Street, January 15, 2013. These calculations are on file and available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 1996.281E.

<sup>9</sup> San Francisco Planning Department, *Transportation Impact Analysis Guidelines for Environmental Review*, October 2002. This document is also known as *SF Guidelines*.

TABLE 1

## TRIP GENERATION AND PARKING DEMAND – 1731 POWELL STREET

	Residential Component		Commercial Component		Total	
	Daily	Peak Hour	Daily	Peak Hour	Daily	Peak Hour
<b>Auto</b>						
Person Trips	47	8	253	23	300	31
Vehicle trips	41	7	107	10	148	17
Transit	59	10	119	11	178	21
Pedestrian	67	12	246	22	313	34
Other	7	1	87	8	94	9
Parking Space Demand	27		9 short term/3 long term		39	
Loading trips	.06 average/.07 peak		.05 average/.06 peak		.11 average/.13 peak	

The proposed building would be accessed via a single driveway entrance/egress on Powell Street, near the intersection with Columbus Avenue to the north. There is adequate space for queuing of vehicles within the garage and vehicles entering the site would not be expected to result in traffic flow impacts on Powell Street or Columbus Avenue.

The proposed project is expected to generate 34 peak-hour pedestrian trips. This increase in pedestrian trips would not be substantial, and the project would not result in pedestrian impacts. Bicycle Route #11, a Class III Bicycle route, runs along Columbus Avenue but, because the project's driveway would be located off the bicycle route on Powell Street, conflicts between vehicle and bicycle traffic would not be expected to occur.

### *Parking*

The proposed project includes 27 parking spaces. This proposal is consistent with the amount of parking approved for the site in 2009. One off-street loading space would be provided in the underground garage; no off-street loading is required under Planning Code Section 155 for a project of this size.

Based on *SF Guidelines* estimates, the proposed project would generate demand for 39 parking spaces, resulting in a demand-based parking deficit of 12 spaces. San Francisco does not consider parking supply as part of the permanent physical environment. Parking conditions are not static, as parking supply and demand varies over time. Hence, the availability of parking space is not a permanent physical condition, but changes over time as people change their modes and patterns of travel.

Parking deficits are considered to be social effects, rather than impacts on the physical environment as defined by CEQA. Under CEQA, a project's social impacts need not be treated as significant impacts on the environment. Environmental documents should, however, address the secondary physical impacts that could be triggered by a social impact. (CEQA Guidelines § 15131(a).) The social inconvenience of parking deficits, such as having to hunt for scarce parking spaces, is not an environmental impact, but there may be secondary physical environmental impacts, such as increased traffic congestion at intersections, air quality impacts, safety impacts, or noise impacts caused by congestion. In the experience of San Francisco transportation planners, however, the absence of a ready supply of parking spaces, combined with available alternatives to auto travel (e.g., transit service, taxis, bicycles or travel by foot) and a relatively dense pattern of urban development, induces many drivers to seek and find alternative parking facilities, shift to other modes of travel, or change their overall travel habits. Any such resulting shifts to transit service in particular, would be in keeping with the City's "Transit First" policy.

The transportation analysis accounts for potential secondary effects, such as cars circling and looking for a parking space in areas of limited parking supply, by assuming that all drivers would attempt to find parking at or near the project site and then seek parking farther away if convenient parking is unavailable. Moreover, the secondary effects of drivers searching for parking is typically offset by a reduction in vehicle trips due to others who are aware of constrained parking conditions in a given area. Hence, any secondary environmental impacts which may result from a shortfall in parking in the vicinity of the proposed project would be minor, and the traffic assignments used in the transportation analysis, as well as in the associated air quality, noise and pedestrian safety analyses, reasonably addresses potential secondary effects.

The modified project would not result in any temporary or permanent new significant transportation impacts not identified in the 2008 SEIS/SEIR.

## NOISE AND VIBRATION

### *TBM Retrieval Shaft Site Relocation*

The 2008 SEIS/SEIR identified mitigation measures for the impacts of construction vibration on historic buildings, and improvement measures to further reduce the less-than-significant impacts of construction noise. With TBM retrieval shaft relocation, noise from shaft construction and operation would occur at closer proximity to sensitive receptors (residences) surrounding the project site. Although residents surrounding the project site would experience greater noise levels than under the approved project, the impacts would be similar to those analyzed in the 2008 SEIS/SEIR for other residences proximate to the TBM retrieval shaft location on Columbus Avenue or other aboveground construction areas for the Central Subway project. TBM retrieval would use similar equipment to construction activities, and the operation of the shaft would likewise have similar noise impacts as construction. The adopted construction vibration mitigation measures and noise improvement measures would be applied to the modified project (see Mitigation Measures p. 57 and Improvement Measures p. 59), and noise and vibration impacts from TBM retrieval shaft relocation would remain less than significant.

### *1731 Powell Street Mixed-Use Building*

Noise levels on Columbus Avenue exceed 75 Ldn (level day-night weighted decibels) and are in the range of 65-70 Ldn on Powell Street, Union Street, and Filbert Street<sup>10</sup>. The addition of 18 units and 4,700 sf of restaurant use from redevelopment of the 1741 Powell Street site would not create a sufficient increase in vehicle trips to result in substantial increases to existing noise levels in the vicinity of the project site. Other operational noise, such as restaurant ventilation systems, would be at levels typically present in an urban area. Operational and building construction noise would be regulated under the City's Noise Ordinance (Article 29 of the Police Code).

The modified project would add sensitive receptors to the project site due to the residential component of the project. The project site frontages on Columbus Avenue and Powell Street are subject to noise levels in excess of the recommended noise levels for residential use identified in the General Plan's Land Use Compatibility Guidelines for Community Noise<sup>11</sup>; a small portion

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<sup>10</sup> San Francisco Planning Department Geographic Information System, accessed January 22, 2013.

<sup>11</sup> San Francisco General Plan, Environmental Protection Element, Policy 11.1.

of the project site closest to Columbus Avenue is subject to noise levels exceeding 75 Ldn, the level at which noise analysis prior to building permit issuance is required per the mitigation measures adopted for the 2009 Housing Element. The building would be subject to detailed noise analysis as part of the building permit process, and would be required to meet the California Noise Insulation Standards in Title 24 of the California Code of Regulations, and no significant impacts would occur from this component of the modified project.

## **AIR QUALITY**

In accordance with the state and federal Clean Air Acts, air pollutant standards are identified for the following six criteria air pollutants: ozone, carbon monoxide (CO), particulate matter (PM), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>) and lead. These air pollutants are termed criteria air pollutants because they are regulated by developing specific public health- and welfare-based criteria as the basis for setting permissible levels. The Bay Area Air Quality Management District (BAAQMD) has established thresholds of significance to determine if projects would violate an air quality standard, contribute substantially to an air quality violation, or result in a cumulatively considerable net increase in criteria air pollutants within the San Francisco Bay Area Air Basin. To assist lead agencies, the BAAQMD, in their CEQA Air Quality Guidelines (May 2011), has developed screening criteria. If a proposed project meets the screening criteria, then the project would result in less-than-significant criteria air pollutant impacts. A project that exceeds the screening criteria may require a detailed air quality assessment to determine whether criteria air pollutant emissions would exceed significance thresholds. The proposed project would not exceed criteria air pollutant screening levels for operation or construction.

In addition to criteria air pollutants, individual projects may emit toxic air contaminants (TACs). TACs collectively refer to a diverse group of air pollutants that are capable of causing chronic (i.e., of long-duration) and acute (i.e., severe but of short-term) adverse effects to human health, including carcinogenic effects. In an effort to identify areas of San Francisco most adversely affected by sources of TACs, San Francisco partnered with the BAAQMD to inventory and assess air pollution and exposures from mobile, stationary, and area sources within San Francisco. Areas with poor air quality, termed "air pollution hot spots," were identified based on two health-protective criteria: (1) excess cancer risk from the contribution of emissions from all modeled sources greater than 100 per one million population, and/or (2) cumulative PM<sub>2.5</sub> concentrations greater than 10 micrograms per cubic meter. Land use

projects within these air pollution hot spots require special consideration to determine whether the project's activities would expose sensitive receptors to substantial air pollutant concentrations.

The 1731 Powell Street project site is not within an air pollution hot spot. Therefore, the proposed project would result in a less than significant impact with respect to exposing sensitive receptors to substantial levels of air pollution.

Prior to the finalization of the current BAAQMD screening criteria, the 2008 SEIS/SEIR analyzed construction and operational emissions associated with the Central Subway project and concluded that dust and emission control measures would be incorporated into the project in compliance with BAAQMD requirements, and construction impacts would be less than significant. As noted on page 6-113 of the SEIS/SEIR, the TBM retrieval shaft in proximity to Washington Square would not result in substantial adverse impacts because "the exposed area is relatively small and control measures are being included in the Project to reduce dust emissions." The proposed new location for the TBM retrieval shaft would be in closer proximity to the residences on the project block than the original location, but the project would continue to be subject to required dust and emission control measures and no new significant impacts would occur.

Construction of both the TBM retrieval shaft construction and the proposed 1731 Powell Street building would be subject to the Construction Dust Control Ordinance (Ordinance 176-08, effective July 30, 2008). The Construction Dust Control Ordinance was adopted with the intent of reducing the quantity of dust generated during site preparation, demolition and construction work in order to protect the health of the general public and of onsite workers, minimize public nuisance complaints, and to avoid orders to stop work by the Department of Building Inspection (DBI).

The San Francisco Building Code Section 106A.3.2.6.3 requires a "no visible dust" requirement with the intent of reducing the quantity of dust generated during site preparation, demolition and construction work in order to protect the health of the general public and of on-site workers, minimize public nuisance complaints, and to avoid orders to stop work by the Department of Building Inspection (DBI).

The Building Code requires that all site preparation work, demolition, or other construction activities within San Francisco that have the potential to create dust or to expose or disturb more than 10 cubic yards or 500 square feet of soil comply with specified dust control measures whether or not the activity requires a permit from DBI.

Below are the following regulations and procedures set forth in Section 106A.3.2.6.3 of the San Francisco Building Code's General Dust Control Requirements:

- Water all active construction areas sufficiently to prevent dust from becoming airborne. Increased watering frequency may be necessary whenever wind speeds exceed 15 mile per hour. Reclaimed water must be used if required by Article 21, Section 1100 et seq. of the San Francisco Public Works Code. If not required, reclaimed water should be used whenever possible;
- Provide as much water as necessary to control dust (without creating run-off) in an area of land clearing, earth movement, excavation, drillings, and other dust-generating activity;
- During excavation and dirt-moving activities, wet sweep or vacuum the streets, sidewalks, paths, and intersections where work is in progress at the end of the workday;
- Cover any inactive (no disturbance for more than seven days) stockpiles greater than ten cubic yards or 500 square feet of excavated materials, backfill material, import material, gravel, sand, road base, and soil with a 10 mil (0.01 inch) polyethylene plastic or equivalent tarp and brace it down or use other equivalent soil stabilization techniques; and
- Use dust enclosures, curtains, and dust collectors as necessary to control dust in the excavation area.

Compliance with the San Francisco Building Code's General Dust Control Requirements would ensure that the project's fugitive dust impacts would be less than significant.

Article 38 was added to the San Francisco Health Code to require that all newly constructed buildings containing ten or more units within the Potential Roadway Exposure Zone perform an Air Quality Assessment to determine whether the PM 2.5 concentration at the project site is greater than 0.2 micrograms per cubic meter (0.2 ug/m<sup>3</sup>).<sup>12</sup> Sponsors of projects on sites where the PM 2.5 concentration exceeds the 0.2 ug/m<sup>3</sup> action level are required to install ventilation systems or otherwise redesign the project to reduce PM 2.5 concentrations for habitable areas of dwelling units by a performance standard of 80 percent. The Class 32 categorical exemption prepared for the Pagoda Theater project indicates that the project site is not with the Potential

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<sup>12</sup> PM 2.5 is a measure of smaller particles in the air that are 2.5 microns or less in diameter. PM 10 (10 microns or greater in diameter) has been the pollutant particulate level standard against which EPA has been measuring Clean Air Act compliance. On the basis of newer scientific findings, the Agency is considering regulations that will make PM 2.5 the new "standard".

<sup>13</sup> See Board of Supervisors Ordinance No. 281-08, effective January 5, 2009.



Roadway Expose Zone, and therefore the project would not expose new project residents to substantial concentrations of air pollutants.<sup>14</sup>

The 1731 Powell Street project would result in further construction activities subsequent to the closure of the TBM retrieval shaft. However, construction emissions would be temporary and variable in nature and, because the project site is not within a hot spot, would not be expected to expose sensitive receptors to substantial air pollutants. Furthermore, the proposed project would be subject to, and comply with, California regulations limiting idling to no more than five minutes, which would further reduce nearby sensitive receptors exposure to temporary and variable TAC emissions; in addition, the project would be subject to applicable building permit requirements at the time of building permit issuance and as stipulated by the Department of Building Inspection. Therefore, construction period TAC emissions would result in a less than significant impact with respect to exposing sensitive receptors to substantial levels of air pollution.

The modified project would not result in new significant impacts related to air quality.

## GREENHOUSE GASES

Current requirements related to greenhouse gas (GHG) analysis were established in 2010, subsequent to the certification of the 2008 SEIS/SEIR. Therefore, GHGs are discussed below consistent with current procedures and requirements.

Gases that trap heat in the atmosphere are referred to as GHGs because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse does. The accumulation of GHG's has been implicated as the driving force for global climate change. The primary GHGs are carbon dioxide, methane, nitrous oxide, ozone, and water vapor.

While the presence of the primary GHGs in the atmosphere are naturally occurring, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O) are largely emitted from human activities, accelerating the rate at which these compounds occur within earth's atmosphere. Emissions of carbon dioxide are largely by-products of fossil fuel combustion, whereas methane results from off-gassing associated with agricultural practices and landfills. Other GHGs

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<sup>14</sup> San Francisco Planning Department Certificate of Determination, Exemption from Environmental Review, 1735-1741 Powell Street, January 6, 2009. This document is on file and available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2007, 1117E and Case File No. 1996.281E.

include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and are generated in certain industrial processes. Greenhouse gases are typically reported in “carbon dioxide-equivalent” measures (CO<sub>2</sub>E).<sup>15</sup>

There is international scientific consensus that human-caused increases in GHGs have and will continue to contribute to global warming. Potential global warming impacts in California may include, but are not limited to, loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include a global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity.<sup>16</sup>

The Air Resources Board (ARB) estimated that in 2006 California produced about 484 million gross metric tons of CO<sub>2</sub>E (MMTCO<sub>2</sub>E), or about 535 million U.S. tons.<sup>17</sup> The ARB found that transportation is the source of 38 percent of the State’s GHG emissions, followed by electricity generation (both in-state and out-of-state) at 22 percent and industrial sources at 20 percent. Commercial and residential fuel use (primarily for heating) accounted for 9 percent of GHG emissions.<sup>18</sup> In the Bay Area, fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) and the industrial and commercial sectors are the two largest sources of GHG emissions, each accounting for approximately 36% of the Bay Area’s 95.8 MMTCO<sub>2</sub>E emitted in 2007.<sup>19</sup> Electricity generation accounts for approximately 16% of the Bay Area’s GHG emissions followed by residential fuel usage at 7%, off-road equipment at 3% and agriculture at 1%.<sup>20</sup>

In 2006, the California legislature passed Assembly Bill No. 32 (California Health and Safety Code Division 25.5, Sections 38500, et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 requires ARB to design and implement emission limits, regulations, and

<sup>15</sup> Because of the differential heat absorption potential of various GHGs, GHG emissions are frequently measured in “carbon dioxide-equivalents,” which present a weighted average based on each gas’s heat absorption (or “global warming”) potential.

<sup>16</sup> California Climate Change Portal. Frequently Asked Questions About Global Climate Change. Available online at: <http://www.climatechange.ca.gov/publications/faqs.html>. Accessed November 8, 2010.

<sup>17</sup> California Air Resources Board (ARB), “California Greenhouse Gas Inventory for 2000-2006 – by Category as Defined in the Scoping Plan.” [http://www.arb.ca.gov/cc/inventory/data/tables/ghg\\_inventory\\_scopingplan\\_2009-03-13.pdf](http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_2009-03-13.pdf). Accessed March 2, 2010.

<sup>18</sup> Ibid.

<sup>19</sup> Bay Area Air Quality Management District, Source Inventory of Bay Area Greenhouse Gas Emissions: Base Year 2007, Updated: February 2010. Available online at: [http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/Emission%20Inventory/regionalinventory2007\\_2\\_10.ashx](http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/Emission%20Inventory/regionalinventory2007_2_10.ashx). Accessed March 2, 2010.

<sup>20</sup> Ibid.

other measures, such that feasible and cost-effective statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25 percent reduction in emissions).

Pursuant to AB 32, ARB adopted a Scoping Plan in December 2008, outlining measures to meet the 2020 GHG reduction limits. In order to meet these goals, California must reduce its GHG emissions by 30 percent below projected 2020 business as usual emissions levels, or about 15 percent from today's levels.<sup>21</sup> The Scoping Plan estimates a reduction of 174 million metric tons of CO<sub>2</sub>E (MMTCO<sub>2</sub>E) (about 191 million U.S. tons) from the transportation, energy, agriculture, forestry, and high global warming potential sectors, see Table 5, below. ARB has identified an implementation timeline for the GHG reduction strategies in the Scoping Plan.<sup>22</sup> Some measures may require new legislation to implement, some will require subsidies, some have already been developed, and some will require additional effort to evaluate and quantify. Additionally, some emissions reductions strategies may require their own environmental review under CEQA or the National Environmental Policy Act (NEPA).

AB 32 also anticipates that local government actions will result in reduced GHG emissions. ARB has identified a GHG reduction target of 15 percent from current levels for local governments themselves and notes that successful implementation of the plan relies on local governments' land use planning and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions.

The Scoping Plan relies on the requirements of Senate Bill 375 (SB 375) to implement the carbon emission reductions anticipated from land use decisions. SB 375 was enacted to align local land use and transportation planning to further achieve the State's GHG reduction goals. SB 375 requires regional transportation plans, developed by Metropolitan Planning Organizations (MPOs), to incorporate a "sustainable communities strategy" in their regional transportation plans (RTPs) that would achieve GHG emission reduction targets set by ARB. SB 375 also includes provisions for streamlined CEQA review for some infill projects such as transit-oriented development. SB 375 would be implemented over the next several years and the Metropolitan Transportation Commission's 2013 RTP would be its first plan subject to SB 375.

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<sup>21</sup> California Air Resources Board, California's Climate Plan: Fact Sheet. Available online at: [http://www.arb.ca.gov/cc/facts/scoping\\_plan\\_fs.pdf](http://www.arb.ca.gov/cc/facts/scoping_plan_fs.pdf). Accessed March 4, 2010.

<sup>22</sup> California Air Resources Board. AB 32 Scoping Plan. Available Online at: [http://www.arb.ca.gov/cc/scopingplan/sp\\_measures\\_implementation\\_timeline.pdf](http://www.arb.ca.gov/cc/scopingplan/sp_measures_implementation_timeline.pdf). Accessed March 2, 2010.

**Table 2. GHG Reductions from the AB 32 Scoping Plan Sectors<sup>23</sup>**

GHG Reduction Measures By Sector	GHG Reductions (MMT CO <sub>2</sub> E)
Transportation Sector	62.3
Electricity and Natural Gas	49.7
Industry	1.4
Landfill Methane Control Measure (Discrete Early Action)	1
Forestry	5
High Global Warming Potential GHGs	20.2
Additional Reductions Needed to Achieve the GHG Cap	34.4
<b>Total</b>	<b>174</b>
<b>Other Recommended Measures</b>	
Government Operations	1-2
Agriculture- Methane Capture at Large Dairies	1
Methane Capture at Large Dairies	1
Additional GHG Reduction Measures	
Water	4.8
Green Buildings	26
High Recycling/ Zero Waste	
• Commercial Recycling	
• Composting	
• Anaerobic Digestion	9
• Extended Producer Responsibility	
• Environmentally Preferable Purchasing	
<b>Total</b>	<b>42.8-43.8</b>

Senate Bill 97 (SB 97) required the Office of Planning and Research (OPR) to amend the state CEQA guidelines to address the feasible mitigation of GHG emissions or the effects of GHGs. In response, OPR amended the CEQA guidelines to provide guidance for analyzing GHG emissions. Among other changes to the CEQA Guidelines, the amendments add a new section to the CEQA Checklist (CEQA Guidelines Appendix G) to address questions regarding the project's potential to emit GHGs.

BAAQMD is the primary agency responsible for air quality regulation in the nine county San Francisco Bay Area Air Basin (SFBAAB). As part of their role in air quality regulation, BAAQMD has prepared the CEQA air quality guidelines to assist lead agencies in evaluating air quality impacts of projects and plans proposed in the SFBAAB. The guidelines provide procedures for evaluating potential air quality impacts during the environmental review process consistent with CEQA requirements. On June 2, 2010, the BAAQMD adopted new and revised CEQA air quality thresholds of significance and issued revised guidelines that supersede the 1999 air quality guidelines. The 2010 CEQA Air Quality Guidelines provide for the first time CEQA thresholds of significance for greenhouse gas emissions. OPR's

<sup>23</sup> Ibid.

amendments to the CEQA Guidelines as well as BAAQMD's 2010 CEQA Air Quality Guidelines and thresholds of significance have been incorporated into this analysis accordingly.

The most common GHGs resulting from human activity are CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O.<sup>24</sup> State law defines GHGs to also include hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. These latter GHG compounds are usually emitted in industrial processes, and therefore not applicable to the proposed project. Individual projects contribute to the cumulative effects of climate change by directly or indirectly emitting GHGs during construction and operational phases. Direct operational emissions include GHG emissions from new vehicle trips and area sources (natural gas combustion). Indirect emissions include emissions from electricity providers, energy required to pump, treat, and convey water, and emissions associated with landfill operations.

The proposed project would increase the activity onsite through 1) construction and operation of the TBM retrieval shaft, and 2) demolition of the Pagoda Theater building and redevelopment of the site with a mixed use building containing 18 units and 4,700 sf of restaurant use. The TBM retrieval and new development could result in an incremental increase in overall energy and also water usage which generates indirect emissions from the energy required to pump, treat and convey water. The demolition and construction could also result in an increase in discarded landfill materials. Therefore, the proposed project would contribute to annual long-term increases in GHGs as a result of increased vehicle trips (mobile sources) and operations associated with energy use, water use and wastewater treatment, and solid waste disposal.

As discussed above, the BAAQMD has adopted CEQA thresholds of significance for projects that emit GHGs, one of which is a determination of whether the proposed project is consistent with a Qualified Greenhouse Gas Reduction Strategy, as defined in the 2010 CEQA Air Quality Guidelines. On August 12, 2010, the San Francisco Planning Department submitted a draft of the City and County of San Francisco's Strategies to Address Greenhouse Gas Emissions to the BAAQMD.<sup>25</sup> This document presents a comprehensive assessment of policies, programs and ordinances that collectively represent San Francisco's Qualified Greenhouse Gas Reduction

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<sup>24</sup> Governor's Office of Planning and Research. *Technical Advisory- CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*. June 19, 2008. Available at the Office of Planning and Research's website at: <http://www.opr.ca.gov/ceqa/pdfs/june08-ceqa.pdf>. <http://www.opr.ca.gov/ceqa/pdfs/june08-ceqa.pdf>. Accessed March 3, 2010.

<sup>25</sup> San Francisco Planning Department. *Strategies to Address Greenhouse Gas Emissions in San Francisco*. 2010. The final document is available online at: <http://www.sfplanning.org/index.aspx?page=1570>.

Strategy in compliance with the BAAQMD's 2010 CEQA Air Quality Guidelines and thresholds of significance.

San Francisco's GHG reduction strategy identifies a number of mandatory requirements and incentives that have measurably reduced greenhouse gas emissions including, but not limited to, increasing the energy efficiency of new and existing buildings, installation of solar panels on building roofs, implementation of a green building strategy, adoption of a zero waste strategy, a construction and demolition debris recovery ordinance, a solar energy generation subsidy, incorporation of alternative fuel vehicles in the City's transportation fleet (including buses and taxis), and a mandatory composting ordinance. The strategy also identifies 42 specific regulations for new development that would reduce a project's GHG emissions.

San Francisco's climate change goals as are identified in the 2008 Greenhouse Gas Reduction Ordinance as follows:

- By 2008, determine the City's 1990 GHG emissions, the baseline level with reference to which target reductions are set;
- Reduce GHG emissions by 25 percent below 1990 levels by 2017;
- Reduce GHG emissions by 40 percent below 1990 levels by 2025; and
- Reduce GHG emissions by 80 percent below 1990 levels by 2050.

The City's 2017 and 2025 GHG reduction goals are more aggressive than the State's GHG reduction goals as outlined in AB 32, and consistent with the State's long-term (2050) GHG reduction goals. San Francisco's Strategies to Address Greenhouse Gas Emissions identifies the City's actions to pursue cleaner energy, energy conservation, alternative transportation and solid waste policies, and concludes that San Francisco's policies have resulted in a reduction in greenhouse gas emissions below 1990 levels, meeting statewide AB 32 GHG reduction goals. As reported, San Francisco's 1990 GHG emissions were approximately 8.26 million metric tons (MMT) CO<sub>2</sub>E and 2005 GHG emissions are estimated at 7.82 MMTCO<sub>2</sub>E, representing an approximately 5.3 percent reduction in GHG emissions below 1990 levels.

The BAAQMD reviewed San Francisco's Strategies to Address Greenhouse Gas Emissions and concluded that the strategy meets the criteria for a Qualified GHG Reduction Strategy as outlined in BAAQMD's CEQA Guidelines (2010) and stated that San Francisco's "aggressive

GHG reduction targets and comprehensive strategies help the Bay Area move toward reaching the State's AB 32 goals, and also serve as a model from which other communities can learn."<sup>26</sup>

Based on the BAAQMD's 2010 CEQA Air Quality Guidelines, projects that are consistent with San Francisco's Strategies to Address Greenhouse Gas Emissions would result in a less than significant impact with respect to GHG emissions. Furthermore, because San Francisco's strategy is consistent with AB 32 goals, projects that are consistent with San Francisco's strategy would also not conflict with the State's plan for reducing GHG emissions. As discussed in San Francisco's Strategies to Address Greenhouse Gas Emissions, new development and renovations/alterations for private projects and municipal projects are required to comply with San Francisco's ordinances that reduce greenhouse gas emissions. Applicable requirements are shown below in Table 3 (TBM retrieval) and Table 4 (1731 Powell Street mixed use building.)

TABLE 3.

**GHG REGULATIONS APPLICABLE TO MODIFIED PROJECT – TBM RETRIEVAL**

Regulation	Requirement	Project Compliance	Discussion
<b>Transportation sector</b>			
Clean Construction Ordinance (San Francisco Administrative Code, Section 6.25)	Effective March 2009, all contracts for large (20+ day) City projects are required to: <ul style="list-style-type: none"> <li>•Fuel diesel vehicles with B20 biodiesel, and</li> <li>•Use construction equipment that meet USEPA Tier 2 standards or best available control technologies for equipment over 25 hp.</li> </ul>	<input checked="" type="checkbox"/> Project Complies <input type="checkbox"/> Not Applicable <input type="checkbox"/> Project Does Not Comply	Tunnel Contract Section 01 57 19 Part 1.06 requires compliance with Admin. Code Section 6.25: Contractors shall adopt clean construction practices including biodiesel fuel and 5 emissions controls.
<b>Waste Reduction Sector</b>			
Resource Efficiency and Green Building Ordinance (San Francisco Environment Code, Chapter 7)	The ordinance requires all demolition (and new construction) projects to prepare a Construction and Demolition Debris Management Plan designed to recycle construction and demolition materials to the maximum extent feasible, with a goal of 75%	<input checked="" type="checkbox"/> Project Complies <input type="checkbox"/> Not Applicable <input type="checkbox"/> Project Does Not Comply	Tunnel Contract Section 01 35 36 Conformed June 8, 2011 edition.  See sub section 1.07.

<sup>26</sup> Letter from Jean Roggenkamp, BAAQMD, to Bill Wycko, San Francisco Planning Department. October 28, 2010. This letter is available online at: <http://www.sfplanning.org/index.aspx?page=1570> <http://www.sfplanning.org/index.aspx?page=1570>. Accessed November 12, 2010.

Regulation	Requirement	Project Compliance	Discussion
	diversion.  The ordinance specifies requires for all city buildings to provide adequate recycling space		
Resource Conservation Ordinance (San Francisco Environment Code, Chapter 5)	This ordinance establishes a goal for each City department to (i) maximize purchases of recycled products and (ii) divert from disposal as much solid waste as possible so that the City can meet the state-mandated 50% diversion requirement. Each City department shall prepare a Waste Assessment. The ordinance also requires the Department of the Environment to prepare a Resource Conservation Plan that facilitates waste reduction and recycling. The ordinance requires janitorial contracts to consolidate recyclable materials for pick up. Lastly, the ordinance specifies purchasing requirements for paper products.	<input checked="" type="checkbox"/> Project Complies <input type="checkbox"/> Not Applicable <input type="checkbox"/> Project Does Not Comply	Tunnel Contract Section 01 35 36 Conformed June 8, 2011 edition.
Mandatory Recycling and Composting Ordinance (San Francisco Environment Code, Chapter 19)	The mandatory recycling and composting ordinance requires all persons in San Francisco to separate their refuse into recyclables, compostables and trash, and place each type of refuse in a separate container designated for disposal of that type of refuse.	<input checked="" type="checkbox"/> Project Complies <input type="checkbox"/> Not Applicable <input type="checkbox"/> Project Does Not Comply	Tunnel Contract Section 01 35 36 Conformed June 8, 2011 edition.  See subsection 1.01 E
Construction Recycled Content Ordinance (San Francisco Administrative Code, Section 6.4)	Ordinance requires the use of recycled content material in public works projects to the maximum extent feasible and gives preference to local manufacturers and industry.	<input checked="" type="checkbox"/> Project Complies <input type="checkbox"/> Not Applicable <input type="checkbox"/> Project Does Not Comply	Tunnel Contract Section 01 35 36 Conformed June 8, 2011 edition.  See subsection 1.08.
<b>Environment/Conservation Sector</b>			



Regulation	Requirement	Project Compliance	Discussion
Tropical Hardwood and Virgin Redwood Ban (San Francisco Environment Code, Chapter 8)	The ordinance prohibits City departments from procuring, or engaging in contracts that would use the ordinance-listed tropical hardwoods and virgin redwood.	<input checked="" type="checkbox"/> Project Complies <input type="checkbox"/> Not Applicable <input type="checkbox"/> Project Does Not Comply	Tunnel Contract General Provisions GP 15.09 Section 802 with references to City Ordinance.
Regulation of Diesel Backup Generators (San Francisco Health Code, Article 30)	Requires: All diesel generators to be registered with the Department of Public Health All new diesel generators must be equipped with the best available air emissions control technology.	<input checked="" type="checkbox"/> Project Complies <input type="checkbox"/> Not Applicable <input type="checkbox"/> Project Does Not Comply	CCR Article 4.8 Section 2449 General Requirements for In-Use of Road Diesel fueled fleets, ARB AB 1085. <a href="http://www.arb.ca.gov/msprog/ordiesel/knowcenter.htm">http://www.arb.ca.gov/msprog/ordiesel/knowcenter.htm</a>

TABLE 4.

**GHG REGULATIONS APPLICABLE TO MODIFIED PROJECT – 1731 POWELL REDEVELOPMENT**

Regulation	Requirements	Project Compliance	Discussion
<b>Transportation Sector</b>			
Car Sharing Requirements (San Francisco Planning Code, Section 166)	New residential projects or renovation of buildings being converted to residential uses within most of the City's mixed-use and transit-oriented residential districts are required to provide car share parking spaces.	<input checked="" type="checkbox"/> Project Complies <input type="checkbox"/> Not Applicable <input type="checkbox"/> Project Does Not Comply	Project will have one car share parking space.
<b>Energy Efficiency Sector</b>			
San Francisco Green Building Requirements for Energy Efficiency (San Francisco	Under the Green Point Rated system and in compliance with the Green Building Ordinance, all new residential buildings will be required to be at a minimum 15% more	<input checked="" type="checkbox"/> Project Complies <input type="checkbox"/> Not Applicable	

Regulation	Requirements	Project Compliance	Discussion
Building Code, Chapter 13C)	energy efficient than Title 24 energy efficiency requirements.	<input type="checkbox"/> Project Does Not Comply	
San Francisco Green Building Requirements for Stormwater Management (San Francisco Building Code, Chapter 13C) Or San Francisco Stormwater Management Ordinance (Public Works Code Article 4.2)	Requires all new development or redevelopment disturbing more than 5,000 square feet of ground surface to manage stormwater on-site using low impact design. Projects subject to the Green Building Ordinance Requirements must comply with either LEED® Sustainable Sites Credits 6.1 and 6.2, or with the City's Stormwater Management Ordinance and stormwater design guidelines.	X Project Complies <input type="checkbox"/> Not Applicable <input type="checkbox"/> Project Does Not Comply	Project site is greater than 5000 sf, and shall comply.
Indoor Water Efficiency  (San Francisco Building Code, Chapter 13C sections 13C.5.103.1.2, 13C.4.103.2.2, 13C.303.2.)	<b>If meeting a GreenPoint Rated Standard:</b>  Reduce overall use of potable water within the building by 20% for showerheads, lavatories, kitchen faucets, wash fountains, water closets and urinals.	X Project Complies <input type="checkbox"/> Not Applicable <input type="checkbox"/> Project Does Not Comply	
Residential Water Conservation Ordinance (San Francisco Building Code, Housing Code, Chapter 12A)	Requires all residential properties (existing and new), prior to sale, to upgrade to the following minimum standards:  1. All showerheads have a maximum flow of 2.5 gallons per minute (gpm) 2. All showers have no more than one showerhead per valve 3. All faucets and faucet aerators have a maximum flow rate of 2.2	X Project Complies <input type="checkbox"/> Not Applicable <input type="checkbox"/> Project Does Not Comply	

Regulation	Requirements	Project Compliance	Discussion
	<p>gpm</p> <p>4. All Water Closets (toilets) have a maximum rated water consumption of 1.6 gallons per flush (gpf)</p> <p>5. All urinals have a maximum flow rate of 1.0 gpf</p> <p>6. All water leaks have been repaired.</p> <p>Although these requirements apply to existing buildings, compliance must be completed through the Department of Building Inspection, for which a discretionary permit (subject to CEQA) would be issued.</p>		
Residential Energy Conservation Ordinance (San Francisco Building Code, San Francisco Housing Code, Chapter 12)	<p>Requires all residential properties to provide, prior to sale of property, certain energy and water conservation measures for their buildings: attic insulation; weather-stripping all doors leading from heated to unheated areas; insulating hot water heaters and insulating hot water pipes; installing low-flow showerheads; caulking and sealing any openings or cracks in the building's exterior; insulating accessible heating and cooling ducts; installing low-flow water-tap aerators; and installing or retrofitting toilets to make them low-flush. Apartment buildings and hotels are also required to insulate steam and hot water pipes and tanks, clean and tune their boilers, repair boiler leaks, and install a time-clock on the burner.</p> <p>Although these requirements apply to existing buildings, compliance must be completed through the Department of Building Inspection,</p>	<p>X Project Complies</p> <p><input type="checkbox"/> Not Applicable</p> <p><input type="checkbox"/> Project Does Not Comply</p>	

Regulation	Requirements	Project Compliance	Discussion
	for which a discretionary permit (subject to CEQA) would be issued.		
<b>Waste Reduction Sector</b>			
Mandatory Recycling and Composting Ordinance (San Francisco Environment Code, Chapter 19) and San Francisco Green Building Requirements for solid waste (San Francisco Building Code, Chapter 13C)	<p>All persons in San Francisco are required to separate their refuse into recyclables, compostables and trash, and place each type of refuse in a separate container designated for disposal of that type of refuse.</p> <p>Pursuant to Section 1304C.0.4 of the Green Building Ordinance, all new construction, renovation and alterations subject to the ordinance are required to provide recycling, composting and trash storage, collection, and loading that is convenient for all users of the building.</p>	<p><input checked="" type="checkbox"/> Project Complies</p> <p><input type="checkbox"/> Not Applicable</p> <p><input type="checkbox"/> Project Does Not Comply</p>	Project will have waste chutes for each separate waste stream, leading to a trash collection area with containers dedicated to each chute.
San Francisco Green Building Requirements for construction and demolition debris recycling (San Francisco Building Code, Chapter 13C)	Projects proposing demolition are required to divert at least 75% of the project's construction and demolition debris to recycling.	<p><input checked="" type="checkbox"/> Project Complies</p> <p><input type="checkbox"/> Not Applicable</p> <p><input type="checkbox"/> Project Does Not Comply</p>	
San Francisco Construction and Demolition Debris Recovery Ordinance (San Francisco Environment Code, Chapter 14)	Requires that a person conducting full demolition of an existing structure to submit a waste diversion plan to the Director of the Environment which provides for a minimum of 65% diversion from landfill of construction and demolition debris, including materials source separated for	<p><input checked="" type="checkbox"/> Project Complies</p> <p><input type="checkbox"/> Not Applicable</p> <p><input type="checkbox"/> Project Does Not Comply</p>	

Regulation	Requirements	Project Compliance	Discussion
	reuse or recycling.		
<b>Environment/Conservation Sector</b>			
Street Tree Planting Requirements for New Construction (San Francisco Planning Code Section 138.1)	Planning Code Section 138.1 requires new construction, significant alterations or relocation of buildings within many of San Francisco's zoning districts to plant on 24-inch box tree for every 20 feet along the property street frontage.	<input checked="" type="checkbox"/> Project Complies <input type="checkbox"/> Not Applicable <input type="checkbox"/> Project Does Not Comply	
Light Pollution Reduction (San Francisco Building Code, Chapter 13C5.106.8)	For nonresidential projects, comply with lighting power requirements in CA Energy Code, CCR Part 6. Requires that lighting be contained within each source. No more than .01 horizontal lumen footcandles 15 feet beyond site, or meet LEED credit SSc8.	<input checked="" type="checkbox"/> Project Complies <input type="checkbox"/> Not Applicable <input type="checkbox"/> Project Does Not Comply	
Construction Site Runoff Pollution Prevention for New Construction (San Francisco Building Code, Chapter 13C)	<p>Construction Site Runoff Pollution Prevention requirements depend upon project size, occupancy, and the location in areas served by combined or separate sewer systems.</p> <p>Projects meeting a LEED® standard must prepare an erosion and sediment control plan (LEED® prerequisite SSP1).</p> <p>Other local requirements may apply regardless of whether or not LEED® is applied such as a stormwater soil loss prevention plan or a Stormwater Pollution Prevention Plan (SWPPP).</p> <p>See the SFPUC Web site for more information:</p>	<input checked="" type="checkbox"/> Project Complies <input type="checkbox"/> Not Applicable <input type="checkbox"/> Project Does Not Comply	Project is not subject to LEED but will have construction site runoff pollution plan.

Regulation	Requirements	Project Compliance	Discussion
	www.sfwater.org/CleanWater		
Low-emitting Adhesives, Sealants, and Caulks (San Francisco Building Code, Chapters 13C.5.103.1.9, 13C.5.103.4.2, 13C.5.103.3.2, 13C.5.103.2.2, 13C.504.2.1)	<p><b>If meeting a GreenPoint Rated Standard:</b></p> <p>Adhesives and sealants (VOCs) must meet SCAQMD Rule 1168.</p>	<p>X Project Complies</p> <p><input type="checkbox"/> Not Applicable</p> <p><input type="checkbox"/> Project Does Not Comply</p>	Project will meet Green Point rating standards.
Low-emitting materials (San Francisco Building Code, Chapters 13C.4. 103.2.2,	<p>For Small and Medium-sized Residential Buildings - Effective January 1, 2011 meet GreenPoint Rated designation with a minimum of 75 points.</p> <p>For New High-Rise Residential Buildings - Effective January 1, 2011 meet LEED Silver Rating or GreenPoint Rated designation with a minimum of 75 points.</p> <p>For Alterations to residential buildings submit documentation regarding the use of low-emitting materials.</p> <p><b>If meeting a GreenPoint Rated Standard:</b></p> <p>Meet the GreenPoint Rated Multifamily New Home Measures for low-emitting adhesives and sealants, paints and coatings, and carpet systems,</p>	<p>X Project Complies</p> <p><input type="checkbox"/> Not Applicable</p> <p><input type="checkbox"/> Project Does Not Comply</p>	Project will meet Green Point rating standards.
Low-emitting Paints and Coatings (San Francisco Building	<p><b>If meeting a GreenPoint Rated Standard:</b></p> <p>Interior wall and ceiling paints must</p>	<p>X Project Complies</p> <p><input type="checkbox"/> Not</p>	Project will meet Green Point rating standards.

Regulation	Requirements	Project Compliance	Discussion
Code, Chapters 13C.5.103.1.9, 13C.5.103.4.2, 13C.5.103.3.2, 13C.5.103.2.2 13C.504.2.2 through 2.4)	meet <50 grams per liter VOCs regardless of sheen. VOC Coatings must meet SCAQMD Rule 1113.	Applicable <input type="checkbox"/> Project Does Not Comply	
Low-emitting Flooring, including carpet (San Francisco Building Code, Chapters 13C.5.103.1.9, 13C.5.103.4.2, 13C.5.103.3.2, 13C.5.103.2.2, 13C.504.3 and 13C.4.504.4)	<b>If meeting a GreenPoint Rated Standard:</b>  All carpet systems, carpet cushions, carpet adhesives, and at least 50% of resilient flooring must be low-emitting.	X Project Complies  <input type="checkbox"/> Not Applicable  <input type="checkbox"/> Project Does Not Comply	Project will meet Green Point rating standards.
Low-emitting Composite Wood (San Francisco Building Code, Chapters 13C.5.103.1.9, 13C.5.103.4.2, 13C.5.103.3.2, 13C.5.103.2.2 and 13C.4.504.5)	<b>If meeting a GreenPoint Rated Standard:</b>  Must meet applicable CARB Air Toxics Control Measure formaldehyde limits for composite wood.	X Project Complies  <input type="checkbox"/> Not Applicable  <input type="checkbox"/> Project Does Not Comply	Project will meet Green Point rating standards.
Wood Burning Fireplace Ordinance (San Francisco Building Code, Chapter 31, Section 3102.8)	Bans the installation of wood burning fire places except for the following: <ul style="list-style-type: none"><li>• Pellet-fueled wood heater</li><li>• EPA approved wood heater</li><li>• Wood heater approved by the Northern Sonoma Air Pollution Control District</li></ul>	X Project Complies  <input type="checkbox"/> Not Applicable  <input type="checkbox"/> Project Does Not Comply	There are no wood burning fire places in the project.

Depending on a proposed project's size, use, and location, a variety of controls are in place to ensure that a proposed project would not impair the State's ability to meet statewide GHG reduction targets outlined in AB 32, nor impact the City's ability to meet San Francisco's local GHG reduction targets. Given that: (1) San Francisco has implemented regulations to reduce greenhouse gas emissions specific to new construction and renovations of private developments and municipal projects; (2) San Francisco's sustainable policies have resulted in the measured success of reduced greenhouse gas emissions levels; (3) San Francisco has met and exceeded AB 32 greenhouse gas reduction goals for the year 2020; (4) current and probable future state and local greenhouse gas reduction measures will continue to reduce a project's contribution to climate change; and (5) San Francisco's Strategies to Address Greenhouse Gas Emissions meet BAAQMD's requirements for a Qualified GHG Reduction Strategy, projects that are consistent with San Francisco's regulations would not contribute significantly to global climate change. The proposed project would be required to comply with these requirements, and was determined to be consistent with San Francisco's Strategies to Address Greenhouse Gas Emissions.<sup>27</sup> As such, the modified project would result in a less than significant impact with respect to GHG emissions.

## SHADOW

No significant shadow impacts were identified in the 2008 SEIS/SEIR. Relocation of the TBM retrieval shaft site would not create any new shadow impacts compared to the approved Central Subway project.

The existing Pagoda Theater building is located directly west of Washington Square across Columbus Avenue. The modified project proposes an SUD on the project site increasing the height limit from 40-X to 55-X, and Conditional Use approval for construction of a building up to approximately 55 feet in height as measured by the Planning Code, with a roof line consistent with the roof line of the existing building, and with a blade sign extending beyond the roof of the building. Section 295 of the Planning Code describing height restrictions on structures shadowing property under the jurisdiction of the Recreation and Park Commission would normally be applicable to the construction of any building exceeding 40 feet in height. However, as specified the Conditional Use application, neither the roof nor the blade sign of the

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<sup>27</sup> Greenhouse Gas Analysis: Compliance Checklist. April, 2012. This document is on file in Case File No. 2011.1043E and available for public review at the Planning Department, 1650 Mission Street, Suite 400.



new building would exceed the height of the corresponding component of the existing building. Section 295(a)(4) specifies that structures of the same height and in the same location as structures in place on June 6, 1984 are not subject to the provisions of Section 295. Moreover, CEQA requires analysis of the environmental impacts resulting from physical changes to the existing setting. The modified project would not increase shadow on Washington Square compared to current conditions, and therefore there would be no impacts from shadow from approval of the modified project.

## **GEOLOGY AND SOILS**

### ***TBM Retrieval Site Relocation***

A geotechnical investigation for the Pagoda Theater project was prepared on December 1, 2008.<sup>28</sup> The report found that the project site is underlain by fill consisting of medium dense sand and stiff clay to a depth of up to 15 feet, below which is medium-very stiff sandy clay and dense-very dense silty sand. It is expected that weathered sandstone of the Franciscan formation may be found to a depth of 40-50 feet below ground surface (bgs), where the tunnel would be constructed. Shallow groundwater at a depth of eight feet bgs was encountered.

The 2008 SEIS/SEIR recognized the potential for settlement of geologic materials during construction of the Central Subway. Design-level geotechnical analysis conducted as part of the project considers the potential for settlement and identifies construction methods to minimize it as appropriate given the soil conditions in applicable locations along the alignment. The 2008 SEIS/SEIR includes mitigation to minimize settlement through monitoring of movement and sequential support for excavation as necessary (through use of ground improvement techniques such as jet grouting or underpinning) (see Mitigation Measures, p. 57). This mitigation measure would be applicable to the proposed extension of the tunnel and construction of the retrieval shaft, and no new significant impact would occur.

### ***1731 Powell Street Mixed-Use Building***

The geotechnical report for the Pagoda Theater project recommended that the following features be incorporated into the project design: use of a foundation that can withstand

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<sup>28</sup> Treadwell & Rollo, *Draft Geotechnical Investigation, 1731-1741 Powell Street, La Corneta Palace*, 1 December 2008. This document is on file and available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2007.1117E and Case File No. 1996.281E.

hydrostatic uplift; waterproofing of below-grade walls and slabs; use of tiedown anchors; underpinning, shoring, waterproofing, dewatering, and monitoring during construction. The 2008 SEIS/SEIR addresses dewatering in the topic of Hazardous Materials; accordingly, dewatering is addressed in the Hazards and Hazardous Materials discussion below. Geotechnical issues are addressed through the Department of Building Inspection's building permit review process, and necessary measures are taken to ensure that the project meets all applicable codes and requirements. The proposed 1731 Powell Street project would be required to undergo this review as part of the building permit process. Therefore, no significant impacts would occur from this aspect of the project and no mitigation is required.

## HAZARDS AND HAZARDOUS MATERIALS

Article 20 of the San Francisco Municipal Code (also known as the Maher Ordinance) requires oversight by the Department of Public Health (DPH) for excavation on properties located bayward of the 1851 high tide line (the "Maher Zone"). The 2008 SEIS/SEIR imposed requirements similar to the Article 20 provisions as mitigation for hazardous materials for those sites affected by the Central Subway project that are not within the Maher Zone. The mitigation requires establishment of a groundwater monitoring protocol to avoid exposure to groundwater containing hazardous materials (p. 6-107). The project site is outside the Maher Zone, and therefore the mitigation established through the 2008 SEIS/SEIR, including the requirements associated with dewatering, would be applicable to the tunnel extension and TBM retrieval shaft construction (see Mitigation Measures, p. 57). No further mitigation is required.

The 1731 Powell Street project site is not included on any database of hazardous materials sites. The site contained a leaking underground storage tank (LUST) containing fuel oil, which was cleaned up and closed through the DPH Cleanup Program.<sup>29</sup>

No new significant impacts with respect to hazardous materials would occur as a result of the modified project.

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<sup>29</sup> San Francisco Planning Department Geographic Information System, accessed on January 22, 2013.

## **OTHER ENVIRONMENTAL EFFECTS**

This section addresses the remaining topic areas for environmental review included in San Francisco's Initial Study checklist. Modified project impacts would be minimal, as described below.

### **Population and Housing**

Relocation of the TBM retrieval shaft would not result in any change in impacts associated with population and housing.

Redevelopment of the 1731 Powell Street site as proposed would result in construction of 18 new residential units, resulting in a population increase of approximately 42 persons based on San Francisco's average household size of 2.30 persons per household. No existing housing would be removed, and the addition of 4,700 sf of commercial space (with an estimated 13 employees) would not create a substantial demand for new housing. Development of 18 units at this site first received Planning Department authorization in 2009, indicating that the incremental increase in population in the vicinity is consistent with projected growth. The modified project would not result in new significant impacts related to population and housing.

### **Recreation**

The project site is located directly west of Washington Square, across Columbus Avenue, and is less than two blocks (approximately 500 feet) south of Joe DiMaggio Playground. Other nearby parks include Ina Coolbrith Park (1,600 feet to the southwest) and Woh Hei Yuen Park (1,800 feet to the south). Addition of 18 units on the project site would have a less-than-significant impact on recreation, because it would not substantially increase demand for or use of neighborhood parks or citywide facilities, such as Golden Gate Park, in a manner that would cause substantial physical deterioration of these facilities. Relocation of the TBM retrieval shaft site would have similar less than significant impacts on Washington Square as the approved project.

### **Wind**

Relocation of the TBM extraction site 100 feet to the northwest would not change the wind impacts of the project, which were determined to be less than significant in the 2008 SEIR/SEIS.

At 56 feet, the existing building on the project site is similar in size to many neighboring structures. Redevelopment at 1731 Powell Street as proposed in the modified project would result in a building with substantially the same height and massing as the existing structure on the project site.

Substantial increases in pedestrian-level winds can result from the construction of new building of substantial height (generally exceeding 85-100 feet) protruding above surrounding buildings. No such height increase would occur under the modified project, and therefore the modified project does not have the potential to create new significant impacts relative to wind not addressed in the 2008 SEIR/SEIS.

### **Utilities and Public Services**

The 2008 SEIS/SEIR states that the TBM construction method would not require relocation of utilities above TBM tunnels (p. 6-86). Diversion of utilities would occur for construction of the TBM retrieval shaft at the approved site on Columbus Avenue. The modified project would not result in any more utility diversion than the approved project, and may require less diversion as the TBM shaft would be located on private property rather than in the public right-of-way.

The addition of 18 units and 4,700 sf of restaurant use would be incremental infill development in a location well served by existing urban utilities and public services (e.g. police, fire, libraries, schools). This development has been foreseeable at this site since 2007 and was granted authorization in 2009, and is within projected growth in the area.

The modified project would not create any new significant impacts associated with utilities or public services.

### **Biological Resources**

According to the Tree Disclosure Form submitted by the 1741 Powell Street property owner, there are three existing street trees on the project site frontage and one additional street tree would be required to meet current standards. Street trees may be used by nesting birds, which are fully protected under Fish and Game Code Sections 3503 and 3503.5 and the federal Migratory Bird Treaty Act (MBTA). As mitigation for any tree removal or damage associated with the Central Subway project, the 2008 SEIS/SEIR requires that any street trees affected by the project be replaced at a 1:1 ratio, and a certified arborist be present during TBM retrieval shaft construction to avoid any tree roots (p. 6-99) (see Mitigation Measures, p. 57). There are no adopted habitat conservation plans applicable to the project site, nor does the site include any riparian habitat or other significant biological resources.

In September 2011, the Board of Supervisors approved *Planning Code* Section 139, Standards for Bird-Safe Buildings. The standards apply to buildings located within 300 feet of, and having a direct line of sight to, an urban bird refuge. As an open space larger than 2 acres dominated by vegetation, Washington Square is considered an urban bird refuge and the proposed 1731 Powell Street building would be subject to the requirements of *Planning Code* Section 139. Bird-safe elements would be required to be incorporated into the building design, and no significant impact would occur.

### **Hydrology and Water Quality**

The Central Subway project is subject to San Francisco Public Utilities Commission (SFPUC) requirements, which mandate preparation of a Storm Water Pollution Prevention Plan (SWPPP) specifying construction storm water management controls, and erosion and sediment control (p. 6-96-97). Construction of the TBM retrieval site in the proposed location would be subject to the SWPPP. No significant impacts would occur, and no mitigation is required. The 1741 Powell Street building would not have the potential to result in significant impacts associated with hydrology and water quality; issues associated with dewatering have been addressed above in the discussions of geology and hazardous materials.

### **Mineral and Energy Resources**

Relocation of the TBM retrieval shaft would have no effect on energy use during project construction or operation. There are no mineral resources within the area that would be affected by extension of the TBM tunnel to the project site.

The proposed 1741 Powell Street project would meet current State and local codes concerning energy consumption, including Title 24 of the California Code of Regulations, enforced by the Department of Building Inspection. Impacts to mineral and energy resources from the modified project would be less than significant.

### **Agricultural Resources**

The modified project would have no impacts associated with agricultural resources. No such resources are located on or in proximity to the project site.

## **GROWTH INDUCEMENT**

Growth inducement under CEQA considers the ways in which proposed projects could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Projects that are traditionally or most commonly

considered growth inducing are those that would remove obstacles to population growth (for example, a major expansion of a wastewater treatment plant may allow more construction in its service area, or a new freeway may allow growth at freeway exits).

Growth-inducing impacts of the Central Subway project were discussed in the 2008 SEIS/SEIR at 7-51, and found to be less than significant. The modified project would extend the Central Subway tunnel an additional 100 feet beyond the approved terminus, and locate the TBM retrieval shaft on private property rather than in the Columbus Avenue right-of-way. SFMTA is seeking a limited-term lease from the 1731 Powell Street property owner to use the site for TBM retrieval, after which SFMTA would vacate the property and it would be available for redevelopment. Like the approved project, the modified project would not be expected to have significant growth-inducing impacts.

As a separate project, SFMTA could consider extension of the Central Subway further north and/or construction of a subway station in North Beach. Neither the Columbus Avenue retrieval shaft site nor the proposed 1731 Powell Street site would preclude either of these additions to the system. Any such proposal is not part of the current effort and would be subject to additional environmental review.

The proposed height reclassification and granting of approvals to allow construction of 18 units and 4,700 square feet of restaurant use would not enable substantial additional growth beyond the amount of development already approved on the project site.

The modified project would not result in significant growth-inducing impacts.

## **MITIGATION AND IMPROVEMENT MEASURES**

This section presents those mitigation measures that address significant environmental impacts identified in the 2008 SEIS/SEIR that are relevant to the portion of the Central Subway project currently proposed for modification. It also includes relevant improvement measures, which are not necessary to avoid significant environmental impacts but were included in the 2008 SEIS/SEIR to further reduce impacts that were less than significant. As noted throughout this document, the modified project would not result in any new significant impacts, compared to those identified in the 2008 SEIS/SEIR.

## MITIGATION MEASURES

### *Cultural Resources*

**M CNPRE-1a:** Consistent with the SHPO MOA with the City, FTA, and SFMTA shall work with a qualified archaeologist to ensure that all state and federal regulations regarding cultural resources and Native American concerns are enforced.

**MM CNPRE-1b:** Limited subsurface testing in identified archaeologically sensitive areas shall be conducted once an alignment has been selected.

**MM CNPRE-1c:** During construction, archaeological monitoring shall be conducted in those sections of the alignment identified in the completed HCASR and through pre-construction testing as moderately to highly sensitive for prehistoric and historic-era archaeological deposits.

**MM CNPRE-1d:** Upon completion of archaeological field investigations, a comprehensive technical report shall be prepared for approval by the San Francisco Environmental Review Officer that describes the archaeological findings and interpretations in accordance with state and federal guidelines.

**MM CNPRE-1e:** If unanticipated cultural deposits are found during subsurface construction, soil disturbing activities in the vicinity of the find shall be halted until a qualified archaeologist can assess the discovery and make recommendations for evaluation and appropriate treatment to the ERO for approval in keeping with adopted regulations and policies.

**MM CNHARC-2A:** Pre-drilling for pile installation in areas that would employ secant piles with ground-supporting walls in the cut-and-cover areas would reduce the potential effects of vibration.

**MM CNHARC-2b:** Vibration monitoring of historic structures adjacent to tunnels and portals will be specified in the construction documents to ensure that historic properties do not sustain damage during construction. Vibration impacts would be mitigated to a less-than-significant level. If a mitigation monitoring plan provides the following:

- The contractor will be responsible for the protection of vibration-sensitive historic building structures that are within 200 feet of any construction activity.
- The maximum peak particle vibration (PPV) velocity level, in any direction, at any of these historic structures should not exceed 0.12 inches/second for any length of time.

- The Contractor will be required to perform periodic vibration monitoring at the closest structure to ground disturbing construction activities, such as tunneling and station excavation, using approved seismographs.
- If at any time the construction activity exceeds this level, that activity will immediately be halted until such time as an alternative construction method can be identified that would result in lower vibration levels.

### *Geology and Soils*

**MM CNET-1a:** Provisions such as concrete diaphragm walls to support the excavation and instrumentation to monitor settlement and deformation would be used to ensure that structures adjacent to tunnel alignments are not affected by excavations.

**MM CNET-1b:** Tunnel construction methods that minimize ground movement, such as pressure-faced TBMs, Sequential Excavation Method, and ground improvement techniques such as compensation grouting, jet grouting or underpinning will be used.

**MM CNET-1c:** Rigorous geomechanical instrumentation would be used to monitor underground excavation and grouting or underpinning will be employed to avoid displacement of structures.

### *Hazardous Materials*

**MM CNHAZ-1a:** Implementation of mitigation measures similar to those required for properties under the jurisdiction of Article 20: preparation of a Site History Report; Soil Quality Investigation, including a Soils Analysis Report and a Site Mitigation Report (SMR); description of Environmental Conditions; Health and Safety Plan (HSP); Guidelines for the Management and Disposal of Excavated Soils; and a Certification Statement that confirms that no mitigation is required or the SMR would mitigate the risks to the environment of human health and safety. This measure would ensure that the project impacts are mitigated to a less-than-significant level.

### *Noise and Vibration*

**MM CNNV-1a:** The Contractor shall be required to perform periodic vibration monitoring using approved seismographs at the historic structure closest to the construction activity. If the construction activity exceeds a 0.12 inches/second level, the construction activity shall be



immediately halted until an alternative construction method that would result in lower vibration levels can be identified.

**MM CNNV-1b:** During construction, an acoustical consultant will be retained by the contractor to prepare a more detailed construction noise and vibration analysis to address construction staging areas, tunnel portals, cut-and-cover construction, and underground mining and excavation operations.

## **IMPROVEMENT MEASURES**

### *Visual Resources*

**IM CNVAES-1a:** Construction staging areas and excavation sites in these areas may be screened from view during construction to minimize potential visual impacts.

### *Biological Resources*

**IM CNBIO-1a:** Any street trees removed or damaged as part of construction would be replaced along the street at a 1:1 ratio.

**IM CNBIO-2a:** A certified arborist would be present as needed during excavation of the Columbus Avenue TBM retrieval shaft to monitor protection of tree roots.

### *Noise and Vibration*

**IM CNNV-2a:** The incorporation of noise control measures would minimize noise impacts during construction: noise control devices such as equipment mufflers, enclosures, and barriers; stage construction as far away from sensitive receptors as possible; maintain sound reducing devices and restrictions throughout construction period; replace noisy with quieter equipment; schedule the noisiest construction activities to avoid sensitive times of the day.

The contractor will hire an acoustical consultant to oversee the implementation of the Noise Control and Monitoring Plans; prepare a Noise Control Plan; and comply with the nighttime noise variance provisions.

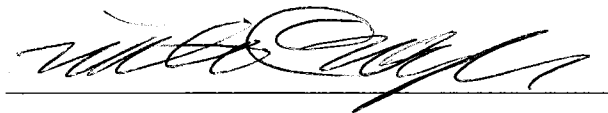
The consultant will conduct and report on periodic noise measurements to ensure compliance with the Noise Monitoring Plan using up to date equipment certified to meet specified lower noise level limits during nighttime hours.

## CEQA CONCLUSION

Based on the analysis and discussion presented in this document, no supplemental or subsequent environmental analysis is needed pursuant to the *CEQA Guidelines*, Sections 15162, 15163, and 15164. It is concluded that the analyses conducted and the conclusions reached in the SEIS/SEIR, certified August 7, 2008 remain valid. The modified proposed project would not cause new significant impacts not identified in the 2008 SEIS/SEIR or result in a substantial increase in the severity of previously identified significant impacts, and no new mitigation measures would be necessary to reduce significant impacts. No changes have occurred with respect to circumstances surrounding the project that would cause significant environmental impacts to which the modified project would contribute considerably, and no new information has become available that shows that the approved or modified project would cause significant environmental impacts. Therefore, no supplemental environmental review is required beyond this Addendum.

January 31, 2013

Date of Determination      I do hereby certify that the above determination has been made pursuant to State and Local requirements.



Bill Wycko

Environmental Review Officer

Cc:    Project Sponsor; Supervisor Chiu, District 3; Distribution List; Bulletin Board



London Breed, Mayor

Gwyneth Borden, Chair  
Amanda Eaken, Vice Chair  
Cheryl Brinkman, Director

Steve Heminger, Director  
Sharon Lai, Director

Jeffrey Tumlin, Director of Transportation

November 16, 2020

The Honorable Members of the Board of Supervisors  
City and County of San Francisco  
1 Dr. Carlton Goodlett Place, Room 244  
San Francisco, CA 94102

***Subject: Request for Approval - Amendment No. 5 to Contract CS-163-1 with Aon Risk Insurance Services West Inc., to increase the contract amount for additional premium charges due to increased construction time and contract cost.***

### **Honorable Members of the Board of Supervisors:**

The San Francisco Municipal Transportation Agency (SFMTA) requests that the San Francisco Board of Supervisors approve Amendment No. 5 to Contract CS-163-1 with Aon Risk Insurance Services West, Inc., to increase the contract amount by an amount not to exceed \$1,684,550, for additional premium charges due to increased construction time and contract costs, for a total contract amount not to exceed \$26,778,986.

### **Background**

The Central Subway Project (Project) is the second phase of the SFMTA's Third Street Light Rail Project and will add 1.67 miles of light rail track north from the northern end of the new Third Street Light Rail at Fourth and King Streets to a terminal in Chinatown. The Project will serve regional destinations, including Chinatown (the most densely populated area of the country that is not currently served by modern rail transportation), Union Square, Moscone Convention Center, Yerba Buena, South of Market and AT&T Park. The Project will also connect BART and Caltrain (the Bay Area's two largest regional commuter rail services), serve a low auto ownership population of transit customers, increase transit use and reduce travel time, reduce air and noise pollution, and provide congestion relief. The Project has issued construction contracts with a current value of \$239,973,354.17 for tunnels and \$936,490,910.76 for stations, trackway and control systems. Tunnels construction commenced in 2010 and concluded in October 3, 2018. Stations, trackway and control systems construction commenced in June 17, 2013 and is expected to conclude in early 2021. The start of revenue operations is scheduled for early 2022.

The complexity of the Central Subway construction methods, including tunneling, cut-and-cover, and mining, in proximity to sensitive urban structures and facilities, has posed significant construction challenges and significant potential liability to the City. To cover that



liability, the SFMTA, through Aon, established an Owner Controlled Insurance Program (OCIP) to provide excess insurance coverage above the insurance that Project contractors are required to provide under their respective contracts. The purpose of the OCIP was to reduce the overall cost of procuring large insurance policies, reduce construction contract bid costs by relieving contractors of some of the insurance burden, and ensure that the insurance requirements for the Project did not reduce the number of contractors able to bid. The OCIP also reduced the impact of Project insurance requirements on insurance markets, which had reacted negatively to large insurance contract requirements and had indicated that they would not provide the large policies required to multiple contractors.

On February 7, 2012, the SFMTA Board of Directors adopted Resolution No. 12-017, approving Contract No. CS-163-1 between the SFMTA and Aon Risk Insurance Services West, Inc, in an amount not-to-exceed \$9,808,750 and for a term of eight years, actual premium cost adjusted based on final bid costs of the covered contract work. OCIP premiums are based on the cost of the construction work and the period of construction. The premiums for the OCIP are increased if Project construction contract costs increase or completion of construction is delayed (or time extensions are granted).

Project construction is largely divided between two contracts. The Project tunnels were constructed under Contract 1252 with Barnard Impregilo Healey (Barnard) for a contract amount, as currently amended, of \$239,973,354.17, and a construction period of 1174 calendar days. Barnard provided \$350 million in insurance coverage, and the OCIP provided \$150 million in excess coverage. Construction under Contract 1252 commenced on June 28, 2011, and was completed on October 3, 2018, 24 days over the initial schedule. Coverage for the tunnels was reduced in 2019 to \$350 million, as the risk of catastrophic incident was greatly reduced upon completion of the tunnels and subway station walls.

The stations, trackways, and control systems are being constructed under Contract 1300 with Tutor Perini Corporation (Tutor) for a contract amount, as currently amended, of \$936,490,910.76. Tutor provided \$50 million in insurance coverage, and the OCIP provided \$150 million in excess coverage. Construction under Contract 1300 commenced on June 17, 2013, and is estimated to be substantially complete by March 2021, an estimated delay of 1145 calendar days.

## Alternatives Considered

Disapproval of Amendment No. 5 would render the Aon Contract void, and the underwriters of the excess insurance would cancel the OCIP policies. The SFMTA's provision of the excess insurance coverage is required by Contract No. 1252 and Contract No. 1300. Cancellation of the OCIP policies would effectively cap the contractors' liability to their respective insurance policies. If the OCIP policies were cancelled, the SFMTA could be liable in whole or in part for claims that exceed the contractors' liability insurance policies. The risk of such catastrophic loss is remote, given the robust design of the Central Subway tunnels and stations. But the potential costs of third party liability arising from failure of the tunnels or stations could be extremely high.

## Funding Impact/Budget

The total cost of the Central Subway project is \$1.578 billion. Contract CS-163-1 Amendment No. 4 will not increase the total project budget. Existing funds will be used to pay for the additional cost.

Total Project Cost Summary	Cost
Contract Amount	\$9,808,750
Amendment No. 1	\$0
Amendment No. 2	\$8,280,000
Amendment No. 3	\$684,382
Amendment No. 4	\$6,321,304
Amendment No. 5	\$1,684,550
<b>Total Project Cost Amount</b>	<b>\$26,778,986</b>

## Funding Sources:

The Central Subway project is funded with Federal Transit Administration (FTA) New Starts, Federal Congestion Management & Air Quality (CMAQ), State Transportation Bond Proposition 1A and 1B, State Regional Improvement Program, State Transportation Congestion Relief Program (TCRP), and Prop K Half-Cent Local Sales Tax funds. The additional OCIP costs incurred under Contract CS-163-1 Amendment 5 are within the approved Project budget of \$1.578B. Existing Project funds will be used to pay the additional insurance costs. The breakdown of the funding sources and their amounts is as follows:



Source	TOTAL
5309 New Starts	\$942,200,000
CMAQ3	\$41,025,000
Prop 1A High Speed Rail Connectivity	\$61,308,000
Prop 1B- MTC	\$87,895,815
Prop 1B-SFMTA	\$219,896,185
RIP-SF/Other	\$74,248,000
TCRP	\$14,000,000
Prop K	\$137,727,000
	\$1,578,300,000

### **SFMTA Board Action**

On November 3, 2020, the SFMTA Board of Directors approved Resolution No. 201103-092 authorizing the Director of Transportation to execute Amendment No. 5 subject to approval by the Board of Supervisors (see attached).

### **Recommendation**

The SFMTA recommends that the San Francisco Board of Supervisors adopt the resolution approving Amendment No. 5 to Contract No. 163-1 with Aon Risk Insurance Services West, Inc.

Thank you for your consideration of this proposed amendment. Should you have any questions or require more information, please do not hesitate to contact me at any time.

**Sincerely,**

A handwritten signature in blue ink, appearing to read 'Jeffrey Tumlin'.

**Jeffrey Tumlin**  
**Director of Transportation**



**London Breed**, Mayor

**Gwyneth Borden**, Chair  
**Amanda Eaken**, Vice Chair  
**Cheryl Brinkman**, Director

**Steve Heminger**, Director  
**Sharon Lai**, Director

**Jeffrey Tumlin**, Director of Transportation

November 16, 2020

Angela Calvillo, Clerk of the Board  
Board of Supervisors  
1 Dr. Carlton B. Goodlett Place, Room 244  
San Francisco CA 94102-4689

Dear Ms. Calvillo:

Attached is a proposed resolution for Board of Supervisors approval, authorizing the Director of Transportation to amend Contract CS-163-1 with Aon Risk Insurance Services West Inc., to increase the contract amount for additional premium charges due to increased construction time and contract costs.

The following is a list of accompanying documents:

- Briefing letter
- Resolution
- Amendment No. 5 to Contract CS-163 with Aon Risk Insurance Services West Inc.
- Original Contract and amendments Nos. 1- 4
- CEQA documentation
- SFEC forms (submitted electronically)
- SFMTA Board resolutions

If you require further information, please contact SFMTA's Local Government Affairs Liaison, Janet Martinsen at [janet.martinsen@sfmta.com](mailto:janet.martinsen@sfmta.com) or 415-994-3143.

Thank you,

Jeffrey Tumlin  
Director of Transportation

**From:** [Martinsen, Janet](#)  
**To:** [BOS Legislation, \(BOS\)](#); [Calvillo, Angela \(BOS\)](#); [Somera, Alisa \(BOS\)](#)  
**Cc:** [Ramos, Joel \(MTA\)](#); [Hoe, Albert \(MTA\)](#); [Tahir, Nadeem \(MTA\)](#)  
**Subject:** SFMTA submittal of legislation - CS-163-1 Amendment No. 5  
**Date:** Monday, November 16, 2020 10:56:55 AM  
**Attachments:** [image001.png](#)  
[image005.png](#)  
[BOS Resolution CS-163-1 Amendment No. 5.docx](#)  
[MTAB Resolution - CS 163-1 Amendment No. 2 - 12-135.pdf](#)  
[MTAB Resolution - CS 163-1 Amendments No. 3 and No. 4 - 180918-130.pdf](#)  
[MTAB Resolution - CS 163-1 Excess Liability Insurance - 12-017.pdf](#)  
[SFEC Form 126f4 - Notification of Contract - Board of Supervisors pending signatures.pdf](#)  
[CS-163-1 Amendment No. 5 signed.pdf](#)  
[CS-163-1 Amendment No. 5.docx](#)  
[CS-163-1 Contract and Amendments 1-4.pdf](#)  
[CS-163-1 Contract Original 012312.pdf](#)  
[SFMTA 201116 BOS cover letter for CS-163-1 Amendment 5.pdf](#)

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Madame Clerk:

Please find attached a draft resolution and supporting documents to be submitted for BOS consideration.

The following is a list of accompanying documents:

- Cover letter
- Draft contract amendment 5(word)
  - Signature page (PDF)
- Prior contracts (original and amendments 1-4)
- MTAB Resolutions
- Form SFEC 126f4 – submitted electronically
- CEQA documentation -SEIS/SEIR documentation located here:  
<https://www.sfmta.com/reports/central-subway-final-seisseir>

Thanks and please contact me with any questions.

**Janet L. Martinsen**  
Local Government Affairs Liaison  
Government Affairs  
Preferred Gender Pronouns: She/Her/Hers



Office 415.646.2302  
Mobile 415.994.3143



San Francisco Municipal Transportation Agency  
1 South Van Ness Avenue, 7th floor  
San Francisco, CA 94103





## San Francisco Ethics Commission

25 Van Ness Avenue, Suite 220, San Francisco, CA 94102

Phone: 415.252.3100 . Fax: 415.252.3112

[ethics.commission@sfgov.org](mailto:ethics.commission@sfgov.org) . [www.sfethics.org](http://www.sfethics.org)

Received On:

File #: 201317

Bid/RFP #:

### Notification of Contract Approval

SFEC Form 126(f)4

(S.F. Campaign and Governmental Conduct Code § 1.126(f)4)

A Public Document

Each City elective officer who approves a contract that has a total anticipated or actual value of \$100,000 or more must file this form with the Ethics Commission within five business days of approval by: (a) the City elective officer, (b) any board on which the City elective officer serves, or (c) the board of any state agency on which an appointee of the City elective officer serves. For more information, see: <https://sfethics.org/compliance/city-officers/contract-approval-city-officers>

#### 1. FILING INFORMATION

##### TYPE OF FILING

original

##### DATE OF ORIGINAL FILING (for amendment only)

##### AMENDMENT DESCRIPTION – Explain reason for amendment

#### 2. CITY ELECTIVE OFFICE OR BOARD

##### OFFICE OR BOARD

Board of Supervisors

##### NAME OF CITY ELECTIVE OFFICER

Members

#### 3. FILER'S CONTACT

##### NAME OF FILER'S CONTACT

Angela Calvillo

##### TELEPHONE NUMBER

415-554-5184

##### FULL DEPARTMENT NAME

office of the clerk of the Board

##### EMAIL

Board.of.Supervisors@sfgov.org

#### 4. CONTRACTING DEPARTMENT CONTACT

##### NAME OF DEPARTMENTAL CONTACT

Jaimie Chau

##### DEPARTMENT CONTACT TELEPHONE NUMBER

415-660-5387

##### FULL DEPARTMENT NAME

MTA Municipal Transportation Agency

##### DEPARTMENT CONTACT EMAIL

jaimie.chau@sfmta.com

5. CONTRACTOR	
<b>NAME OF CONTRACTOR</b> Aon Risk Insurance Services West, Inc.	<b>TELEPHONE NUMBER</b> 415-486-7000
<b>STREET ADDRESS (including City, State and Zip Code)</b> 425 Market Street, Suite 2800 San Francisco, CA 94105	<b>EMAIL</b>

6. CONTRACT		
<b>DATE CONTRACT WAS APPROVED BY THE CITY ELECTIVE OFFICER(S)</b>	<b>ORIGINAL BID/RFP NUMBER</b>	<b>FILE NUMBER (If applicable)</b> 201317
<b>DESCRIPTION OF AMOUNT OF CONTRACT</b> Not to Exceed: \$26,778,986		
<b>NATURE OF THE CONTRACT (Please describe)</b> Amendment No. 5 to Contract CS-163-1 with Aon Risk Insurance Services West, Inc., to increase the contract amount by an amount not to exceed \$1,684,550, for additional premium charges due to increased construction time and contract costs, for a total contract amount not to exceed \$26,778,986.		

7. COMMENTS

8. CONTRACT APPROVAL	
This contract was approved by:	
<input type="checkbox"/>	THE CITY ELECTIVE OFFICER(S) IDENTIFIED ON THIS FORM
<input checked="" type="checkbox"/>	A BOARD ON WHICH THE CITY ELECTIVE OFFICER(S) SERVES Board of Supervisors
<input type="checkbox"/>	THE BOARD OF A STATE AGENCY ON WHICH AN APPOINTEE OF THE CITY ELECTIVE OFFICER(S) IDENTIFIED ON THIS FORM SITS

**9. AFFILIATES AND SUBCONTRACTORS**

List the names of (A) members of the contractor's board of directors; (B) the contractor's principal officers, including chief executive officer, chief financial officer, chief operating officer, or other persons with similar titles; (C) any individual or entity who has an ownership interest of 10 percent or more in the contractor; and (D) any subcontractor listed in the bid or contract.

#	LAST NAME/ENTITY/SUBCONTRACTOR	FIRST NAME	TYPE
1	Knight	Lester	Board of Directors
2	Case	Greg	Board of Directors
3	Cai	Jin-Yong	Board of Directors
4	Campbell	Jeffrey	Board of Directors
5	Conti	Fulvio	Board of Directors
6	Francis	Cheryl	Board of Directors
7	Losh	J. Michael	Board of Directors
8	Myers	Richard	Board of Directors
9	Notebaert	Richard	Board of Directors
10	Santona	Gloria	Board of Directors
11	Woo	Carolyn	Board of Directors
12	Case	Greg	CEO
13	Davies	Christa	CFO
14	Bruno	John	COO
15			
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**9. AFFILIATES AND SUBCONTRACTORS**

List the names of (A) members of the contractor's board of directors; (B) the contractor's principal officers, including chief executive officer, chief financial officer, chief operating officer, or other persons with similar titles; (C) any individual or entity who has an ownership interest of 10 percent or more in the contractor; and (D) any subcontractor listed in the bid or contract.

#	LAST NAME/ENTITY/SUBCONTRACTOR	FIRST NAME	TYPE
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**9. AFFILIATES AND SUBCONTRACTORS**

List the names of (A) members of the contractor's board of directors; (B) the contractor's principal officers, including chief executive officer, chief financial officer, chief operating officer, or other persons with similar titles; (C) any individual or entity who has an ownership interest of 10 percent or more in the contractor; and (D) any subcontractor listed in the bid or contract.

#	LAST NAME/ENTITY/SUBCONTRACTOR	FIRST NAME	TYPE
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☐ Check this box if you need to include additional names. Please submit a separate form with complete information. Select "Supplemental" for filing type.

**10. VERIFICATION**

I have used all reasonable diligence in preparing this statement. I have reviewed this statement and to the best of my knowledge the information I have provided here is true and complete.

**I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct.**

**SIGNATURE OF CITY ELECTIVE OFFICER OR BOARD SECRETARY OR CLERK**

**DATE SIGNED**

BOS Clerk of the Board